



NAFAPA 2012

Creating Opportunities · Changing Expectations

October 11-13, 2012

Conference Program Guide Birmingham, Alabama



The North American Federation of Adapted Physical Activity (NAFAPA) is the North American branch of the International Federation of Adapted Physical Activity (IFAPA). It is an international organization dedicated to the promotion, dissemination and practical application of results and findings in the field of physical activity for the benefit of populations with disabilities and/or special needs. NAFAPA has a coordinating function with international, national and regional organizations, both governmental and non-governmental, which are concerned with the scientific aspects of adapted physical activity, physical education, rehabilitation therapy, recreation, sport and leisure activities for persons with disabilities or special needs.



Welcome

to NAFAPA's 11th biennial Conference



On behalf of past President Jeff McCubbin, President Elect Vivienne Temple, and the entire NAFAPA Board, it is my pleasure to welcome you to the 11th biennial NAFAPA Conference in Birmingham, Alabama.

Birmingham was born out of iron and steel. Remnants of these early beginnings are preserved in places, such as Sloss Furnace National Historic Landmark and Vulcan Park, home of the world's largest cast iron statue. Birmingham's legendary iron and steel mills were gradually replaced by a work force of medical and engineering professionals. The city is also well-known for its prominent role in the Civil Rights Movement of the 1960s. A visit to the Civil Rights Institute provides a unique perspective to the mid-century movement.

Diversity, much like NAFAPA, is Birmingham's greatest strength and strongest appeal. Visitors can experience a variety of entertainment, history, cuisine, art, nightlife, and the great outdoors that keeps them coming back time and again. Visitors with an appetite for live music will find that it is the city's signature entertainment, as Birmingham is home to "the Oscars of dining" with James Beard Foundation Award winners and nominees. I am confident you will fall in love with this great Southern city.

I extend my gratitude to the local planning committee, Lakeshore Foundation, and its leaders who are serving as our hosts. Please make a special effort to thank all of those who have worked so hard to make this an exciting conference.

As the President of NAFAPA, I am pleased to join you in this wonderful event. I trust the time you spend attending this conference will open your mind to new possibilities and enrich you, both personally and professionally. Take this time to visit with colleagues, ask questions of presenters, enjoy the area and meet new people who share your same passions.

Best wishes for a memorable conference as we continue *Creating Opportunities* and *Changing Expectations*.

John Foley
NAFAPA President

A Word From Our Conference Chair



I am thrilled to welcome so many friends and colleagues here to Alabama and Lakeshore Foundation for an exciting NAFAPA 2012! The program is filled with a wide variety of scientific research and practical application presentations, dynamic building sessions, along with outstanding keynote and guest lectures. We have worked diligently to plan and organize sessions that feature national and international educators, practitioners, and researchers who will discuss current topics and findings in the areas of adapted physical activity and education, exercise and rehabilitation, and disability sport.

Be on the look out for several international guests this year – members of the International Federation of Adapted Physical Activity (IFAPA) Board of Directors. The IFAPA Board held their annual business meetings at Lakeshore Foundation for two days prior to the conference and several will be giving presentations during the conference. We are happy to have the IFAPA Board along with a number of additional international guests - please make them feel at home with a warm NAFAPA welcome.

“After hours” please take time to explore the quaint downtown of Homewood, which surrounds our conference venue...and don’t miss the tour and social at Lakeshore Foundation to see and experience the amazing place where I am so fortunate to work. As we are in final preparations for what I hope you find to be a stimulating and thought-provoking conference I want to express a huge heartfelt thanks to my truly wonderful NAFAPA 2012 planning team – Joel Brasher, Kelsey Stamps, Lori Theriot, and Fred Gilbert – each of you is amazing, thank you!!

Creating Opportunities - Changing Expectations

Warm wishes,

Laurie A. Malone
Chair, Conference and Scientific Committee
NAFAPA 2012





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General Information

Registration & Information Table

Rosewood Hall - South end of the foyer.

Badge Information

Your name badge is attached to a Lakeshore Foundation lanyard that contains a USB memory stick. This USB contains the conference program guide, which includes full abstracts for each NAFAPA 2012 presentation. For admission to sessions and participation in the Lakeshore Foundation tour, attendees must wear their name badges.

Purple Shirts

If you need assistance at any time during the conference, look for a volunteer wearing a **purple** shirt.

Speaker Ready Room

Speakers are asked to upload their PowerPoint file to the conference presentation system at least 4 hours prior to their session. We will not be able to accommodate speakers using their own laptops for presentation.

Rosewood Hall - See venue map

Time Keepers

Time keepers will be in each presentation room to ensure that speakers stay within their allotted time. Given the large number of presentations and tight schedule, please plan accordingly and be considerate of your fellow presenters.

Poster Sessions

Please be sure that your poster is up by 7:30 am and taken down at 6:00 pm.

Breakfast & Snack Breaks

Breakfast and snack break refreshments are included in the participant registration fee. Continental breakfast will be provided from 8:00-8:30 am each morning. Snack breaks will occur in the afternoon and consist of various grab-and-go items.

Wireless Internet

Free wireless internet access is provided in Rosewood Hall.

Lakeshore Foundation Tour & Social (12 - Oct - 12)

Buses will depart from the front of Rosewood Hall at 3:10 pm. The return buses will depart Lakeshore Foundation beginning at 6:15 pm.

First Aid, Lost & Found

Same as the information table.

Area Dining

A map of restaurants within walking and close driving distance of Rosewood Hall is provided in the conference program.

Parking

Parking for Rosewood Hall is located behind and underneath the building.

*For travel and lodging information visit www.nafapa.org

Oral Presentations: Thursday, October 11th



ORAL PRESENTATIONS: THURSDAY, OCTOBER 11TH

Time	Room A	Room B	Room C	Room D	Foyer
7:30-8:00					Authors
8:00-8:30	Breakfast at Rosewood Hall (Foyer)				by Posters
8:30-9:00	Welcome Conference Chair - Laurie Malone, Conference Director - Joel Brasher, Lakeshore Foundation President - Jeff Underwood, Mayor Scott McBrayer, NAFAPA President - John Foley				Poster Session A
9:00-9:45	Dr. James H. Rimmer - <i>Adapted Physical Activity at the Intersection of a Global Health Promotion Agenda to Meet the Needs of an Underserved and Marginalized Population of People with Disabilities</i>				
9:45-10:00	Room Transition				
10:00-10:20	'Adapt It-Sport' – Making Sport Equipment Accessible...On a Limited Budget S. Healy	Effects of 'Everyone Can' Program on the Development of Students with Intellectual Disabilities M. Öztürk	Experiences of Disability Simulations in a Post-Secondary Course J. Leo	Moving Beyond Traditional Exercise Therapy in SCI Rehabilitation T. Arora	
10:25-10:45		Social Goals, Beliefs and Intentions of Students in Inclusive Physical Education S. Dillon	Goal Perspectives and Sport Participation Motivation of Special Olympians and Typically Developing Athletes Y. Hutzler	Functional Electrical Stimulation Rowing for Persons with SCI and Other Neurological Disorders G. Wheeler	
10:50-11:10	Dartfish as a Motion Analysis Tool for Adaptive Sport J. Rehm	Effects of an In-Service Workshop on the Self-Efficacy of General Physical Education Teachers N. Harris	Do Motor Learning Disabilities Exist? Movement Skill Acquisition among Children with LD and DCD C. Zimmer	New Strength and Conditioning Certification for Exercise Professionals Working with Special Populations J. McCarthy	
11:15-11:35	Considerations Pertaining to Wheelchair Configuration Specific to Seating Bucket, Strapping, Sport Specificity, and Technological Advancements L. Hilborn	Teachers Views of Participation of Students with Physical Disabilities in Inclusive Physical Education in the Czech Republic M. Kudlacek	Exercise Behaviors of Youth with Intellectual Disability Under Two Conditions in a Community Program H. Stanish	Evaluation of the Strength and Endurance of Shoulder Muscle and Glenohumeral Joint Laxity in Physically Disabled Athletes A. Demirel	
11:35-1:00	Lunch				
1:00-1:50	Mary Allison Milford - <i>From Participant to Programmer: A Paralympian's Journey Through Adaptive Sports</i>				
1:50-2:05	Room Transition				

NAFAPA 2012 Schedule Key

- Keynote or Guest Speaker
- Building Session
- Scientific Research
- Practical Application
- Graduate Student Proposal
- Poster Presentation

*Presenting author(s) are listed





Oral Presentations: Thursday, October 11th

ORAL PRESENTATIONS: THURSDAY, OCTOBER 11TH

Time	Room A	Room B	Room C	Room D	Foyer
2:05-2:25	Using Technology to Enhance Supervision in Adapted Physical Activity L. Kelly	Impact of Physical Activity on Work: Themes Examined by Gender L. Vogtle	A Phenomenological Exploration of Women's Experiences of Walking with a Cane C. Edwards	Understanding the Mechanism of Physical Activity Behavior in Inclusive Physical Education: A Multilevel Analysis J. Jin	
2:30-2:50		Piloting a Physical Activity Centered Education (PACE) Program for Adults with a Brain Injury S. Driver	Exploring the 'Dignified' and 'Undignified' Self within Exercise Contexts for People with Impairments K. Johnston	Inclusion Pedagogy: The Key to Equipping Physical Educators to Meet the Needs of All Learners A. Taliaferro & T. Moran	
2:55-3:15	Development of a Physical Activity Monitoring and Sharing Platform for Manual Wheelchair Users D. Ding	Effects of Aquatic Exercise on Affect for Adults with Stroke G-Y. Hwang & S. Driver	How Do Older Adults with Age-Related Macular Degeneration Develop Physical Activity Self-Efficacy? B. Barstow	Assessing Teacher Effectiveness in Inclusive and Adapted Physical Education: Epistemological and Methodological Perspectives S-Y. Kim	
3:20-3:40	Neuromuscular Electrical Stimulation Induced Torque Production and Fatigue in People with and without SCI S. Bickel	Injury Profiles and Training of the Senior Olympic Athlete: A Pilot Study R. St. Martin, M. Bamman, & L. Olenik Dorman	Sport in the Life of a Person with a Disability C. Vermaak	Competencies of GPE and APE Teachers for Inclusive Physical Education: European Initiatives M. Kudlacek	
3:40-4:00	Afternoon Break (Foyer)				Authors by Posters
4:00-4:20		Do Cycling Skills Learned at Camp Generalize to Home? A. Witter	Physical Activity in the Lives of People with Down Syndrome A. Love & S. Agiovlasis	Ensuring Best Practices in Physical Activity, Recreation, and Sport for Persons with Physical Disability D. Humphreys	
4:25-4:45		Enhancing the Effects of Physical Activity and Exercise with Music M. Ford, S. Phillips, M. Hasse, M. M. Scalici, & D. Blair	Supporting Active Families in a Friendly Environment T. Todd	Parental Satisfaction of Physical Activity Among Down Syndrome and Autism Spectrum Disorders: Structural Equation Model E. A. Pitchford	Strength and Conditioning for the Athlete with a Disability: Pushing Athletes to the Limit H. Pennington
4:50-5:10		Systematic Framework to Evaluate the Status of Health Promotion Research for Persons with Disabilities A. Dixon-Ibarra	Delays in Motor Abilities in Young Children with Autism Spectrum Disorder (ASD) L. Ketcheson	Resistance Training Recommendations for Individuals with Intellectual and Physical Disabilities J. P. Barfield	
5:15-5:35		Factors Influencing Continued Bicycle Riding in Youth with Disabilities: A Validation Model J. Hauck	Towards Person-Level Research in Adapted Physical Activity M. Bouffard	Effects of Therapy Dog-Assisted Exercise on On-Task Behavior of Children with Autism Spectrum Disorders I. Obrusnikova	Living Life in Motion: Exposing Injured Service Members to Disability Sport and Recreation M. Goff
5:40-6:00		Tips and Techniques on Learning to Ride Conventional Bicycles for Individuals with Disabilities S. Colantonio	Impact of an Inclusive Physical Activity Program on Attitudes of Non-Disabled Children towards Children with Disabilities C. Boursier	Establishing the Minimum Number of PA Monitoring Days and Hours Needed in Youth with Autism Spectrum Disorders I. Jeong	Developing a Holistic Approach to Working with Wounded Warriors A. Moffett & M. Campbell

Oral Presentations: Friday, October 12th



ORAL PRESENTATIONS: FRIDAY, OCTOBER 12TH

Time	Room A	Room B	Room C	Room D	Foyer	
8:00-8:30	Breakfast at Rosewood Hall (Foyer)				No Posters Today	
8:30-9:20	Dr. Vicky Goosey-Tolfrey - <i>The Journey to London and Beyond: Research Strategies and Future Priorities</i>					
9:20-9:35	Room Transition					
9:35-9:55	Critical Factors That Will Determine if APA Can Survive as a PhD Program Sub-Discipline in Kinesiology D. Ulrich & J. McCubbin	Tracking Movement Skill Trajectories among Children with Autism Spectrum Disorders K. Staples	The Ability First Youth Sports Camp J. Taylor	Measuring and Identifying the Presence of Positive Illusory Bias in Children with Attention-Deficit/Hyperactivity Disorder J. Bishop		
10:00-10:20		‘Happy and a Bit Nervous’ Students with Autistic Disorder: Their Perspective of Inclusive Physical Education S. Healy	Player Perceptions of VI Tennis: A Vibrotactile/ Audio Exergame for Children with a Visual Impairment J. Foley	Choosing Movement Assessments for Children with Developmental Disorders C. Zimmer		
10:25-10:45		Motor and Social Development: Differences between Children with and without Autism? M. Irwin	Paraeducator Training Needs for Children with Visual Impairments in Physical Education L. Lieberman	Including Parents of Children with Disabilities into Physical Education Programs: From the Theory to Practice L. Columna		
10:50-11:10		Identifying Professional Best Practices in Physical Activity, Exercise and Rehabilitation: Hidden Treasures in Collaboration G. Babcock	Using Music in Gross Motor Settings for Young Children with Autism Spectrum Disorders S. Titus Dieringer	Performance of the Peer Tutor of a Student with Visual Impairments in Regular Physical Education Classes M. Godoy		Effects of a Physical Activity and Sports Program on Young People with Cerebral Palsy M. Dinold
11:15-11:35		Applying the Achievement-Based Curriculum Model to Adapted Physical Education L. Kelly	Inclusion: Identifying Evidence-Based Practices for Teaching Individuals with Asperger Syndrome Z. McClain	Still Missing: Images of Disability in Sports Illustrated for Kids M. Stran		The Paralympic University Tournament as an Extra-Curricular Alternative for Physical Education Students L. Peña
11:35-1:00		Lunch				
1:00-1:50	Sgt. Noah Galloway - <i>Train Like a Machine</i>					
1:50-2:00	Jeff Underwood - President of Lakeshore Foundation					
2:00-3:10	NAFAPA Business Meeting					
3:10	Depart Rosewood Hall for Lakeshore Foundation					
3:30-5:00	Guided Tour of Lakeshore Foundation Facility					
5:00-6:30	NAFAPA Social at Lakeshore Foundation Cottages					



OUR CAMPERS ARE HEROES



Oral Presentations: Saturday, October 13th

ORAL PRESENTATIONS: SATURDAY, OCTOBER 13TH

Time	Room A	Room B	Room C	Room D	Foyer
7:30-8:00					Authors by Posters
8:00-8:30	Breakfast at Rosewood Hall (Foyer)				
8:30-9:20	<i>Eli Wolff - Next Generation Disability in Sport -- Finding Our Voice and Expecting Inclusion and Equality</i>				Poster Session B
9:20-9:35	Room Transition				
9:35-9:55	Growing Pains: Four Issues in Adapted Physical Activity T. Rizzo & M. Bouffard	Some is Good. More is Better. Avoid Inactivity: Physical Activity Guidelines for Persons with Disabilities R. Cowan	Prevalence of Overweight and Obesity among Adult Special Olympics Participants 2005–2010 V. Temple	Changing Perceptions Through International Adapted Physical Education in the Middle East R. Lytle	
10:00-10:20		People in Motion. More Places. More Often. A Community Exercise Transition Model B-J. Atchison	Teaching a Line Dance to Adolescents with Autism Spectrum Disorders Using Video Prompting M. Gies	Review of Research Literature in Adapted Physical Education in Russia O. Sinelnikov	
10:25-10:45		The Long Term Athlete Development Model and the Child Experiencing Disability: A Community Based Adapted Physical Activity Approach K. Slater & K. Van Dornick	Assisted Cycle Therapy (ACT) Improves Manual Dexterity in Adolescents with Down Syndrome S. Ringenbach	Validation of a Psychosocial Model to Predict Physical Activity Participation in Adults with Physical Disabilities in Korea J. Park	
10:50-11:10		Overcoming Barriers to Community-Based Participation Through the Empowerment Model A. Taliaferro	Improved Cognitive Functions but Not Motor Control Outcomes Following Treadmill Walking in Persons with Down Syndrome C-C. Chen	Development of Adapted Physical Activity in Turkey D. Özer & M. Öztürk	
11:15-11:35		Communities in Crisis: Protecting the Vulnerable After a Disaster A. Kirk & V. Diriker	Measuring Physical Activity in Youth with Down Syndrome P. Esposito	The Progress of Adapted Physical Activity in Angola in the Last Decade and Its Impact on Rectification of United Nations Convention for People with Disabilities A. Gomes	
11:35-1:00	Lunch				
1:00-1:50	Bob Lujano - No Arms, No Legs, No Problem				
1:50-2:05	Room Transition				



Oral Presentations: Saturday, October 13th



ORAL PRESENTATIONS: SATURDAY, OCTOBER 13TH

Time	Room A	Room B	Room C	Room D	Foyer
2:05-2:25	Erasmus Mundus Master in Adapted Physical Activity: Program II (2010–2015) D. Daly	Making Your Research Meaningful L. Lieberman	The Effects of Aquatic Exercise on Static and Dynamic Balance in Children with Cerebral Palsy J. O'Connor	A Lifestyle Approach to Adapted Physical Activity J. Pennington	Poster Session B
2:30-2:50		The Turn to Narrative: Bringing the Researcher's Life to the Field K. J. Yi	Reliably Measuring Ambulatory Activity Levels of Children and Youth with Cerebral Palsy S. Ishikawa	Express Yourself - Exercise Everything - Mind, Body, and Spirit E. Vander Kamp	
2:55-3:15	Physical Activity and Children with Disabilities: A Lack of Awareness, Support, or a Missed Opportunity? M. Johnson	I Have A Great Program... Now How Do I Get It Funded!?! V. Diriker & A. Kirk	Designing University Challenge Course Programs and Facilities to Enhance Universality in Physical Education M. Maurer, A. Livelsberger, & E. Asola	An Ecological Approach to Facilitating Physical Activity Participation for Individuals with Disabilities S. Y. Park	
3:20-3:40		Preparing Submissions to the <i>Adapted Physical Activity Quarterly</i> : Tips and Strategies M. Bouffard	A 20-Year Follow-Up of Physical Activity in Children with and without Movement Difficulties E. Bremer	Stereotypic Behaviors: Reducing Automatically Reinforced Behavior in Physical Activity Settings J. Lee	
3:40-4:00	Afternoon Break (Foyer)				Authors by Posters
4:00-4:20	Nintendo's Wii Fit, an Alternative Training Method for Children with Movement and Balance Problems S. Krasniuk & J. Taylor	Does Physical Activity Play a Role in School Readiness for Young Children with or at Risk for Reactive Attachment Disorder? A. Tepfer	The Effects of Aquatic Treadmill and Overground Treadmill Exercise on Blood Pressure in People Post-Stroke B. Lai	Understanding Movement Patterns Using Different Hand Positions During Sitting Volleyball K. Singhal	Poster Session B
4:25-4:45		Factors Influencing Physical Education Teachers' Behaviors for Including Students with Autism J. Morgan	Robotic Devices Provides Assistive Forces that Allow Decreased Force Generation and Faster Walking Speeds for Stroke Survivors C. Capo-Lugo	The Validity of Physical Fitness Tests for Seated Shot Put Athletes S. Ferreira	
4:50-5:10		Back to Basics: Exploring Gestural Habits as Cues for Anticipating Self-Injurious Episodes in a Child with Autism and Deafness L. B. Brown & A. Hardman	Needs Assessment to Develop a Physical Activity Health Promotion Program for Adults with Spina Bifida K. Vanderbom	Exploring Social Relationships and Children with Disabilities' Motivation to Participate in Sledge Hockey K. Wynnyk	
5:15-5:35	A Technique for Implementing an Adaptive Sports Program at the Post-Secondary Level J. Rehm	The Physical Fitness of School-Aged Children with Autism K. Tyler	Adapted Sport and Recreation for Injured Service Members: Preliminary Evaluation on Physical and Emotional Well-Being L. Dreer & L. Malone	Perceived Quality of Life among Youth Athletes with Physical Disabilities A. Moffett & R. Luketic	
5:40-6:00	14 Points or Die! Coaching, Classification and Chaos S. Douglas	A Comprehensive Literature Review: Adapted Physical Education and Related Disciplines, in Neurological Development and Reading L. Kline	Impact of a Physical Activity Centered Education Program on People with a Mobility Disability J. Pawlowski	Service Quality at a U.S. Paralympic Training Site: Lakeshore Foundation's Environmental Attributes J. Pate	



Poster Presentations: Thursday, October 11th

P01 - Gait Characteristics of Adults with Down Syndrome Explain their Greater Metabolic Rate During Walking

S. Agiovlasis

P02 - Effect of Equine Assisted Therapy on Gait for an Individual with a Spinal Cord Injury **K. Gilliland**

P03 - Effects of Restricted Ankle Range of Motion on Human Walking: An Application to Transtibial Amputee Gait Patterns **S. Silverman**

P04 - Validation and Testing of a Wheel Rotation Datalogger for Quantifying Activity in Manual Wheelchair Users

S. Hiremath

P05 - Age-Related Differences in the Maintenance of Frontal Plane Dynamic Stability While Stepping to Targets

C. Hurt

P06 - Intact Foot-Force Direction Regulation During Locomotor Control When Postural Influence is Removed with Individuals Post-Stroke **J. Liang**

P07 - BMI of Adolescents with Intellectual Disabilities: A Global Comparison **M. Lloyd**

P08 - Effects of a 4-Week Pilot Balance Exercise and Education Workshop in Persons with Physical Disabilities

C. Russell

P09 - Physical Activity Health Education Program for Individuals with Multiple Sclerosis **K. Vanderbom**

P10 - The Influence of Age on Exercise Fear-Avoidance Beliefs **B. Wingo**

P11 - The Effects of Acute Moderate Exercise on Accuracy of Target-Directed Locomotion in Individuals with and without Intellectual Disabilities **H-J. Chun**

P12 - Development of Assessment Scale of Health-Related Physical Fitness for People with Visual Impairment

M-K. Han

P13 - Parental Support of Physical Activity for their Children with Disabilities **M. Jeong**

P14 - Development of a Scale Measuring Belief to Predict Intention toward Physical Activity Participation in Individuals with Physical Disabilities **H. Lee**

P15 - Influence of Title Sponsorship in Disabled Sports Upon Corporate Image and Customer Loyalty

D-H. Kim & H-K. Oh

P16 - Predictors of Physical Activity among European and American Hearing Impaired Children **J. Martin**

P17 - The Role of Motor Skills in the Physical Activity Behaviors of Children with Autism **J. Morgan**

P18 - Motivation to Engage in Physical Activity in Mexican Individuals with Disabilities **O. Nuñez-Enriquez**

P19 - Diversity and Intensity of Activity Participation by Youth with Down Syndrome **E. A. Pitchford**

P20 - Promoting Fitness and Health for Individuals with Disabilities Resources for Professionals, Family Caregivers and Consumers **J. Roy, B. Geiger, & M. O'Neal**

P21 - Wheelchair Tennis: Starting a Program in Your Community **J. Roy & J. Peabody**

P22 - Adapted Dance: Findings from a Dance Program for Individuals with Down Syndrome **K. Stanton-Nichols**

P23 - Traumatic Brain Injury and Obesity: What We Don't Know **L. Vogtle**

P24 - The Effects of Adapted Aquatics on Aquatics Skills In Children with Autism **L. Summers**

P25 - Sport for Peace: A Successful Curriculum Model for Children on the Spectrum? **M. Alexander**

P26 - Cross Cultural Perspectives on Adapted Physical Education Teacher Standards **T. Davis**

P27 - Challenging Expectations: Using Disability Studies Infusion to Enhance Disability Awareness and Attitudes

M. Lepore

P28 - Effects of Two Reinforcers on Performance of PACER Test for Children with Intellectual Disabilities **J. Kim**

P29 - Asian Parents' Perspectives toward Adapted Physical Education **E. H. Kwon**

P30 - The Effects of External Routine on the Backhand Service Performance among Intellectual Disability Badminton Players **J-W. Lee**

P31 - Evidence-Based Practice: A Quality Indicator Analysis of Peer-Tutoring in Adapted Physical Education

C. MacDonald

P32 - University Students' Experiences During Adapted Physical Education Class and Level of Using Family-Provided Information **M. Öztürk**

P33 - The Analysis of Problems of Korean Inclusive Physical Education System **S. Park**

P34 - Determination of Contributing Factors and the Priority for the Successful Inclusive Physical Education

S. Park

P35 - Teaching Students with Disabilities in Physical Education Class - A 10 Year Perspective **C. Ryan**

P36 - Sources of Knowledge of Russian Adapted Physical Education Students **O. Sinelnikov**

P37 - Hungarian vs. US Pre-Service Physical Educators' Self-Efficacy towards Including Children with Disabilities in General Physical Education **I. Strehli**

P38 - Development and Validation of the Physical Education Teachers' Attitude toward Teaching Students with Intellectual Disabilities Scale (PETATSID) **B. Süngü**

P39 - Exploring Pre-Service Physical Educators' Self-Efficacy Beliefs toward Inclusion **A. Taliaferro**

P40 - Kindergarten Children's Fundamental Motor Skills: Associations with Prematurity and Disability **V. Temple**

P41 - Infusing Disability Examples Into a Motor Learning Course for PETE Majors **M. Zanandrea**

P42 - Factors Affecting the Development of APE Classes in Children with Disabilities **G. Bataglion**

P43 - Social Development of a Child with Disabilities Engaged During Three Years in Extracurricular Program of Adapted Motor Activity **A. Zuchetto**



Poster Presentations: Saturday, October 13th

P44 - Moving from External to Internal Exercise Motivations: The Role of Disability Sport

J. P. Barfield

P45 - Field Test Prediction of Performance in Paralympic Athletes: Evaluation of the USOC Combine **J. P. Barfield**

P46 - Anxiety Levels in the Brazilian Athletes of Wheelchair Dance Sport **E. Ferreira**

P47 - Physiological Factors Associated with Marathon Performance in Runners with Visual Impairment and Blindness **T. Fukushima**

P48 - Adapted Sport Programs in Angola **A. Gomes**

P49 - Characteristics of Physical Fitness of Elite Players with Disabilities **M-K. Han**

P50 - Hand-Eye Coordination and Reaction Time in Collegiate Able-Bodied and Collegiate Wheelchair Basketball Players **M. Mindel**

P51 - Camp Abilities Brockport **T. Mitrakos**

P52 - Thermal Aquatic Massage **S. Cook**

P53 - Most Relevant Injuries on Brazilian Wheelchair Rugby National Team Athletes **M. Fernandes, M. Araújo, & G. Mayr**

P54 - Study of Body Temperature in Athletes with Incomplete Spinal Cord Injury Practitioners From Wheelchair Rugby **M. Fernandes, M. Araújo, & G. Mayr**

P55 - Comparison of Online and Offline Learning of a Step-Up Task in Stroke Survivors **R. Lopez-Rosado**

P56 - Muscle Performance Adaptations with Concurrent Resistance and Aerobic Training in Older Women **J. McCarthy**

P57 - Eight Weeks Functional Training Improves Muscle Endurance, Balance, Power, and Speed in Athletes with Disabilities **H. Pennington**

P58 - Feasibility of a Clinical Test to Identify Vestibular Hypofunction in Children with Sensorineural Hearing Loss **J. Braswell Christy**

P59 - Assessing Reliability of Graduate Students Rating Physical Performance Outcome Measures in People with Movement Disorders **S. Silverman**

P60 - Systematic Review of Methodological Quality and Outcome Measures in Exercise Interventions for Adults with SCI **S. Silverman**

P61 - Ai Chi - An Aquatic Therapy Practice that Restores a Sense of Health and Vitality **E. Vander Kamp**

P62 - Climbing Wall Adaptations and Benefits for Individuals with Physical Disabilities **K. Bonner**

P63 - The Influence of Parent/Caregiver Physical Activity Levels on the Physical Activity Levels of Children/Adults with Disabilities **D. Lorenzi**

P64 - The Effectiveness of Swimming for Breaking the Vicious Cycle of Deconditioning in Cerebral Palsy **D. Daly**

P65 - The Physical Activity Levels of Special Olympic Athletes Golfing Nine-Holes **J. Foley**

P66 - The Development of the Access to Worksite Wellness Survey for Employees with Disabilities (AWWSED) **J. Foley**

P67 - Influence of Specific Reinforcement Techniques on Traverse Climbing Wall Performance of Children with Autism **D. Jackson**

P68 - The Determinants of Exercise Participation among People with Disabilities in South Korea: A Multilevel Modeling Approach **Y. Kim**

P69 - Maslul - A Unique Therapeutic Sports Center for Children **U. Lahav**

P70 - Family Training - A Much-Needed Time-Out for Parents and Children **U. Lahav**

P71 - Effects of Combined Exercise on the FPD of an Individual with Cerebral Palsy **B. Lee**

P72 - ACES: Active Children Exercise and Swim; "Play with a Purpose" **E. Mallard**

P73 - State-Wide Survey of Physical Activity Participation by Individuals with Autism Spectrum Disorders **K. Menear**

P74 - State-Wide Survey of Physical Activity Professionals Working with Individuals with Autism Spectrum Disorders **K. Menear**

P75 - Riding Therapy for Children with Cerebral Palsy: A Case Study **M. Godoy**

P76 - Evaluating Wellcat Fit: A Peer-Assisted Physical Activity Program for College Students with Depression **G. Rieck**

P77 - Outdoor Camping Experience for Children with Physical Disabilities: A Win/Win Service Learning Experience **C. Smith**

P78 - Inclusion Training Intervention for Afterschool Program Staff **J. Taylor**

P79 - The Motor Skills of Young Children with Autism: Standardized Assessments and Natural Setting Observations **A. Tepfer**

P80 - Preferences of Injured Service Members: Delivery of Adapted Recreation Programs with Supplementary Health-Related Information **L. Malone & L. Dreer**

P81 - Physical Activity Interventions in Adult Populations with Disabilities **C. Cervantes**

P82 - Dispositions of People with Pervasive Development Disorders in the Context of Adapted Motor Activity: Longitudinal Study **A. Zuchetto**

P83 - Relation Between BMI and Motor Performance of Children with Disabilities **A. Zuchetto**

P84 - The Influence of Self-Efficacy and Team-Efficacy on Wheelchair Basketball Players' Performance **D-H. Kim**

NAFAPA 2012 Keynote Speakers

Friday 8:30-9:20 am

The Journey to London and Beyond: Research Strategies and Future Priorities



Dr. Vicky Tolfrey is the Director of the Peter Harrison Centre for Disability Sport at Loughborough University in the UK where she lectures in Exercise Physiology and is a Reader in Applied Disability Sport. She is British Association of Sport and Exercise Sciences (BASES) Accredited and has provided applied sport science support to Paralympic athletes since 1994. She attended and supported athletes at the Atlanta 1996, Sydney 2000, and London 2012 Paralympic Games. Additionally she supported athletes at the Cyprus holding camp for Athens 2004 and at the Far East holding camp for Beijing 2008. She has an extensive publication record and is the editor of the 'Wheelchair Sport' book published by Human Kinetics. She acts as a sport science consultant for the Great Britain Wheelchair Basketball Association, UK Sport and the British Paralympic Association. In 2005, Vicky was awarded the BASES Award for Good Practice in Applied Sport Science.

Saturday 8:30-9:20 am

Next Generation Disability in Sport -- Finding Our Voice and Expecting Inclusion and Equality



Eli A. Wolff is the program director of the Sport and Development Project at Brown University, which aims to advance the growing field of sport and social change. The project works with academic and community partners to better understand how sport can be utilized to improve the human condition on a local and global scale. Eli also serves as the director of the Inclusive Sports Initiative for the Institute for Human Centered Design, and the director of SportsCorps for the Fitzgerald Youth Sports Institute. From 2001 to 2010, Eli was the manager of research and advocacy at the Center for Sport in Society at Northeastern University. From 2004 to 2006, Eli led a global effort to include provisions addressing sport and recreation within the United Nations Convention on the Rights of Persons with Disabilities. Eli was the recipient of the inaugural 2001 Nike Casey Martin Award honoring people with disabilities who have made a difference in sports. In 2009, he received the Heroes Among Us recognition from the Boston Celtics. In 2011, Eli was inducted into the Hall of Fame of the New England Wheelchair Athletic Association. Eli was a member of the United States Paralympic Soccer Team in the 1996 and 2004 Paralympic Games. Eli is a graduate of Brown University, where he was a student-athlete.



NAFAPA 2012 Guest Speakers



Thursday 1:00-1:50 pm

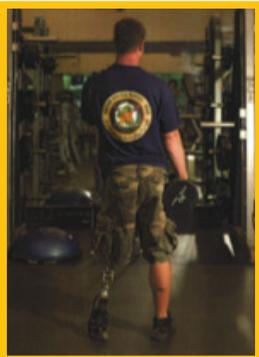
From Participant to Programmer: A Paralympian's Journey Through Adaptive Sports



Mary Allison Milford was introduced to the world of adaptive sports at the age of four and was immediately hooked. She grew up playing every sport imaginable but found her true passion on the hardwood. Milford's dedication and passion for wheelchair basketball earned her a scholarship to The University of Alabama, a spot on the U.S. women's team, and ultimately a gold medal at the 2008 Beijing Paralympics. Now Milford's journey has come full circle as she works at Lakeshore Foundation as a Recreation Specialist, organizing and implementing recreation programs for youth and coaching wheelchair basketball.

Train Like a Machine

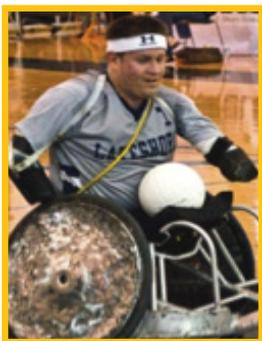
Friday 1:00-1:50 pm



Sgt. Noah Galloway is an official spokesperson for Lakeshore Foundation's Lima Foxtrot Programs for injured military. In October 2001, he enlisted in the Army and was assigned to the 1st of the 502nd of the 101st Airborne Division of Fort Campbell, Kentucky. In 2003, as an infantry soldier and part of the few elite who served as a front line ground troop, Noah fought on the initial strike on Iraq and spent one year fighting in Operation Iraqi Freedom. In September 2005, Noah was redeployed to Iraq where he suffered a life changing injury. Noah has found that being physically active has been vital to both his physical and emotional recovery. Since 2006, Noah has been committed to helping his comrades return to living active lives.

No Arms, No Legs, No Problem

Saturday 1:00-1:50 pm



Bob Lujano served as a recreational specialist at Lakeshore Foundation for 13 years and can tell you a thing or two about recreational and athletic programs for youth, adults and military veterans with various physical disabilities. Bob has received numerous medals as a member of Wheelchair Rugby teams including a bronze medal at the 2004 Paralympic Games, a silver medal at the World Championships in 2002, and a gold medal at the World Wheelchair games in 1999. Bob is also a six time USQRA National Champion. You may recognize Bob from his co-feature in the Oscar nominated documentary Murderball, as well as his appearances on Larry

King Live and the Stephen A. Smith Show. Bob has coordinated various camps for children and adults while at the Lakeshore Foundation including Camp Strive, FRESH (Fitness, Recreation, Exercise, Sport, Health), and the Boccia program. Bob now serves as an Information Specialist for the National Center on Health Promotion, Physical Activity and Disability (www.nchpad.org) at Lakeshore Foundation. With 14 years of experience as a developer, instructor and participant, Bob will talk of his experience as a quadriplegic amputee, participating on the U.S. Rugby National Team and inspiring and motivating others with physical disabilities.



Planning Committee

- Laurie Malone Chair, Conference & Scientific Committee
- Joel Brasher Conference Director
- Kelsey Stamps Registration & Hospitality
- Lori Theriot Communications & Promotions
- Fred Gilbert Program & Scheduling

Scientific Committee

- J.P. Barfield Endicott College
- Scott Bickel University of Alabama at Birmingham
- Rachel Cowan University of Miami
- Ronald Davis Texas Women’s University
- Lisa Olenik Dorman Huntingdon College
- Scott Douglas University of Northern Colorado
- Laura Dreer University of Alabama at Birmingham
- Simon Driver Oregon State University
- Janice Causgrove Dunn University of Alberta
- Matthew P. Ford University of Alabama at Birmingham
- Donna Goodwin University of Alberta
- Brent Hardin The University of Alabama
- Alan Jung Samford University
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- Jeff Martin Wayne State University
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- Greg Reid McGill University
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- Deborah Shapiro Georgia State University
- Margaret Stran University of Alabama
- Jane Taylor Lakehead University
- Laura Vogtle University of Alabama at Birmingham
- Joonkoo Yun Oregon State University



Vision

To improve the lives of people with physical disability around the world.

Mission

To enable people with physical disability and chronic health conditions to lead healthy, active, and independent lifestyles through physical activity, sport, recreation and research.

Lakeshore's Programs

Fitness

- 6,000 square foot fitness center with cardio machines, strength training and free weights
- Group exercise room with more than 20 fitness classes per week personalized to the participants' level of ability
- Fieldhouse with Indoor 200-meter track & three hardwood-surface basketball courts

Aquatics

- 40-plus innovative aquatics classes that range from MS Aquatics to Ai Chi
- Aquatics Center with two heated pools
- Each pool has a zero grade entry level, steps, ladders, and a chairlift

Recreation

- 10-lane archery and marksmanship range • Rock climbing wall
- Weekly recreation programming • Adaptive hunting program

Athletics

- Goalball • Wheelchair basketball • Wheelchair rugby
- Swimming • Marksmanship • Wheelchair tennis • Track & Field

Operation Lima Foxtrot Programs for Injured Military

- Operation Night Vision • Operation Down Home
- Operation Alpha • Operation Rise & Conquer
- Operation Refocus • Introduction to Paralympic Sports Camp

Training Site

- The USOC designated Lakeshore Foundation as an official U.S. Olympic and Paralympic Training Site in 2003.



The Lakeshore Foundation/University of Alabama at Birmingham (UAB) Research Collaborative was established in October 2009 to create a world-class research program in rehabilitative science linking Lakeshore Foundation's extraordinary programs for people with physically disabling conditions with UAB's research expertise. The collaborative is thought to be the first of its kind between a major academic research university and an organization that serves persons with physical disabilities. Lakeshore is now home to two federally funded Centers, the National Center on Health, Physical Activity and Disability (NCHPAD) and the Rehabilitation Engineering Research Center on Exercise and Recreational Technologies for People with Disabilities. The research focus is on improving the health and wellness of youths, adults and seniors with disabilities through the medium of physical activity, technology and lifestyle health promotion.

For more information:

1-(205) 313-7400

www.lakeshore.org





NAFAPA 2012

Creating Opportunities · Changing Expectations

October 11-13, 2012

NAFAPA 2012

Abstracts



Keynote Speaker Abstracts

The Journey to London and Beyond: Research Strategies and Future Priorities

Friday
8:30-9:20 am

Vicky GOOSEY-TOLFREY

The Peter Harrison Centre for Disability Sport, School of Sport, Exercise and Health Sciences, Loughborough University, UK
v.l.tolfrey@lboro.ac.uk

Following the success of ParalympicsGB in Beijing 2008 (42 Gold, 29 Silver and 21 Bronze medals), there continues to be marked influx of coaches seeking to develop their knowledge of Paralympic sport for supporting the athletes journey towards London. Focusing on the wheelchair athlete, this presentation will describe how sport scientists have worked with coaches to help optimise training leading to London through applied support and evidence base practise – and using the concept of ‘Marginal Gains’. Once a physiological and technical profile has been established it is important to understand the sport and the implications for training. A major feature of our work has been to explore ‘Smart Training’ tools and to quantify training in a more simplistic fashion. Over the 4-year period since Beijing, the use of laboratory and field based testing methods have continued and heart rate (HR)/ rating of perceived exertion (RPE) methods have been re-examined. Moreover, with the increased interest in technologies and with Paralympic Sport stepping up a gear since Beijing, one of our projects has investigated wheelchair configurations and mobility performance of wheelchair games play. Notably, this programme of work with the GB wheelchair basketball and rugby athletes was conducted on an individual basis providing athletes with evidence-based practice to help inform their choice when purchasing sports wheelchairs for London 2012. To take things beyond London, then future technologies are needed to understand the on-court movements of wheelchair games play. Furthermore, whilst this ‘needs analysis’ has allowed the team to prioritise areas of support, data from wheelchair rugby leading in Beijing placed this sport at a ‘high risk’ with on-court core temperatures reaching almost 40°C. This theme of support will become a high priority on the research agenda for the Rio Cycle. It is difficult to appreciate the extent to which this work has had on overall performance, although we feel that the sport science knowledge and its application to coaching within each sport involved has improved. Knowledge transfer and the sharing of best practice will become an important aspect of the research agenda in the coming years.

Next Generation Disability in Sport -- Finding Our Voice and Expecting Inclusion and Equality

Saturday
8:30-9:20 am

Eli WOLFF

Brown University, Providence, RI, USA
eli_wolff@brown.edu

This presentation will discuss the voice of the next generation of leaders in the realm of athletes with disabilities in sport at all levels, and will highlight an emerging view toward expecting inclusion and equality. The presentation will share current trends and insights that showcase social media and communication strategies that are facilitating the voice of the next generation of leaders, sharing a vision of inclusion and equality for the future of individuals with disabilities in sport. The author will discuss the role and participation of athletes, coaches and managers with and without disabilities, and will also provide perspective on national and global developments in sport and in society that further reflect a changing landscape toward inclusion and equality. The author will discuss opportunities and challenges for engaging and embracing the voice of the next generation of leaders, and will also provide recommendations for advancing inclusion and equality throughout the sporting world.

Guest Speaker Abstracts

From Participant to Programmer: A Paralympian's Journey Through Adaptive Sports

Thursday
1:00-1:50 pm

Mary Allison MILFORD

Lakeshore Foundation, Birmingham, AL, USA

maryallisonm@lakeshore.org

It is no secret that American youth are less active and more likely to be over weight than ever before. This problem does not exclude American youth with a physical disability. Just like their able-bodied peers, youth with physical disabilities need the same opportunity for physical fitness, positive physically active role models, and high standard of excellence. Sadly, adaptive sport and physical fitness opportunities for youth with a physical disability are limited, and the task of reaching the youth and parents can seem daunting. Through community based programs like Lakeshore Foundation and nationally sponsored mentoring programs like the US Paralympic Ambassador Program, America's youth are introduced to adaptive sports, physical fitness, and a whole new world of possibilities. Mary Allison Milford was one of the lucky kids to be introduced to adaptive sports at the age of four, six months after acquiring a spinal cord injury. Her early introduction to adaptive sports never allowed her to doubt her abilities, but rather gave her the opportunity to set goals, self advocate, earn scholarships, degrees, and compete at the world's second largest sporting event - the Paralympic Games. Now Milford works as a recreation specialist at Lakeshore Foundation, a nonprofit organization promoting independence and physical fitness for people with physical disabilities and chronic health conditions, and serves as a mentor for youth through the US Paralympic Ambassador Program and Classroom Champions. Milford understands firsthand the importance of adaptive sports and physical fitness and the challenges we face and must strive to overcome. Although every journey takes a different path, every journey has a beginning. The more opportunities we can give our youth with a physical disability through community based programs, role models with physical disabilities in the media, inclusive sport opportunities in schools, and Paralympic mentorship programs the more fruitful their journeys will be.

Train Like a Machine

Friday
1:00-1:50 pm

Sgt. Noah GALLOWAY

Operation Lima Foxtrot, Lakeshore Foundation, Birmingham, AL, USA

noah.galloway@yahoo.com

Noah's presentation will give the details of his time in the army, the details of his injury, recovery, and affect Lakeshore had on the beginning of his fitness and how it has progressed to what it is today. Fitness and health are a huge part of his life and play a huge part in his new found love of extreme racing and climbing.

No Arms, No Legs, No Problem

Saturday
1:00-1:50 pm

Bob LUJANO

Lakeshore Foundation, Birmingham, AL, USA

bobl@lakeshore.org

Is a comical yet insightful overview of the physical therapy, recreation, education and adaptive competitive sport experiences of Bob Lujano, that ventures into the realm of the divine intervention, to professional genius and the twilight zone. However, Lujano gives his own stand-up routine on how to deal with real adversity and adapt to everyday life experiences. This journey takes the audience to numerous experiences and stories of how mishaps, misfortune or bad luck is easily turned into the ultimate question about life in general, in which the speaker has no problem answering. The first part of the lecture gives a backdrop of Lujano's mid-western Hispanic culture, which at times smacks of any American modern day family. Lujano shares the hopes and dreams of any mid-western youth growing up in the 70's. However, after his brush with death, he is launched into the stratosphere of rehabilitation and education adventures that have defined the past 3 decades and has led us into the golden age of adaptive technology and disability awareness. Lujano also speaks of how he created his own world of adaptive physical activity. The journey takes an unusual twist along the way on how his academic quest leads to competitive adaptive sport endeavors that go beyond his own imagination. Yet, Lujano seems to not become entrapped by the outside world's follies and misadventures that can be even more debilitating. Lujano concludes by stating how these experiences have shaped the mind set of his own philosophy on how to deal with today's growths in technology, academia, disability and competitive sports. In the end he confronts views on disability, accessibility and opportunity.



'Adapt It-Sport' – Making Sport Equipment Accessible...On a Limited Budget

Building Session
10:00-10:45 am
Room A

Seán HEALY¹ & Jennifer C. WONG²

¹Department of Health and Human Services, University of Virginia, USA; ²Erasmus Mundus Masters in Adapted Physical Education (EMMAPA), KU Leuven, Belgium

sean-og3@hotmail.com

'Adapt It' is an interactive session that focuses on stimulating creativity and ingenuity amongst sport and physical activity practitioners, providing them with the skills necessary to make and adapt sports equipment to promote inclusion for those with varying abilities using the principals of adaptation. The 'Adapt It' session seeks to:

- Enable participants to recognise the necessity of adapted equipment for successful inclusion of people with disabilities in sport and physical activity.
- Demonstrate how low cost effective adapted equipment can be made to suit all needs and abilities.
- Stimulate creativity amongst participants to develop unique solutions so that a lack of funding or limited sports equipment will not be barriers to inclusion in sport for people with disabilities.
- Allow participants to utilize their imaginations and the materials provided in the session to make an array of sport equipment suitable for the inclusion of people with disabilities.

The concept of *Adapt It* is based on field-based research that highlights that adapted sports equipment is a key element for successful participation. All inclusive Physical Education models, for example the *ABC Model* (Kelly & Melograno, 2004) and *TREE Model* (Black, 2005) include the adaptation of equipment as being a key element for success. Despite clear evidence supporting the essential need for adapted equipment, inadequacies in the quality and quantity of sports equipment are revealed worldwide (Hardman & Marshall, 2009), particularly in development countries. *Adapt It* provides an avenue for practitioners to develop low cost strategies to attain adapted equipment, as a result improving the gaps revealed by research on the current state of facilities and equipment for adapted physical activity. In this session we will guide the participants through the following tasks: 1. Introduction to 'Models of Adaptation' and the importance of adapted equipment, 2. Demonstration of an array of self engineered adapted equipment; highlighting adaptation principles and transferability of these principles to other sport items, 3. In small groups, participants creatively design and make a piece of adapted equipment utilizing material provided in the session, 4. Groups share their equipment with the group highlighting how and why adapted principles were used.

Effects of 'Everyone Can' Program on the Development of Students with Intellectual Disabilities

Scientific Research
10:00-10:20 am
Room B

Mehmet A. ÖZTÜRK¹ & Y. GOKGOZ²

¹Department of Physical Education and Sports, Marmara University, Turkey; ²Institute of Educational Sciences, Marmara University, Turkey

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Physical education is an integrated part of special education programs. Teachers sometimes have difficulty in determining how much to teach and in deciding on the sequence to maximize student achievement. Achievement-Based Curriculum (ABC) model (Kelly & Melograno, 2004) may support such decisions. **PURPOSE:** The purpose of this study is to determine the effects of a 6-week adapted physical education program that follows the procedures and sources of an ABC model - Everyone Can (Kelly, Wessel, Dummer and Sampson, 2010). Five program goals of Everyone Can are investigated. **METHODS:** Fourteen participants with mild to moderate intellectual disabilities, ages 8-12 took part in the study. First group of participants are first graders (n=7) and the second is a combined group (n=7) of grades 4&5. First group has 4 and second group has 2 female participants. Multiple-baseline across participants (ABA) single case research design is followed. Before and after data collection, TGMD-II is used for motor skill assessment in addition to Everyone Can assessment tools. Similarly, Engagement Check (EC) (McWilliam, 1990) is used as additional assessment tool for social engagement. **RESULTS:** The rank ordered program emphasis for both groups (1st grade and combined 4-5th grades) are calculated as; body awareness, personal/social, object control, locomotor and body control. Overall program emphasis percentages are; 39%, 23%, 15%, 12% and 11% respectively. Calculated average objective mastery time for the 6-week program is 124.8, 73.6, 75, 55.2 and 44, respectively. These calculations are made according to the procedures explained at Everyone Can. **CONCLUSIONS:** Data collection started in April and it will end by May 31, 2012. If the scientific-committee allows us to add these results momentarily and share the conclusions that derive from that additional data, we will appreciate the opportunity.

**Experiences of Disability Simulations in a Post-Secondary Course**

Jennifer LEO & Donna L. GOODWIN

Physical Education and Recreation, University of Alberta, Canada

jennifer.leo@ualberta.ca

Scientific Research

10:00-10:20 am

Room C

Disability simulations (DS) have been used to place people without impairments in situations presumed to simulate the experience of having a disability (e.g. wearing a blindfold). The pedagogical reasoning in the application of DS includes the (a) promotion of favourable attitudes, (b) encouragement of empathetic responses, and (c) gaining insight into issues of inclusion. Critics of DS claim there is limited evidence to support positive changes in attitude, that disability cannot be simulated, and negative stereotypes associated with the disability experience are reinforced. **PURPOSE:** The purpose of this phenomenologically informed qualitative study was to understand the lived experiences and meaning of DS by undergraduate students enrolled in an APA course. **METHODS:** Four participants recorded journal entries (n=18) throughout an academic term, which included using wheelchairs for mobility in a course-based DS. Participants also completed one face-to-face interview at the end of the term. The journal entries and interviews were analyzed thematically. A second level of analysis was conducted from which vignettes were prepared and used to illustrate the findings. Situated learning theory provided a conceptual framework to interpret the findings. **RESULTS:** Three themes were revealed. *Moving In: Engagement with the Perceptibility of Impairment*, describes the participants' experiences as they wheeled themselves into the public domain. Social interactions became complicated as they joked with their peers within the context of the novel activities, yet felt embarrassed to be enjoying themselves while under the watchful gaze of others who truly experienced impairment. In *Moving Out: Deciding When to Disengage*, participants managed their frustrations with completing the tasks with knowledge that it was only temporary, as they could put their feet down and walk away. In *Artifacts and Accessibility: Negotiating Environmental Frustration*, participants perceived the environment differently following their experience using wheelchairs. Encountering architectural barriers led participants to describe the environment as unfriendly and their negotiation of it as bothersome and aggravating. **CONCLUSIONS:** Participants met the intent of the DS as they gained an appreciation for the architectural barriers that people with mobility impairments may face, however, there was little reference to attitude change. Participants' experiences were situated in a social and physical environment that included others not involved in their activities. This led to feelings of discomfort as participants experienced a heightened sense of visibility. It is important to provide students with opportunities to debrief their experiences to avoid unresolved feelings. Further study of DS involving members of the disability community is recommended.

Moving Beyond Traditional Exercise Therapy in SCI Rehabilitation

Tarun ARORA & Kerri STAPLES

University of Regina, Canada

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Practical Application

10:00-10:20 am

Room D

A spinal cord injury (SCI) is a debilitating life event that impacts an individual's health and quality of life. It involves the individuals, their family and the health care system of the country. In 2010, there were 85,556 persons living with SCI in Canada and approximately 265,000 in the United States. In Canada alone, the economic cost of traumatic SCI is \$ 3.6 billion per year, which includes \$ 1.8 billion in direct medical costs. The detrimental effects following SCI including decreased fitness levels (Haisma et al., 2006; Maggioni et al., 2003; Noreau & Joelle, 1998), increased risk of additional health complications (Groah, Spungen, & Bauman, 2009; Manns, Jeffrey, & Williams, 2005), and lower quality of life (Westgren & Levi, 1998) are due to the direct effect of paralysis which varies depending on the severity of injury and inactive lifestyle. Traditionally rehabilitation has been focused on disability prevention and maintaining the current level of function and health of individuals with SCI, with emphasis being placed on strengthening intact functions. Until recently, little or no emphasis was given to improving overall independent function of an individual (including below the lesion) and reducing the dependence on external support (medication, braces and mobility aids). However, physical activity can be an effective means to promote recovery in the areas below the lesion along with strengthening the existing functions of the individual. A handful of rehabilitation teams in North America are moving beyond the traditional approach and are seeing great improvements in overall function and independence among individuals with SCI. This emphasis on physical activity is also decreasing reliance on external support including medications for many individuals with SCI. In addition to reviewing research on exercise prescription among individuals with SCI, this presentation will focus on the exercise used at these SCI rehabilitation centres for improving function and independence of the individuals with SCI. A variety of techniques can be used to facilitate range of motion and postural control. Functional exercises are achieved through the use of assistive devices, which can include mats, blocks, and straps or more advanced equipment like FES, whole body vibration, and body supported treadmill training. Videos will be included to demonstrate the improvements in function and independence among individuals with SCI.



Social Goals, Beliefs and Intentions of Students in Inclusive Physical Education

Scientific Research
10:25-10:45 am
Room B

Suzanna R. DILLON¹ & Iva OBRUSNIKOVA²

¹Division of Kinesiology, Health and Sport Studies, Wayne State University, USA; ²Behavioral Health & Nutrition, University of Delaware, USA

sdillon@wayne.edu

Research on the inclusion of students with physical disabilities in general physical education (GPE) documents occurrences of social isolation and limited social interactions, negative affect perceived by students with disabilities, and nonexistent or inappropriate accommodations being made by physical educators (Block & Obrusnikova, 2007; Hutzler & Levi, 2008; Kalymon, Gettinger, & Hanley-Maxwell, 2010; Spencer-Cavaliere & Watkinson, 2010). Given the critical role that the social environment plays in successful inclusion, a close examination of the factors influencing the beliefs and intentions of students without disabilities to socially interact with their peers with a physical disability in GPE is warranted. **PURPOSE:** The purpose of the study was to investigate beliefs and social goals associated with intentions of students without disabilities to play with a hypothetical peer with a physical disability in GPE. **METHODS:** The Children's Intentions to Play with Peers with Disabilities in Physical Education (CBIPPD-MPE) and the modified Social Goal Scale were administered to a convenience sample of 359 middle school-aged participants from the Midwestern United States. Descriptive statistics were completed to summarize the students' demographic information, social goals, beliefs and intentions. Spearman's rank correlation coefficients were calculated to examine the relationship between the CBIPPD-MPE subscale scores (intentions, behavioral beliefs, normative beliefs and control beliefs), social responsibility goals and social intimacy goals. **RESULTS:** Correlational analyses revealed that all subscales were significantly and positively correlated with intention ($p < .01$). In order, behavioral beliefs ($r_s = .64$), normative beliefs ($r_s = .52$), control beliefs ($r_s = .51$), social responsibility ($r_s = .45$) and social intimacy goals ($r_s = .38$) were all positively correlated with intentions. **CONCLUSIONS:** The social intimacy and social responsibility GPE goals of the students without disabilities appear to be positively related to students' favorable behavioral, control and normative beliefs and intentions to play with a peer with a physical disability in GPE. These findings may expand our understanding of students' without disabilities desire to develop and maintain positive peer relationships in GPE including those with students with disabilities; students' desire to adhere to social rules and role expectations in GPE; and student behaviors within the social environment of GPE. This improved understanding may assist physical educators in programming to enhance social interactions between peers with and without disabilities in their GPE classes.

Goal Perspectives and Sport Participation Motivation of Special Olympians and Typically Developing Athletes

Scientific Research
10:25-10:45 am
Room C

Yeshayahu HUTZLER & Mali OZ

Zinman College for Physical Education and Sport Sciences, Israel

shayke@wincol.ac.il

This study is based on social-learning and self-determination motivational theories. **PURPOSE:** The purpose was to study the sources of motivation in youth and young adults with Intellectual Disability (ID) who participate in Special Olympics (SO) competitions and those of typically developing (TD) age- and activity-matched athletes. **METHODS:** An opportunistic sample of 63 SO (25 females and 38 males) and 59 TD (16 f and 43 m) athletes was retrieved through communication with local club coaches. Three sub-groups of SO athletes were identified based on: non specified intellectual disability (NSID=39), Down Syndrome (DS=17), and Autism (Aut=7). Mean SO and TD athlete ages were 20.35 (SD=7) and 18.8 (SD=8), respectively. Participants completed the 13-item, two-factor Task and Ego Orientation in Sport Questionnaire (TEOSQ) and a 16-item, four-factors abridged version of the Sport Motivation Scale (SMS). SO and TD athletes were active in swimming (54 and 48, respectively) and basketball (9 and 11, respectively). Groups with and without ID were compared by means of t-tests in the dichotomized variables gender and activity, as well as 1-way ANOVA with Tukey HSD post hoc comparisons in the variables disease sources and age groups. **RESULTS:** Gender did not differ in both groups. Type of activity did not differ significantly in TEOSQ sub-scales, but did make a significant difference in most STS sub-scales. Participants with DS and NSID scored significantly higher than TD in most motivational scales. Participants with ID increased their external motivation with increasing age, while a reverse pattern was observed in TD. **CONCLUSIONS:** In summary, significant differences in motivational patterns between SO athletes with ID and TD athletes could be observed. These differences should be considered while developing training and competition programs.

**Functional Electrical Stimulation Rowing for Persons with SCI and Other Neurological Disorders**

Practical Application
10:25-10:45 am
Room D

Garry D. WHEELER¹ & Brian ANDREWS²

¹Alberta and NWT Division, MS Society of Canada; ²Nuffield Department of Surgical Sciences, Oxford University, England, UK

garry.wheeler@mssociety.ca

The use of functional electrical stimulation (FES) for improving body function and activities of daily living in persons with SCI dates back to late 18th century. Surface and implant electrodes have been used to control of bowel /bladder function, restore locomotion, improve limb function, decrease disuse atrophy, maintain readiness for a cure, and provide exercise alternatives for enhancing cardiovascular function/fitness, and muscular strength and endurance. Techniques include FES cycling (FESCY circa 1983) and FES-assisted rowing (FESROW, Laskin et al., 1993) for rehabilitation, exercise and sports programs. Limitations of FESCY include isolation of lower extremities and modest lower limb force actions and total work output. Total work output in FESCY does not reach levels associated with significantly lower risk for co-morbidity in SCI populations. Other limitations include access, preparation/set up time and non-normative exercise modality. Optimal health and exercise benefits are associated with hybrid forms of exercise engaging upper and lower extremity muscle mass and adherence to exercise is more likely if technology is accessible with internet connectivity, suitable for home-use (limited set up required) and normative in nature. Our research clearly demonstrates significantly higher work and power output from FESROW (> 3L /minute VO₂, unpub.data) than FESCY or FESCY plus ARM (ergometer) exercise (Wheeler et al., 2002; Verellen et al., 2007; Hettinga & Andrews 2007, 2008). Levels of work output may be sufficient to decrease risk of cardiovascular, osteoporosis and other diseases (Andrews et al., 2011). Other research groups have adopted our technology (Taylor et al. 2011). The technology has been extended to include both fixed and floating stretcher ergometers, rowing on-water, and provide new exercise opportunities for quadriplegics. Some FES rowing athletes have been able to achieve marathon distances of over 50,000 meters on ergometers in one session and have achieved medals in major international rowing competitions including the BIRC and CRASH-Bs. Preliminary research also suggests that rowing may have value in promoting balance of muscle strength in the rotator cuff area of the shoulder (Olenik et al., 1995) and also there have been reports of decreased shoulder discomfort after rowing programs (personal communications). More work is required in this area. Participants report that this is a more socially normative form of exercise. The author will provide an overview of: the history and the design of FES rowing, ongoing research studies, future directions, and integration of the technology into rehabilitation and sports programs.

Dartfish as a Motion Analysis Tool for Adaptive Sport

Practical Application
10:50-11:10 am
Room A

Jared REHM & Wendi WEIMAR

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“Watching film” with athletes is a common teaching tool employed by coaches. Coaches are able to demonstrate where the athlete performs well, and where improvement is needed. This tool can be improved by utilizing motion analysis software. Dartfish is a motion analysis software that does not require a great deal of training to use, and can increase the effectiveness of watching video with athletes. It also offers flexibility in being able to tape or digitally capture footage before viewing in the computer software. With Dartfish, analysis can be done with an individual or team. In a wheelchair basketball setting, a coach can more thoroughly discuss and instruct his team with the help of this visual aid. Many times a team video session will include watching a possession, and the coach diagramming the performance on a board. With Dartfish, the board is no longer necessary. The coach can highlight, track, and create directional arrows for players directly over the video being watched. This is particularly useful in defensive instruction. With the splining tool, the coach is able to track each player and connect the entire team with a line. The players can then see where and when the defense breaks down. These tools present opportunities for the players to better visualize what the coach is asking of them than the traditional drawing board. Dartfish also offers benefits to individual skill development. With the “In the Action” option, immediate feedback is available to the athlete. Whether its propulsion, passing, shooting, or any other sport action, the coach can film the athlete and immediately begin analysis with tools that allow for measuring angles, velocities, distances, and drawing to demonstrate where improvement can be made. This is helpful for development of propulsion technique. The coach is able to measure hand-wheel contact time, recovery time, and to show where changes in stroke pattern and form need to be made. Video files can also be saved for further analysis, and compared to later performance side by side. A feature that can be used is the “Key Positions” feature. The coach is able to freeze specific important points of the motion and analyze them separately. These moments in pre-training and post-training analyses can be placed side by side for comparison to demonstrate progress of the athlete. The benefits of motion analysis for athletes are numerous. Dartfish offers many ways to expand this analysis in adaptive sports.



Effects of an In-Service Workshop on the Self-Efficacy of General Physical Education Teachers

Scientific Research
10:50-11:10 am
Room B

Natasha P. HARRIS¹, Martin E. BLOCK¹, & Andrea R. TALIAFERRO²

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PURPOSE: The purpose of this study was to examine the effects of a one day in-service workshop on the self-efficacy of general physical education (GPE) teachers' and their perceived competence to include students with disabilities, specifically Autism, into the classroom. **METHODS:** Participants included 38 in-service physical educators who attended a one day in-service on including students with disabilities in general physical education and 27 in-service physical educators who did not attend the one day in-service. All 65 participants were given a pre-test and post-test survey using The Physical Educators' Self-efficacy Toward Including Students with Disabilities-Autism (PESEISD-A) instrument. This survey was created following Bandura's (1996) criteria and found valid and reliable. **RESULTS:** The control group scores of self-efficacy means were: pretest=7.47 and posttest=7.72; the experimental group scores of self-efficacy means were: pretest=6.78 and posttest=7.77. A mixed-design/split-plot analysis of variance (ANOVA) was chosen and tested for the following assumptions: Shapiro-Wilk test of normality, Levene's test of equality, and Tukey's test of nonadditivity. All assumptions were met. Results revealed that there were no significant interactions when examining the effects of time (i.e. pretest and posttest) by treatment groups (i.e. control and experimental) on general physical educators' self-efficacy to include students with autism into GPE with $F(1,63)=2.97$, $p=.09$. It should be noted sphericity is assumed, because there were only two levels of repeated measures present (i.e. pretest and posttest). Since interactions were found to be not significant, then we examined the main effects for group (experimental and control) and time (i.e. pretest and posttest). Time was found to be statistically significant with posttest self efficacy significantly higher than pretest self efficacy with $F(1,63)=7.92$ $p=.007$. In other words, self-efficacy improved over time, but this improvement was not dependent on group membership. **CONCLUSIONS:** GPE teacher's self-efficacy of including students with autism increased over time. However, the in-service alone or the interaction of time and the in-service did not seem to significantly improve self-efficacy scores in this study. Participation in the in-service might not have revealed significant effects because of the small sample size ($N=65$) and/or the duration of the in-service (one-day in-service for a total of 6 hours). We suggest conducting a follow-up study to reexamine the effects of an in-service on self-efficacy of GPE teachers with a larger sample size and perhaps a longer in-service (2 days or more). To further examine effects of time we recommend collecting a retention score 3-4 weeks after posttest.

Do Motor Learning Disabilities Exist? Movement Skill Acquisition among Children with LD and DCD

Graduate Student Proposal
10:50-11:10 am
Room C

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To date, limited focus has been placed on how children with learning disabilities (LD) and developmental coordination disorder (DCD) learn movement skills and the contribution of these movement skills to subsequent participation. Previous research has found that children with movement difficulties participate less in moderate-vigorous physical activity in both structured and unstructured activities compared to their peers, referred to as the activity deficit hypothesis. **PURPOSE:** The objective of this study is to compare motor performance of school-aged children with LD and DCD on three separate occasions of the school year, in order to examine profiles of learning. **METHODS:** Approximately 75 children, aged 7 to 10, will be targeted using a school-based sample. Children will be divided evenly into three groups: LD, DCD, and a typically developing group matched on chronological age and gender. The *Test of Gross Motor Development-2 (TGMD-2)*; Ulrich, 2000) emphasizes the components of a movement skill sequence for locomotor and object control skills, while the *PE-Metrics* (NASPE, 2010) assesses both the process and product of these skills. Both assessments will be used concurrently to provide greater understanding of how children with LD and DCD differ on motor performance, and ultimately, learn movement skills. Accelerometers will be used afterwards to examine the association between one's motor performance and physical activity levels. **RESULTS:** Raw scores from each subtest of the *TGMD-2* and components of the *PE-Metrics* will be analyzed using repeated measures MANOVA to examine change over the school year. Composite scores of motor performance and relationships among individual movement skills will be compared between groups. We hypothesize a difference in motor performance will result between the disorder and typically developing groups due to difficulties in (learning of) movement skills experienced in LD and DCD, with older children demonstrating greater performance. The relationship between motor performance and physical activity levels will be analyzed using Pearson correlation, in which it is hypothesized a positive association between motor performance and physical activity will result. **CONCLUSIONS:** This research aims to provide greater understanding of the aspects impaired in motor skill learning among children with LD and DCD and how they differ. Moreover, this study will explore whether the activity deficit hypothesis exists within the population researched.



New Strength and Conditioning Certification for Exercise Professionals Working with Special Populations Practical Application

John P. MCCARTHY

10:50-11:10 am
Room D

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This presentation will describe the new Certified Special Population Specialist (CSPS) certification offered by the National Strength and Conditioning Association. The CSPS was developed to support fitness professionals working with special population clients, so has direct application to those working in the field of adapted physical activity. Special populations include those with chronic and temporary health conditions. These include individuals with cardiovascular, pulmonary, metabolic, immunological/hematological, neuromuscular, musculoskeletal/orthopedic, post-rehabilitative, behavioral/psychological, female-specific, cancer, or age-related conditions. CSPSs use an individualized approach, to assess, motivate, educate, and train special population clients of all ages regarding their health and fitness needs, including prevention and collaborating with healthcare professionals as indicated. CSPS scope of practice, domains of study, prerequisites for the exam, and preparation resources will be discussed. The CSPS credential program encourages a higher level of competence among practitioners and raises the quality of strength training and conditioning programs provided by those who are CSPS certified.

Considerations Pertaining to Wheelchair Configuration Specific to Seating Bucket, Strapping, Sport Specificity, and Technological Advancements

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Practical Application
11:15-11:35 am
Room A

An in-depth look at wheelchair configuration, through presentation, visual aids, and demonstration of disability sport specific equipment, will provide the physical educator and recreation practitioner with valuable insight to its importance for successful and enjoyable participation. A variety of strategies will be presented that contribute to development of a wheelchair that meets individual needs most effectively. Fostering a love for movement is especially important for young wheelchair users, as it can nurture a lifetime of physical activity for a population that has limited movement opportunity. Pushing a wheelchair that is not configured specific to oneself is extremely inefficient and is parallel to jogging in a sumo suit or playing tennis in goulashes. There are a variety of considerations when individualizing a wheelchair that go far beyond seat-width, backrest height and growth of a child. Factors that must be carefully contemplated such as seating bucket, strapping, sports played, and use of technological advancements, will be discussed. Individuals who lack sitting balance can increase stability and functional ability by adding seating bucket - drawing the knees closer to the chest. Quad rugby is a good example of a sport that necessitates a greater degree of seating bucket and use requires effective strapping, as the athletes innately need a great degree of stability. Strapping one's core to the chair is also an effective way to enhance balance and become "one with the chair". Snowboard bindings are known in the world of wheelchair sports as "ratchet straps". Specific to wheelchair basketball, ratchet straps ensure that one's core is maintained in an exact position within the chair in the interest of precisely replicating a shot. There is a multiplicity of factors to consider when adjusting a chair specific to a sport and even beyond that - a specific position within the sport. For example, similar to stand-up basketball, a "guard" benefits from a shorter more agile chair, whereas height would be key factor for the "center". Considering the vast evolution of wheelchairs during the past 15 years, the development of sport wheelchairs are in their infancy. Even the stigma that has so often surrounded "the wheelchair" is disappearing with the integration of modern technology. The introduction of carbon fiber spokes has enabled athletes to optimize performance with wheels that are lightweight, durable and eye-catching. Pioneering new ideas is one aspect that makes participation in wheelchair sports so thrilling and will provide for lively audience engagement.



Teachers Views of Participation of Students with Physical Disabilities in Inclusive Physical Education in the Czech Republic

Martin KUDLACEK

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Scientific Research
11:15-11:35 am
Room B

The process of including students with disabilities into mainstream education is in the Czech Republic currently an increasing trend. This direction is certainly the right path towards a natural part of individuals with physical disabilities into society. For optimal school inclusion it is necessary to enable pupils with physical disabilities participation in all educational programs along with their peers. **PURPOSE:** The purpose of this presentation is to analyze the conditions of inclusive physical education at mainstream schools in three regions of the Czech Republic (South Moravia, Olomouc and Moravia-Silesia region). **METHODS:** Participants of self-made survey were general physical educators of 111 individually educated students with physical disabilities. This survey was validated by three experts holding Ph.D. focused on adapted physical activity and working as full time university teachers. Survey was distributed to all registered schools with included students with physical disabilities and focused on perceived barriers and facilitators of inclusive PE in relation to fact if student is included in general physical education. **RESULTS:** Physical educators identified following top areas, which could enhance inclusion in physical education. Bigger financial support in order to secure adapted equipment, help of trained teacher assistant, improvement of competencies related to inclusive education, lowering the number of students in class and access to teaching resources- books with suggestions and examples of good practices. **CONCLUSIONS:** Through investigation, the most common barriers were determined to include pupils with physical disabilities in physical education (PE) and also the views of teachers on PE some possible ways to improve the conditions of inclusion in the school PE. Essential for successful inclusion of pupils with disabilities is to create optimal conditions primarily by school (physical, spatial, personal) and the families of children with disabilities must take certain steps to streamline the process. Inclusion in PE should always be based on a comprehensive diagnosis of the pupil, to match their individual needs and should be in as much as possible the planned and systematic.

Exercise Behaviors of Youth with Intellectual Disability under Two Conditions in a Community Program

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Scientific Research
11:15-11:35 am
Room C

Youth with intellectual disability (ID) tend to be less active than youth without ID and have low levels of physical fitness. These youth often experience difficulties engaging in physical activities and confront many barriers. We recently implemented a community-based exercise intervention specifically designed for youth with ID that resulted in improved fitness and a reduction in perceived barriers. **PURPOSE:** The purpose of this study was to evolve the approach used in our previous work by examining whether two youth with ID could exercise effectively when partnered together. Behaviors of participants (5 male, 5 female) during an exercise program were compared under two social conditions: 1) two youth with ID were partnered together and a typically developing youth supported the pair (i.e., triads; WTD), and 2) the same two youth with ID were exercise partners (i.e., dyads; WID) and the support of the typically developing peer was withdrawn. **METHODS:** The 12-week structured program was conducted at a YMCA 2 days/week for 1 hour and included progressive weight training and aerobic exercise. A certified fitness trainer prescribed exercises and supervised the sessions. The two social conditions were alternated each session. Physical activity level and engagement behaviors of the youth (WID = 10, WTD = 5) were directly observed and recorded using the Systems for Observing Fitness Instruction Time and Academic Learning Time-Physical Education. Verbal interactions were also recorded. **RESULTS:** Participants engaged in MVPA for 58.1% - 62.9% of the 1-hour sessions. During aerobic exercise MVPA was very high (86.6% - 92.4%) and lower during strength training (32.9 - 33.7%). Most time was spent in motor-appropriate behavior and waiting; with almost no motor-inappropriate behavior and off-task behavior about 3% of the time. No differences existed between the two conditions. The overall rate of verbal interaction was significantly higher when the workout condition included atypically developing peer (mean rate WTD = 1.6 interactions/min \pm 0.5 and WID = 1.1 interactions/min \pm 0.4, $p = .015$). The pattern of verbal interactions was different across conditions. **CONCLUSIONS:** A comparison of behaviors under two social conditions provided evidence that youth with ID can be physically active and use correct exercise technique when provided natural support from their peers with ID and guidance from fitness trainers. Considering the majority of American youth do not meet the physical activity guidelines, it is encouraging that the participants opted to exercise intensely when given the opportunity.



Evaluation of the Strength and Endurance of Shoulder Muscle and Glenohumeral Joint Laxity in Physically Disabled Athletes

Aynur DEMİREL & Nevin ERGUN

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Scientific Research
11:15-11:35 am
Room D

PURPOSE: The aim of this study was to determine the differences between the physical disabled athletes doing overhead and underhead sports in terms of the strength-endurance level of shoulder muscles, glenohumeral joint laxity. **METHODS:** 34 disabled athletes (22 M, 12 F, Age: 30.24±7.58 yrs. Sport Age: 5.6±3.48 yrs.) having independent trunk control, doing sport at least two years actively, having no structural scoliosis and no surgical operation within the last one year were included into this study. The athletes were categorized as 15 wheelchair basketball, tennis players in overhead group and 19 para archery, para table tennis, shooting players in underhead group. Glenohumeral laxity was assessed in the athlete's scapula maximally retracted, laterally fixed position. In this position athlete's arm was horizontally adducted without any rotation. The angle between the humerus shaft and the horizontal plane was measured with goniometer. All measurements were applied three times bilaterally and the best score was recorded. Muscle strength-endurance was assessed bilaterally by using dumbbell in dynamic and static positions. In static position, the athletes were instructed to grasp two dumbbells (5kg) with both hands in the position of 45° shoulder Flexion and abduction, the elbow fully extended, without aided position and to keep this position during 30 seconds. In the dynamic position, while grasping the dumbbell with one hand in the position of 45 shoulder flexion and abduction, the athletes were instructed to move the ipsilateral knee. The repeated and true movements were recorded during 30 seconds. SF- 36 life Quality scale (Ware, 2000), Wheelchair user pain index (WUSPI) (Curtis & Roach, 1995), The Disability of Hand Arm and Shoulder (DASH) (Beaton & Katz, 2001) was applied all athletes. Due to the non-normal distributions of the test values, Mann Whitney U test was used for the differences between two groups in terms of muscle strength-endurance, glenohumeral joint laxity, SF-36 life Quality Scale, WUSPI's pain component and DASH scale. **RESULTS:** There was no difference between two groups regarding SF-36 Life Quality Scale, WUSPI, DASH scales ($p>0.05$). Only static component of the measurement of muscle strength was significantly different between groups in the non-dominant shoulders ($p=0,031$). Glenohumeral joint laxity was significantly higher in overhead athletes ($p<0,001$). **CONCLUSIONS:** In this study it can be said that the shoulder kinematics of the disabled athletes are different according to adaptive changes related to different kind of sports. Increasing the sample size will be useful for the more precise comments.

Using Technology to Enhance Supervision in Adapted Physical Activity

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Building Session
2:05-2:50 pm
Room A

This presentation will highlight how two forms of technology can be used to enhance supervision in adapted physical activity. The first application will demonstrate how video technology can be used to perform remote supervision of students while they are teaching adapted physical education in the public schools. The presentation will highlight the video equipment being used, how students are trained to use the equipment, and how the effectiveness of this intervention is currently being evaluated. During the session an actual remote supervision demonstration will be performed to illustrate the process. The value of remote supervision, particularly for online/distance education programs, is essential to ensure that students can actually demonstrate and apply the content that is taught in their academic courses. This presentation will focus on how video technology is being used to remotely supervise graduate students in adapted physical education. Students are equipped with an Apple iPod touch and a harness that holds this device on their chest. The Facetime application on the iPod touch is used to allow two-way video interaction between the university supervisor and the students while they are teaching. The supervisor can see and hear in real time what the teacher is saying and doing and also communicate, via an ear bug, directly to the teacher. The second application will demonstrate an Apple iPad app that can be used to collect real time temporal and frequency data on six user-defined events or behaviors. This app can be used either as a standalone observation and recording device or in conjunction with remote video supervision. The features of the application will be described and demonstrated. The app allows the user to define up to six events/behaviors to be measured and managed. At the end of the data collection period, a graphic summary of the behaviors is displayed. Comments can be entered in real-time during data collection and after the data have been graphically displayed. All the data collected are saved on the device and can be exported via e-mail. An iPad will be available at the session to demonstrate the application. Examples will be provided to show how the application is used in both supervision of adapted physical education master's students and in teacher self-evaluation at the University of Virginia.



Impact of Physical Activity on Work: Themes Examined by Gender

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Scientific Research
2:05-2:25 pm
Room B

To date, studies examining the impact of physical activity on work performance include persons with chronic health conditions (diabetes, asthma) but not those with physical disabilities. **PURPOSE:** This paper describes a secondary data analysis from a qualitative study which explored the perceived impact of regular exercise on job performance in adults with physical disabilities. The purpose of the secondary analysis was to examine variation between genders. **METHODS:** Qualitative interviews were carried out with 20 adults employed either full or part-time (min 10 hours/wk). Participants included 11 females and 9 males (14 Caucasians, 5 African Americans, 1 Hispanic), mean age 42.9 yrs (range 25-64), with a variety of physical disabilities who regularly engaged in physical activity at Lakeshore Foundation, a fitness facility designed for persons with physical disabilities. Categories from transcribed interviews were developed independently by two researchers. Corresponding categories across researchers were then collapsed into themes. **RESULTS:** Fourteen participants reported that active lifestyles were values instilled in them by their families or that they were active before their injury or illness. Fifteen participants exercised a minimum of 150 min moderate aerobic activity 5x/wk [or 60-75 min vigorous aerobic activity 3x/wk and strength training at least 2x/wk]. Participants reported physical health gains such as increased energy, endurance and strength, weight loss, better sleep, and decreased stiffness. Mental attributes that changed with exercise included increased focus, decreased stress, improved memory and better concentration in the workplace and at home. Self care benefits consisted of improved transfer skills at work, better home and community mobility, showering, caring for others, and greater independence. In the secondary analysis, all original categories were further examined for variation by gender. Women described decreased secondary conditions in the workplace and facilitation of life roles, improved mood and attitudes that facilitated work relationships, and better care-giving abilities. Men reported that physical benefits helped them to be role models in their work, prevented falls, improved their confidence and image to others on the job, and made it easier to put wheelchairs in cars. **CONCLUSIONS:** Although both genders perceived positive impacts on work from regular physical activity, the benefits differed. Women focused on physical comfort and mood improvements, and men were concerned with appearance to others and aspects of mobility. These findings suggest that women and men may experience different benefits from exercise engagement which are important to understanding exercise motivation, self-regulation, and adherence in adults with physical disabilities.

A Phenomenological Exploration of Women's Experiences of Walking with a Cane

Cathleen EDWARDS

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Scientific Research
2:05-2:25 pm
Room C

From the moment our days begin we encounter a variety of tools and technologies for living and performing our daily routines. Our initial interaction with them is facilitated through our bodies, characterized by the tension between the novel and the familiar. Unexpected events like the experiences of a sudden illness or acquired physical impairment lead to a change in the body's relationship with the world. Items that were once familiar have somehow changed. In what ways does a tool like the cane shape our understanding of the world? How do individuals who experience acquired mobility impairments use their canes to address the tension between the novel and the familiar as they traverse the world? What is the process of learning to walk with a cane? **PURPOSE:** The purpose of this study is to describe the everyday experience of walking with a cane. **METHODS:** Phenomenology presents an approach that calls our attention to the influence of the body in our experiences in the world. Our bodies facilitate our understanding of the tension between the novel and the familiar in our everyday experiences. Three women (ages 28-89) with acquired mobility impairments shared their experiences in recorded on-on-one conversations. These conversations centered on the ways that their canes facilitated their interaction with the world and in their everyday routines. Participants' descriptions were analyzed using van Manen's (1997) selective thematic analysis followed by collaborative analysis. In the process of collaborative analysis, a small group provided feedback based on concreteness, tone, evocation, intensification, and epiphany of the experiences. **RESULTS:** Each of the women had a complex relationship with her cane, shaped by her on-going negotiation of novel and familiar experiences as she interacts with the world. Each woman negotiated four tensions (a) establishing trust in a changed relationship with the body, (b) incorporating an unfamiliar tool into body schemas, (c) resuming participation in everyday activities and (d) negotiating the uniqueness of her corporeal relationship with the world. **CONCLUSIONS:** For many, the cane is a tool that holds little significance until we find ourselves in a situation where illness or acquired mobility impairment challenge our habitual experiences of movement in the world. Reflections on these experiences reveal the essential characteristics separating the experiences of those who walk with a cane from interactions with other technologies and tools held in the hands. The hand that holds a cane understands the world in a different way.



Understanding the Mechanism of Physical Activity Behavior in Inclusive Physical Education: A Multilevel Analysis

Jooyeon JIN¹ & Joonkoo YUN²

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Scientific Research
2:05-2:25 pm
Room D

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Teachers' teaching behavior and students' psychosocial aspects are considered key factors to determine the students' physical activity (PA) behavior in physical education (PE) settings (Han, 2011; Kodish et al., 2006), but there has been a lack of efforts to understand the triadic relationship. **PURPOSE:** The purpose of this study was to systematically explore the triadic relationship in adolescents with and without disabilities in middle school inclusive PE settings, based on Social Cognitive Theory and Theory of Planned Behavior. **METHODS:** Participants were 13 physical educators teaching inclusive PE at middle schools (n=8) and the teachers' 503 students, including 22 students with mild cognitive, physical, or sensory disabilities who can answer questionnaires and walk independently. Three different instruments were used to collect data in inclusive PE classes: (a) systematic observation adapted from McKenzie (2009) to assess teachers' PA promotion behavior (e.g., feedback), (b) questionnaires adapted from Kodish et al. (2006) and Roberts et al. (2010) to measure students' goal intentions (GI), implementation intentions (II), perceived behavior control (PBC), barrier efficacy (BE), and task efficacy (TE) to be physically active, and (c) pedometers (Omron HJ-720ITC) to assess students' PA. After questionnaires were completed, teaching behavior and student PA were assessed three separate times, respectively. Multi-level regressions were conducted to explore the relationship, due to the two-level data structure (i.e., students are nested within teachers). **RESULTS:** About 40% of variance in PA was at the teacher level confirming the need of multi-level analyses. Students' II ($\beta=.08, P <.05$) was the only psychosocial factor predicting their PA, controlling for GI, PBC, BE, and TE. Students' gender ($\beta=.36, P <.001$) and disability ($\beta=-.06, P <.05$) and lesson contents ($\beta=.56, P <.001$) were additional factors predicting students' PA. Instructional model ($\beta=.57, P <.05$) and lesson environment ($\beta=.30, P =.06$) predicted teaching behavior. The effect of teaching behavior on students' II was depending on class environment ($\beta=-.34, P <.001$) and lesson content ($\beta=.19, P <.05$). The effect of teaching behavior on students' PA was depending on students' gender ($\beta=-.10, P <.001$), instructional model ($\beta=-.72, P <.001$), and class environment ($\beta=-.26, P <.05$). Gender, disability, lesson contents, class environment, and instructional model were controlled as covariates in all analyses. **CONCLUSIONS:** These findings suggest that students' implementation intentions and teachers' teaching behavior play an important role in promoting adolescents' PA in middle school inclusive PE settings, but gender, disability, lesson contents, instructional model, and class environment should be considered simultaneously.

Piloting a Physical Activity Centered Education (PACE) Program for Adults with a Brain Injury

Simon DRIVER

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Scientific Research
2:30-2:50 pm
Room B

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Brain injury (i.e., traumatic brain injury, stroke) is a significant public health issue due to complicated and varied injury outcomes, widespread incidence, and high costs linked with medical treatment. Rehabilitation centers are challenged to assist patients in the management of resultant associated conditions and prevention of secondary and chronic conditions. Research has shown that health promotion programs (HPP) that incorporate education about physical activity (PA) are one mode of rehabilitation that can improve the health of individuals with disabilities. However, education-based PA curriculum is not included in the rehabilitation program for individuals with a brain injury, indicating a gap in services provided. **PURPOSE:** Consequently, the purpose of this study was to create and deliver a physical activity centered education (PACE) program that supplemented the existing rehabilitation program for brain injury. **METHODS:** PACE consisted of an 8-week (16 session) program aimed to (1) increase self-efficacy for being physically active of PACE program participants, (2) increase PA stage of change in PACE program participants or the maintenance of adequate level of PA, and (3) improve the rehabilitation outcomes (i.e., abilities, participation, adjustment) of PACE program participants. Based on previous research, it is hypothesized that participation in PACE will result in (1A) increased self-efficacy for PA, (1B) greater self-efficacy for PA than the standard of care group, (2A) increased readiness to be physically active, (2B) greater readiness to change their PA behavior than the standard of care group, (3A) improved rehabilitation outcomes, and (3B) greater rehabilitation outcomes than the standard of care group. 24 individuals completed the PACE program and 11 individuals a control group. **RESULTS:** Participants who completed the PACE program (N = 22; male = 14; female = 8) were an average of 48.68 years old (SD = 14.05 years; min = 20 years; max = 64 years). The PACE program resulted in: (1) an average increase of 19.36% in participants' PA self-efficacy (effect size [ES] = 0.37), (2) 15 of the 22 PACE participants (68.18%) reported improved readiness to engage in regular PA, and (3) an increase in rehabilitation outcomes (i.e., abilities, adjustment, and participation), when compared to a control group. **CONCLUSIONS:** Specialists are challenged to find modes of rehabilitation that improve the health of individuals with a brain injury. Pilot results from the PACE program indicate that the program can improve PA self-efficacy, readiness for regular PA behavior, and improved short-term rehabilitation outcomes.



Exploring the 'Dignified' and 'Undignified' Self within Exercise Contexts for People with Impairments

Scientific Research
2:30-2:50 pm
Room C

Keith R. JOHNSTON & Donna L. GOODWIN

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Research and anecdotal evidence indicates numerous barriers to participation in exercise (i.e., physically inaccessible facilities and equipment, under-trained staff, exclusionary policies, and limited resources) for people with mobility impairments. However, a potential hidden and silent barrier to participation is dignity. Dignity requires that the self is regarded as an autonomous, self-determining entity worthy of recognition and respect from others (Shannon, 2007). Dignity is fundamental to human experience, giving rise to perceptions of independence, privacy, and self-worth. When these perceptions of self are dishonoured through interactions with social and environmental contexts, indignity may be experienced and sustained engagement in exercise may be abandoned. **PURPOSE:** The purpose of this study was to explore how people with mobility impairments accomplish and maintain dignity within exercise contexts. Specifically the objectives were to (a) understand how people with mobility impairments created an individual personal sense of dignity, (b) explore how they maintained the dignified self, and (c) explore the structures within exercise contexts that gave meaning to a personal sense of dignity. **METHODS:** This interpretative phenomenological study (IPA) employed a purposive sampling strategy. Eight participants between the ages of 20 - 55 with mobility impairments took part in two one-on-one conversational interviews. Participant constructed self-portraits (photograph) of the 'dignified self' within exercise contexts were also generated. The procedures for analysis as outlined by Smith, Flowers and Larkin (2009) when utilizing IPA were followed, ensuring a commitment to IPA's idiographic and hermeneutic nature. **RESULTS and CONCLUSIONS:** The presentation will highlight the themes that emerged from the analysis and their interpretation within a conceptual framework of dignity. Preliminary findings indicate that experiences of the dignified self are rooted in maintaining choice, challenging self and others, and self-defined individuality. The participant experiences of dignity are inherently linked to complex interactions between place, process and people. This research brings to light an understanding of the complexity of inclusive exercise settings towards experiences of the dignified self. The participants' experiences of dignity bring attention to the need for and importance of relational spaces that are respectful, engaging, sensitive, and promote interdependence.

Inclusion Pedagogy: The Key to Equipping Physical Educators to Meet the Needs of All Learners

Practical Application
2:30-2:50 pm
Room D

Andrea TALIAFERRO¹ & Thomas MORAN²

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Given the increasing numbers of students with disabilities (USDOE, 2010), it is concerning that general physical education teachers continue to report feeling unprepared to meet their needs (Ammah & Hodge, 2005; Chandler and Greene, 1995; Lamaster et al, 1998). This is perhaps not surprising considering that most PETE programs require just one segmented course on adapted physical education (Piletic & Davis, 2010), where inclusive teaching strategies are covered in limited detail and not reinforced in other courses. Throughout our PETE programs, we tell our teacher candidates to be inclusive and introduce them to the concept of inclusion, but do we truly teach them how to implement strategies to create an inclusive environment? Do we teach them a process to ensure the needs of all their students are met? The term inclusion pedagogy encompasses a two part process to address this issue. The first part uses Newell's (1986) Model of Constraints to understand the abilities and challenges of each student. The second part of the process uses developmental differentiation, a progression-laden process meant to challenge each learner and implement specific strategies to manipulate the task or the environment while maximizing the abilities of the learner. This presentation will help attendees understand the two-step process underlying inclusion pedagogy, discuss how this process can be infused into PETE programs, and will include activities to demonstrate the process in action. Our goal is to have teachers who not only understand what inclusion is but who are also equipped to implement this two part process to create a truly inclusive classroom.



Development of a Physical Activity Monitoring and Sharing Platform for Manual Wheelchair Users

Scientific Research
2:55-3:15 pm
Room A

Dan DING^{1,2}, Shivayogi V. HIREMATH^{1,2}, Ayubi SOLEH², & Bambang PARMANTO²

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PURPOSE: The purpose of this study is to develop a physical activity monitoring and sharing platform (PAMS) especially suited for capturing PA that are part of the lifestyle in wheelchair users and motivating them to be physically active via social networking based applications. **METHOD:** The PAMS consists of a monitoring unit (MU), a personal gateway (PG), a secure server, and a sharing unit (SU). The MU integrates a wheel rotation monitor (WRM) clipped to the spokes of a wheelchair and an accelerometer-based monitor worn around the upper arm. The two monitors provide multiple PA measures including distance travelled, speed, activity intensity in terms of energy expenditure (EE), activity type, and time spent on light, moderate, and vigorous PA. The two monitors communicate with the personal gateway (e.g., a smart phone) using Bluetooth. The PG stores the sensor data temporarily, analyzes them, and transmits the most recent data to the remote server where the data are stored. The server uses distributed database architecture to store the data mapped with personal profiles. The SU consists of a web-based application and an Android-based mobile application built upon the Facebook platform. Both applications incorporated strategies that have been proven to be effective in promoting positive PA behaviors including goal setting, self-monitoring, social comparison, and social support. The prototype PAMS was developed. Descriptive statistics is used to summarize the preliminary bench testing results. We recently started testing the MU with wheelchair users for a variety of PA where the video recordings and EE from the metabolic cart are used as references for predicting activity type and associated EE. Intraclass correlation and mean absolute errors will be used to assess the prediction accuracy. We also just started an iterative usability testing of the two sharing applications with wheelchair users using a “think out loud” approach. Descriptive statistics will be used to summarize the user ratings. **RESULTS:** Preliminary bench testing showed the WRM had less than 2% and 3.5% errors for measuring speed and distance, respectively. The data loss for three-hour transmission to a smart phone was less than 2%. We anticipate testing 40-50 subjects by October 2013. **CONCLUSIONS:** We expect the PAMS will enable wheelchair users to track their own PA participation and become more physically active, leading to better overall health, greater community participation, and higher quality of life.

Effects of Aquatic Exercise on Affect for Adults with Stroke

Scientific Research
2:55-3:15 pm
Room B

Gwang-Yon HWANG¹, Sangwoo LEE¹, Kunal SINGHAL¹, Ronald DAVIS¹, Young-Hoo KWON¹, & Simon DRIVER²

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Aquatic exercise has been documented to improve physical fitness for individuals with disabilities; however psychological measures for adults with stroke have received limited attention. **PURPOSE:** The purpose of this pilot study was to determine whether a 10-week (two 60-min sessions/wk) aquatic exercise program was beneficial for adults with hemiplegic stroke to improve their affect. **METHODS:** Five male participants (Mean age = 63.66 ± 5.50) were asked to complete a paper and pencil assessment of affect (Physical Activity Affect Scale; Driver, 2006). The affect scale levels of feeling were 0 (do not feel), 1 (feel slightly), 2 (feel moderately), 3 (feel strongly), and 4 (feel very strongly) for each of the four subscales [positive affect (PA), negative affect (NA), tranquility (TR), and fatigue (FA)]. Affect was measured pre and post for each aquatic exercise session. **RESULTS:** Due to the small sample size, effect sizes (ES) were calculated to determine the change in mood scores using Cohen’s D formula [ES = (Pre Mean - Post Mean)/Pre SD] for each of the 4 subscales. According to Cohen (1988) and Sutlive and Ulrich (1998), an ES = 0.20 to 0.50 is considered a small effect, 0.50 to 0.80 medium and greater than 0.80 is large. The results of this study indicated the following ES for each subscale; PA = 0.04, NA = 0.57, TR = 0.04, and FA = 1.25. Participants experienced medium to large ES in NA and FA. Changes in pre-post Mean for NA indicated a reduction of negative affect (0.14 ± 0.19, 0.03 ± 0.06). Changes in pre-post Mean for FA indicated an increase of fatigue (0.43 ± 0.32, 0.83 ± 0.44). **CONCLUSIONS:** Within the limits of the study, and using ES which reflects contribution of intervention to the change, aquatic exercise programming has the potential to improve mood by reducing negative feelings and demonstrating acceptable responses to exercises by reporting increases in fatigue in adults with hemiplegic stroke. The reduction of negative affect would appear to be a benefit to adults with hemiplegic stroke.



How Do Older Adults with Age-Related Macular Degeneration Develop Physical Activity Self-Efficacy?

Scientific Research
2:55-3:15 pm
Room C

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According to the United States Administration on Aging, the population of individuals over 65 will be 88.5 million by the year 2050, doubling its 2010 estimates. As our population ages, so does the prevalence of chronic conditions. One of these chronic conditions, age-related macular degeneration, is the leading cause of vision loss in older adults. Vision loss resulting from age-related macular degeneration limits participation in valued occupations including engagement in physical activity. This is significant in that emerging research suggests that a combination of healthy behaviors including physical activity can decrease the risk of development and progression of this condition. Despite a multitude of barriers secondary to vision loss, many older adults persevere and continue to participate in recommended levels of physical activity to maintain and improve health. A primary factor contributing to adherence in physical activity programs is self-efficacy. Self-efficacy describes an individual's belief that they can put their skills to use, in this case for physical activity, and are capable of controlling their lives despite obstacles and barriers. Although study results identify the importance of self-efficacy in adherence to regular physical activity, researchers know little about how this important factor develops (McAuley et al., 2007; Perkins, Multhaup, Perkins & Barton, 2008). Currently, there are no existing studies exploring how Physical Activity Self Efficacy develops in older adults with vision loss. **PURPOSE:** The purpose of this grounded theory pilot study was to describe how older adults with AMD living in a southeast metropolitan area develop physical activity self-efficacy. **METHODS:** The investigator used qualitative methodology, specifically face-to-face interviews and observation to complete this study. Strauss and Corbin's (1988) systematic approach to grounded theory was used to begin to develop a model of how older adults with age-related macular degeneration develop physical activity self-efficacy. **RESULTS:** Microanalysis and open coding using NVivo 9 software collected from 8 participants revealed six themes 1) physical activity characteristics, 2) self-management behaviors, 3) barriers to physical activity, 4) facilitators of physical activity, 5) strategies to enhance physical activity participation and 6) self-perceived benefits of physical activity. **CONCLUSIONS:** A preliminary model of how older adults with age-related macular degeneration develop physical activity self-efficacy reveals a reciprocal influence of intrapersonal, interpersonal and environmental factors. Results can be used to design physical activity programs specifically for older adult with vision loss, which will minimize barriers and maximize adherence.

Assessing Teacher Effectiveness in Inclusive and Adapted Physical Education: Epistemological and Methodological Perspectives

So-Yeun KIM¹, Mihye JEONG², & Martin E. BLOCK³

Practical Application
2:55-3:15 pm
Room D

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There have been increased interests to define highly qualified teacher requirements and teacher effectiveness. No Child Left Behind (NCLB) Act mandates that all teachers should be "highly qualified", and the Adapted Physical Activity Council (2007) published a position paper defining "highly qualified" adapted physical education teachers under the assumption that highly qualified teacher provide effective teaching to students. However, it is not clear whether "highly qualified" is related to effective teaching, what makes effective teaching, and how teacher effectiveness can be measured. The purpose of this building session is to discuss paradigms and methods for research on teacher effectiveness in inclusive and adapted physical education from epistemological and methodological perspectives. This building session will be divided into three parts. The first part of our presentation will cover background and comprehensive view of teacher effectiveness. The second part of our presentation will discuss research synthesis on methods of assessing teacher effectiveness in inclusive and adapted physical education settings. The third part will introduce currently available assessment tools in teacher effectiveness (e.g., Teacher Performance Assessment) and discuss implications and recommendations for inclusive and adapted physical education settings. This building session will help teachers, professionals in higher education, and policy makers identify issues of teacher effectiveness and develop appropriate assessment tools to evaluate teacher effectiveness in inclusive and adapted physical education settings.



Neuromuscular Electrical Stimulation Induced Torque Production and Fatigue in People with and without SCI

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Scientific Research
3:20-3:40 pm
Room A

Neuromuscular electrical stimulation (NMES) incorporates the use of electrical current to facilitate contraction of skeletal muscle. One goal of using NMES is to mimic voluntary contractions in order to obtain the physiological improvements that result from training, but specific parameters are often subjectively prescribed. Optimizing stimulation parameters during NMES-induced contractions of non-paralyzed skeletal muscles can have a variety of applications. However, we are aware that protocols developed in non-paralyzed muscle do not necessarily translate to paralyzed muscle, which has atypical phenotypic profiles as well as uncharacteristically high levels of muscle fatigue. **PURPOSE:** To examine the interrelationship of pulse duration and pulse frequency on torque production and muscle fatigue in both paralyzed and non-paralyzed skeletal muscle of men and women. **METHODS:** Individuals with [n=14 (6 females), 38 ± 13 years; 175 ± 11 cm; 76 ± 20 kgs] and without [n=14 (6 females), 29 ± 8 years; 175 ± 9 cm; 74 ± 14 kgs] spinal cord injury participated. Muscle torque was recorded during a series of NMES-induced muscle contractions using different combinations of pulse durations (200, 300, 400, and 600 μsec) and frequencies (20, 30, 40, and 60 Hz). Additionally, two different muscle fatigue protocols (20Hz/500μsec and 50Hz/200μsec) were utilized to elicit repeat muscle contractions (1 sec on/ 1 sec off x 3 minutes). **RESULTS:** Individuals with SCI had significantly greater muscle fatigue for both muscle fatigue protocols (p<0.05), there was no difference between genders (p>0.05). Frequency of stimulation had less of an impact in muscle fatigue for the SCI group. Total pulse charge (product of pulse duration and frequency) predicted muscle torque better in able-bodied (R²=0.733) than SCI (R²=0.645). **CONCLUSIONS:** NMES protocols that are developed in non-paralyzed muscle may not necessarily translate to paralyzed muscle and further studies are warranted to optimize NMES protocols for individuals with SCI. Additionally, gender differences in muscle fatigue that have been shown to occur during voluntary contractions were not apparent with NMES-induced contractions in either paralyzed or non-paralyzed muscle.

Injury Profiles and Training of the Senior Olympic Athlete: A Pilot Study

Roxanne ST. MARTIN, Mike BAMMAN, & Lisa OLENIK DORMAN

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Scientific Research
3:20-3:40 pm
Room B

Musculoskeletal physiological measures related to the Senior Olympian and the active aging population have been studied in order to better understand the relationship between performance decline and disability (EBBS; Wright & Perricelli 2008); however, there is a relative paucity of research examining the relationships between injury treatment and performance, and adapted training protocols and performance with this population. **PURPOSE:** This study is part one of a three-part research program, being developed to address the training, and injury rehabilitative needs of the Senior Olympian. The purpose of this first phase of the project was to document the overall injury and disability profile of these athletes as related to incidence of injury, time of training/competition missed due to injury and presence of chronic disease or disabling conditions. **METHODS:** A random sample of 29 elite Alabama Senior athletes competing in the 2011 National Senior Olympic Games completed an Injury Profile Survey and follow-up phone interviews. Ages represented were from 57 to 80yrs, and a cross sampling of competitive experiences was included. Descriptive statistics on age, gender, injury type, and injury treatment, and impact on competition were also documented. **RESULTS:** The current sample (n = 29) showed an overall incidence of at least one injury suffered in training to be 0.58, with the incidence decreasing to 0.20 for two injuries during training, and decreasing even further to 0.13 for three injuries suffered during training in adults participating in the 2011 (year) Alabama Senior Olympics. Basic correlation matrix showed that age was not significantly related to the incidence of injury (r = -0.35). Also, age was not related to time of training/competition missed due to injury (r = 0.054), or the presence of chronic or disabling disease (r = 0.028). **CONCLUSIONS:** Interestingly unlike earlier research on musculoskeletal decline in the active aging population and the age related declines of senior athletic performance, this study indicated that injury rather than age-related decline may be more limiting of sport performance. Adapted training protocols to address specific injury type and to prepare for performance are currently being studied with this sample.



Sport in the Life of a Person with a Disability

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Scientific Research
3:20-3:40 pm
Room C

The benefits of sport are well known to most people and more recently it has been recognised that people with a disability also benefit from sport participation and not just from a rehabilitative perspective (Depauw & Gavron, 1995; Shephard, 1991). However, the benefits of being an athlete is only experienced by a select few, especially within the disabled community. **PURPOSE:** The purpose of this study was to investigate Paralympic athletes' perceptions and experiences in sport and the process by which they are "allowed" to participate, namely classification. **METHODS:** This study was conducted based on a qualitative methodology, which is used to gain a better understanding of the phenomenon in question from the participant's perspective (Flick, von Kardorff and Steinke, 2004). Semi-structured, in-depth interviews is the most common method used in qualitative research and was therefore also used to collect the data in this study. The data was analysed based on the Grounded theory, which combines theoretical sampling and procedures for coding the data with the main aim being to inductively build a theory from the raw data (Tesch, 1990 in Fossey, Harvey, McDermott & Davidson, 2002). **RESULTS:** The results showed that persons with a disability are socialized into sport through various agents and agencies and that they are able to reap the same physical and psychological benefits that able bodied athletes do. All the participants agreed that sport has given them opportunities that they otherwise would not have had and in some cases partaking in sport has improved their confidence level and their physical condition. Interestingly, the results also indicated a lack of understanding from the participants regarding classification and a lack of trust in the process. For instance, athletes are sometimes incorrectly classified and this ultimately affects their success in their sport. **CONCLUSIONS:** Sport has proven to be highly beneficial for athletes with a disability. Most athletes agreed that their disability does not stop them from competing and being the best that they can be and reaping the benefits of athleticism. However, the majority of participants agree that classification needs refinement, but that ultimately it is only a means to an end; it is considered necessary in order to compete in a sport they love and regard as being a big part of their life.

Competencies of GPE and APE Teachers for Inclusive Physical Education: European Initiatives

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Practical Application
3:20-3:40 pm
Room D

The purpose of this presentation is to introduce European initiatives and new developments focused on competencies of general physical education teacher and adapted physical educators in relation to inclusive physical education. In this presentation the outcomes of the project European Inclusive Physical Education Training – EIPET (LLP/LdV/TOI/2007/IRL-502) and the project European Standards in Adapted Physical Activities - EUSAPA (142271-LLP-1-2008-1-CZ-ERASMUS-EMHE) will be described and discussed in relation to current situation in selected European countries. Described projects were focused on modernization of higher education in the area of APE. These projects aimed to tackle difficulties that arise with the inclusion of children with disabilities into general education. In this presentation we will introduce two major outcomes of both projects: (a) a functional map of the physical education teachers' role will be developed and (b) the knowledge competence and skills requirements of PE teachers given the rapidly changing work environments resulting from the aforementioned changes. In this presentation we highlight the importance of professional developments in APE and nature of cooperation between GPE teachers and APE specialists. Finally recent initiatives and future plans of European Federation of Adapted Physical Activity will be presented to help understanding of described frameworks.



Enhancing the Effects of Physical Activity and Exercise with Music

Building Session
4:00-5:10 pm
Room A

Matthew P. FORD^{1,3}, Scott PHILLIPS², Marion HASSE³, Mary Margaret SCALICI⁴, & Duncan BLAIR⁵

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The aim of physical activity and exercise for persons with physical disabilities is to improve function and QOL. Music is an integral part of everyday life and is often used to facilitate these activities. Physical activity and exercise research has shown that music can significantly improve function and quality of life (QOL) when used during these activities. Research data show that music entrains brain and muscle activity leading to improvements in movement efficiency, and overall function. Dance is a form of movement expression that is closely connected to the music. Data have clearly demonstrated that when persons with physical disabilities dance regularly, balance and walking function improves. Incorporating music during mobility training has also shown to significantly improve movement efficiency and most importantly walking speed. The coordination between the arms and legs during walking is based on timing. Music's structure is timing, and therefore it can be used to dictate walking behavior in persons with physical disabilities. Music embodies many cultures, providing a foundation for movement expression, social interaction, and physical exercise. This building session will consist of an overview of literature supporting the use of music to enhance community participation, physical activity, and exercise. We will review the basic neuroscience connecting music to the brain, followed by examples of how music can be used to enhance the effects of physical activity and exercise. We will present data from both past and current research projects we have conducted at Lakeshore Foundation. During this building session we will have a panel discussion which will include persons with physical disabilities who have musical backgrounds, community performers and instructors who use music to help people move, and professors of music and technology who are working to bring music to persons with physical disabilities by using current technologies and developing new technologies. Additionally, if time permits, and the opportunity is there we would like to show examples of how music is utilized in programs at UAB and at Lakeshore Foundation.

Do Cycling Skills Learned at Camp Generalize to Home?

Scientific Research
4:00-4:20 pm
Room B

Alisha WITTER¹, Coral BATES¹, Lizette GREYLING¹, Robyn MISOVIC², Carrie DEBOER², E. Lynn PURVES², & Vivienne A. TEMPLE¹

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Bike riding can be an important source of physical and social activity for children, yet many children with disabling conditions do not learn to ride a two-wheeled bicycle. Lose the Training Wheels is an innovative 5-day camp program that adjusts the difficulty of riding by changing the dynamics of the bicycle and the level of support. **PURPOSE:** To describe children's participation in bike riding pre- and post-camp; and to describe factors that facilitate or hinder post-camp cycling. **METHODS:** Parent and child dyads (n=11) participated in semi-structured interviews 3-4 months post-camp. All of the children were receiving school-based therapy services for a variety of physical, cognitive, and sensory processing needs from the Queen Alexandra Centre for Children's Health. The interviews were digitally recorded and transcribed verbatim. Guided by the model of disability and health (WHO, 2007), parents were prompted to discuss their child's bicycle riding before and after camp as well as barriers and affordances for riding. Children were asked about their cycling experiences and what made riding more or less difficult. Transcripts were examined deductively for participation and contextual influences using a template of codes approach. **RESULTS:** Prior to the camp, none of the children were successfully riding a two-wheeled bicycle. Two patterns of participation were evident from narrative descriptions of post-camp riding: 'Riders' and 'Not There Yet'. At 3-4 months, most 'Riders' (n=7) were riding a two-wheeled bicycle with adult supervision in semi-controlled environments (e.g. bike paths). Facilitating factors were: riding a two-wheeled bicycle by camp end; the child's enthusiasm for riding; overcoming fears; parent knowledge/confidence; adult support; having a suitable bicycle; post-camp practice; and a safe and convenient location to cycle. None of children (n=4) who were 'Not There Yet' at follow up were riding independently by the last day of camp. Parents were pleased with their child's progress during the camp, but expressed some post-camp frustrations. Parents didn't know how to help their child proceed; they wanted access to the adapted bicycles, and a post-camp plan of action. For this group, two were not riding at follow-up, one was still practicing with her parents, and the fourth had reverted to training wheels. **CONCLUSIONS:** The program transferred well to home for children who were riding independently on the last day of camp. Children who were not riding independently at the end of camp were, as one parent said, "left hanging". Ongoing support is needed for this group of children in particular.



Physical Activity in the Lives of People with Down Syndrome

Adam LOVE & Stamatis AGIOVLASITIS

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Scientific Research

4:00-4:20 pm

Room C

People with Down syndrome (DS) have higher risks for cardiovascular morbidity and obesity than the general population. Although such conditions might be ameliorated by increased physical activity, people with DS are, as a group, relatively inactive. Health promotion in people with DS may be improved by a better understanding of how they experience physical activity. **PURPOSE:** This study, therefore, explored how physical activity is perceived and experienced by individuals with DS. **METHODS:** We conducted in-depth interviews with 16 adults with DS (age-range 18-71 years). The interviews began with general questions intended to understand what forms of physical activity were most prominent in the views of participants and proceeded to more specific questions that explored factors contributing to enjoyment or non-enjoyment of physical activity. Interview data were analyzed using a constant comparison approach in which the researchers identified themes and patterns present in participants' responses. This was achieved by repeatedly reviewing the data, considering similarities and differences between and within categories, while simultaneously being cognizant of the emergence of new themes. **RESULTS:** Several prominent themes emerged from analysis of participants' responses. One primary theme was participants' overall enjoyment of physical activity, including such seemingly routine forms of exercise as walking on a treadmill. Primary facets of enjoyment included social *interaction*, a sense of *achievement*, and a satisfaction with the *process* of activity itself. The theme of *interaction* included an enjoyment of social contact with parents, siblings, peers, pets, caregivers, and others. Sense of *achievement* included items ranging from the accomplishment of a particular task (e.g., catching a football) to receipt of material awards (e.g., receiving a medal). The theme of *process* reflected the enjoyment participants felt about actually performing a particular activity (e.g., the act of shooting a basketball). **CONCLUSIONS:** The fact that physical activity was perceived as enjoyable by participants, yet people with DS are less active than the general population, seems to highlight a contradiction. The perception of enjoyment, however, may be utilized in creating physical activity programs that appeal to people with DS. Such programs may be more effective if they provide appropriate opportunities for social interaction, achievement, and enjoyment of the process of physical activity. Appropriately designed programs may potentially increase physical activity and improve health in people with DS.

Ensuring Best Practices in Physical Activity, Recreation, and Sport for Persons with Physical Disability

Daniel R. HUMPHREYS¹ & Ann E. CODY²

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Practical Application

4:00-4:20 pm

Room D

The knowledge, skills, and attitudes of the professionals, coaches, and volunteers tasked with providing physical activity, sport, and recreation opportunities, programs, and services persons with physical disability is critical to the long term success of the program as well as the ability of the person with physical disability to lead a healthy and active lifestyle. Historically, the disability sport community has lacked a formal process or organization that evaluated the competencies, experience, and training of professionals, volunteers, and coaches in the field. This void was glaring, and it had significant consequences across the spectrum of competition, from recreational participation to elite level sport. In the absence of such a system, there was no way to ensure that service providers possessed the knowledge and the ability to deliver safe programming to the standards of best practice. BlazeSports Institute for Applied Science (BIAS) functions as both a curriculum and an independent process of review, evaluation, and credentialing of volunteers, coaches, and professionals engaged in all levels of physical activity, sport, and recreation programming for people with physical disability. To ensure that BIAS incorporates the latest in theoretical and practical knowledge, the process is overseen by a panel of experts from related fields and disciplines, including therapeutic recreation, sports science, sports medicine, adapted physical education, rehabilitation medicine, and Paralympic sport. BIAS is designed to benefit people at all different levels of engagement in disability sport, physical activity, and recreation. Through their participation in the Certified Disability Sport Specialist (CDSS) program, volunteers, coaches, and professionals can demonstrate to employers and organizations that they are leaders in disability sport. The credential signifies the ability to provide safe and effective disability sport programming through knowledge and application of the latest research in the field. The CDSS program is the only one of its kind that provides a curriculum with the information and resources necessary to certify the competencies of people that are providing physical activity, sport, and recreation programs and services to people with physical disabilities. The CDSS program ensures that those providers are versed in best practices and are capable of providing safe, effective, and creative programming for people with physical disability. This session will introduce the CDSS program offered through the BlazeSports Institute for Applied Science and its role in the professional development of service providers engaged in physical activity, recreation, and sport programs and services for persons with physical disability.



Supporting Active Families in a Friendly Environment

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Scientific Research

4:25-4:45 pm

Room B

Research has demonstrated that parents of children with autism spectrum disorder (ASD) experience higher levels of stress, and lower levels of well-being than parents of children without ASD or any other type of disability (Baker-Ericzen et al., 2005; Perry et al., 2004). Regular exercise (Ratey, 2009) and social support can reduce stress (Meadan et al., 2010). Barriers to participation in physical activity include lack of family support and programs. (Obrusnikova & Cavalier, 2011). Family programs may reduce barriers to being physically active for parents, siblings, and the child with ASD. **PURPOSE:** To evaluate S.A.F.F.E. (Supporting Active Families in a Friendly Environment), a pilot university-based program designed for families of children with ASD. The program was evaluated to understand if i) exercise and social contact decreased perceived stress, ii) family programs reduced barriers to participation in leisure activity and iii) engagement in moderate to vigorous physical activity increased. **METHODS:** Eight families who have a child with ASD participated in an university-based 11-week exercise program (14 parents, 15 children). Time spent exercising was recorded using a seven day recall at the beginning and end of the program. Parents completed a questionnaire which assessed perceived stress and answered open ended questions regarding barriers to participation in leisure type programs. **RESULTS:** Families of children with ASD increased the time spent exercising per week during the course of the program ($F=5.83, p<0.04$). All participants increased the number of days per week they completed 30 minutes or more of exercise. Participants indicated that they agreed (60%) or strongly agreed (40%) that exercise and social contact with other families of children with ASD reduced stress. The majority of parents reported that the family program helped overcome some major barriers to participation in family activities in the community such as the inflexibility of the child with ASD, other barriers such as time demands related to the child with ASD (therapy, home work) were unaffected. **CONCLUSIONS:** Parents of children with ASD spend more time with childcare and household chores, have more work interruptions, experience more fatigue, have less time for leisure and self-care than parents of children without disabilities (Smith et al., 2010). It is vital to the well-being of children with ASD families are supported. The S.A.F.F.E. pilot program was successful in supporting families of children with ASD, increasing physical activity and reducing parental stress.

Parental Satisfaction of Physical Activity among Down Syndrome and Autism Spectrum Disorders: Structural Equation Model

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Scientific Research

4:25-4:45 pm

Room C

Parents have a range of influences on the physical activity behaviors of youth with disabilities (Barr & Shield, 2011; Pan, 2009). Interventions can positively impact parental satisfaction (Johnson, 2009), but the underlying processes of parental satisfaction are relatively unknown. **PURPOSE:** The purpose of this study was to develop and test a structural equation model predicting the degree of parental satisfaction in their child's current physical activity levels among a sample of youth with Down syndrome (DS) and Autism spectrum disorders (ASD). **METHODS:** Data from 190 participants with DS ($M_{age}=11.91$; 52% female) and 169 participants with ASD ($M_{age}=11.99$; 42% female) were used to retrospectively develop a structural model. Latent factors included: body composition measured by BMI and skinfold percent body fat (Slaughter et al., 1988); severity of disability measured by the Social Responsiveness Scale (Constantino & Gruber, 2005); leg strength of peak isometric knee extension and flexion measured by handheld dynamometry (Layette Instrument Co.); sedentary and physical activity behavior measured by seven days of Actical accelerometry (Phillips Respironics), and parental satisfaction of current physical activity levels measured on a 10-point Likert-type scale. The six latent-factor model was run as a two-group comparison between DS and ASD using EQS statistical software. **RESULTS:** The final model provided excellent fit to the data: $X^2(57, N_{DS}=190; N_{ASD}=169) = 95.506$; NNFI=.980, CFI=.990, SRMR=.051; RMSEA=.062. Four structural paths were significant ($p<.05$) for both DS and ASD. These include: body composition on leg strength ($\beta_{DS}=.240$; $\beta_{ASD}=.255$), sedentariness on physical activity ($\beta_{DS}=-.487$; $\beta_{ASD}=-.606$), and severity ($\beta_{DS}=-.178$; $\beta_{ASD}=-.192$) and body composition ($\beta_{DS}=-.377$; $\beta_{ASD}=-.342$) on parent satisfaction. Two additional paths were also significant for DS, but not for ASD: severity on sedentariness ($\beta_{DS}=-.554$; $\beta_{ASD}=.143$), and severity on physical activity ($\beta_{DS}=-.268$; $\beta_{ASD}=.051$). Neither physical activity ($\beta_{DS}=-.084$; $\beta_{ASD}=.173$), nor sedentariness ($\beta_{DS}=-.019$; $\beta_{ASD}=-.013$) demonstrated a significant relationship with parent satisfaction. **CONCLUSIONS:** Parental satisfaction of the current physical activity levels of their child with DS or ASD is not predicted by the child's actual levels of physical activity or sedentary behavior, but rather is strongly predicted by the body composition and severity of disability of the child. More specifically, children with DS and ASD with greater adiposity and greater severity have less satisfied parents with their physical activity behaviors. Future research and interventions should continue to focus on physical activity among youth with DS and ASD, but should also consider new components to properly educate parents of realistic expectations for their child.



Strength and Conditioning for the Athlete with a Disability: Pushing Athletes to the Limit

Heather PENNINGTON

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Practical Application
4:25-4:45 pm
Room D

The program will educate participants on applying the Principles of Adaptation to any athlete with a disability and involving them in a periodization plan for Strength and Conditioning. The Principles of Adaptation allow the professional to draw on resources to be creative and extremely functional in designing strength and conditioning or fitness programs for any athlete, novice to elite. The program will give examples from 12+ years experience, pictures, exercises and potential plans for athletes with Spinal Cord Injuries, Traumatic Brain Injuries, Cerebral Palsy, Muscular Dystrophy, Orthopedic Limitations, Visual Impairment, and others. The participant will be challenged and taught how to push their athletes or participants to accept no limit, and pursue their individual utmost athletic potential. Potential sports that will be discussed and ideas suggested for periodization plans will cover: Goalball, Wheelchair Rugby, Wheelchair Basketball, Handcycling, Swimming, Track and Field, and more dependent on participant desire. The presentation will provide workout examples and exercises that do not involve major equipment. The philosophy behind the Principles of Adaptation is functional training and using bodyweight, medicine balls, bands, kettlebells, suspension training, and other portable equipment will be covered. The goal is for the professional to have something to apply to their programs or athletes the first day they arrive home. The professional will have ideas and tools for exercise that do not have to involve joining a gym facility. The presentation will cover how to handle multiple disabilities in a group setting for training. It will also train the professional to use their "Principles of Adaptation Tool Box" to tackle any challenging athlete to help push them to be their absolute best. The "Principles of Adaptation Tool Box" involve using simple methods such as maximizing principles of planes of movement, pillars of human movement, gravity principle, lever arm principle, redefining a neuromuscular 'core', balance on your feet or your seat principles, and more. Areas of discussion will be muscle strength, muscle endurance, upper and lower body power development, agility, cardiovascular endurance, dynamic and static balance, chair skills for wheelchair sports and more. If possible, a hands-on session where participants will get to try out their skills and Principles of Adaptation on the spot to immediately apply what they have learned will be offered. Participants will leave the session prepared to go back to their programs and challenge their athletes to expect more out of their athletes.

Systematic Framework to Evaluate the Status of Health Promotion Research for Persons with Disabilities

Alicia M. DIXON-IBARRA, Kerri VANDERBOM, Mara NERY, Jill PAWLOWSKI, & Simon DRIVER

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Scientific Research
4:50-5:10 pm
Room B

The Behavioral Epidemiology Framework describes a sequence of five research phases used to categorize health-related behavior (Sallis et al., 2000). This framework has been used in the field of public health, but its utility for adapted physical activity (APA) is recommended to help guide evidence-based research to practice. The five phases of research in the context of physical activity (PA) include: Phase One, Establishing links between PA and health; Phase Two, Developing methods for measuring PA; Phase Three, Identifying factors that influence PA; Phase Four, Evaluating interventions to change PA behavior; Phase Five, Translating research into practice. By utilizing this framework, researchers can assess the status of health behavior research and identify future research directions to improve the field. **PURPOSE:** To demonstrate the utility of this framework for persons with disabilities, we examined the current state of PA research for persons with multiple sclerosis (MS). **METHODS:** A review was conducted searching *Google Scholar* and several major areas within *EBSCOHOST* including General, Counseling, Education, Health Science, Psychology, Sociology, and Social Sciences from 2000-2012 using key words 'physical activity', 'health promotion', 'exercise' and 'physical fitness' in addition to 'multiple sclerosis'. Articles were categorized according to the framework (Phases 1-5). Coding rules included: a) editorials without extensive references were not coded, b) highest phase was coded for papers using multiple categories, c) if PA measurement was in the paper Phase Two was coded, d) papers with measurement of determinants of PA were coded Phase Three, and e) measurement of factors related to dissemination was coded Phase Five (Sallis, et al., 2000). **RESULTS:** A total of 125 articles were retrieved. Fifty-four percent of the articles were in Phase One (n=67), 22% (n=28) Phase Two, 31% (n=39) Phase Three, and 9% (n=11) Phase Four and Five. **CONCLUSIONS:** In the area of PA for persons with MS, there is an emphasis on Phase One, indicating this field is in its early stages of development. The small percentage of studies in Phase Four and Five demonstrate a need to develop PA programs that can be disseminated to the population. This is consistent with federal initiatives by the *Surgeon General* and *Healthy People 2020* to improve the health of Americans with disabilities. The use of this framework to categorize the current state of research in APA can help stimulate discussions surrounding behavior change interventions to improve the health and wellness of disability populations.



Delays in Motor Abilities in Young Children with Autism Spectrum Disorder (ASD)

Scientific Research
4:50-5:10 pm
Room C

Leah R. KETCHESON & Dale A. ULRICH

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It has long been established that children with ASD exhibit deficits in the social and communication domains, however far less is known regarding their development in the motor domain. To date, the majority of studies examining the motor skill abilities in young children with autism have involved motor assessments not comprehensive enough to capture a complete motor profile or they examine a small sample size making the results difficult to generalize. **PURPOSE:** The purpose of this study was to examine the motor skill abilities of young children with ASD using a comprehensive standardized motor skill assessment. **METHODS:** Participants with a diagnosis of ASD between the ages of 2 through 5 were administered the Peabody Motor Development Scale -2 (PDMS-2). **RESULTS:** A total of 37 young children with ASD were placed into 3 groups, group one, 24 – 36 months, mean age = 29.57 (4.5); (n = 10), group two, 37 – 48 months, mean age = 42.67 (5.3); (n = 12) and group three, 49+ months, mean age = 57.86 (6.7); (n = 15). Descriptive statistics for the scores on the PDMS-2 reveal that significant delays are evident in their total motor quotient (TMQ) (a combination of scores from their fine motor quotient and gross motor quotient) ($p < 0.05$). Mean TMQ scores in Group 1, were 74.25, placing them in the 13th percentile. Results from Group 2 reveal a similar profile, their mean TMQ was 73.77, placing them in the 12th percentile. Similarly, results from Group 3 reveal that their mean TMQ was 75.25 placing them in the 13th percentile. Subgroups analysis from classification of the children's TMQ on the PDMS – 2 demonstrate that scores from all three age groups places their classification of motor skills in the 'very poor' descriptive category (based on a 7 level ordinal classification scale ranging from very poor to very superior). **CONCLUSIONS:** Taken together, the findings of this study have far reaching implications for both *practitioners* and adapted physical education teachers. The motor delays were found across both gross and fine motor abilities which highlight the need for future intervention research addressing these delays early on. Additionally, future research should consider the longitudinal analysis of motor skill development in order to track trajectories for the purpose of understanding the rate of development and how this may change with age.

Resistance Training Recommendations for Individuals with Intellectual and Physical Disabilities

Practical Application
4:50-5:10 pm
Room D

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Resistance training is now recommended 2 to 3 days per week for positive health outcomes among persons with and without disabilities. Unfortunately, very few adults with disabilities engage in, and therefore benefit from, weekly resistance training (U.S. Department of Health and Human Services, 2010). Therefore, the purposes of this oral presentation are to: 1) provide a brief overview of resistance training benefits and components of a resistance training program, 2) report disability-specific resistance training benefits for persons with intellectual and physical disabilities, 3) describe appropriate resistance training programs to maximize these benefits, and 4) summarize resistance training resources offered by adapted sport and activity organizations. The session will target exercise and rehabilitation specialists and prioritize populations needing unique exercise prescriptions (e.g., persons with cerebral palsy, Down syndrome, spinal cord injury and stroke).



Factors Influencing Continued Bicycle Riding in Youth with Disabilities: A Validation Model

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Scientific Research
5:15-5:35 pm
Room A

Youth with disabilities are less physically active than their typically developing peers (CDC, 2005). In addition, these youth become more sedentary throughout their lifespan (Sandt, 2005). Bicycle riding offers youth with disabilities the opportunity to engage in social activities, independent travel and age appropriate physical activity. Despite these advantages, few youth with disabilities ever obtain the skill of independent two-wheeled bicycle riding (Ulrich et al., 2011). **PURPOSE:** Over two consecutive summers, we examined the bicycle riding status of youth with Down syndrome (DS) and Autism Spectrum Disorder (ASD) who participated in a one week bicycle training intervention to determine those who retained this skill overtime and what factors predicted their post intervention riding status. **METHODS:** Three months following the intervention, we surveyed 56 families who had a child with ASD or DS to determine whether their child sustained independent bicycle riding skills. We used these data to create a logistic regression model predicting continued riding status. The following year, we repeated the intervention with a new sample of 29 participants with ASD or DS in order to test our model. **RESULTS:** Logistic regression was used to create a model to predict factors that influence continued riding status. We determined that body composition, leg strength, social responsiveness and amount of light physical activity were associated with increased likelihood of continued riding success at three months following the intervention. This model predicted riding ability at three months post intervention with 81.4% accuracy. In order to validate this model, the logistic regression using the same predicting factors was run utilizing a new sample. Our model maintained its predictive ability with 72.4% accuracy. **CONCLUSIONS:** Youth displaying these characteristics before participation in a bicycle training intervention are more likely to maintain the skill of independent riding over time. Continued riding throughout adolescence provides youth with the opportunity to gain social and physiological benefits associated with increased physical activity. Adapted physical educators and practitioners should target the modifiable factors associated with motor development in order to increase the odds of continued riding success following a bicycle training intervention.

Towards Person-Level Research in Adapted Physical Activity

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Scientific Research
5:15-5:35 pm
Room B

This presentation will mainly focus on quantitative research traditions in adapted physical activity (APA) although it will implicitly endorse the intensive study of individuals frequently found in qualitative inquiry. In quantitative inquiry, it is possible to identify three major research traditions: the group experiment, the individual difference approach, and the replicated single-case. The group experiment includes, but is not limited to, true experiments and quasi-experiments. Group experiments are frequently analyzed using ANOVA, or MANOVA, and the focus of analysis is on mean differences, instead of inter-individual differences in response to treatment. Typically, when researchers use the individual difference approach, the focus of research is on differences on variables, and their relationships to other variables. Data using this approach are typically analyzed using correlation coefficients, or variants (e.g., multiple regression, factor analysis, structural equation modeling). The group experiment, and the individual difference approach share the common view that the aggregate, and not the person-level data, is the proper unit of analysis. The single-case approach is characterized by its person-level emphasis. The research focus is to gain insight into the functioning of the person, that is, the causal processes presumed to govern the functioning of every person. It is assumed that replication of findings across participants may allow the discovery of universal knowledge, if any. $N = 1$, and replicated single-subject designs, are exemplars of this type of inquiry. In this presentation, a number of arguments in favor of the more frequent use of replicated single-case, or person-level research in APA, will be made. First, it will be argued that APA practices are frequently guided by a philosophy of individuality, and the possibility of generalizing aggregate results to individuals is often questionable. Second, it is well known that people often react differently to the same treatment, and, hence, the plausibility of generalizations from aggregate to persons is often dubious. Third, as demonstrated by Molenaar using the ergodic theorem, the generalization of inter-individual difference results to intra-individual processes is only plausible under rare conditions (i.e., ergodicity). Finally, causes are often presumed to be acting at the person level, and, hence, their effect should be determined at the person level, not the aggregate level. Implications of these ideas for future research in APA, and evidence-based practice, will be discussed.



Effects of Therapy Dog-Assisted Exercise on On-Task Behavior of Children with Autism Spectrum Disorders Scientific Research
5:15-5:35 pm
Room C

Iva OBRUSNIKOVA¹, Janice M. BIBIK¹, & Albert CAVALIER²

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Research shows that children with ASD generally do not engage in sufficient amounts of moderate to vigorous physical activity (MVPA) (Obrusnikova & Cavalier, 2011). Engagement in off-task behaviors was found to be one of the barriers to MVPA in children with ASD (Obrusnikova & Dillon, 2011; Obrusnikova & Miccinello, 2012). Interaction with therapy dogs (TD) has been found to promote calmness, playful moods, on-task behavior, motor performance, communication, sense of responsibility, awareness of the social environment, and development of positive social behaviors in children with developmental disabilities and their typically developing counterparts (e.g., Fine, 2006; Gee, Sherlock, Bennett, & Harris, 2007). **PURPOSE:** The purpose of this study was to provide preliminary evidence of the effects of the Therapy Dog Assisted Physical Exercise (TDAE) on the percentage of time children with ASD spend in on-task behaviors. **METHODS:** A single-subject, multiple-baseline across subjects repeated measures design was employed. The TDAE was framed using the Social Cognitive Theory (Bandura, 1997). It lasted eighteen 45-min sessions and consisted of four elements: (a) vicarious social experiences, (b) direct social experiences, (c) vicarious PA instruction, and (d) direct PA instruction. The exercises included two skill stations (throwing a football and shooting a basketball) and three fitness stations (shuttle run, sit-ups, and push-ups). Participants were a purposive sample of seven boys and one girl with ASD, four aged 8-9 years and four aged 12-13 years, who were recruited from a community organization. Student behaviors were recorded using a digital camcorder and coded by two independent researchers using the Academic Learning Time-Physical Education. Semi-structured interviews with parents and the participants were used to help understand the data. **RESULTS:** Improvement Rate Difference scores showed that of the eight participants, four showed improved on-task behaviors in phase two, two did not improve, and two showed lower levels of on-task behaviors. The lack of improvement was attributed to the following factors: (a) a high level of on-task behaviors at the baseline, (b) getting used to the setting and the instructor, (c) being distracted by activities that preceded or followed each session, and (d) lack of interest in the TD. Larger improvements were observed during competitive rather than individualistic tasks. **CONCLUSIONS:** The results indicate that when controlling for other factors, the TDAE can be an effective strategy in increasing levels of on-task behaviors and ultimately MVPA in children with ASD.

Living Life in Motion: Exposing Injured Service Members to Disability Sport and Recreation Practical Application
5:15-5:35 pm
Room D

Mandy GOFF

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Nearly ten years ago, the United States entered into what we now know is one of the country's worst conflicts. Due to the advancements in technology and updated military combat equipment, men and women are surviving gunshot wounds (GSN), road side bombs or improvised explosive devices (IED), mortar attacks, and rocket propelled grenades (RPG). These incidents and weapons are leaving our men and women with spinal cord injuries (SCI), visual impairment, amputations, traumatic brain injuries (TBI), severe burns, permanent disfigurement, and post-traumatic stress disorder (PTSD). Many of these men and women who had intentions of making the military their career are left feeling discouraged, depressed, and hopeless after injury. Family members struggle to deal with the "new" member of their family who has returned home often angry, confused, distant, and withdrawn. With any severe injury, there is surgery, rehabilitation, therapy, and with all that comes frustration and thoughts of "where do I belong" now that I'm living my life with a physical disability. Lakeshore Foundation, a non-profit organization based in Birmingham, serves individuals with physical disabilities and chronic health conditions through physical activity, sports, recreation, and research on a daily basis. They recognize and understand the importance of physical activity for individuals living with physically disabling conditions and the impact of fitness and recreation programs. With the knowledge and expertise that exists at Lakeshore and state of the art facilities, it only made sense for them to open the doors to a new program opportunity. In 2006, after the announcement of their injured military initiative, Lakeshore introduced Operation Lima Foxtrot, a comprehensive program of fitness, recreation, sport, and transition support for injured service members across the United States. What began as one extended weekend program has now blossomed to six weekend programs including a Paralympic sport camp, disability specific camps for those with visual impairments and TBI, a camp geared towards the whole family, and one that centers on focus groups with past participants and their family members discussing ways communities can aid in the transition as they return home. As Lakeshore continues to move forward serving injured military, they continue to look for ways to grow and expand beyond just weekend programming. Through community partnerships and continued program evaluation, the hope is to spread the ideals of what they have accomplished and use the model of best practices to help other organizations grow and serve injured service members across the country.



Tips and Techniques on Learning to Ride Conventional Bicycles for Individuals with Disabilities

Practical Application
5:40-6:00 pm
Room A

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Lose the Training Wheels™ (LTTW) is a non for profit organization that teaches individuals with a variety of disabilities ages 8 and through adulthood to ride conventional bicycles in the course of 5 days. LTTW has been successful for participants with varying disabilities (e.g., autism, Down syndrome, cerebral palsy, amputee, stroke, agenesis of the corpus callosum). The early acquisition of riding skills helps to provide a recreational activity for entire families, provides a means of transportation for those who may be unable to drive a vehicle, increase fitness, and provides for inclusion with peers. This presentation will touch on how the adapted bicycles work, barriers to learning, and other benefits to learning to ride. Another component will be strategies and tips on teaching early riding skills for those who are outside of the US/Canada or may not be able to attend a camp.

Impact of an Inclusive Physical Activity Program on Attitudes of Non-Disabled Children towards Children with Disabilities

Claire BOURSIER¹ & Hassine NOURI²

Scientific Research
5:40-6:00 pm
Room B

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The social inclusion of people with disabilities is a subject of debate and social issues these recent decades. The United Nations Convention on the Rights of Persons with Disabilities of 13 December 2006, now ratified by many countries is a revealing. However there is still much to do to achieve the goals of the Convention and ensure that all persons with disabilities can exercise their rights and participate fully in society. Many researchers have focused on this issue, trying to measure the impact of social policies and inclusive projects in all areas of social life. Barriers to inclusion are still relatively high even if there is in many contexts improvements these recent years. The key factors which seem to have an impact on inclusion and participation are the social attitudes. **PURPOSE:** The aim of our project was to study the effect of a 3-month program of physical activities on the attitudes inclusive attitudes of children 8 to 10 years of a primary school towards children with physical disabilities attending a nearby special school. **METHODS:** A specific methodology was implemented with 4 main steps. The first one implemented in both schools consisted in awareness activities about Adapted Physical Activity. The second one was proposed to all children who participated in mixed groups in Tunisian traditional games. During the third step, the children jointly created games in small groups that they shared during the fourth phase of the program. Upstream and downstream of this program, the attitudes of primary school children were evaluated with the assessment test "Children's Attitudes Toward Integrated Physical Education Revised" (CAIPE-R, Block, 1995) translated into French. **RESULTS:** The results of this study revealed significant differences showing more positive attitudes towards the disabled children at the end of the program. **CONCLUSIONS:** Joint participation not only during sport events but also while creating the games has helped to develop new relationships, to change the way the non-disabled children look at the possibilities of their peers, both in the context of developing games and in the scope of the inclusive practice. This methodology has also allowed professionals to see new forms of cooperation between the two schools.



Establishing the Minimum Number of PA Monitoring Days and Hours Needed in Youth with Autism Spectrum Disorders

Irully JEONG & Dale A. ULRICH

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Scientific Research
5:40-6:00 pm
Room C

Despite numerous advantages of objective physical activity measures, including accelerometers, limited attention has been paid to estimating physical activity using objective measures and determining the minimum monitoring periods among children and adolescents with disabilities. **PURPOSE:** To estimate physical activity in youth with autism spectrum disorders (ASD) using Actical accelerometers and to identify the minimum number of physical activity monitoring days and hours needed in youth with ASD. **METHODS:** This is a secondary data analysis of an existing data set of 34 youth, aged 9-18 years (Mean age=12.0±2.6), from two locations in the state of Michigan. All participants were asked to wear an accelerometer on the right hip (anterior to the iliac crest) with an elastic belt for seven consecutive days during the first week of April and the first week of June. For inclusion criteria, participants were required to wear an accelerometer for at least four complete days, including one weekend day, and ten hours per day. Independent t-tests were used to examine differences between weekday and weekend using SPSS version 18.0 with a significance level of $p=.05$. To estimate the minimum number of physical activity monitoring days and hours needed in youth with ASD, EduG version 6.0 was used. **RESULTS:** No statistically significant differences between weekday and weekend were noted for the percentage of time spent in sedentary ($p=.908$), light ($p=.815$), and moderate-to-vigorous physical activity ($p=.790$). In addition, significant differences were not observed in the activity counts in total ($p=.652$), sedentary ($p=.993$), light ($p=.713$), and moderate-to-vigorous physical activity ($p=.762$). Finally, relative and absolute generalizability coefficients of 0.80 were achieved after two days of monitoring ($r=0.80-0.81$) and seven hours of monitoring ($r=0.76-0.84$). **CONCLUSIONS:** Based on these findings, two days and seven hours appear to be the most appropriate monitoring periods when measuring physical activity using Actical accelerometers in youth with ASD, which can provide important implications for participant compliance and overall study costs in future research studies.

Developing a Holistic Approach to Working with Wounded Warriors

Aaron MOFFETT¹ & Mark CAMPBELL²

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Practical Application
5:40-6:00 pm
Room D

There are thousands of servicemen and women who have injuries, illnesses, and/or wounds. The US military is taking a holistic approach to healing and adaptive reconditioning. The purpose of adaptive reconditioning is to aid in the recovery of wounded/ill/injured military by reconditioning their physical, emotional, mental, and cognitive states through adapted activities in all domains of the Comprehensive Transition Plan; career, physical, emotional, social, family and spiritual; in order to assist their transition back into the military or the community. The Comprehensive Soldier Fitness-Performance and Resilience Enhancement Program (CSF-PREP), an Army funded program that all injured/ill/wounded soldiers attend, has developed an educational performance psychology program that promotes these six Domains of Strength (physical, career, emotional, social, family, and spiritual) and recognizes that APA is vital to enhance these domains. The Department of Defense has designated a large amount of funding for adaptive reconditioning and is actively seeking APA experts to help with this holistic programming. The presenters will discuss (a) the rationale for developing the holistic approach that the presenters have been using when working with injured/ill/wounded service members; (b) the needs, barriers, and benefits of adaptive reconditioning for injured/ill/wounded service members; and (c) strategies that can mutually benefit the military and adapted physical activity specialists who already conduct programs. In the end, attendees will recognize the importance of taking a holistic approach to adaptive reconditioning for our military personnel and strategies that can be mutually beneficial to our military and adapted physical activity specialists.



Critical Factors that Will Determine if APA Can Survive as a PhD Program Sub-Discipline in Kinesiology

Building Session
9:35-10:45 am
Room A

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We have lost many faculty positions since 1990 at major universities in the sub-discipline of APA or related area (e.g., motor development and intellectual disabilities: G. Lawrence Rarick). Faculty losses and the continuous decline of doctoral student applications in APA, suggests that APA as a graduate program academic sub-discipline of kinesiology is at risk of being eliminated. Our building session will include (1) a discussion to identify why mid- size and research I universities eliminated faculty positions in APA, (2) a discussion on university budgeting issues that dictate hiring practices in today's universities including characteristics of new faculty will be made and (3) options we have to enhance hiring of future faculty with this expertise. Based on recent faculty job announcements it is increasingly common to combine APA/APE with the other sub-disciplines in biomechanics, motor behavior, motor control, exercise physiology, or physical education pedagogy. The end result are faculty searches in one of these other sub-disciplines with an addition to the job description of the ability to teach an undergraduate course in APE/APA as part of a professional training program. During the past 12 years, we have also seen more NIH funding devoted to the study of improved health and functioning in various disabilities (e.g., ADHD, autism, CP, and Down syndrome (DS)). At the same time, most of these funds go to faculty in the other sub-disciplines of kinesiology and not to faculty in APA. Two major questions need to be addressed. (1) Is it time to eliminate APA as an academic sub-discipline of kinesiology at the PhD level and to integrate ourselves across one of the other sub-disciplines based on the focus of our research. For example, if I am interested in intervention research designed to improve functioning in children with DS, I should major in motor control/development and apply this knowledge to children with DS. Many professors who are receiving NIH funding were trained in this manner. (2) How do we change the way we are preparing our PhD students to be more successful in faculty job searches and competitive for external funding from major research agencies? The answer to this question has implications to training some students at the master's degree level. We will present for a total of 25 minutes and then facilitate the remaining time for open discussion on what we need to do now to facilitate our future.

Tracking Movement Skill Trajectories Among Children with Autism Spectrum Disorders

Scientific Research
9:35-9:55 am
Room B

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Children with ASD demonstrate impaired performance of fundamental movement skills early in life. These performance differences are persistent and prevalent, which in turn impacts nearly every aspect of subsequent development. Despite these differences, ongoing debate exists whether these developmental differences reflect delays or deficits. This research will examine trajectories of development to further explore these performance differences. **PURPOSE:** The purpose of this study was to examine the developmental trajectories of performance on the *TGMD-2*, a criterion referenced assessment that includes two subtests to examine the performance of locomotor and object control skills. **METHODS:** 25 children with ASD ranging from 9 to 12 years of age were individually-matched to two groups of typically developing children on either chronological age (9 to 12 years) or mental age (MA) equivalence (4 to 10 years). The children with ASD included in this study reflect the full range of ASD in terms of sex, diagnosis, and levels of functioning. Instead of comparing the group means on the performance of locomotor and object control skills, linear regression was used to establish their baseline and developmental trajectory for each group. Each trajectory is represented by two numbers - the intercept (i.e., the level, or age, at which performance starts) and the gradient (i.e., the rate at which performance increases or decreases with age). **RESULTS:** The intercepts between children with ASD and their same aged peers are significantly different ($p < .01$) for both locomotor and object control trajectories. The children with ASD also demonstrate slower rate of development on locomotor skills ($p < .01$), but not for object control skills ($p = .28$) as typically developing children have already reached ceiling on this assessment. When compared to peers matched on MA equivalence, intercepts are significantly different ($p < .05$) for both movement skill trajectories, but the groups demonstrate comparable rates of development. **CONCLUSIONS:** Children with ASD are significantly delayed in the acquisition of locomotor and object control skills and have a slower rate of subsequent development compared to their same aged peers. While children with ASD develop fundamental movement skills at a similar rate to their significantly younger peers matched on MA, their acquisition of these skills is significantly delayed and there is no indication of "catch up". This comparison confirms that children with ASD demonstrate greater impairment than would be expected given their level of cognition.

Friday, October 12th**The Ability First Youth Sports Camp**Jennifer J. TAYLOR¹ & K.A.VANDERBOM²Practical Application
9:35-9:55 am
Room C¹College of Education, Department of Health & Physical Education, Western Oregon University, USA;²College of Public Health and Human Sciences, Movement Studies in Disability, Oregon State University, USA

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The purpose of this practical presentation is to introduce programming involved in a successful residential sports camp for youth with disabilities. Since 1985 Ability First Youth Sports Camp (AB 1st) has provided sports and recreation opportunities for youth with physical disabilities (YWD) between the ages of 8-17 years old. The camp runs for one week every summer on the campus of California State University, Chico (CSUC) and has served over 800 youth since its inception. AB 1st provides opportunities for YWD from disadvantaged and underrepresented backgrounds to participate in competitive sports, recreation, and social activities with peers. Some of the unique components about the AB 1st are: a) YWD are taught skills and rules of disabled sports by coaches who themselves are competitive athletes with disabilities. These sports include wheelchair basketball, tennis, rugby, soccer, track & field, wall climbing, waterskiing, chair skating, and more. Several participants of AB 1st have continued their athletic training and are competing at national and international levels. b) AB 1st provides opportunities for socialization through nightly recreation activities. The majority of volunteers at AB 1st are able bodied youth who are included in the disability sports and nightly recreation activities alongside YWD, fostering reciprocal friendships and social interactions that last beyond camp. The recreation activities held at night include movie and skit night, team building games, and a formal dance. The formal dance is a favorite activity for many where the YWD dress up and ask dates; this is the only formal dance many will attend. c) disability education is a very important piece of camp. Staff includes full time nurses and camp counselors who assist campers in learning new skills related to self-care and mobility. Many campers learn how to take care of activities of daily living independently. Coaches teach the kids about preventing secondary conditions (pressure sores, bowel/bladder problems, weight gain, etc.), their higher education experiences, learning to drive, travelling, and opportunities to compete in sports. d) the staff consists primarily of students. AB 1st has provided a rare training opportunity for students enrolled in the *Therapeutic Recreation* and *Adaptive Physical Education* Departments at CSUC to apply theoretical concepts in a residential camp setting. AB 1st is a multifaceted camp program that provides a unique experience for the YWD, staff, and volunteers that leaves a lasting impression. While learning sports skills is the main focus of camp, there are many important opportunities to learn about independence and taking care of oneself, socializing, and setting goals for future aspirations.

Measuring and Identifying the Presence of Positive Illusory Bias in Children with Attention-Deficit/Hyperactivity Disorder

Jason C. BISHOP

University of Virginia, USA

Scientific Research
9:35-9:55 am
Room D

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The positive illusory bias (PIB) is a positive discrepancy between ones perceived competence and actual competence towards completing a task. Research indicates that a mild presence of PIB enhances an individual's motivation, performance, and persistence when completing a task. However children with attention-deficit/hyperactivity disorder (ADHD) tend to have a heightened PIB resulting in these children giving up more easily and frequently, and regularly performing poorly on learning tasks. Previous research indicates the heightened presence of PIB among children with ADHD in academic, social, and behavioral domains. The presence of PIB among children with ADHD in the motor domain has not been investigated. **PURPOSE:** The purpose of this study was to determine if PIB in the motor domain is present in a sample of students with ADHD. **METHODS:** Thirty eight children (ages 8-11, 29 males) diagnosed with ADHD were matched by age and gender to a comparison, non-disabled peer for a total of seventy six participants. Participants were administered the Pictorial Scale of Perceived Physical Competence for Children with Mild Mental Retardation to measure perceived competence of locomotor (4 items) and object control skills (6 items). Next, participants were administered the TGMD-2 to assess actual locomotor (6 items) and object control skills (6 items). Discrepancy scores were created by transforming the perceived and actual motor competence scores to z-scores. The dependent variables included these two sets of discrepancy scores between the perceived and actual locomotor and object control skills. Data screening, including univariate normality, homogeneity of variance, and testing for univariate outliers, was conducted to ensure analysis of variance (ANOVA) assumptions were met. An ANOVA was conducted to test for significant differences of each group's discrepancy scores on each subscale. **RESULTS:** Results indicated no significant difference existed between groups on both locomotor ($F = 2.001, p = .161$) and object control skills ($F = 1.141, p = .239$). **CONCLUSIONS:** Although prior research indicates the presence of PIB in several domains among children with ADHD, the results of this study suggest that PIB does not exist in the motor domain. Further testing is needed to validate the results of the study. If future studies indicate that PIB does not exist in the motor domain, it can be ruled out as a reason why students with ADHD experience motor delays in physical education.



'Happy and a Bit Nervous' Students with Autistic Disorder: Their Perspective of Inclusive Physical Education

Seán HEALY¹, Stephen GALLAGHER², & Rachel MSETFI²

Scientific Research
10:00-10:20 am
Room B

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Students with autistic spectrum disorder (ASD) are increasingly being included in main stream Physical Education. However, due to the unique characteristics of ASD, their successful inclusion is proving particularly challenging. Various vested groups have had their perspective heard; however the voice of the student with ASD has remained unheard. Their characteristics, in addition to their documented perspectives in other environments, make it probable that the physical education environment is one in which they can provide a unique and informative insight; one which can transform them from their current passive participation in research and assist those in developing strategies for their inclusion. **PURPOSE:** Therefore, the purpose of this research was to gain an insight into, and an understanding of, the experiences of students with ASD in inclusive Physical Education. **METHODS:** Twelve students with ASD (a purposeful sample) had their perspectives heard. A phenomenological approach was utilised, using interviews to co-create the meaning of their inclusive experiences. The six steps 'recipe' for thematic analysis, Braun and Clarke (2006) was employed so as analysis was undertaken in a theoretically and methodologically sound manner. **RESULTS:** Four overarching themes emerged consisting of Individual, Teacher, Peer and Activity Factors. Although each theme's influence on the inclusion process will be discussed, included interview extracts, the interaction between these factors will also be explored, demonstrating how the nature of inclusion for the student is defined. Three interactions were revealed, resulting in three types of inclusive experiences: 1) The teacher can solely respond to the individual factors, overlooking the possibility of adapting the activity. Such behaviour generally shows to result in a synthetic experience for the child. A content detachment from physical education, 2) The teacher can overlook the need to take heed of the individual factors and solely interacts with the activity factors. Such inattentiveness was shown to result in a negative experience of physical education; exposure of individual factors and stimulation of negative peer factors, 3) Data demonstrated that when teachers responded to and interacted with both internal factors and activity factors an equilibrium was attained that stimulated positive peer factors and ultimately a high quality physical education experience characterised by a sense of belonging, successful participation and escape from school. **CONCLUSIONS:** The significance of these results will also be discussed; including the responsibility of the teacher, the complexities of inclusion and the importance of the student voice.

Player Perceptions of VI Tennis: A Vibrotactile/Audio Exergame for Children with a Visual Impairment

Scientific Research
10:00-10:20 am
Room C

John FOLEY¹, Cathy MACDONALD¹, Luis COLUMNA², Tony MORELLI³, Eelke FOLMER³, & Lauren LIEBERMAN⁴

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There is a disparity in physical activity levels between individuals with and without visual impairments. Persons without vision face many barriers that limit their engagement in physical activity thus putting them at greater risk for health conditions. One method to overcome the barriers to physical activity is the use of exergames such as the Nintendo Wii Sports. Exergames are electronic video games that use a physical activity as input. However, most exergames have a visual interface that limits access and usability for individuals with visual impairments. To address this issue, our research team developed an exergame that can be played with vibrotactile and audio feedback thereby eliminating the need for the visual interface, and making the game accessible to users with visual impairments. **PURPOSE:** The purpose of the research was to describe the exergaming experiences of children who are blind. A secondary goal of the research was to determine ways in which the participants believed the game could be improved. **METHODS:** Seven youth participants (5 males and 2 females) played VI tennis, a motion sensing exergame that uses audio cues and a Wii mote to incorporate vibrotactile cues. After individuals were instructed on the game protocol, they were given five minutes to familiarize themselves with the game. After which they played the game for ten minutes. Individual experiences were captured using one-on-one, semi-structured interviews that were audio-taped and transcribed verbatim. **RESULTS:** Participants expressed positive feelings toward the exergames, particularly when provided with vibrational cues. Thematic analysis revealed several themes including high participation, social inclusion, and feelings of competence. Recommendations to improve the exergames were offered, including giving more explicit audio cues to enhance accuracy during game play. **CONCLUSIONS:** This research indicates that participants with a visual impairment perceive exergame platforms that incorporate vibrotactile and/or auditory feedback as a positive form of physical activity. This evidence should be considered when games and other interactive experiences are created for individuals who are blind.



Choosing Movement Assessments for Children with Developmental Disorders

Practical Application
10:00-10:20 am
Room D

Chantelle R. ZIMMER¹, Kerri L. STAPLES¹, & Megan MACDONALD²

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Developmental assessments are important in understanding the complex behaviors of children with developmental disorders (DD) such as autism, developmental coordination disorder, and learning disabilities. In the movement domain, there are numerous assessments that vary with respect to their purpose, method, administration, scoring, and even the interpretation of results. Choosing the most appropriate assessment to inform practice and provide relevant research data is important. Unfortunately, not all of these standardized assessments are appropriate for individuals with DD. The purpose of this presentation is to examine the strengths and weaknesses of different assessments for children and adolescents with DD, including the different ways that results can be interpreted to provide meaningful insight. Many assessments focus exclusively on the product of the movement, which does not reveal aspects of movement a child experiences difficulty with or motor developmental areas that intervention should target. Based on our experiences, when examining movement skills in children with DD, it is appropriate to use multiple assessments. For example, the *TGMD-2* (Ulrich, 2000) emphasizes specific components required in the performance of locomotor and object control skills, whereas *PE-Metrics* (NAPSE, 2010) places greater focus on the outcome of movement skills needed for successful participation. These assessments are comprised of similar skills, but inform different aspects of the movement. As such, using multiple assessments provides greater insight into how movement skills are performed. Majority of assessments that are used in this field have also been developed and standardized with typically developing children, often with the exclusion of clinical samples that we are interested in. Therefore, comparing performance of children with DD to normative data does not provide a meaningful comparison. Similarly, many of the “key” studies examining the movement behavior of children and adolescents with DD have included participants older than the age for which a particular assessment has been standardized. When this occurs, comparison groups (matched on specific developmental variables) or raw scores can be used to compare performance or track progress (rate of change) on a specific skill or domain. With the current emphasis on evidence-based practice and intervention, this presentation will review how assessment can be used to inform practice and ultimately, allow researchers to quantify the effectiveness of intervention programs for children and adolescents with DD.

Motor and Social Development: Differences between Children with and without Autism?

Graduate Student Proposal
10:25-10:45 am
Room B

J. Megan IRWIN & Megan MACDONALD

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Current prevalence statistics suggest 1 in 88 children are diagnosed with autism (CDC, 2012). Autism spectrum disorders (autism or ASD) are pervasive developmental disorders characterized by social communicative deficits and restricted interests and behaviors (APA, 2000). Children with ASD also display deficits in motor skills (Provost et al., 2007). However, early intervention programs primarily focus on the social communicative aspects of the disorder and there is very little research examining the relationship of motor skills and social skills in children with autism. **PURPOSE:** The purpose of this study is to examine the relationship that exists between social and motor development in young children with and without autism. **METHODS:** The participants in this study will be young children with and without ASD between the ages of 2-5 years old. The Autism Diagnostic Observation Schedule (ADOS) (Lord, 2000) will be used to confirm the presence or absence of ASD in all participants. All participants will be administered The Mullen Scales of Early Learning (MSEL), a valid and reliable measure of development in young children. All participants will also be administered the Peabody Developmental Motor Scales (2nd Ed.) (PDMS-2), a standardized measure to determine motor abilities in children up to 5 years of age by assessing both fine and gross motor skills. One 10-minute video recording will be taken of the caregiver and child participating in social play and coded using the ADOS-C (Columbi et al., 2011). **RESULTS:** It is expected that motor and social development are inter-related in young children regardless of autism diagnosis. We expect to see significant differences between how motor skills impact social development in children with autism versus children without autism. We expect that motor skills will impact the social communicative skills of children without autism less due to their relative strengths in both areas compared to their peers with autism. **CONCLUSIONS:** Research shows that motor development contributes to other developmental outcomes in children such as cognition and language development. Both of which contribute to the development of social skills. This study aims to better understand this relationship and further discuss implications for early intervention programming specific to motor skill interventions for young children with autism.



Paraeducator Training Needs for Children with Visual Impairments in Physical Education

Scientific Research
10:25-10:45 am
Room C

Lauren LIEBERMAN

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Children with visual impairments are often behind their peers in physical activity (Lieberman, Byrne, Mattern, Watt, & Fernandez-Vivo, 2010) and motor skills (Houwen, Hartman, & Visscher, 2009). It is often necessary for these children to work with a 1:1 paraeducator in order to gain the benefits of physical education and improve physical activity, motor skills, socialization, and attain the basic standards of the Expanded Core Curriculum (specific curriculum for children with visual impairments). Paraeducators are trained for the classroom, yet are rarely if ever trained for the subject of physical education (McKenzie & Lewis, 2008). **PURPOSE:** The purpose of this study was to determine the training needs for paraeducators who work with children with visual impairments as they relate to instruction in physical education. **METHODS:** A questionnaire was developed for the specific purpose of determining training need of paraeducators in physical education. Face and content validity were established by five experts in the field. Test-retest reliability was assessed by using Cohen's kappa on a subgroup of 24 respondents. One hundred and forty three professionals and parents were given the questionnaire related to training needs of paraeducators for physical education. **RESULTS:** The results of the current study indicated that although the majority of children with visual impairments attended physical education classes with their paraeducator, only 11% of the paraeducators were trained. Participants felt the training should consist of safety, guiding techniques, teaching strategies, information on visual impairments, as well as most areas of the Expanded Core Curriculum. Participants felt that this information should be delivered in the form of a video or guest speaker, and that the children with visual impairments should be included when possible. **CONCLUSIONS:** Knowing these results will assist professionals in the field develop specific trainings for paraeducators who work with children with visual impairments. As a result of this research a grant was obtained to develop a training video and disseminate on a web site at no cost to participants. Improved experiences in physical education will help children with visual impairments related to motor skills, fitness, socialization, and self-esteem.

Including Parents of Children with Disabilities into Physical Education Programs: From the Theory to Practice

Luis COLUMNA

Practical Application
10:25-10:45 am
Room D

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Teacher preparation programs are doing an "excellent job" preparing teacher candidates to work directly with children with disabilities. However, it is also important that these programs emphasize the importance of collaborative work between professionals and parents of children with disabilities (An & Goodwin, 2007; Columna, Pyfer, Senne, T., et al, 2008; Downing & Rebollo, 1999). This collaborative work enhances not only the services provided for children with disabilities, but also reduces parental fears, toward physical education programs and the transition process from one grade to another (Roth & Columna, 2011). This session will give an overview of research on parents perceptions regarding effective collaboration in serving students with disabilities base on the work of professionals in the fields of adapted physical and special education (An & Goodwin, 2007; Columna, Pyfer, Senne, T., et al, 2008; Downing & Rebollo, 1999; Fidler, Lawson, & Hodapp, 2003; Roth, Pyfer, & Huettig, 2007). The presenter will provide suggestions for practical application that emerged from research findings. These practical applications may be used by current physical education teachers and professionals who trained teacher candidates. The purpose of this presentation is to provide the participants with information, practical applications, and research ideas related to the inclusion of culturally diverse families into their inclusive physical education and adapted physical education settings. It is important for physical educators in the United States to value and recognize the strength and contributions parents can bring to their classrooms.



Identifying Professional Best Practices in Physical Activity, Exercise and Rehabilitation: Hidden Treasures in Collaboration

Garth BABCOCK & Nadean MEYER

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Practical Application
10:50-11:10 am
Room A

Practices in physical activity, exercise and rehabilitation are increasingly becoming allied to the medical and health professions and these fields have a history of research-based, clinical information that is becoming a standard in today's protocols for fitness and wellness training. Today's students and practitioners can access a large amount of research through periodical databases as well as open web sources. The information is even available on portable mobile devices. However, many students and practitioners need guidance in identifying and managing the "best" information effectively. One university Athletic Training Program paired with their liaison librarian to build the skills of active research into program assignments. The librarian provided the progressive steps for effective research while the faculty provided the specific professional content and related projects. Participants were cohorts of first, second, and third year students of the program. Instruction included accessing, managing and evaluating information from databases, journals, encyclopedias and open web sources. The educational materials included handouts, discussion points, and web pages that guided students not only to research but also to available tools such as alerts; the Cochrane Library; Visual Search, PEDro, and PICO search filtering; database search techniques, citation software, and citation analysis for synthesizing and managing information. The educational process included demonstrations, guided hands-on practice and written assignments. The purpose of this presentation is to share, in an open format, the practical application of evidence-based practice in teacher/practitioner education programs. An unexpected result of the project was an increased understanding of the power of collaboration, particularly that which took place outside of the classroom. The outside collaboration provided an immediate review of the student's performance and teacher delivery from two viewpoints, faculty and librarian, allowing for timely adaptations. Outcomes included an increase in student's capacity for incorporating health-related research into their clinical practice as well as an increase in student learning through immediate formative assessment.

Using Music in Gross Motor Settings for Young Children with Autism Spectrum Disorders

Shannon TITUS DIERINGER¹ & David PORRETTA²

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Practical Application
10:50-11:10 am
Room B

Children with autism spectrum disorders (ASD) often have documented deficits in social interactions which can be directly related to deficits in developmental play (MacDonald, Clark, Garrigan, & Vangala, 2005). In addition to social deficits, children with ASD often exhibit off-task behavior that can inhibit engaging appropriately in physical activity (Rosser Sandt & Frey, 2005; Pan, 2008). Therefore, it can be inferred that these deficits can delay the fundamental motor skills (FMS) of children with ASD when compared to their same aged peers without disabilities (Green, Charman, Pickles, Chandler, Locas, Simonoff, & Baird, 2009; Berkeley, Zittel, Pitney & Nichols, 2001). In order to address known deficits, it is important for physical educators to identify and implement evidence based practices in order to sustain engagement (e.g., on task behavior) in physical activity. It is known that music is typically used in a variety of educational settings for young children. Results from various studies conducted in classroom settings suggest that music can facilitate communication among student with disabilities and their typically developing peers (Gunsberg, 1988; Humpal, 1991; Brownell, 2002). These findings have direct implications for physical education and other physical activity settings. Empirical evidence suggests that music can facilitate the performance of FMS in a gymnasium setting for children with disabilities (Kennedy, Kua-Walker, 2006). Recent preliminary evidence suggests that when music is used during physical activity sessions, the off-task behavior of preschoolers with ASD decreases (Titus & Porretta, 2012). This practical presentation will not only present the potential benefits of music to reduce social deficits and off-task behavior, but also provide various physical activity examples that can be used in preschool and elementary physical education settings for young children with ASD.

Performance of the Peer Tutor of a Student with Visual Impairments in Regular Physical Education Classes

Mariana R. B. GODOY¹, Marli NABEIRO¹, Mariana S. NAKAGAKI¹, Milton V. PRADO JÚNIOR¹,
Ricardo L. RIBEIRO², & Ana F. Z. ZONTA¹

Scientific Research
10:50-11:10 am
Room C

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The strategy of a peer tutor is a way to help students with disabilities increasing both the frequency and quality of their engagement in motor activities during regular physical education classes. **PURPOSE:** To evaluate the performance of peer tutors in helping students with visual impairment in regular physical education classes, through two observation instruments. **METHODS:** The investigation was a case study. Data were collected by filming physical education classes at Public School “Mercedes Paes Bueno” located in Bauru, Brazil. The participants were one 10 year-old student with total visual impairment and 10 students as peer tutors (age between 9-10 years old). The performance of peer tutor assisting the disabled student was evaluated by considering the type of assistance applied using two observational instruments: System for Observing Fitness Instruction Time (SOFIT) and Protocol Souza (2008) of Observation of Classes. The videotaping occurred at two different times: initially 5 classes were filmed during 1 month; then, there was period of about a month in which we designed and applied the re-training (reinforcement of the aid) in a session of two hours. Later 7 more classes were videotaped during the next month. **RESULTS:** The data obtained by both instruments indicated that physical assistance was most used by peer tutors across all classes sessions. However, the descriptive data revealed that the nature of the physical assistance used was different between the first 5 classes sessions and remaining 7 class sessions. Specifically, during the first 5 sessions the peer tutors were observed leading and pulling the student with visual impairment, while during the latter 7 sessions they used more appropriate methods in which the student with visual impairment choose the direction and velocity of his motion. **CONCLUSIONS:** The performance of peer tutor was positive and progressive in the process of inclusion of student with visual impairments in physical education classes. The two observation instruments used were appropriate for analysis, but also provided some evidence that modifications are still needed. The adjustments and construction of new analytical tools can help in future studies concerned mainly the quality of the movement of disabled students. Furthermore, we observed that the involvement of disabled students in physical education classes, can be facilitated by the teaching strategy of peer tutor, but also must be considered in relation to the contents of the classes and the preparation of the teacher to deal with inclusion.

Effects of a Physical Activity and Sports Program on Young People with Cerebral Palsy

Maria DINOLD & Christoph PANHOLZER

Scientific Research
10:50-11:10 am
Room D

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Physical activity interventions are aiming to achieve important health and quality of life benefits for persons with disabilities. As young people with cerebral palsy show a big variety of individual abilities studies are not carried out so often for this group. **PURPOSE:** The purpose of this study was to examine the physical, mental and social benefits of a physical activity program for young people with cerebral palsy. Therapeutic interventions (stretching, stability training or cognitive training) were performed in combination with sports like swimming, biking or trampoline jumping during a 3-week training camp. **METHODS:** In order to get data about the physical and functional influence of a specially designed physical activity and sports program the participants (n=6) were tested the items D (Standing) and E (Walking, Running, Jumping) of the Gross Motor Function Measure (GMFM) and took part in the timed „up & go“-test before and after the intervention period. Further more, therapists, parents and participants were interviewed about their life situation. The mental and social effects of their physical activity during the period of the training camp were also analyzed by the interviews. **RESULTS:** The values for gross motor function measured by the GMFM (+17.8 points ± 8.2; n=6) and the timed „up & go“-test (-7.5 seconds ± 7.2; n=6) indicated improvement after the three weeks intervention. Only the difference of the GMFM before and after the camp showed significant results (p=0.03; n=6). This correlates with the reports by parents, therapists, and participants about physical and functional enhancements during and after the intervention time. **CONCLUSIONS:** Nevertheless it seems important to state that with increasing age of the persons with cerebral palsy mental and social benefits of physical activities become more important. The setting of the summer camp enabled the participants to be more self-dependent which easily effected the development of higher self-esteem. To do sports turned out to be a possibility to pursue therapeutic goals in a playful way. Sportive team activities increased the motivation and the intensive teamwork during the camp influenced the social skills. Effects of activities on people with cerebral palsy do not differ from those on able-bodied persons. According to the persons asked most of them had fewer social contacts and were dependent on structured physical activities. It can be concluded that this is one of other reasons why it is important to provide more opportunities to do sports for persons with cerebral palsy.



Applying the Achievement-Based Curriculum Model to Adapted Physical Education

Practical Application
11:15-11:35 am
Room A

Luke E. KELLY

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The purpose of this presentation will be to illustrate how the Achievement-Based Curriculum Model (ABC) (Kelly & Melograno, 2004; Kelly, Wessel, Dummer, & Sampson, 2010) can be applied to facilitate and streamline the assessment and planning processes associated with screening students for eligibility, determining present level of performance, program planning, and placement decisions. Procedures will be presented showing how curriculum embedded criterion-referenced assessment items from the general physical education (GPE) curriculum can be used in conjunction with the ABC planning and assessment components to create one assessment tool that can be used to make multiple decisions (Kelly, 2011). A rationale will be presented for justifying that both APE and GPE teachers need to be trained to make these decisions based on the percentage of students with disabilities receiving their physical education services in GPE. The presentation will also highlight how the Everyone CAN resource materials (Kelly, Wessel, Dummer, and Sampson, in press) can be used to both facilitate and enhance the quality of instruction provided to students with disabilities in GPE. The Everyone CAN materials were derived in part from Project I CAN, which were created in the 1970's and extensively evaluated for use with students with intellectual disabilities. Everyone CAN extends the content covered to the 70 core objectives typically taught in elementary physical education and modifies and expands the materials so that they are applicable for use with ALL students (i.e., with and without disabilities) served in general physical education. The Everyone CAN materials focus on 70 core elementary physical education objectives and are packaged as an eight chapter book and web access to a database of over 2,700 pages of instructional resources. The instructional resources are organized around 70 assessment items in the areas of: body awareness, personal/social skills, locomotor skills, rhythm & dance skills, body control, health & fitness, and object control skills. To assist teachers instructional materials are provided at two levels: objectives and focal points. For the overall objectives, teachers are provided with assessment items, assessing activities, accommodations for individuals with disabilities, score sheets, and posters. For each focal point within each objective teachers are provided with two large group instructional activities, two small group station activities, and a number of large and small group games.

Inclusion: Identifying Evidence-Based Practices for Teaching Individuals with Asperger Syndrome

Practical Application
11:15-11:35 am
Room B

ZáNean MCCLAIN¹, Dwan BRIDGES², Elizabeth BRIDGES³, & Jose-Luis RAYAS⁴

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The prevalence of autism spectrum disorders is increasing at an alarming rate as a developmental disability. Based on research cited by the Center for Disease Control and Prevention (2012) 1 out of every 88 children will be diagnosed with autism spectrum disorder. Autism spectrum disorders encompass five disorders which range across a continuum which are autism disorder, Asperger syndrome, childhood disintegrative disorder (CDD), Rett's disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS) (American Psychiatric Association, 2000). The purpose of this session is to present a systematic review of the literature that identify evidence-based practices (Bouffard & Reid, 2012; Jin & Yun, 2010) for teaching individuals with Asperger syndrome in inclusive settings. The review utilized a literature search for publications listed in Article First, Google Scholar, Digital Dissertations and Theses, ERIC, SPORT Discus, Academic Search Premier, MEDLINE, Teacher Reference Center, Sage Premier Collection, and Education Full Text from 1990 to 2012. Articles were rated independently by four reviewers using a predetermined inclusion criteria which consisted of (a) autism spectrum disorder (specifically, Asperger syndrome); (b) at least one of the three modeling interventions (visual, auditory, tactile); (c) target school-aged children and adolescents with a mean age between five and 21 years; (d) promote motor skill acquisition or physical activity; and (e) include individuals without disabilities. Inter-rater agreement between the four independent reviewers was set *a priori* at 80 percent (Fleiss, 1981); if any discrepancy arose with a reviewer coding an article then the first or second authors would take the lead in discussing this matter until there was a consensus. Evidence derived from the research included systematic reviews of randomized control studies, quasi-experimental studies, longitudinal case studies, quantitative studies, qualitative studies, and expert opinions. An analysis of the literature was developed into a matrix detailing the nature, scope and focus of the modeling interventions in the inclusive environment along with the evidence-based practices. Systematic search procedures identified 37 studies meeting predetermined criteria. The primary benefit of the session will be to emphasize effective modeling techniques across visual, auditory and tactile modalities. The adapted physical educators and general physical educators can utilize the techniques in classroom environments, particularly in inclusive settings. More importantly, individuals with Asperger syndrome may be able to acquire a higher level of functioning in performance of fundamental motor skills and patterns. The systematic review suggests that further research is needed in modeling techniques and individuals with Asperger syndrome.



Still Missing: Images of Disability in Sports Illustrated for Kids

Margaret STRAN & Brent HARDIN

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Scientific Research
11:15-11:35 am
Room C

PURPOSE: This study looks at the number and types of images of disability presented in Sports Illustrated for Kids in 36 issues from 2008 - 2011. This study re-visits and replicates a previous study on the photographic images in Sports Illustrated for Kids (SIK) that was completed in 1999. Specifically, this current project re-examines photographic images of children with discernible disabilities in the popular children's sports magazine. The purpose of this study is to compare the current results with the previous study in 1999 and to assess how the magazine currently presents disability to its young, impressionable readers. **METHODS:** Content analysis, a method that involves the quantifying of elements within a text, was used in this study. Through content analysis relationships of the most salient clusters of images and information were gauged to accurately represent the dominant photographic messages. A recording instrument was generated to analyze the SIK photographs. The categorical variables used included: (a) photo domination (dominant or non-dominant, in relation to the page); (b) gender of the subject (male or female); (c) photo angle (straight, down, or up); (d) motion in photo (passive or active); (e) prominence of the disabled character (prominent or supporting); (f) type of sport (individual or team); (g) category of sport (neutral, aesthetic, high risk, or strength); and (h) leadership (owner, official, or coach). **RESULTS:** The results indicate lower overall coverage of athletes with disabilities than in the previous study of 1999. Furthermore, themes from the small number of actual photos of persons with disabilities indicate that stereotypical portrayal of persons with disabilities continues to be prevalent. **CONCLUSIONS:** Because SIK has a high circulation among readers who are especially susceptible to the power of photographs, it is important to study the images of disability transmitted in its pages. These images could be significant in the formation of children's attitudes toward disability. This study is just one small area that must be broadened if we are to understand media affects on children's perceptions of disability.

The Paralympic University Tournament as an Extra-Curricular Alternative for Physical Education Students

Luís G. S. PEÑA, Tiago BORGMANN, Edison DUARTE, & José J. G. ALMEIDA

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Practical Application
11:15-11:35 am
Room D

The Paralympic sport in Brazil is going through a period of great transformation and a major area of growth is the formation of human resources. Therefore, it is really important that Physical Education Professionals reflect on Paralympic sport in their academic training. Seeking alternatives to this need, the college of Physical Education at Unicamp held a Paralympic competition. This event aimed to spread the passports among students of the course with or without disabilities, through practice, opening space for research. To succeed, some invitations were sent to nearby universities to Unicamp, through the teachers of subjects related to physical education. It was booked adequate space, making the regulation, referees organization, ceremonial awards and food. The sports chosen were goalball and sitting volleyball, because there is an easy adaptation of space and material. In a goalball, participants are guided without the use of vision. In volleyball it should happen in a unusual way for those who do not have motor disabilities. There were over 50 participants from four different universities. The interaction was complete, because when they were not playing, they helped the referees. The event was positive, as provided in a spontaneous manner, the opportunity to experience two Paralympic sports, as well as integration, exchange and sharing experiences with other students. Moreover, there was a survey of participants, seeking more information about the program in the disciplines of applied physical education.



Growing Pains: Four Issues in Adapted Physical Activity

Building Session
9:35-10:45 am
Room A

Marcel BOUFFARD¹ & Terry L. RIZZO²

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Adapted Physical Activity (APA) is a maturing subfield in Kinesiology. How APA/APE evolves to the challenges occurring to it in colleges and universities warrants attention. In these economic times of budget cuts, department/college reorganization and restructuring assimilation into the Kinesiology mainstream is dependent on our ability to codify issues affecting the field. This session will focus on four concerns in APA/APE. They are: academic homelessness, divestiture of APE, leadership development, and the limited number of doctoral programs in APA/APE. Many in APA/APE feel a sense of academic 'homelessness'. Some APA professionals associate with physical education teacher preparation (PETE) programs while others claim citizenship in exercise science, motor behavior, biomechanics, sport psychology, special education ad nauseam. How do we define our field and our professionals? Should APA/APE people have a common emphasis other than disability? Is an exercise physiologist that engages in research and scholarly activities about disability an APA person or should a person have a degree/academic preparation in the field? The distinction matters. Consider a few responsibilities of APA/APE professionals. Is it fair to expect the researcher in biomechanics or exercise physiology to advocate for individuals with disabilities if their only interest is scientific inquiry? If it is not fair then who will serve as an advocate for equal rights, and equal protection of individuals with disabilities? If you feel homeless how who will advocate for you when you need essential resources to function at academic institutions? For example, who can people in APA/APE depend on for support when it comes to resources? Imagine having to make a decision to purchase tools for effective teaching (from pediatrics to geriatrics) versus purchasing an upgrade for a VO2 cart or motion analysis equipment? Also, in these times we are experiencing an increasing number of faculty retirements. Will the 'traditional' APA/APE faculty be replaced by another similar APA/APE person or a hybrid professional that has an interest in some research aspect associated with people with disabilities? Do we restructure APE within the framework of pedagogy as a solution to our identity? Or do we leave the future of the field and ultimately individuals with disabilities to the academic marketplace? Certainly an argument can be made that the ideas presented above are nothing more than presentation of a "straw man;" but intuitively a person familiar with APA/APE will relate to the presentation. Related to this sense of homelessness is a subtle movement toward divestiture of Adapted Physical Education. Consider Sherrill's prophetic statement more than 40 years ago that "all good PE is adapted." Intuitively it is easy to conceptualize but difficult to operationalize in our current PETE program. On one hand, the inclusion movement made APE somewhat redundant. On the other hand, it is a unique field trying to advance certification and national standards. Should the content and standards associated with APE programs including credentials, concentrations, special emphasis, etc. be migrated into the entire discipline of Kinesiology, especially the PETE program? Can APA/APE stand on its own merit in the academy? Or is the status quo the preferred paradigm? Space does not allow for development of the last two issues. The presentation will conclude with a discussion of two other subjects important to APA/APE professionals. We will make a call for leadership development in APA and discuss essential attributes of leaders in APA/APE. To finish, we will conclude by raising the issue that there are not a sufficient number doctoral programs available to aspiring academicians. Few programs limit access and ultimately restrict the range of variability that could exist in APA/APE. Moreover, it raises a fundamental question about the future of APA/APE in North America if only a few institutions prepare all of the academicians that eventually prepare future professionals. People attending this session are expected to engage in a lively collegial discussion throughout the session.

Some is Good. More is Better. Avoid Inactivity: Physical Activity Guidelines for Persons with Disabilities

Practical Application
9:35-9:55 am
Room B

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Did you know the recommended amount of physical activity for persons with disabilities is the same as for 'healthy', 'non-disabled' individuals? Do you know the recommendations? This presentation will review physical activity guidelines issued by the American Heart Association, American College of Sports Medicine, and the U.S. Department of Health & Human Services. These guidelines describe the types and amounts of physical activity which offer substantial health benefits. This presentation will compare and contrast these guidelines; identify which directly addresses persons with disabilities; and briefly describe the process used to develop the disability recommendations. At the conclusion of this presentation, audience members should be able to describe the current exercise recommendations for persons with disabilities and identify the one thing that most persons with disabilities can do to improve their health.



Prevalence of Overweight and Obesity among Adult Special Olympics Participants 2005–2010

Scientific Research
9:35-9:55 am
Room C

Viviene A. TEMPLE¹, John T. FOLEY², & Meghann LLOYD³

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Body mass index (BMI) is a key indicator of health and a significant predictor of cardiometabolic risk for adults with intellectual disability (ID). High rates of obesity have been documented among adults with ID; however longitudinal studies of obesity trends have not been undertaken. Special Olympics International conducts free health screenings for individuals with ID at local, national and international events. The health promotion screening includes the measurement of height and weight by trained personnel. **PURPOSE:** This study examined temporal trends in the prevalence of overweight and obesity among adult US Special Olympics participants from 2005 – 2010. Additionally, the prevalence of overweight was compared with published National Health and Nutrition Examination Survey (NHANES; Flegal et al., 2012) statistics for 2009-2010. **METHODS:** A total of 8,767 (male=56%) BMI records were available from the Special Olympics International Healthy Athletes Health Promotion database after data cleaning. BMI was calculated using the Quetelet index (kg/m^2); with overweight defined as $\text{BMI} \geq 25$ to < 30 and obesity defined as $\text{BMI} \geq 30$. Rates of overweight and obesity were calculated for 2005-2006, 2007-2008, and 2009-2010. The prevalence of overweight/obesity for Special Olympics men and women in two age bands (20–39 years and 40 – 59 years) were compared to the published NHANES prevalence rates for 2009-2010 using chi-square tests. **RESULTS:** In 2005-2006 ($n=984$), 29.6% of the sample was overweight and 40.1% were obese. In 2007-2008 ($n=2,357$), 28.1% were overweight and 44.6% were obese; and in 2009-2010 ($n=5,426$), 28.5% were overweight and 46.3% were obese. Stratified by age band and gender for 2009-2010, the prevalence of overweight/obesity ($\text{BMI} \geq 25$) among men and women aged 20–39 years was 69.9% (95% CI, 68.0%-71.8%) and 75.5% (95% CI, 73.5%-77.6%); respectively. For men aged 40–59 years the prevalence of overweight/obesity was 78.6% (95% CI, 75.7%-81.4%) and for women was 85.0% (95% CI, 82.1%-87.8%). Compared with NHANES statistics, the prevalence of overweight/obesity was significantly higher for Special Olympics women aged 20–39 years ($\chi^2=15.80$, $df=1$, $p<.001$) and 40–59 years ($\chi^2=21.98$, $df=1$, $p<.001$). There were no significance differences for either age-band of men (20–39 years: $\chi^2=0.22$, $df=1$, $p=.640$; 40–59 years: $\chi^2=0.05$, $df=1$, $p=.816$). **CONCLUSIONS:** The prevalence of overweight and obesity was high among US Special Olympics participants in each time period; and Special Olympics women were significantly more overweight/obese than the US national data for 2009-2010. Efforts to promote healthy weight status must increase, particularly for women with ID.

Changing Perceptions Through International Adapted Physical Education in the Middle East

Practical Application
9:35-9:55 am
Room D

Rebecca K. LYTLE

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The United States has a very diverse population, with 30% of the population from Arab decent and 42% from Arab alone combined with another ancestry (Brittingham & de la Cruz, 2005). In the city of Los Angeles County 56% are of Arab ancestry (Los Angeles Census, 2000). In California 72% of the special education population is non-white (California Department of Education, 2010). This diversity in society creates the need for appreciation and understanding of different cultures, religions, and regions of the world. Pre-service teachers need to be able to welcome and understand students who may be experiencing school in the United States for the first time, who have parents who are non-English speaking, or who merely have a very different culture than their own. In this practical session, perceptions of five pre-service teachers before and after an international experience with a camp for children with disabilities in Sharjah City, United Arab Emirates will be shared. Pre-service teachers enrolled in an independent study class as part of this project. Students in the class reviewed research on the perceptions of disability in the Middle East, studied cultural expectations, listened to guest speakers, and planned lessons and activities in preparation for the Al Amal camp in the United Arab Emirates. The project culminated in a 10-day experience in the UAE which included children and delegates from countries such as UAE, Saudi Arabia, Yemen, Egypt, Bahrain, Lebanon, and Oman. The preparation process, as well as the pre-service teacher's assumptions, fears, and knowledge pre and post the experience will be presented. Qualitative and quantitative results from pre-service teacher responses to the experience revealed changes in perceptions and acceptance of the culture, people, and region following the immersion experience. Implications for teacher preparation programs will be discussed.



People in Motion. More Places. More Often. A Community Exercise Transition Model

Practical Application
10:00-10:20 am
Room B

Bobbi-Jo ATCHISON, Donna GOODWIN, & Karen SLATER

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Despite the importance of physically active lifestyles for the maintenance of health, quality of life and sense of physical wellbeing (Dishman & Sallis, 1994), people with disabilities are conspicuously absent from community based physical activity and fitness settings (Rimmer, 2005). Literature shows that the wide range of barriers to becoming physically active may impede the motivation, ability and overall access to community based physical activity for persons living with impairment. According to Rimmer et al. (2004), there are 178 identified barriers associated with participation in fitness and recreation programming among persons experiencing disability. These barriers are divided into themes including, built and natural environment, economic, emotional/psychological, equipment, codes and regulations, information, professional knowledge and education, perceptions and attitudes, policies and procedures and resource availability. The Steadward Centre for Personal & Physical Achievement at the University of Alberta has developed a Community Exercise Transition Model to support individuals experiencing disability to successfully transition from rehabilitation or specialized fitness programs to community based fitness centres. By building on the work of the Rick Hansen Foundation, four essential elements to success and barrier reduction have been identified and incorporated into the Community Exercise Transition Model: Individual Readiness, Community Readiness, Community Opportunities, and Physical Environment. Through our Community Transition program and use of the model, The Steadward Centre has successfully transitioned over 150 participants experiencing disabilities into one of twenty five community fitness centres of their choice. This presentation will explore the transition model and the broad range of activities used to build community capacity and support individual and community readiness. Areas of focus include accessibility audits, peer mentorship programs, educational workshops for fitness providers, community collaborations and fee reduction programs. Further research discoveries will also be discussed.

Teaching a Line Dance to Adolescents with Autism Spectrum Disorders Using Video Prompting

Scientific Research
10:00-10:20 am
Room C

Maria GIES¹ & David PORRETTA²

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Educators are continually seeking both appropriate interventions and leisure activities for individuals with ASD. Dance is a recommended socially appropriate leisure activity for those with disabilities (Sherrill, 2004). One intervention that has been successfully used to teach a number of behaviors to individuals with developmental disabilities is video prompting (Banda, Dogoe, & Matuszny, 2011). Video prompting (a video modeling variation) is designed to provide task analyzed segments of a skill/activity and has shown to be effective for teaching individuals with ASD (Edrisinha et al., 2011). **PURPOSE:** The purpose of this study was to examine the effectiveness of video prompting on the acquisition, maintenance, and generalization of a structured line dance by adolescents with ASD. **METHODS:** Six males (ages 12 to 16) and one female (age 15) with high-functioning ASD received Cupid Shuffle dance training. A multiple probe across participants design combined with a changing criterion design was used. Maintenance, generalization, and social validity were assessed. During video prompting, one video vignette (clip) at a time was shown on a MacBook Pro® laptop computer. After viewing a vignette, participants were given the opportunity to reproduce the modeled steps. Positive reinforcement, such as praise and/or a high-five, was given for correctly performed steps. All sessions were videotaped. Acceptable inter-observer agreement was obtained and was calculated across all participants on a block-by-block basis. Procedural integrity was calculated using mean percentages and was found to be acceptable. **RESULTS:** Upon visual analysis, results showed that six participants acquired the Cupid Shuffle. Moreover, three participants demonstrated 100% maintenance and one participant demonstrated 99.1% maintenance at 1-week post-intervention. One participant demonstrated 100% maintenance at 8-days post-intervention. In terms of generalizing the newly learned dance to a new situation by dancing alongside their trainer to music, four participants achieved overall generalization of 89–100%. When generalizing the newly learned dance alongside peers to music, three participants achieved overall generalization of 97–100%. Furthermore, parents and participants who completed social validity questions reported that goals, procedures, and outcomes were acceptable and important. **CONCLUSIONS:** Results indicate that video prompting can be an effective intervention relative to the acquisition, maintenance, and generalization of a socially appropriate leisure time activity (line dance) for adolescents with high-functioning ASD.



Review of Research Literature in Adapted Physical Education in Russia

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Scientific Research
10:00-10:20 am
Room D

Currently, there are 545,000 children with disabilities in Russia (Russian Ministry of Education, 2009). While the existence of persons with disabilities was not denied, the Soviet system of higher education did not encompass adapted physical education (Evseev, 2002). In the post-Soviet society, Lybisheva (1993) posited the necessity of critical and creative reform in physical education teacher education programs to include adapted physical education. Shortly thereafter, a new profession, “adapted physical educator,” was sanctioned by the State Committee of Higher Education of Russia in 1996 (Goskomvyz, 1996). This sanction authorized universities to offer a new major and begin preparation of professionals in adapted physical education. **PURPOSE:** The purpose of this study was to critically analyze research literature pertaining to adapted physical education in Russian professional journals. **METHODS:** This study employed similar procedures to those of other review studies (Block & Obrusnikova, 2007) where each study to be included in the review had to meet several a priori criteria. The review was carried out in Russian language data sources. Manual and electronic searches were conducted. Two authors independently carried out the reliability check of the coding process assessing all selected studies against the eligibility criteria. Each study was dichotomously scored on meeting or not meeting the criteria resulting in 100% intrarater reliability. Findings of the 81 selected studies were included in the review. **RESULTS:** The following categories within the research studies were identified and labeled as 1) Defining the field, 2) Specific disabilities, and 3) Experimental curricula and specific intervention efforts, and 4) Preparing for now and the future. **CONCLUSIONS:** The results of our study indicated that the research in adapted physical education in Russia is fairly limited. However, there is emerging evidence of a robust research interest in the adapted field. In addition, appropriate language, methodologies, and boundaries of the adapted field are still not clear and a number of different methodologies for individuals with disabilities are being investigated.

The Long Term Athlete Development Model and the Child Experiencing Disability: A Community Based Adapted Physical Activity Approach

Karen SLATER & Kirsti VAN DORNICK

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Practical Application
10:25-10:45 am
Room B

Sport is culturally valued in society, and thousands of children each year participate in sport within their communities. However, children and youth with physical, developmental and sensory impairment often have limited access to physical activity, skill development and sport opportunities. According to Higgs, Bluehardt, Balyi, et al. (2011) children experiencing disability may not have the same opportunity to learn basic movement skills because they do not always have the same opportunities or resources for vigorous physical play during their early years. The Canadian Long Term Athlete Development (LTAD) Model put forth by Canadian Sport for Life has identified seven developmental stages that affect the development of an athlete’s physical, mental, cognitive and emotional capacities as they participate in physical activity and sport. The LTAD has evolved to account for the athlete living with impairment; however for many, questions around implementation, access and resources persist. What opportunities are afforded to children and youth living with impairment to experience sport and physical activity in their communities? How are the unique sporting needs of these youth being met? How is a child living with physical impairment developing physical literacy? The Steadward Centre for Personal & Physical Achievement at The University of Alberta is taking a lead role in addressing the need to provide children and youth with disability the skills, resources and experiences necessary to develop physical literacy for full participation in physical activity, recreation and high performance sport. Through its Free2BMe Physical Activity for Kids and Teens with Disabilities program, the Centre provides community based adapted physical activity programs in a specialized physical activity and sport setting. Aligning with the LTAD, Free2BMe has established grassroots individual and group programs that progress a participant from an active start, and the fundamentals through to learning to train and on to training to compete and ultimately active for life. This presentation will explore the advantages and disadvantages of the application of the LTAD model with children and youth ages 4-25 with varying levels of ability, based on the experiences and learnings of the Free2BMe program. Types of instructional programs offered, program objectives, outcome measures and the incorporation of applied learning opportunities for undergraduate students will be discussed. Further implications for research studies, service delivery provision and model development will be explored.



Assisted Cycle Therapy (ACT) Improves Manual Dexterity in Adolescents with Down Syndrome

Scientific Research
10:25-10:45 am
Room C

Shannon D. R. RINGENBACH, Chih-Chia (JJ) CHEN, Michelle SNOW, & Andrew R. ALBERT

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It has been demonstrated that persons with Down syndrome (DS) have difficulties in performing fine manual dexterity, such as tooth brushing, which is crucial for the self-care domain of daily life. Cycling exercise kept at a fast rate (i.e., 80 rpm) by a mechanical motor has been found to improve manual movements in Parkinson's patients. It has been suggested that the increased peripheral input to the motor cortex due to the faster rate of cycling than can be achieved voluntarily, induces neurogenesis and improves global motor control. Because persons with DS also move slowly during voluntary exercise (e.g., 55 rpm), we predicted that they would also gain global motor improvements from the fast rate of the Assisted Cycle Therapy. **PURPOSE:** The main purpose of the study was to investigate the impact of Assisted Cycling Therapy (ACT) on fine manual dexterity in young adults with DS. A secondary purpose was to examine if music would increase rate of movement equivalent to the Assisted Cycle Therapy and also produce improvements in manual dexterity. **METHODS:** There were 6 males and 3 females (chronological age = 19 years, 2 mos (± 3 years, 7 mos), mental age = 6 years, 7 mos (± 2 years, 2 mos) with DS that completed four different interventions: voluntary exercise (VE), voluntary exercise with music (VEM), assisted exercise (AE) and music listening (MO). Fine manual dexterity (e.g., Purdue Pegboard task) was measured pre and post interventions. T-tests were used to compare pre-post differences in performance for each intervention. **RESULTS:** The results showed that dominant hand, bimanual, and total subtests improved after AE but no improvement was evident in either subtest after VE. The assembly subtest only improved after VEM and MO. **CONCLUSIONS:** It is speculated that AE stimulated more peripheral sensory input to the motor cortex than the other interventions, which lead to improvements in global motor control. In addition, our results indicated that the involvement of music may enhance spatial-temporal ability required in the assembly task. Even though the exact mechanisms are still unknown, the implication of our results showed that ACT can improve fine manual dexterity in persons with DS after a single exercise session. This research was funded by the College of Nursing and Health Innovation at Arizona State University.

Validation of a Psychosocial Model to Predict Physical Activity Participation in Adults with Physical Disabilities in Korea

Jinwoo PARK¹, Hyunsu LEE¹, Seokmin YUN², & Jaehwa KIM²

Scientific Research
10:25-10:45 am
Room D

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The benefits of physical activity in terms of enhancing physical and psychological health, rehabilitation, and the overall quality of life in individuals with physical disabilities, have been widely suggested internationally. The psychosocial model developed by Driver (2008) has been used to predict physical activity participation in adults with traumatic brain injuries (TBI) in the United States. Within this model, affect was a critical factor to predict physical activity participation in adults with a specific disability, TBI. However, there is a little known to support this psychosocial model for physical activity participation of individuals with physical disabilities. **PURPOSE:** The purpose of the study was to determine whether or not Driver's psychosocial model (2008) was valid to predict physical activity participation in adults with various physical disabilities in Korea. **METHODS:** Participants were 420 adults with various physical disabilities (female = 96, male = 324) who participated in sports and physical activities clubs. A questionnaire used in the present investigation consisted of six psychosocial domains: (a) perceived competence (Driver, 2008); (b) social support (Driver, 2007); (c) affect (Lox, Jackson, Tuholski, Wasley, & Treasure, 2000); (d) physical self-worth (Driver, 2008); (e) motivation (Harter, 1981); and (f) physical activity participation (Godin & Shephard, 1985). Structural equation modeling was used to assess a modeling fit and relationships between specific psychosocial factors. **RESULTS:** Overall, fit indices indicated that Driver's psychological model (2008) was not a good fit for the data in the present study (NFI = .965, TLI = .880, CFI = .966). Further, unstandardized coefficients were relatively lower and nonsignificant in the relationships between social support and affect [.056 ($t = 1.10$, $p > .05$)]; affect and physical activity participation [.055 ($t = 1.04$, $p > .05$)]; and motivation and physical activity participation [.014 ($t = 0.26$, $p > .05$)]. **CONCLUSIONS:** In contrast to the findings of Driver (2008) in the United States using adults with TBI; in the present investigation using adults with various physical disabilities, the psychological model was unlikely to predict physical activity participation in individuals with various physical disabilities in Korea. While not directly investigated, this might be due to the cultural difference between Korea and the United States or the difference in social perception of individuals with various physical disabilities on physical activity participation between two countries. Thus, there is a need for an alternative psychological model to predict physical activity participation in adults who are physical disabled in Korea.



What Every Professional Should Know About Effective Communication between APE Teachers and Special Education Professionals

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Building Session
10:50-11:35 am
Room A

In the United States, all children, regardless of ability level, have the opportunity to participate in physical education. For those students with disabilities who APE/PE is indicated on their IEP it is critical that parents and all professionals involved in their educational future to be active participants during IEP meetings. However, in many school districts APE/PE teachers may not be invited to attend these meetings or may be notified until the last minute. In some instances special educators, parents, and other professionals may not be aware of the benefits of physical education for individuals with disabilities or may not be familiar with the APE/PE terminology. Frequently, however, it is the APE/PE teacher who is not familiar with the terminology used by special education teachers and administrators. The purpose of this presentation is to disseminate evidence-based research that demonstrates the importance of APE/PE teachers' participation during the IEP meetings. Strategies will be proposed to assist APE/PE teachers to become active participants during these meetings. In addition, this presentation will share common terminology used in the field of special education, along with strategies as to how APE/PE teachers can implement this terminology into their professional vocabulary and consequently into their programs. Lastly, ideas for professors in higher education to facilitate this conversation during their professional preparation programs will be shared.

Overcoming Barriers to Community-Based Participation Through the Empowerment Model

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Practical Application
10:50-11:10 am
Room B

Current and future educators, as well as community-based instructors, frequently indicate a lack of training, knowledge, and necessary instructional support to allow individuals with disabilities to effectively participate in their programming or utilize their facility (Martin, 2004; Moran & Block, 2010; Spencer-Cavaliere & Watkinson, 2010). Lacking the tools to meet the needs of students who walk, run, crawl or roll into the gymnasium may lead to fluctuating levels of self-efficacy for physical educators, which may affect the successful inclusion of individuals with disabilities. The Empowerment Model was developed around the framework of self-efficacy theory (Bandura, 1997). The model utilizes a tiered training and support model designed to address identified barriers by educating, equipping, and empowering educators and future professionals to meet the health/physical activity needs of individuals with disabilities. The Empowerment model has three elements: (a) reverse inclusion programs, (b) strategies of success (SOS) training modules, and (c) helping hands instructional support. Through the application of self-efficacy theory, the effects of the Empowerment Model on instructor, child, and parent self-efficacy toward inclusion in community-based programming can be explored. This session will present the Empowerment model, its framework of self-efficacy theory, and how the proposed methods are meant to address the barriers through a continuum of training, support, and instructional experiences.



Improved Cognitive Functions but Not Motor Control Outcomes Following Treadmill Walking in Persons with Down Syndrome

Chih-Chia (JJ) CHEN, Shannon D. R. RINGENBACH, Michelle SNOW, & Lauren M. HUNT

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Scientific Research
10:50-11:10 am
Room C

Many studies recommend that physical activity is beneficial for improving motor and cognitive control in atypical populations, such as people with chronic stroke (Ploughman et al, 2008) and coronary artery disease (Soyupek et al, 2006), after an acute bout of aerobic gross motor activity. However, the evidence for the effect of exercise on persons with Down syndrome (DS) is limited. **PURPOSE:** The purpose of this study was to investigate the impact of an acute treadmill walking intervention on motor control and cognitive functions in young adults with DS. **METHODS:** Ten persons with DS ($M_{Age} = 23.5 \pm 4.9$ yrs, $M_{BMI} = 36.8 \pm 10.5$) were assigned to an exercise group, who walked on a treadmill for 20 minutes. The exercise intensity was maintained between 50% to 70% of their predicted maximum heart rate. Ten persons with DS ($M_{Age} = 20.6 \pm 5.7$ yrs, $M_{BMI} = 36.5 \pm 10.9$) were assigned to an attentional comparison group, who watched a video for 20 minutes. Measures of fine motor skill (e.g., Purdue Pegboard Test), force production (e.g., Hand Grip Strength test), attention shifting ability (e.g., The Dimensional Card sorting Test), and inhibitory control (e.g., Knock and Tap Test) were tested pre- and post- intervention. **RESULTS:** The results showed significant improvement in inhibitory control for the exercise group but not the comparison group after 20-min treadmill walking. Further, no enhancement was pronounced in fine motor control for both groups. As for grip strength, only significant improvement was shown in dominant hand for the exercise group. **CONCLUSIONS:** While improvement in the cognitive functions and motor control have been proposed as a consequence of the stimulation of neurotransmitters in the prefrontal brain area or the propagation of the sensory input from peripheral to central motor cortex, the exact mechanisms in persons with DS are still obscure. In addition, these results are inconsistent with our previous study of Assisted Cycling Therapy (ACT) in people with DS (Ringenbach et al., 2011). Thus, the impaired motor control outcomes might be a result of the insufficient stimulation from lower extremities to reach the excitability of synaptic plasticity in the motor cortex (Battaglia et al., 2008). However, the benefit in cognitive improvement in the current study can be achieved in young adults with DS, even in a single exercise session. This research was funded by the Special Olympics Healthy Athletes Health Professions Student Grant and Arizona State University Graduate and Professional Student Association Research Funding.

Development of Adapted Physical Activity in Turkey

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Scientific Research
10:50-11:10 am
Room D

PURPOSE: The aim of this study was to investigate the development of Adapted Physical Activity (APA) in Turkey. The Development of Adapted Physical Activity was investigated under the titles; "Physical Education and Sport Classes in Special Education Schools", "Adapted Physical Activity Organizations", "APA in the School of Physical Education and Sport" and "Master and Doctoral Theses in APA". **METHODS:** The method used in this investigation is description. The information was gathered about APA in the School of Physical Education and Sport via a questionnaire, Master and Doctoral Theses in APA, and "Adapted Physical Activity Organizations" via the websites (www.yok.gov.tr; www.gsgm.gov.tr). Information was obtained on "Physical Education and Sport Classes in Special Education Schools" from the General Management of Consultancy and Research. **RESULTS:** The results showed that studies of APA in terms of teaching training and sports federations for individuals with disabilities have gained momentum since the year 2000. **CONCLUSIONS:** The most important problems in APA are the limited availability of physical education class in special education schools and regular schools, deficiency in the number of physical educators, and a lack of physical educators within the special education teams.



Communities in Crisis: Protecting the Vulnerable After a Disaster

Practical Application
11:15-11:35 am
Room B

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The effects of natural and man-made disasters are devastating in terms of property damage, loss of life, and disruption of communities. Although they are not listed in casualty statistics, the survivors number in the millions. For these survivors, horrific images and psychological trauma will endure for a lifetime. In the midst of this ongoing struggle, countries, organizations, and individuals want to help in some way. Besides the logistical and financial problems inherent in massive relief efforts, the persistent psychological trauma experienced by many of the survivors complicates the recovery sequelae for each of its victims. The profound impact on communities and support systems will also be explored. Special focus will be given to the impact on systems that maintain or sustain adapted and inclusive physical activity. Rebuilding damaged infrastructure requires funding and creative, insightful leadership interventions. This workshop will organize a perspective on community re-building with a paradigm that includes inclusive/adapted sport, psychology, and leadership theory. The following are the key elements of this presentation.

1. The biological and psychological effects of trauma are pervasive but usually reversible resulting in normal and healthy levels of functioning. However, when trauma is overwhelming or of lasting duration, neuro-transmitters and receptors can be permanently altered giving rise to ineffective or even pathological response sequences. Perry and Associates have likened this effect to brain damage. Using this paradigm, they have documented the persistence of trauma, especially among children and adolescents.
2. People are forever changed when they are exposed to trauma. Some of these changes are positive, increasing the quality and strength of the person's coping mechanisms. Other changes result in lasting psychological distress associated with ineffective or impaired physical or psychological coping mechanisms.
3. Disaster and APA Services. Participants will explore the particular impact of disaster in adapted and inclusive physical activity support. Those with developmental or physical disabilities are especially at risk as many of the critical support systems that allow for sustained functioning are damaged by disaster. This presentation will provide special focus on rapid restoration of APA services in damaged communities.

Measuring Physical Activity in Youth with Down Syndrome

Scientific Research
11:15-11:35 am
Room C

Phil ESPOSITO

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Current methods for measuring quantity and intensity of physical activity based on accelerometer output have been studied and validated in typically developing youth. These methods have been applied to youth with Down syndrome with little empirical research done to validate these measures for this population. **PURPOSE:** The purpose of this study was to examine the performance of the Actical accelerometer for measuring physical activity among youth with and without Down syndrome. **METHODS:** A total of 53 participants (27 with Down syndrome [15 males], 26 without Down syndrome [17 males]), between the ages of 8 and 18 years were included in the present study. The Actical accelerometer was validated using a graded treadmill protocol. Identical protocols were used for each group. During the protocol participants wore a portable metabolic system. Heart rate, expired gases, and data counts from the Actical were collected, analyzed, and compared against current thresholds used for determining physical activity intensity. **RESULTS:** There were no significant differences between data counts produced by the Actical accelerometer for each group. Significant differences were found between groups for several physical activity intensity indicators. Individuals with Down syndrome were found to be working at a greater percentage of their age predicted maximum heart rate at each stage ($p < 0.01$). Participants with Down syndrome also were found to have higher peak respiratory exchange ratio values ($p < 0.01$). **CONCLUSIONS:** Results of this study indicate the Actical accelerometer is a valid device for objectively measuring physical activity among youth with Down syndrome. The Actical produced similar raw data for both groups for identical workloads. When attaching biological meaning to these data counts participants with Down syndrome were shown to be exerting themselves at a higher level. Current cut-points associated with physical activity intensities developed on typically developing youth may underestimate physical activity intensity in youth with Down syndrome. The unique characteristics and responses to physical activity of individuals with Down syndrome should be considered when measuring physical activity. Based on these results, future research should be directed toward developing population specific methods of measuring and interpreting physical activity in a practical way.



Saturday, October 13th

The Progress of Adapted Physical Activity in Angola in the Last Decade and Its Impact on Rectification of United Nations Convention for People with Disabilities

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Practical Application
11:15-11:35 am
Room D

Adapted Physical Activity (APA) has experienced phenomenal growth and popularity in Angolan society in the last few years. The Angolan and International societies have both benefitted greatly from the growing participation of individuals with disabilities in physical activity. This popularity and growing awareness of the capabilities of these elite athletes comes from the adapted sport movement, as well as through their participation in international competitions. That movement has improved the quality of life of people with disabilities, and their families and supporters. The purpose of this presentation is to provide an overview and recap of the progress of APA in educational, recreational and sports settings in Angola, and to show its impact on the rectification of the United Nations Convention on the Rights for People with Disabilities, signed as an Angola Executive Order in May 2012.

Erasmus Mundus Master in Adapted Physical Activity: Program II (2010–2015)

Daniel DALY¹, Ronald DAVIS², Martin BLOCK³, Joeri VERELLEN¹, & Yves VANLANDEWIJCK¹

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Building Session
2:05-2:50 pm
Room A

The Erasmus Mundus Master in Adapted Physical Activity (EMMAPA) is a co-operative program organized by four European Universities: Katholieke Universiteit Leuven, University of Limerick, Palacky University Olomouc, and the Norwegian School of Sport Sciences. The program involves study periods in Leuven (year 1) and at least one of the three European partners with additional opportunities outside Europe (year 2). The EMMAPA Consortium has 3 non-European partners and several Associate Partners: the U. of Queensland (Australia), the U. of Stellenbosch (South Africa), and the U. of Virginia (USA) with Texas Woman's University among the Associate partners (USA). The program offers state-of-the-art research and teaching methodology combining the expertise of several other European universities and from around the world to offer comprehensive training and expert knowledge in most aspects of APA. Each year visiting scholars from outside the partners are also invited to teach and lead research assignments. The program promotes the exchange of ideas between professionals and future practitioners and the multicultural aspect is a great asset to the program itself and to the field of APA in general. The graduate will be able to: A) Design and evaluate evidence-based APA programs. The course will provide the competencies to work in one of 3 professional areas: Education (special needs schools), Management and Active Life Style (recreation, competition & rehabilitation) with a variety of disabilities both physical and mental across life-span. B) Take part in research. The course provides scientific skills enabling graduates to pursue an academic career or undertake further research or doctoral study. C) Identifying APA needs in different countries and develop multicultural collaboration to enhance the opportunities for people with a disability. The program is open for holders of at least a Bachelor Degree in Physical Education, Physiotherapy, Sport/Movement Sciences, and/or Kinesiology. A number of full scholarships are offered which include tuition, living expenses and for non-European students, a travel allowance. Selection criteria include academic record, research experience, professional experience and letters of recommendation. A minimal language score of TOEFL IBT ≥ 79 is required for students who have not studied in core English speaking countries (US, Canada, UK, Ireland, Australia & New Zealand). Tuition for European students is 4000 euro/year and 8000 euro/year for non-Europeans. The successful student is conferred with a joint degree from the European consortium Universities.



Making Your Research Meaningful

Lauren LIEBERMAN

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Practical Application

2:05-2:25 pm

Room B

Before the year 2000 there had been very little research related to physical activity and children with visual impairments or deafblindness. Creating a sports camp for children with visual impairments gave us a wonderful avenue for research and practice throughout the US related to physical activity and children with visual impairments. This presentation will share my research to date so far and how I have made the results of both descriptive and intervention studies work to change the field related to physical activity and children with visual impairments. Descriptive studies looked at variables such as health related fitness, motor skills, attitudes toward physical education, self-efficacy, self-determination, balance, socialization, physical education experiences, and parental attitudes. Interventions studies analyzed the benefits of a nutrition curriculum, jump ropes, guide-running, tactile teaching techniques, talking pedometers, and various exergames (dance, dance, revolution, wii, etc.). I will explain how a descriptive study can shed light on needed interventions and how the intervention studies can shed light on what works and help the direction of specific instructional interventions. Lastly, the widespread use of the instructional interventions can truly change the face of the population you are working with in this case individuals with visual impairments or deafblindness. In my case I was fortunate to work with the American Printing House for the Blind and develop true educational products to assist children in becoming more active such as a jump rope kit, a walk-run for fitness kit, a motor development curriculum and kit, a tactile sport court for physical education teachers, a tactile food pyramid, and three educational books. Using this systematic method to approach ones research passion will make the field better and help many people. There will be time given for people to reflect on their current research approach and make an action plan.

The Effects of Aquatic Exercise on Static and Dynamic Balance in Children with Cerebral Palsy

Jennifer O'CONNOR, Jessica MCCAMISH, Mai JARA, & Taeyou JUNG

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Scientific Research

2:05-2:25 pm

Room C

PURPOSE: The effectiveness of aquatic exercise on balance in children with Cerebral Palsy was examined. **METHODS:** Four children, aged between 7 and 14, with spastic hemiplegic and diplegic Cerebral Palsy participated in a 40-minute aquatic exercise program 3 times a week for 7-weeks. The aquatic exercise sessions were structured with 10-minute warm-up, 20-minute mobility focused exercises (e.g., balance board sitting, mat climbing, sit-and-reach, heel-toe walking) and a group cool-down. Balance outcomes were measured 4 times: pre-intervention, mid-point, post-intervention, and 7-week follow-up. Biomechanical balance tests were administered on a computerized posturographic machine with moveable forceplates and moveable visual surrounding (Smart Balance Master, Neurocom International, Clackamas, OR, 2010). The balance assessments included: Sensory Organization Test, Motor Control Test, Adaptation Test, and Limits of Stability Test. The balance assessments tested static and dynamic balance, automatic postural response time, postural sway, and individual reliability on visual surroundings and balance system preference. **RESULTS:** Results were analyzed using visual assessment of the time series data. One out of four participants showed a positive outcome of a 25% increase in the Equilibrium Score, a measurement of postural sway during static standing that is compared to a theoretical normalized value. Two out of four participants showed positive improvement in automatic postural reaction time by showing a decrease in latency, the involuntary reaction time in response to random anterior and posterior surface translations of the forceplate. **CONCLUSIONS:** The results suggest that children with Cerebral Palsy can improve both, static and dynamic balance, after an aquatic intervention program.



A Lifestyle Approach to Adapted Physical Activity

Josh PENNINGTON¹ & Heather PENNINGTON²

Practical Application
2:05-2:25 pm
Room D

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Adapted Physical Activity does not end when the activity session or program ends. The approach and philosophy to providing an Adapted Physical Activity program should have the understanding that the benefit to the participants goes beyond that actual session and transcends into their daily lives. This session will provide practical tips of how to apply the philosophy of Adapted Physical Activity giving our participants daily independence through our programming. At the end of the session, participants will understand how to practically provide programming with the intent of giving their participants daily independence through their programs. At the end of the session, participants will understand the key value of daily independence through Adapted Physical Activity. Previous personal practical experience provided by presenter who has been a participant, facilitator, and manager of Adapted Physical Activity.

The Turn to Narrative: Bringing the Researcher's Life to the Field

Kyoung June Yi

Scientific Research
2:30-2:50 pm
Room B

Physical Education and Recreation, University of Alberta, Canada

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Over the decades great attention has been shown to the questions of what adapted physical activity (APA) is and what constitutes acceptable research practice in this field of study. However, the question of how APA generates knowledge has received relatively little attention in its literature. **PURPOSE:** The purpose of this study was to illustrate my own lived experiences of knowledge generation processes through narrative inquiry. Specifically, my own sense making experiences related to Oscar Pistorius, a *Paralympic* athlete with bilateral below-knee amputations who desires to run against able-bodied athletes at the Olympics, were explored as a way of reflecting on the processes. **METHODS:** Narrative inquiry is a way of understanding experience and an approach to the study of lived experience as a fundamental source of knowledge and understanding (Clandinin & Connelly, 1994, 2000). I was the sole participant and researcher of this research (Chase, 2005). Personal recollections (Markula & Denison, 2005), self-reflexive journals (Clandinin & Connelly, 2000), and media reports and scientific research articles on Oscar Pistorius were collected as data sources. Data were analyzed through text records, general readings, specific readings, and relational readings (Keats, 2009). My narratives of self (Richardson, 1994) were composed through the processes of description, interpretation, and explanation and represented as a form of storied writing, "essayistic personal experience narrative" (Markula & Denison, 2005, p. 168). **RESULTS:** Composed four stories were: 1) *Entering the Field of APA*, 2) *Shift in My Understanding of Disability*, 3) *Shift in my research interest*, and 4) *The turn to narrative*. These are stories of my own experiences of narrative turn in order to highlight my own knowledge generation processes in APA. **CONCLUSIONS:** The results challenge the field of APA to 1) consider the researcher's self as an integral aspect of knowledge generation processes (Connelly, Clandinin, 1999; Schnee, 2009; Yi, Lee, & Kim, 2011), 2) acknowledge the social interactive and relational nature of knowledge generation (Clandinin & Rosiek, 2007; Kim & Latta, 2010; Standal, 2008), and 3) narrative knowing as another way of knowledge generation (Markula & Denison, 2005; Smith & Sparkes, 2008; Yi, Kim, & Lee, 2011).



Reliably Measuring Ambulatory Activity Levels of Children and Youth with Cerebral Palsy

Scientific Research
2:30-2:50 pm
Room C

Saori ISHIKAWA¹, Minsoo KANG¹, Kristie F. BJORNSON², & Kit SONG³

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As children with cerebral palsy (CP) present limitations in functional mobility, promoting physical activity becomes crucial to maintain health-related fitness. With increased monitoring of walking activity in CP, it is important to document how many days of monitoring are sufficient to reliably estimate the ambulatory activity. **PURPOSE:** The study was aimed to examine the minimal number of days required to obtain a stable measure of habitual ambulatory activity in CP. **METHODS:** A total of 209 ambulatory children and adolescents with CP (age range 2-14 years) Gross Motor Functional Classification System (GMFCS) levels I-III were recruited through three regional pediatric specialty care hospitals. Daily walking activity was measured with the two-dimensional StepWatch accelerometer over 7 consecutive days. Days with number of steps <100 were considered 'outliers' and were treated as 'missing' values, and where ≤ 2 days of the week were missing, individual information-centered approach (replacing missing values with the average of the remaining days) was applied to replace the missing values. Six percent of the total number of days was replaced, and 8 participants with ≥ 3 days of missing values were excluded from the analysis. Participants were categorized into six groups by age (2-5 and 6-14 years) and functional levels (GMFCS I, II, and III). Generalizability theory was employed to identify sources of variance in step counts and to determine the number of days necessary to obtain a reliability coefficient of $\geq .80$. **RESULTS:** Mean step counts for youth ages 2-5 years GMFCS I, II, and III were $11,580 \pm 3229$, 9670 ± 3868 , and 3234 ± 2257 steps, respectively. Mean step counts for participants ages 6-14 years GMFCS I, II, and III were $10,732 \pm 4031$, 9002 ± 3564 , and 3149 ± 1992 steps, respectively. Relatively large amounts of variance in step counts attributable to participants ranged from 33.6% to 65.4%, with GMFCS I the lowest and GMFCS III the highest for both age groups. For youth ages 2-5 years, a minimum of 8, 6, and 2 days were required to reach acceptable reliability for GMFCS I, II, and III, respectively. A minimum of 6, 5, and 4 days were required to reach stable measures of step activity for GMFCS levels I, II, and III, respectively for participants ages 6-14 years. **CONCLUSIONS:** The variation in daily step counts attributed to participants increased with greater functional limitation. Our findings suggest that GMFCS levels are ought to be considered in planning a monitoring period to reliably measure ambulatory activity of children and youth with CP.

Express Yourself - Exercise Everything - Mind, Body, and Spirit

Practical Application
2:30-2:50 pm
Room D

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"It's boring!" is too often the answer to the question, "Why don't you exercise?" People with physical disabilities, and people with less visible disabilities say this and rightly so. Who wants to hear - 5 more, 4 more, 3 more ... So, what if movement classes invited whole person involvement – not just bodies, but minds, imaginations, voices, even bad moods. Providing a class environment that invites full participation leaves no room for boredom. Participants invited to bring their whole selves to the class, including their emotional state, will be engaged. For example, a person with MS who ambulates in a wheelchair can attend a dance class where she is asked to "shake her booty" and feel the friction she creates, the heat of her body in her chair. Or what if someone who is living with a stroke is asked to imagine using the side of their body that has been affected to stomp on the floor, to push through the wood down to the earth below, rather than take a step forward? One of the best ways to involve the totality of a person is games. Playing tag in a Parkinson's Aquatic Class offers the challenge of not being caught (or catching other people) and suddenly everyone is equal, playing a game, not counting out leg lifts. Music can play a role in creating an environment of total involvement, also. For an Arthritis Foundation Aquatics class, the cool down can be done to a soft piano concerto inviting softness and ease of movement all the while imagining stretching at the ballet bar, with tall torsos, lengthened cervical spines, relaxed shoulders. Singing is great for the lungs. If people are singing, they are breathing – which is a great asset while exercising - and there is strength in numbers. While most people won't sing solo, they will join in with the group. But, there is always the one or the few that come to a class and do not want to engage in the singing or the games or imagining. Respecting their right to refuse the invitation to participate allows them to take what they like in the class (and keep coming back) and leave the rest. For the more practical minded participants, questions can be asked while exercising: where do you feel this stretch? What happens if you visualize moving your so-called bad leg just as easily as the other leg? How does it feel to engage your abdominal muscles while pushing your chair? Bodies, all bodies, are made for movement. By adding the power of thought, imagination, voice, and feeling to movement, boredom becomes the last excuse for not exercising.



Physical Activity and Children with Disabilities: A Lack of Awareness, Support, or a Missed Opportunity?

Building Session
2:55-3:40 pm
Room A

Marquell J. JOHNSON

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There are about 18% of children and adolescents with disabilities living in the United States. However, there were no specific guidelines provided for this population in the release of the Physical Activity Guidelines for Americans. There was also limited information addressing the physical activity needs of this population in the release of Healthy People 2020 objectives for improving the health of all Americans. Youth with disabilities are more likely to be sedentary, increasing their risk of obesity and secondary health conditions. The increased risk in secondary health conditions in this population may cause greater harm given the lower threshold in these areas due to the effect of the primary disability. The results of physical inactivity observed in youth with disabilities will also have a negative impact on various psychosocial variables. There are legislative policies that ensure equal opportunity and equal access to the same school-related and community-related physical activity pursuits of children and adolescence without disabilities. However, opportunities for youth with disabilities to participate in leisure, recreational, or competitive fitness and physical activity programs are still limited. There is a paucity of research on evidenced-based practices in school-related or community-related programs to ensure this population is achieving the recommended 60 minutes a day of MVPA. This may be the primary reason for omission of specific recommendations in national initiatives. Despite efforts from trained educators and disability specific organizations, there are still limited opportunities for youth with disabilities in local communities to be physically active through school-related and community-related programs. To increase opportunities and success in physical activity for this population, it will require the efforts of multiple professionals working collaboratively in areas such as education, public health, rehabilitation, and recreation. The presentation will: 1) discuss barriers and facilitators to physical activity participation in this population highlighting similarities and differences with other underserved populations including racial/ethnic and low income groups in an attempt to gain more support from health promotion and public health professionals; 2) review collaborative models used to provide physical activity opportunities to youth with disabilities within both school and community settings; and 3) provide theoretical and applied ways this population can be infused in current physical activity programs and initiatives targeting underserved youth populations to avoid a missed opportunity.

I Have A Great Program...Now How Do I Get It Funded!?!

Practical Application
2:55-3:15 pm
Room B

Veronique DIRIKER¹ & Alan KIRK²

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The purpose of this presentation is to present the APA provider community with practical information related to securing sustainable NGO's and other start-up programs. Many creative initiatives are never implemented because of lack of funding or insufficient resources. Experienced leaders know the value of developing a solid foundation of resources that will allow for full implementation of a project. Also, a strong funding base is essential to ensure continuity of the program. This workshop will provide participants with a step by step method of developing external resources. The content will focus on different means to secure funding, donor development, and marketing. The data presented are the result of a comprehensive review of the literature and current practice standards regarding NGO funding and resource development. The content includes basic information about designing and implementing a comprehensive strategy for resource development. Participants will be encouraged to share their experiences related to their own fund raising efforts (and failures). The presenters will provide didactic instruction, case studies, and guided discussion to present success strategies. These strategies can be replicated with existing programs and with small, beginning projects. Good Ideas die without resources. Implementation of new ideas often requires up front funding to cover development and initial costs. External funding is also imperative for continued operations and growth. This workshop will equip participants to find sources of funding and then create a plan to access this funding.



Designing University Challenge Course Programs and Facilities to Enhance Universality in Physical Education

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Practical Application
2:55-3:15 pm
Room C

This session is based on an Adventure program in Wisconsin where the university addressed three theoretical aspects of universality. 1) Physical design characteristics such as bouldering walls, traverse belay systems, pole installation and haul systems, harnesses and specialized hardware. 2) Development of curriculum and training protocols to train facilitators to meet the needs of all clients. 3) Development of a clinical experience engaging more clients/students in challenge course activities. The theoretical framework proposed in the session is to build, train and run programs that are designed to meet the needs of all students on challenge courses. The specific population considerations will include: weak upper bodied students / overweight students / At-risk students / wheel chair bound students / cognitively disabled students / Movement impaired students and frightened students will all be specifically addressed. The session is will advocate strategies to promote university and public school partnerships and will include a PowerPoint of examples of facilities and training protocols for program development.

An Ecological Approach to Facilitating Physical Activity Participation for Individuals with Disabilities

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Practical Application
2:55-3:15 pm
Room D

It has been documented that individuals with disabilities are in greater need for physical activity participation than individuals without disabilities (Healthy People, 2010). With the emphasis on physical activity, especially for health benefits for individual with disabilities, the focus in the professional literature has been on identifying barriers or limitations to effective participation (e.g., Bodde & Seo, 2009; Temple & Walkley, 2007; Hawkins & Look, 2006; Frey, Buchanan, & Rosser Sandt, 2005; Heller, Hsieh, & Rimmer, 2002; Messent, Cooke, & Long, 2000). However, identifying specific barriers does not provide researchers and practitioners with a comprehensive model to maximize physical activity participation. Utilizing an ecological model along with an embedded system of supports can provide a holistic intervention approach and thus can maximize physical activity participation for individuals with disabilities. The ecological model presented is that proposed by Bronfenbrenner (1979, 1999) and the system of supports is that proposed by (Luckasson et al., 2002). The ecological model enables professionals to assess interrelated and reciprocal conditions and interactions between the individual and environment, while the support model assesses resources and strategies along with support intensity (Thompson, et al., 2009) necessary for effective individual physical activity participation. While the system of supports and support intensities were conceptualized relative to intellectual disability (AAIDD, 2010) they have direct application to all individuals with disabilities. The ecological model includes discussion of five sub-systems (microsystems, mesosystems, exosystems, macrosystems and chronosystems). The system of supports includes discussion of support needs, intensities of those supports (intermittent, limited, extensive, and pervasive) and how they operate to maximize physical activity participation. Specific examples will be provided of how the overall model can enhance physical activity participation for individuals with disabilities. By utilizing such an approach professionals can better provide appropriate individualized physical activity experiences for individuals with disabilities within their unique environmental contexts.



Preparing Submissions to the *Adapted Physical Activity Quarterly*: Tips and Strategies

Scientific Research
3:20-3:40 pm
Room B

Marcel BOUFFARD

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The *Adapted Physical Activity Quarterly* (APAQ) receives numerous manuscripts that are inadequately prepared for review. During year 2011, more than 90% of first submissions were returned to the principal investigator because the manuscript was not prepared adequately. Submissions errors retard the review process, and unduly tax the limited resources of the Editorial Office and the publisher. In this presentation, people intending to submit a manuscript to APAQ will be urged to carefully read the instructions-to-contributors, and the *Publication Manual of the American Psychological Association* (2010), before submitting a manuscript. In addition, a list of 15 frequently found submission errors will be presented. It is assumed that attending to this list will eliminate the majority of recurrent submission errors we have observed and, hence, accelerate the review process. This presentation is for anyone intending to submit a manuscript to APAQ.

A 20-Year Follow-Up of Physical Activity in Children with and without Movement Difficulties

Scientific Research
3:20-3:40 pm
Room C

Emily BREMER¹, Travis SAUNDERS², Meghann LLOYD¹, & Mark TREMBLAY²

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PURPOSE: The purpose of this study was to investigate the relationship between motor skill proficiency at age 6 (in 1991) in children with low motor proficiency and high motor proficiency, and current physical activity behaviour 20 years later (2011). **METHODS:** In the original 1991 study, the Test of Gross Motor Development (TGMD) was administered to identify two groups of children: a Low Motor Performance (LMP) group who scored at or below the 10th percentile and a High Motor Performance (HMP) group who scored at or above the 84th percentile. This screening identified 100 children (LMP n = 43; HMP n = 57) and two follow-up studies were conducted: a five year follow-up in 1996 (LMP n = 25; HMP n = 35) and a ten year follow-up in 2001 (LMP n = 13; HMP n = 30). In 2011 at the 20 year follow-up 17 participants (LMP n = 6; HMP n = 11) participants completed a series of four questionnaires regarding their health status, physical activity level, sedentary behaviour and coordination: an adapted version of the Canadian Health Measures Survey health questionnaire; the International Physical Activity Questionnaire (IPAQ); and two versions (present and recall to teenage years) of the Developmental Coordination Disorder Questionnaire for Adults (DCDQ-A). One-way analysis of variance was used to determine group differences at all four time points. Correlation analysis was conducted on each group individually, as well as together, and on each gender to evaluate the relationship between motor skills, BMI, physical activity, and sedentary behaviour across all four time points. **RESULTS:** Motor skill proficiency at age 6 was positively correlated with teenage motor skill perception (R=.65, p=.009) and current level of active transportation (R=.59, p=.013). Female motor skill proficiency at age 6 positively correlated with current leisure-time moderate (R=.85, p=.001) and vigorous (R=.63, p=.029) physical activity. Male motor skill proficiency at age 11 positively correlated with current leisure-time vigorous physical activity (R=.98, p=.016). **CONCLUSIONS:** Motor skill proficiency at a young age is positively associated with physical activity levels in early adulthood. This suggests that it may be beneficial for children who experience motor difficulties to receive appropriate intervention at a young age in order to improve their fundamental motor skill proficiency and potentially decrease their risk for physical inactivity later in life.



Stereotypic Behaviors: Reducing Automatically Reinforced Behavior in Physical Activity Settings

Jihyun LEE & David L. PORRETTA

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Individuals with Autism Spectrum Disorders (ASD) and other developmental disabilities often exhibit stereotypic behaviors (American Psychiatric Association, 2000) that are socially inappropriate, self-stimulating, and may be harmful to self and/or others (e.g., Matson, Mahan, Hess, Fodstad, & Neal, 2010). According to Cunningham and Schreibman (2008), stereotypic behaviors are maintained by sensory stimuli (feedback). Studies show an inverse relationship between stereotypic behaviors and appropriate responding (e.g., Nicholson, Kehle, Bray, & Heest, 2010). That is, as stereotypic behaviors increase, appropriate responding decreases. As a result, stereotypic behaviors can interfere with learning and successful integration (e.g., Honey, Leekam, Turner, & McConachie, 2007; Kern, Koegel, Dyer, Blen, & Fenton, 1982). Reducing stereotypic behaviors in physical activity settings is important in order to learn new gross motor skills and physical activities (e.g., lead-up games and sports) that can then be used in integrated recreation/leisure-time settings (e.g., Green et al., 2008; Pan, 2008; Staples & Reid, 2010). Antecedent physical activity interventions have been shown to reduce stereotypic behaviors and increase appropriate ones (e.g., Lang, Koegel, Ashbaugh, Regester, Ence, & Smith, 2010). According to Piazza, Adelinis, Hanley, Goh, and Delia (2000), and Ahearn, Clark, DeBar, and Florentino (2005), physical activities have the potential to either increase or decrease stereotypic behaviors by matching or not matching sensory stimuli (feedback) which initiate and maintain them. These findings suggest that various physical activities, when appropriately selected can be helpful in reducing stereotypic behaviors by providing similar or comparable sensory stimuli. This presentation will focus on the effective use of physical activities based on the principles of stimulus competition (e.g., alternative sensory reinforcement) and stimulus substitution (e.g., similar or identical sensory stimulation) as proposed by Morrison, Roscoe, and Atwell (2011). Potential benefits of this presentation include the use of physical activities as a means to reduce stereotypic behaviors while at the same time providing opportunities for increased learning and performance as well as integration.

Practical Application
3:20-3:40 pm
Room D

Nintendo's Wii Fit, an Alternative Training Method for Children with Movement and Balance Problems

Sarah KRASNIUK & Jane TAYLOR

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Difficulties with postural adaptation are common in children with movement and balance problems. Interventions to improve balance can work but similar to fitness training, the changes are not lasting if there is not a concerted effort to practice on a regular basis. Virtual rehabilitation in the form of a Wii Fit training program may provide the motivation necessary to promote the time on task required to effect lasting change. The purpose of this practical session is to demonstrate the mechanisms by which balance skills can be improved with the Wii Fit. After a short demonstration of the Wii Fit Body Test, members of the audience will have a chance to interact with the virtual reality platform to determine their BMI, effective Body Control and Wii Fit Age. Subsequently, after demonstration, they may choose to experience the balance games of soccer heading, table tilt, or ski jump. The opportunity to engage in this process will allow the participant to experience *presence*, or a feeling of being in the game, as a real and three-dimensional environment (Holden, 2005). *Presence* is the hook that keeps the performer engaged. Once members of the audience have a chance to experience *presence*, the training protocol followed to effect a 56 to 200% improvement on Wii Fit balance simulations will be provided (Krasniuk & Taylor, 2012). It is concluded that compared to traditional intervention, the Wii Fit is relatively affordable, offers a variety of balance experiences, provides an opportunity for a wide diversity of individuals to participate and gives participants a chance to monitor their own progress. Calculations from the Wii program are recorded and tracked over time, automatically, making this training program time and outcome efficient. It can also be used with a variety of populations and encourages a healthy level of activity if followed just 30 minutes per day for 5 days a week.

Building Session
4:00-5:10 pm
Room A



Does Physical Activity Play a Role in School Readiness for Young Children with or at Risk for Reactive Attachment Disorder?

Amanda TEPFER & Megan MACDONALD

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Graduate Student Proposal
4:00-4:20 pm
Room B

The positive health benefits of physical activity (PA) are well documented. It is often believed that children are naturally active; however, children in the US do not engage in levels of physical activity sufficient enough to maintain adequate fitness (USDHHS, 2008). Active play, during early childhood, serves to establish healthy behaviors and is further thought to play a role in early development such as cognitive function, socialization, and emotional well-being (Ginsburg, 2007). Yet, the role of physical activity amidst other developmental milestones during early childhood is not well-documented. **PURPOSE:** The purpose of this proposed study is to examine the association of PA and self-regulatory skills during early childhood in children at risk, including children diagnosed with Reactive Attachment Disorder (RAD). **METHODS:** It is anticipated that 10 children attending Head Start programs or identified as "at risk" through other agencies, ages 3-5 years old, will participate in this study. PA will be measured using an ActiGraph GT1M accelerometer implementing a 15-s epoch. The ActiGraph has been shown to be a valid and reliable tool for quantifying PA in preschool-aged children (Pate et al., 2010). Self-regulation will be measured using the Day/Night Stroop Task and the head-toes-knees-shoulders (HTKS) task. In the stroop task children are shown two cards containing either a moon or a sun. They are instructed to say day when presented with a card containing a moon and night when presented with a card containing the sun. This task has been shown to be reliable and valid in preschool children (Gerstadt et al., 1994). During the HTKS task children touch their head or toes, or knees/shoulders, following which the children are asked to do the opposite of what the examiner says. Recent research has shown that HTKS is a reliable and valid measure of children's behavioral self-regulation (Ponitz et al., 2008). **RESULTS:** It is expected that there will be a positive relationship between self-regulation and physical activity. Children participating in more physical activity will have better self-regulatory skills. **CONCLUSIONS:** Implications from this research might include the importance of early intervention with an emphasis on movement and play and its relationship to self-regulation and school-readiness. Future direction from this work will be discussed and intends to address the role of self-regulation and movement in all children with and without disabilities.

The Effects of Aquatic Treadmill and Overground Treadmill Exercise on Blood Pressure in People Post-Stroke

Byron LAI, Taeyou JUNG, Theresa SYTO, Brenda JENG, Yumi KIM, & Konstantinos VRONGISTINOS

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Graduate Student Proposal
4:00-4:20 pm
Room C

Stroke is a disability characterized by blood flow abnormalities to the brain. Hypertension in people post-stroke increases their risk of a recurrent stroke and other cardiovascular disease related incidents. Exercise can reduce arterial blood pressure for hours following exercise, otherwise known as post-exercise hypotension (PEH) and is often prescribed as a non-pharmacological method to treat hypertension. A single-bout of aquatic treadmill exercise (ATE) has been shown to elicit greater reductions in PEH compared to that of a single-bout of overground treadmill exercise (OTE) in healthy adults. However, there is little knowledge on exercise and PEH in people post-stroke. By keeping the daily blood pressure of people post-stroke within normal limits there is a decreased risk of recurrent-stroke and cardiovascular complications. Consequently, it is important to investigate whether these same reductions in PEH from a single-bout of exercise can be seen in people post-stroke. **PURPOSE:** The purpose of this study is to compare the effects of ATE and OTE on blood pressure in people post-stroke. **METHODS:** 30 normotensive participants, 15 post-stroke and 15 healthy males and females aged 45 years and older, will complete a single-bout of exercise on an aquatic treadmill and overground treadmill at 50% VO₂peak for 15 minutes. Blood pressure will be measured by a 24-hour ambulatory blood pressure monitor (ABPM-05, Meditech, Hungary) that will be used before, during, and up to 24 hours following exercise. These measures will be compared to a day without exercise (control). Multivariate analysis of variance (MANOVA) will be used for statistical analysis. **HYPOTHESIS:** Since ATE has been shown to elicit greater reductions in PEH in healthy adults compared to that of OTE, these results may also occur in people post-stroke. **CONCLUSIONS:** If ATE elicits greater reductions in PEH after exercise in people post-stroke compared to OTE, this may provide people post-stroke with an alternate non-pharmacological method of blood pressure reduction. If the findings from this study show reduced PEH following exercise compared to a day without exercise, people post-stroke with hypertension may reduce their blood pressure throughout the day by performing light-to-moderate intensity ATE or OTE. This knowledge may aid clinicians and rehabilitators when prescribing exercise towards people post-stroke.



Understanding Movement Patterns Using Different Hand Positions During Sitting Volleyball

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Scientific Research
4:00-4:20 pm
Room D

Movement in sitting volleyball is accomplished by players placing their hands on the floor to push and slide into position for ball play. The success of this movement can be determined by how efficiently players use their hands and available lower body segments to move. Identifying player movement patterns and optimal hand starting position on the floor for propulsion could contribute to improved player performance. **PURPOSE:** Therefore, the purpose of this study was to describe movement patterns and the effect of two different starting hand positions on movement efficiency of sitting volleyball players. **METHODS:** Seven athletes of the U.S. National Sitting Volleyball team, with six unilateral amputees and one bilateral amputee, took part in the IRB approved study. Participants were asked to move on an artificial floor which resembled a gym surface. Four balls in different directions (forward, back, away and towards amputation) were hung from the ceiling, each at a distance of 1.5 m from the start position and a minimum of 0.5m above arm reach. Two different starting hand positions were tested; side hand position (side hip, 'S') and back hand position (behind hips, 'B'). Researchers asked participants to move towards a randomly selected target using a displayed TTL signal controlled device. Entire motion was divided based on events: TTL signal (cue to move), Reaction, Push-off, and Ball touch. Data were collected through motion analysis. Total time (TT) and each phase time (total movement time (MT), reaction time (RT), push-off time (PT), and slide time (ST) were calculated. Peak propulsive ground reaction force (GRF) was calculated to determine the force generated using both hand positions (S and B). No statistical treatments were used to report empirical differences between the two hand positions; given that the purpose of the study was to describe differences according to hand position, all results were reported using descriptive means and standard deviations. **RESULTS:** The side hand position (S) was shown to take less total time (TT) to complete the movement in all directions. PT and ST appeared to be different between hand positions for all directions of movement. PT was found to be higher in S hand position except while going in the direction away from amputation. These differences resulted in overall reduction in TT during S hand position for all directions except backward. GRF did not show a consistent pattern, however S hand position for forward direction generated greater force. **CONCLUSIONS:** The results suggest that side hand position (S) resulted in lesser total time taken (TT) and faster slide phases (ST) during movement in all directions except backward motion.

Factors Influencing Physical Education Teachers' Behaviors for Including Students with Autism

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Graduate Student Proposal
4:25-4:45 pm
Room B

The inclusion of students with disabilities in general physical education (GPE) classes has become a practice that is expected. A review of inclusion in the physical education literature by Block and Obrušnikova (2007) revealed that GPE teachers do not possess promising feelings towards the inclusion of students with a disability in their classroom. This is problematic, as previous research has demonstrated positive relationships between feelings, beliefs, and behaviors. The negative feelings appear to stem from a perception of inadequate teacher training, as evidenced by 'lack of preparation' being a predominant complaint by GPE teachers. Physical education teacher education (PETE) programs are charged with preparing teacher candidates for transforming physical activity instruction and content for the specific needs and abilities of the students they teach. In order to provide better teacher-training programs that support inclusive instruction, a closer look into factors contributing to teacher's behaviors is warranted. **PURPOSE:** The purpose of this project is to identify factors affecting GPE teachers' inclusive behaviors. **METHODS:** A national random sample of 300 participants will complete a survey developed to measure factors affecting GPE teachers' behaviors for including students with autism. With an anticipated return rate of ten percent, 3000 schools will be randomly identified from 12 states. In order to represent the diversity of the different geographic regions in the US, two states from each of the six district associations of the American Alliance for Health, Physical Education, Recreation and Dance will be randomly selected. The number of schools to be identified from each state is weighted by the state's population and the targeted sample size. A web search will be conducted to locate email addresses for each school's physical education teacher or principal. Web-based surveys will be sent to all email addresses identified. In the case where no email addresses were found, surveys will be sent to potential participants by mail. The survey consists of 55 items with the first ten measuring the participants' self-efficacy for including a student with autism followed by measures based on the Theory of Planned Behavior (Ajzen, 2004). Multiple regression statistical procedures will be employed to determine factors affecting GPE teachers' behaviors for including students with autism in their GPE class. **RESULTS:** It is expected that GPE teachers' beliefs and intentions will positively influence their inclusion behaviors. **CONCLUSIONS:** By gaining insight into factors affecting inclusion behaviors, these research findings will provide valuable data for informing teacher education programs.



Robotic Devices Provides Assistive Forces that Allow Decreased Force Generation and Faster Walking Speeds for Stroke Survivors

Carmen E. CAPO-LUGO¹ & David A. BROWN²

Graduate Student Proposal
4:25-4:45 pm
Room C

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A new technology has been developed, the KineAssist Walking and Balance Robotic System, which can provide assistive propulsive forces while a person is walking overground (“assist mode”). The use of this device might allow individuals to learn how to be dynamically stable under very fast walking conditions and, therefore learn how to walk at faster speeds. **PURPOSE:** The purpose of this study was two-fold: 1) to observe changes in force profiles of healthy individuals walking at different speeds with and without assistive forces, and 2) to determine the fastest speed that an individual post-stroke could reach when assistive forces were provided. **METHODS:** For the first part, seven nonimpaired individuals walked in the robotic device with and without assistive forces at three different speeds. For the second part, eighteen stroke survivors (59 ± 14 years old) with hemiplegia participated. Self-selected comfortable walking speed (SCWS) and maximum walking speed (SMWS) were measured using a 5-meter walk test. They were then exposed to progressively increase walking speeds while in the “assist-mode” of the robotic device and in a treadmill with an overhead harness system. We performed repeated measures ANOVAs with post-hoc Tukey-Kramer analyses (p<0.05) to test differences in walking speed across conditions. **RESULTS:** In terms of nonimpaired individuals, we observed that the force applied at the pelvis by participants during walking in the robotic device required less force generation during the “assist mode” at a given speed than when walking in the robotic device without being assisted. In fact, the force profiles for each individual seem to indicate that in the “assist mode” a maximum level of force was produced regardless of the walking speed. In terms of post-stroke individuals, SMWS in the “push mode” (1.92 ± 0.06 m/s) was significantly higher than the SMWS on the treadmill (1.67 ± 0.11 m/s). Moreover, in many cases participants were able to match the top speed limit in the robotic device (2.0 m/sec), but not on the treadmill. **CONCLUSIONS:** The “assist mode” of the robotic device allowed individuals to walk with reduced production of forward force. With post-stroke hemiplegia, individuals were able to walk at faster speeds than their SMWS over a treadmill, when provided with a safe environment that assists with propulsion. This study suggests the need of performing studies that test the relationship between force output, muscle phasing and walking speed. **Funding/support:** Foundation for Physical Therapy and U.S. Department of Education, NIH/NIDRR #H133E070013.

The Validity of Physical Fitness Tests for Seated Shot Put Athletes

Suzanne FERREIRA¹ & Elizabeth S. BRESSAN²

Scientific Research
4:25-4:45 pm
Room D

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The need to develop sport talent for peak performance is increasing rapidly in the world of sport for persons with disabilities. Scientists and coaches want methods to prove that training programmes are working and adding to performance. Measuring training improvement is one way of assessing the possible impact on performance. The need for valid and reliable testing batteries for athletes with disabilities is limited. Most available literature focuses on physical fitness testing related to health and is not specific for the high performance athlete. **PURPOSE:** This study focused on determining the criterion validity of 15 physical fitness tests for seated shot put athletes. **METHODS:** Athletes competing at the South African National Championships for the Physical Disabled were invited to volunteer to partake in a combination of skills and fitness tests. A total number of 40 shot putters completed the test battery. The study was based on Strand and Wilson’s (1993) test construction. Pearson product-moment correlations were computed to determine the criterion validity between each test performance and the athlete’s shot put performance. In the F55-F58 classes multiple regression analysis was conducted to determine the best predictor of performance in actual competition. **RESULTS:** No flexibility test was found to have significant correlations with performance in the seated shot put event for any of the classes. All the strength and power tests conducted correlated significant with the performance of the F53-F54 athletes (p<0.05, n=12) and the combination in the F55-F58 classes (p<0.05, n=28). Sitting height was found to impact performance significantly in the F50 classes but not in the F30 classes. The estimated 1RM Bench Press test correlates extremely well with performance in the F54 & F58 classes (r >0.95; p=0.05). The basketball overhead pass correlated significantly (F52-F54: r = 0.95; p<0.05; F55-F58: r=0.65; p<0.05) with the shot put performance at the championships indicating the criterion validity of the test (Thomas et al., 2005). Multiple regression analysis in the F55-F58 class indicates that the combination of the basketball overhead pass and preferred hand grip strength could account for more than 70% of the actual shot put performance of the athlete. **CONCLUSIONS:** The study underlines the importance of strength and in seated shot put athletes. These important contributors to performance can be monitored by the tests identified and enhance training quality. Reliability of the tests should still be developed in order to give more insightful scientific recommendations.



Back to Basics: Exploring Gestural Habits as Cues for Anticipating Self-Injurious Episodes in a Child with Autism and Deafness

Maureen CONNOLLY, Laurie Beth BROWN, Melissa FLEISHMAN, & Ashley HARDMAN

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Scientific Research
4:50-5:10 pm
Room B

PURPOSE: This study hopes to contribute to an understanding of self-injurious behaviour (SIB) by inviting the reader through the narrative of the lived experience of a fifteen year old child-informant and the network of individuals in his life. In our presentation, the authors will offer a brief review of literature on Autism, Deafness and Self-injury, details on both the research design and the orientations of Movement Education, Phenomenology and Semiotics, and a systematic description of the distinct phases in the data collection and data analyses processes. The aim of the study was to explore self-injurious episodes in the child informant in hopes of disclosing the meaning of the behaviour and potentially utilize this to provide more opportunities for adapted physical activity. **METHODS:** The overall design was a longitudinal qualitative case study grounded in a phenomenological and semiotic framework. The value and importance of a case-study grounded in phenomenological and semiotic orientations is that it focuses on the authenticity of the experience of living with disability. Through the use of detailed field observations, interviews, and photo documents, the study explored three main areas: quality of movements, potential cues as pre-cursors to episodes of self-injury, and purposeful communication. The authors developed several tools for describing and recording postural and gestural repertoires across a variety of movement contexts, and then used analysis of this data set to further refine the patterns noted in the within case and cross case comparative analyses of interviews, field-notes and photo documents. The authors also used the phenomenological and movement education existential categories of body, space, time, relation and quality of movement to create matrices for comparison. **RESULTS:** The findings reveal distinct patterns of movement cues utilized for different purposes, for example, where on the body the child informant initiates his sequence of cues, the time and weight qualities of the impact of his on-body contact, and the use of the closed or the open hand. Other noted movement patterns include the child informant's use of gaze and eye contact in relation to the movement context or activity event. **CONCLUSIONS:** The implications of the findings are that self-injurious episodes in the child informant are preceded by distinct patterns of movement that are potentially communicative. Suggested future direction of the research is expanding the scope to other disabilities for which verbal communication is challenging, and standardizing the translating tools to assist in understanding the communication of movement.

Needs Assessment to Develop a Physical Activity Health Promotion Program for Adults with Spina Bifida

Kerri A. VANDERBOM & Simon DRIVER

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Graduate Student Proposal
4:50-5:10 pm
Room C

Spina bifida (SB) is the most common birth defect, affecting approximately 1 to 2 in 10,000 live births. SB is a complex disability with many associated, secondary, and chronic conditions that require lifelong medical care. Individuals with spina bifida (SB) are living longer with advances in medical care, and the majority of the estimated 166,000 individuals in the US living with SB are adults. Consequently, secondary conditions (SC) are more apparent and healthcare costs to treat SC are high. The National Center on Birth Defects and Developmental Disabilities' approach to decrease SC is to increase the number of accessible health promotion programs (HPP) available and increase levels of physical activity (PA). For persons with SB, a sedentary lifestyle is common, thus placing individuals at greater risk of experiencing SC. Furthermore, there is a lack of PA health promotion programs (HPP) for individuals with SB and there is a significant need to find approaches to increase PA behaviors in this population. However, if HPP are to effectively increase PA behaviors they have to be well designed, include the target population, and use previous research to guide development. Consequently, the first step in creating a PA HPP for individuals with SB is a needs assessment. **PURPOSE:** Therefore, this study will develop and carry out a PA needs assessment for adults with SB. The needs assessment will guide the development of a future PA HPP to increase PA behaviors in adults with SB. **METHODS:** A needs assessment about PA behaviors will be implemented. The needs assessment includes information about (1) demographics, environment, current PA behaviors, attitudes and motivation; (2) the individuals PA stage of change (SOC); and (3) perceived PA barriers (personal and environmental). Mixed methods will be used to collect data for the needs assessment (quantitative and qualitative). A national, online survey will be distributed and regional focus groups will be conducted. **RESULTS:** By completing a needs assessment to comprehensively understand the PA behaviors (PA barriers, motivators, self-efficacy, SOC) of adults with SB, it will allow for the development of a tailored PA HPP to increase PA behaviors and improve health. **CONCLUSION:** Completing a needs assessment will provide critical information about the PA behaviors and perceptions of adults with SB. The information gleaned from the needs assessment can then be used to develop an effective PA based HPP that will facilitate the adoption and maintenance of PA behavior in adults with SB.



Exploring Social Relationships and Children with Disabilities' Motivation to Participate in Sledge Hockey

Scientific Research
4:50-5:10 pm
Room D

Katrina E. WYNNYK & Nancy SPENCER-CAVALIERE

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Rarely have the experiences of children in specialized (disability) sport contexts been the focus of researchers in adapted physical activity (Martin, 2006). **PURPOSE:** The purpose of this study was to understand children's motivation to take part in specialized sport by exploring their perceptions of competence, affective experiences, and social relationships with parents, peers and coaches, at the grassroots level in the sport of sledge hockey. **METHODS:** A qualitative, instrumental case study was used to examine the sledge hockey experiences of a team of 10 children and youth with disabilities between the ages of 11 and 16 years. Data collection methods consisted of two individually semi-structured interviews with each participant, photo elicitation, participant observations, and field and reflective notes. The data was thematically analyzed according to Attride-Stirling's (2001) thematic network approach. Harter's (1978) Theory of Competence Motivation was used to help interpret the findings. Trustworthiness was sought through data triangulation, member checking, an audit trail and the use of multiple coders. **RESULTS:** Initial findings indicated that peers, parents and coaches played important roles in supporting and subsequently motivating the players to continue to participate in sledge hockey and to aspire to future successes as competitive athletes. Feedback from these significant others, as it related to skill progression and development, contributed positively to the players' affective experiences and perceptions of competence. Peer support, in particular, was viewed as an important source of motivation, as players expressed a desire to improve their skills and perform well so as not to let their teammates down. These findings are reflected in preliminary themes of desiring to improve for future successes, and acting as a unique part of the whole. **CONCLUSIONS:** While the competitive nature of sledge hockey was a substantial motivator in the players' decisions to continue participation, it was the interactions and relationships with parents, peers and coaches that contributed most significantly and positively to their motivation to take part. These findings are consistent with Harter's Competence Motivation Theory (1978) where the desire to express competence in the athletic domain, combined with support and approval from significant others, encourages positive perceptions of competence and an internal motivational orientation. The findings from this study are of interest to parents and practitioners, who strive to provide sporting experiences for children and youth with disabilities that are positive and have the potential to lead to continued participation at recreational, competitive, and elite levels.

A Technique for Implementing an Adaptive Sports Program at the Post-Secondary Level

Practical Application
5:15-5:35 pm
Room A

Nathan WATERS & Jared REHM

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College campuses are continually promoting healthy and active lifestyles for their students. Sports and exercise are well documented as being beneficial to people of all abilities. These activities are readily available to students without disabilities on college campuses across the country. However, students with disabilities are not afforded the same opportunities due to the lack of availability. Possible reasons for this disparity may include but are not limited to: misconceptions of adaptive sports, funding, equipment, disability awareness, and lack of institutional support. While researching existing programs a number of differing methods were used to sustain these adaptive sports programs. The approach of Auburn University is to utilize existing channels in order to integrate a nontraditional organization into a traditional system which can be resistant to change. This technique is a process consisting of finding a supportive entity on campus, collecting data of current structures on and off campus, establishing management of a program, raising necessary funds, purchasing equipment, and increasing participation through promotional events. With this technique Auburn University is currently implementing a sustainable adaptive sports program through the Department of Kinesiology and the Office of Accessibility. This ongoing process began in the fall of 2008. The efforts of students, faculty, and staff have developed a campus organization, created an online course (KINE 3103), and implemented two wheelchair sports (tennis and basketball). It is our belief that this program will continue to grow, and therefore provide students with disabilities the opportunity to participate in sports and exercise in a university environment.

**The Physical Fitness of School-Aged Children with Autism**

Kiley TYLER, Jay PENRY, & Megan MACDONALD

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Graduate Student Proposal
5:15-5:35 pm
Room B

Autism spectrum disorder (autism) is a pervasive developmental disorder characterized by deficits in social skills, communication and repetitive or restricted interests (APA, 1994). Although motor skill difficulties and physical activity deficits have started to receive attention in the literature the physical fitness of children with autism has been relatively under explored. **PURPOSE:** The purpose of this study is to examine the physical fitness of school-aged children with autism between the ages of 9-18yrs. **METHODS:** Children with and without autism between the ages of 9-18 years will be recruited (proposed N= 50). Participants with autism will complete the Autism Diagnostic Observation Schedule (ADOS) to confirm autism diagnosis (Lord et al., 2000). All participants will complete a developmental assessment- the DAS-II, the 20-meter multistage shuttle run (Leger and Gadoury, 1989) to assess aerobic fitness, the sit-and-reach test to determine trunk and lower body flexibility and handgrip strength will be used to measure muscular strength (Milliken et al., 2008). Physical activity will also be measured using an Actical[®] accelerometer, participants will wear this monitor over a seven-day period during a typical week. The Actical[®] is a valid and reliable measure of physical activity for children within this age range and has been successfully used to measure PA in children with disabilities (Yun & Kim, 2009). Height and weight will be measured and will then be calculated to specify the participants BMI (Body Mass Index). It is expected that analysis of covariance (ANCOVA) will be performed to compare groups (children with autism and age-matched, gender-matched typically developed peers), all outcome variables will be analyzed separately, and it is expected that all analyses will control for age and developmental level (IQ). **RESULTS:** It is expected that the physical fitness of school-aged children with autism will be significantly lower than typically developed peers. **CONCLUSIONS:** Regrettably children with autism have not been spared from the obesity epidemic sweeping the United States. We expect that results from this study will be influential towards developing a physical-fitness intervention focused on school-aged children with autism.

Adapted Sport and Recreation for Injured Service Members: Preliminary Evaluation on Physical and Emotional Well-BeingLaura E. DREER¹, Lauren HAYES¹, Andy WOOD¹, Mandy GOFF², Tyler RICKARDS¹, Kelsey STAMPS²,
Susan ROBINSON², & Laurie A. MALONE²Scientific Research
5:15-5:35 pm
Room C¹University of Alabama at Birmingham; ²Lakeshore Foundation, Birmingham, AL, USA

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Research has shown that a significant proportion of returning service members have endured a variety of physical injuries. These types of problems can subsequently diminish physical health, quality of life, and community integration. Engaging in physical activity following an injury can have a significant impact on improving overall health and well-being. Thus, adaptive sport and recreation programs offer great promise toward enhancing healthy lifestyles and community integration. **PURPOSE:** The purpose of this study was to examine outcomes related to participation in a therapeutic recreation and adapted sports program for injured service members. **METHODS:** As part of an ongoing study, a total of 75 injured service members have participated in one of 5 programs for injured military who have sustained various physical-related injuries. Lima Foxtrot is a comprehensive weekend program of fitness, recreation, sport and transition support for injured military personnel. Service members completed pre-and post-program (2-month telephone follow-up) self-report measures of physical activity, community integration, and aspects related to well-being, along with a program evaluation survey. Paired sample t-tests with Bonferonni adjustments were used to evaluate differences between the pre and post-test scores. **RESULTS:** Key results identified significant pre and post-test differences in physical activity ($p = .010$), community integration ($p = .016$), and stress management ($p = .009$). Satisfaction with the program was assessed using a scale ranging from 0 to 10 (0 being "not at all satisfied" to 10 being "very satisfied"). The majority of participants reported being very satisfied ($M = 9.54$, $SD = .924$). Significant changes between pre-post perceived expectations regarding the impact of the program were observed for enhancing self-esteem ($p = .005$), dedication to rehabilitation ($p < .001$), functional skills ($p = .010$), awareness of recreational opportunities ($p = .023$), improvements in family relationships ($p = .004$), acceptance of injury ($p < .001$), ability to perform activities of daily living ($p < .001$), awareness of adaptive equipment ($p = .006$), along with willingness to try new activities ($p = .001$), use adaptive equipment ($p < .001$), recreate with family/friends ($p < .001$), socialize with family/friends ($p < .001$), and participate in community activities ($p < .001$). **CONCLUSIONS:** The preliminary results highlight the impact that adaptive sports and recreation programs have for injured service members on health outcomes and perceptions. Such programs appear to be well-received by injured military and shift perceptions regarding important aspects of well-being, rehabilitation, adaptive equipment, community integration, and interpersonal relationships.



Perceived Quality of Life Among Youth Athletes with Physical Disabilities

Scientific Research
5:15-5:35 pm
Room D

Deborah R. SHAPIRO¹, Joel D. BRASHER², Aaron MOFFETT³, Kelsey STAMPS², Lori D. THERIOT², F. Ruth LUKETIC², Frederick L. GILBERT², & Laurie A. MALONE²

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Physical activity has a positive impact on the way individuals with disabilities feel about and view themselves and provides a means by which to counter negative social stereotypes commonly experienced by individuals with disabilities (Giacobbi, Stancil, Hardin & Bryan, 2008). Such physical and psychological benefits closely parallel the domains involved in the conceptualization and measurement of quality of life (QOL) (Giacobbi et al., 2008). Analyses of subjective judgments of QOL across various domains and affective responses is critical information for those helping individuals with physical disabilities adapt and thrive in sport settings and everyday life. **PURPOSE:** The purposes of this study were to (a) understand perceptions of QOL among youth athletes with physical disabilities who participate in adapted sport, (b) examine differences in perceptions of QOL between athletes and their parents, and (c) measure changes in subjective feelings pre and post exercise in youth athletes with physical disabilities. **METHODS:** Participants included 54 athletes (36 males, 18 females) ages 12-21 yrs ($M_{age} = 15 \pm 2.8$). Participants and their parent/guardian completed a Pediatric Quality of Life Inventory (PEDsQL) which measures the degree to which participants perceive problems related to physical functioning (PF; 8 items), emotional functioning (EF; 5 items), social functioning (SoF; 5 items) and school functioning (ScF; 5 items). Responses to the PEDsQL items were reversed scored and linearly transformed to a 0-100 scale; a higher score indicates better health-related QOL. Participants also completed the Subjective Exercise Experiences Scale (SEES) pre and post exercise (e.g., wheelchair basketball practice) to assess changes in positive well-being (PWB; 4 items), psychological distress (PD; 4 items), and fatigue (FAT; 4 items). Data were analyzed using paired sample *t*-tests, pairwise comparisons and correlations. **RESULTS:** PEDsQL subscale scores for athletes and parents respectively were as follows: PF (67 vs. 40), EF (76 vs. 67), SoF (78 vs. 55), ScF (69 vs. 63). Athletes' scores across all 4 PEDsQL subscales were statistically higher ($p < .05$) than their parent's. No significant differences were found pre and post exercise in the PWB or PD subscale scores of the SEES, however a significantly ($p < .05$) higher level of fatigue was reported post exercise ($M_{fatigue}$: 9 vs. 13, respectively). **CONCLUSIONS:** The findings suggest that parents of youth athletes with physical disabilities tend to underestimate the child's QOL. Results are discussed in relation to their impact on sport participation and future research directions.

14 Points or Die! Coaching, Classification and Chaos

Practical Application
5:40-6:00 pm
Room A

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Since its humble beginnings at the end of World War II, wheelchair basketball has incorporated a classification system for its players. The classification system ensures equal representation among team players and to foster positions and roles that are unique to the various levels of disability represented on a team (Goodwin et al., 2009). The founding fathers of the sport of wheelchair basketball advocated for recreational participation as an overall means toward rehabilitation and independent living. Wheelchair basketball is no longer solely a recreational sport and the competitive nature of the game has necessitated an increasingly high level of coaching expertise and proficiency. Past research (Tawse et al., 2012, DePauw & Gavron, 2005) has identified the need for the coach of an athlete with a disability to possess foundational knowledge common to all coaches as well as unique knowledge related to the athlete with a disability. Professional, interpersonal, and intrapersonal knowledge (Cote and Gilbert, 2009) and skill are all critical to expert coaching but there is a unique dimension to coaching wheelchair basketball that needs to be recognized, appreciated, discussed, and ultimately researched – coaching under a system of athlete classification. The presenter will take a practical look at, and make commentary on, the IWBF Player Classification System and the challenges it presents to a wheelchair basketball coach during the chaos of high-level competition.



A Comprehensive Literature Review: Adapted Physical Education and Related Disciplines in Neurological Development and Reading

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Graduate Student Proposal
5:40-6:00 pm
Room B

This project examined usually distinct academic fields, crossing disciplinary boundaries, to create a holistic approach for children who have difficulty learning to read. **PURPOSE:** Atypical readers are at a disadvantage, and although there has been substantial multidisciplinary investigation outlining neurological symptoms for individuals with learning disabilities, including reading problems (Brodney & Kehoe, 2006; Decker, 2008; Habib, 2000; Menghini, et al. 2010; Nicholson & Fawcett, 2009; Punt, et al., 2010), further efforts are necessary to bridge the silos that have been growing for decades through research specialization (Ysseldyke, 2001). Developing appropriate diagnostic and evaluation tools is essential. Literature reviews were conducted and similar themes were identified in: Special Education; Neuroscience (Neurological Cognitive Research, Psychology, Biology, Physiology, Auditory and Vision); Kinesiology and Motor Development Science (Adapted Physical Education, Occupational Therapy and Physiotherapy, and Physical Therapy); Osteopathy and Surgery, Orthopaedics and Pediatric Orthopaedics; Neuro-Developmental Medicine (Rehabilitation); Behavioral Science; and Upper Cervical Research. **METHODS:** Sources were used if 1) procedures and data-based results were published between 1896 - 2012, and 2) topics were relevant to connecting the concepts of atypical movement development, head tilt, leg length disparity, and dyslexia; related to reading instruction. Systematic searches for specific articles/book chapters were conducted through computerized databases: Science Direct-Elsevier; Academic Press; Academic Search Elite (Ebsco); CINAHL; PsychARTICLES; PsychINFO; Hotwire Press; Google; JSTOR Retrospective Journals; Sage Journals; Science Direct-Elsevier; SpringerLink; and Wiley Interscience Journal Backfiles. Key words used: 1) primary reflex persistence; 2) postural instability; 3) eye saccades; 4) atlas subluxation; 5) leg length inequality; and 6) dyslexia. Descriptors were used alone or in word combinations. Some articles were referenced from *Council for Exceptional Children* publications, and many textbooks were examined. Personal communications: P. Aufsesser, R. Croce, K. DePauw, M. Horvat, and J. Rimmer. **RESULTS:** Predominant themes included 1) atypical motor development and muscle strength; 2) atypical neurological blood/oxygen flow; 3) eye muscle weakness; 4) auditory dysfunction; 5) balance deficits; 6) persistent asymmetrical tonic neck reflex, influencing functional leg length inequality; and 7) inconsistency for criteria to identify, and provide services to children with reading disabilities. **CONCLUSIONS:** This review supports that interdisciplinary study might contribute to the overall literature base identifying reading difficulties. This might create a new discipline "Developmental Neurological Education," so child support teams might further examine the influence of physical neurology on the learning process.

Impact of a Physical Activity Centered Education Program on People with a Mobility Disability

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Graduate Student Proposal
5:40-6:00 pm
Room C

Participation in regular physical activity is important for individuals with mobility disabilities to decrease risk of chronic disease, improve quality of life and maintain and improve functional ability. Consequently, there is a need for programs that can facilitate the adoption and maintenance of physical activity behaviors for adults with a mobility disability. **PURPOSE:** The purpose of this study is to assess the effectiveness of a Physical Activity Centered Education program (PACE) on exercise perceptions and behaviors of individuals with a mobility disability. **METHODS:** Participants with a mobility disability currently in a rehabilitation program at a medical center in the Pacific Northwest will be asked to complete pre-assessment questionnaires measuring these variables: (1) amount of physical activity completed (self-report and Actigraph accelerometers), (2) self-efficacy to be active, (3) readiness to be active, (4) barriers to physical activity, and (5) social influences on physical activity. Participants will then be placed in an experimental group or a wait-listed control group. The participants in the experimental group will be enrolled in the PACE program which is a 12 week education based physical activity intervention. The PACE program will meet twice a week for one hour and will address these modules, (1) US guidelines for physical activity and exercise as medicine (2) overcoming barriers and utilizing social support, (3) behavior change strategies, and (4) healthy rewards and maintenance. Upon completion of the program, participants will complete the post-assessment questionnaires and be given access to the PACE program web site that includes PACE content information and a discussion board. The discussion board will provide an outlet for participants to discuss physical activity goals, barriers, and solutions once the program has finished. Participant usage of the web-site will be tracked for 4 weeks following completion of the 12-week program to determine adherence. After the 4 weeks post program, participants will have a follow-up meeting during which they will meet with a researcher to complete the questionnaires and complete a program evaluation. Participants in the wait listed control group will then complete the pre-assessment questionnaires and be enrolled in the PACE program. **RESULTS:** Our expected results are that participants will increase their weekly exercise, report increased readiness to change and exercise self-efficacy, report greater positive social influence for physical activity participation, and decreased barriers. In addition, participants will adhere to the website for 4 weeks and maintain their improvements in PA outcomes.



Service Quality at a U.S. Paralympic Training Site: Lakeshore Foundation's Environmental Attributes

Scientific Research
5:40-6:00 pm
Room D

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Lakeshore Foundation in Birmingham, AL, was designated the first U.S. Olympic and Paralympic Training Site in 2003 with an emphasis on preparing elite athletes with disabilities for international competition. As of 2012, three U.S. Paralympic teams considered Lakeshore their training home, citing service quality attributes as the primary reason. Service quality is a concept that explores the nature of the experience someone has with a venue, person, or product. Service quality is comprised of three attributes: functional, environmental, and technical. This study focused on Lakeshore's environmental attributes, which included perceptions of the sports facility's influence on excitement and satisfaction with the encounter, an individual's desire to stay in the environment, and the likelihood of re-patronizing the facility. **PURPOSE:** The purpose of this study was to explore the service quality experiences of elite athletes and coaches at Lakeshore Foundation's U.S. Olympic and Paralympic Training Site with a focus on the environmental attributes. **METHODS:** This study took a qualitative approach to examining service quality attributes through case study, which is unique to the literature. Interviews, observations, and document analysis were the means of data collection. Semi-structured interviews were conducted with 15 participants, and the researcher conducted seven observation periods at Lakeshore Foundation. Documents analyzed were Lakeshore's application to become a USOC-designated training site, the USOC's published training site criteria, and Lakeshore Foundation's website. Transcripts and field notes were analyzed through constant comparative method, while document data were analyzed through ethnographic content analysis. **RESULTS:** Findings revealed that accessible facilities contributed to a positive overall training experience because they allowed athletes to forget about physical barriers they encountered daily and focus on training for their sport. Lakeshore Foundation's accessible facilities included an on-site dormitory and athletic fieldhouse with three basketball courts. Participants stated that facilities were what made Lakeshore's U.S. Olympic and Paralympic Training Site a comfortable environment and reputable internationally. **CONCLUSIONS:** This study revealed how facility accessibility may shape the initial experiences of stakeholders, particularly those with physical disabilities. Practical applications for the USOC and local operators of training facilities are that environmental attributes of service quality contribute to attracting first-time consumers because they are tangible and can be verified even before the consumer is on-site.



Gait Characteristics of Adults with Down Syndrome Explain Their Greater Metabolic Rate during Walking Scientific Research P01

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Mobility in adults with Down syndrome (DS) may be adversely affected by their higher net metabolic rate (net-MR) during walking compared to adults without DS. This higher net-MR in adults with DS may be due to their gait pattern. **PURPOSE:** To examine if and to what extent gait characteristics contribute to differences in net-MR during walking between people with and without DS. **METHODS:** Fifteen adults with DS (27±8 yrs) and 15 adults without DS (28±6 yrs) completed two testing sessions in which expiratory gases and kinematic data were collected, respectively, during treadmill walking. Participants walked at randomly-presented Froude numbers of 0.1, 0.2, 0.3, 0.4, 0.5, and 0.6. Hierarchical and stepwise regression were used to determine the proportion of the variance in net-MR that was explained by DS but not by differences in walking speed and then the proportion of this variance that was explained by gait variables that differed between groups. Gait variables considered included work rate, the range of center of mass (COM) mediolateral (ML) position and its square, the between-step variability in the time-courses of COM ML position, vertical position, and anteroposterior (AP) velocity, step length variability, step width variability, and step time variability and its square. **RESULTS:** Work rate, the range of COM ML position and its square, variability in the time-course of COM AP velocity, and the variability of step length, step width, and step time significantly predicted net-MR ($p < 0.05$). These variables collectively explained 73.9% of the variance in net-MR that was explained by DS but not by walking speed. Of this 73.9% of explained variance, differences in step time variability and in work rate made the greatest total contributions, whereas differences in step length variability made the greatest unique contribution. **CONCLUSIONS:** The gait characteristics of adults with DS largely explain their higher net-MR during walking, although other factors inherent to DS also contribute. Interventions that target the gait pattern of adults with DS may potentially decrease net-MR and improve mobility.

Effect of Equine Assisted Therapy on Gait for an Individual with a Spinal Cord Injury Scientific Research P02

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Positive effects on spasticity have been claimed for individuals with spinal cord injury from participation in equine assisted therapy, but the effect on gait for an individual with spinal cord injury has not been evaluated. Information from this case study will help determine if the benefits from participation outweigh the potential risks. **PURPOSE:** This case study was designed to examine the effect on gait from participation in equine assisted therapy for an individual with a spinal cord injury. Information from this case study will help determine if the benefits from participation outweigh the potential risks. **METHODS:** The participant was in an automobile accident on July 4th, 1993, presenting an incomplete fracture between C3-C4 and AIS of 5. Prior to participation in equine assisted therapy, seventeen years after the accident, the participant reported wide spread spasticity. The participants walking gait was recorded with a Sony™ Handycam™ digital camcorder both before and after each horseback riding session. Gait was then analyzed using Dartfish™ video software solutions. Ankle angle, knee angle, hip angle, stride length, and stride width were all measured. The participant performed two trials (pre and post test) per weekly session. **RESULTS:** The data was analyzed with a 2 (test) by 2 (program) repeated measures ANOVA. In the case of significant differences, Tukey's LSD was used to detect post hoc differences. The results revealed a significant increase ($P < .05$) in left and right ankle angle at heel strike and toe off. There was a significant difference ($P < .05$) in right hip angle at heel strike, with a significant decrease in the angle. Additionally, there was a significant decrease in stride length ($P < .05$). **CONCLUSIONS:** The increases in ankle angle indicate positive findings since increases in spasticity are often reported among patients with spinal cord injury. The participant demonstrated a decrease in stride length, which indicates an increase in stability. Range of motion only decreased at the right hip at heel strike. Therefore, therapeutic horseback riding may be beneficial in maintaining and at some joints increasing mobility for this participant. The participant in this study claims positive effects from involvement in horseback riding, and realizes multiple postural control benefits in addition to social benefits. Equine assisted therapy may be used as an effective treatment to maintain mobility and walking gait for some individuals with spinal cord injury. However, more research is required prior to conclusive statements regarding benefits from participation in equine assisted therapy.



Effects of Restricted Ankle Range of Motion on Human Walking: An Application to Transtibial Amputee Gait Patterns

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Scientific Research
P03

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Alterations in gait patterns are commonly observed in individuals with transtibial amputation (TTA) who use a prosthesis. Current commercially available ankle-foot prostheses (AFP) offer very little range of motion (ROM) at the ankle joint. Previous researchers have hypothesized that lack of ankle ROM significantly contributes to alterations in TTA gait patterns. However, different patterns have been observed among TTA using the same AFP. Therefore it is unclear how restricted ankle ROM in current commercially available ankle-foot prostheses (AFP) contributes to observed changes in gait. Alterations in gait patterns have been shown to increase the incidence of low back pain and other musculoskeletal injuries. TTA have a greater incidence of low back pain and osteoarthritis of the knee and hip. Therefore it is important for researchers to understand the influence of different prosthetic components on gait in order to optimize gait patterns and minimize complications due to alterations in gait. **PURPOSE:** The purpose of this study was to determine what compensatory alterations in gait patterns may occur as a result of imposed restricted ankle range of motion in the absence of other confounding factors associated with transtibial amputation and prosthesis use. **METHODS:** Kinematic data was collected from 19 participants (9 men, 10 women) age 18-32 with no previous history of lower extremity injury or deformity in two conditions: level-ground walking with no restriction and level ground walking with the ankle restricted at 0 degrees plantarflexion by plaster casting. **RESULTS:** Results indicated that restricted ankle ROM contributes to decreased velocity and cadence and decrease in gait symmetry. A compensatory pattern was observed for pelvic obliquity, hip and knee flexion at toe-off and foot progression angle. Observed patterns did not resemble those observed in TTA. **CONCLUSIONS:** Results suggest that restricted ankle ROM contributes to some components of alterations in gait patterns observed in TTA. However a combination of other factors associated with amputation and prosthesis use may contribute more significantly to TTA gait patterns than restricted ankle ROM alone.

Validation and Testing of a Wheel Rotation Datalogger for Quantifying Activity in Manual Wheelchair Users

Scientific Research
P04

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Providing an accurate estimate of physical activity levels in manual wheelchair users can assist researchers and clinicians in quantifying day-to-day physical activity levels in free-living environments, leading to recommendations for a healthier lifestyle. **PURPOSE:** The purpose of this study was to test and validate a wheel rotation datalogger, which incorporates 6-reed switches and a gyroscope sensor to quantify wheelchair related physical activities in manual wheelchair users. **METHODS:** Validating and testing the Physical Activity Monitor System's wheel rotation dataloggers (PAMS-DLs) involved performing calibration tests on a lathe machine and double drums (lab tests) and testing PAMS-DLs on manual wheelchair users during tennis matches (field tests). The lathe machine tests involved evaluating the PAMS-DLs' performance in clockwise (CW) and counterclockwise (CCW) directions to simulate forward and backward motion of a wheelchair at various speeds (42.8, 60.0, 84.7 rpm; $1.4\text{m}\cdot\text{s}^{-1}$ – $2.7\text{m}\cdot\text{s}^{-1}$ for 0.6m wheel diameter). The double drum test involved securing the PAMS-DLs on a manual wheelchair to evaluate the PAMS-DLs performance in measuring distances. For the field tests, a PAMS-DL was secured to the left wheel of each participant's ($n=6$) wheelchair prior to beginning practice match play. Each playing session lasted twenty minutes; participants each played three sessions. **RESULTS:** The lathe tests indicated that the mean(SD) percentage errors for various angular velocities for the three PAMS-DLs tested were 0.2(0.2)%, 1.5(1.3)%, and 1.8(0.3)%. The double drum tests showed that the mean(SD) percentage errors for a 750m distance were 1.9(0.2)%, 1.8(0.1)% and 3.5(0.1)%. The six manual wheelchair users who participated in the practice tennis matches had the following demographic characteristics: age – 22(3)years, body mass – 66.1(13.2)kg, and wheelchair use – 12(8)years. The mean(SD) distance per minute and velocity measured during 16 practice tennis sessions was $38.8(11.9)\text{m}\cdot\text{min}^{-1}$ and $0.7(0.2)\text{m}\cdot\text{s}^{-1}$, respectively. The mean top speed achieved during the testing sessions was $2.9(0.4)\text{m}\cdot\text{s}^{-1}$. **CONCLUSIONS:** The preliminary validation tests of the three PAMS-DLs indicate that the device is accurate for various speeds and distance in laboratory tests. The average distance $\cdot\text{min}^{-1}$, mean velocity, and mean top speed measured by the PAMS-DLs during wheelchair tennis sessions were lower compared to previous research data collected by the research group in wheelchair tennis matches (distance: $38.8(11.9)\text{m}\cdot\text{min}^{-1}$ vs. $62.9(13.7)\text{m}\cdot\text{min}^{-1}$; velocity: $0.7(0.2)\text{m}\cdot\text{s}^{-1}$ vs. $1.0(0.2)\text{m}\cdot\text{s}^{-1}$; and mean top speed: $2.9(0.4)\text{m}\cdot\text{s}^{-1}$ vs. $3.2(0.6)\text{m}\cdot\text{s}^{-1}$. In the future, we plan to test the validity and reliability of PAMS-DL to collect data in various scenarios such as wheelchair propulsion over different terrains, wheelchair sports and other activities of daily living.



Age-Related Differences in the Maintenance of Frontal Plane Dynamic Stability While Stepping to Targets

Scientific Research
P05

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Falls or fear thereof can reduce physical activity by older adults. Specifically debilitating for this population are injurious falls such as hip fractures. Falls to the side increase the risk of hip fracture 600% compared to forward or backward directed falls. The directionality of the fall may represent a risk factor amenable to targeted, clinically-based intervention. Postural instability within the frontal plane may be accentuated with age thus increasing the risk of falls to the side. **PURPOSE:** To investigate the age-related differences in response to increasing internal challenges to dynamic stability while walking. **METHODS:** Nineteen young adults (22.9±3.1 years, 174.3±10.2 cm, 71.7±13.0 kg) and eighteen older adults (72.8±5.2 years, 174.9±8.6 cm, 78.0±16.3 kg) volunteered to participate in this study. Kinematics and kinetics were collected. While walking at their preferred speed participants were asked to perform a laterally-directed step with their dominant limb to three targets on a force platform. Task difficulty was increased relative to the successively larger step width required by the targets. Participants performed five steps at each target. Peak hip abduction moment of the stepping limb was quantified. Dynamic stability was quantified using the margin of stability (MOS) which considers the position and normalized velocity of the center of mass (COM) with respect to the lateral edge of the base of support. MOS was averaged from heelstrike of the lateral-step to the contralateral toeoff. Dependent variables were compared with a two-factor (groupXtarget) ANOVA. **RESULTS:** A significant groupXtarget interaction was detected for peak hip abduction moment. As the target distance increased, older adults generated a larger moment relative to younger adults (p=0.006). Similarly, a groupXtarget interaction was detected for MOS. Older adults were more stable, relative to younger adults, as the target distance increased (p=0.014). **CONCLUSIONS:** The larger peak hip abduction moments of older compared to younger adults may reflect greater muscular effort as an attempt to increase control of COM motion and reduce the likelihood of becoming unstable. In fact, older adults were as stable as or more stable than younger adults. These results may reflect a proactive strategy by older adults to ensure that frontal plane stability is maintained even under progressively challenging conditions. Participants in this investigation were generally active and likely had minimal fear of falling. These proactive adjustments may be necessary to ensure frontal plane stability for these older adults thus enabling them to safely perform activities of daily living.

Intact Foot-Force Direction Regulation During Locomotor Control When Postural Influence is Removed with Individuals Post-Stroke

Scientific Research
P06

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Individuals with post-stroke hemiplegia have impaired walking ability and are at a high risk for falls. For example, in order to prevent slipping, the leg muscle must exhibit appropriate coordination such that the ratio of horizontal forces and vertical forces generated by the support leg does not exceed the available friction available at the floor/shoe interface. To better understand the mechanisms underlying regulation of foot force direction during walking, we examined the ability of the post-stroke nervous system to regulate forces during a locomotor task in the absence of postural influence. **PURPOSE:** The purpose of this study was to examine the ability to coordinate paretic muscles so as to generate a target normal surface force under a variety of foot positions in both a stationary (fixed-crank) and a locomotor (moving-crank) force generation task in the absence of influence from neuromechanical control requirements for postural control. **METHODS:** Individuals with chronic post-stroke hemiplegia (n=16) and non-impaired age-similar controls (n=10), while seated on a bicycle seat, were instructed to push against the pedal to generate three separate maximal force efforts under the fixed crank at 90° condition (middle of downstroke). They were then instructed to generate a target normal pedal surface force (FN) of 40% of their maximal effort FN under two conditions (1) fixed-crank at 90°; and (2) crank moving at 40rpm, with real time visual feedback of the target FN to be generated. Forces and EMG data were recorded and analyzed offline. **RESULTS:** For individuals post-stroke, we observed lower force output, comparable pedal shear force output, and inconsistent modulation of leg muscle activity, resulting in a relatively fixed direction of foot forces generated in the global coordinate frame, when compared to non-impaired individuals who demonstrated systematic changes in foot force direction when foot position was altered. **CONCLUSIONS:** Individuals post-stroke were weaker and less able to actively assume different foot positions to generate forces a range of directions. During body weight supported locomotion, individuals post-stroke generated comparable shear pedal forces compared to controls, suggesting an intact ability of the impaired nervous system to regulate forces during locomotion in the absence of postural influence.



BMI of Adolescents with Intellectual Disabilities: A Global Comparison

Scientific Research
P07

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PURPOSE: Very little is known about the prevalence of overweight and obesity in adolescents with intellectual disabilities from a global perspective. The purpose of this study was to investigate the prevalence of overweight and obesity in adolescents with intellectual disabilities by world region. **METHODS:** A total of 9,678 children and youth were available from the Special Olympics International Health Promotion database. After data cleaning 7,643 adolescents (12-18 year olds) were available for analysis. BMI prevalence rates for each of the Special Olympics International world regions were computed using the IOTF cut-points. **RESULTS:** Overall, approximately 30% of the sample was overweight or obese. Adolescents with intellectual disabilities in North America had the highest rates of overweight and obesity. In North America the percentage of adolescent girls found to be overweight was 16.3% (95% confidence interval [CI], 11.2%-21.5%), and obese was 22.6% (CI=16.6%-28.6%). The percentage of adolescent boys in North America who were overweight was 21.1% (CI=18.9%-23.2%), and obese was 26.9% (CI=24.4%-29.4%). The prevalence of overweight and obesity was not as high in other regions of the world; however, the prevalence rates were found to be higher than the general population. **CONCLUSIONS:** BMI status is a significant indicator of health in all populations. These findings suggest it is critical that health professionals increase health promotion efforts, including increasing daily physical activity and healthy eating behaviours for youth with intellectual disabilities.

Effects of a 4-Week Pilot Balance Exercise and Education Workshop in Persons with Physical Disabilities

Scientific Research
P08

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Fear of falling and balance is a major concern in older adults and individuals with physical disabilities. A balance training program that incorporates strength, endurance, flexibility, somatosensory, vestibular and visual exercises can improve static and dynamic balance. Enhanced balance decreases fear of falling, builds confidence and promotes independence. **PURPOSE:** The purpose of this pilot study was to evaluate changes in balance and agility following a 4-week balance exercise and education workshop for people with physical disabilities. **METHODS:** Eight participants took part in a 4-week balance workshop that consisted of balance training classes three days a week for thirty minutes, balance and fall reduction education, and recommended home exercises. New exercises were introduced on the first day of every week and the second day was review of the exercises plus added progressions. On the third day of each week participants performed the exercises introduced the previous days and the instructors monitored for correct posture and form. Educational discussion and handouts covered such topics as home fall prevention, posture, and muscle strength as it relates to balance. Pre and post assessments included a 20-sec dynamic balance test (Biodex balance machine) and the Timed Up and Go (TUG). Participants completed two trials for each test and the best score was recorded. The balance test provided an overall stability index score. **RESULTS:** A total of 8 participants (7 females, 1 male) completed the 4-week workshop ($M_{Age} = 70.50 \pm 6.57$). Participant disabilities included Parkinson's disease, multiple sclerosis, and arthritis. The mean (SD) pre and post stability index scores were 2.61 (.82) and 1.91 (0.60) and the TUG scores were 10.12 sec (3.66) and 8.74 sec (2.60) respectively. There was a significant improvement ($p < 0.05$) in both the stability index and TUG scores. **CONCLUSIONS:** The results of this pilot study suggest that a guided exercise and education balance workshop can improve balance and agility in persons with physical disabilities. Additional study is needed to further examine the efficacy of such a program.



Physical Activity HHealth Education Program for Individuals with Multiple Sclerosis

Practical Application
P09

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Multiple Sclerosis (MS) is an auto-immune system disease that is estimated to affect 1 in 1000 people in the US, resulting in a variety of associated (e.g., fatigue, spasticity) and secondary conditions (e.g., depression). Health professionals are challenged to find ways to help individuals manage their disease and participate in healthy behaviors, such as physical activity (PA), which is considered a leading indicator of health. For individuals with MS, regular PA has been linked to improved management of symptoms and reduced functional decline. However, in general, individuals with MS are inactive. Very few health promotion programs have been implemented for people with MS to facilitate the adoption and maintenance of PA participation. The purpose of this presentation is to describe the *HEMS* program (a health education program for MS) that is aimed at increasing PA behaviors of persons with MS. The *HEMS* program was developed based on constructs from the social cognitive theory (SCT) and includes participants taking part in the following phases of the program: (1) baseline assessment period (10 weeks), (2) health education program (10 weeks), and (3) follow-up assessments (10 weeks following the education program). A description of the weekly sessions consists of: (1) discussing their PA the previous week (i.e., meeting goals, barriers, and facilitators), (2) reviewing the previous week's content, (3) discussing the current education module topic, and (4) determining PA goals for the following week. Module topics include PA guidelines and benefits, barriers, social supports, goal setting, behavior change strategies, and motivation. Pedometers and activity logs will be used to measure PA levels at each phase of the study. This presentation will provide a description of the *HEMS* program aimed at increasing PA for individuals with MS. Individuals who attend this presentation will obtain information about the development of *HEMS*, the contents of the education program (i.e., description of the weekly sessions and PA modules), and the assessments to be utilized throughout the intervention.

The Influence of Age on Exercise Fear-Avoidance Beliefs

Scientific Research
P10

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PURPOSE: High fear-avoidance beliefs, or beliefs that physical activity may be harmful, are associated with decreased physical function and increased rates of disability, but little is known about how age influences these beliefs. Existing literature on fear-avoidance beliefs indicates a potential inverse relationship between age and fear, with older individuals reporting less fear than younger adults; however current literature has only examined this relationship in the context of fear stemming from chronic pain conditions or acute injury. No research has explored the relationship between age and fear stemming from exercise-induced pain or discomfort. The purpose of this study is to assess differences in exercise-specific fear-avoidance beliefs among a sample of younger (20-64 years) and older adults (≥65 years). **METHODS:** Two-hundred overweight/obese adults completed the Exercise Fear-Avoidance Scale (EFAS), a 16-item scale that measures fear in 3 domains: weight-specific, cardio-respiratory, and musculoskeletal fears. The Pain Disability Index (PDI) was used to assess the impact of pain on daily functioning. We calculated differences in EFAS scores between younger and older adults using independent-samples t-tests. We used multivariate regression to calculate the amount of variance in EFAS scores accounted for by age while controlling for BMI and PDI. **RESULTS:** Within the younger group (n=133), the mean (SD) age was 47.3 (10.7) years. Mean BMI was 37.3(7.7) kg/m². Age accounted for a significant portion of the variance in total scale scores (R²= .06, p<.01). It also accounted for a significant portion of the variance in musculoskeletal and cardiorespiratory fear (R²= .08, p>.01; R²= .05, p<.01, respectively). Data collection for the older adults in this study is currently ongoing. Final results to be presented will include a comparison of differences in EFAS scores between the younger and older adult groups. We will also present results of regression analyses with the full study sample, focusing on the amount of EFAS score variance accounted for by age. **CONCLUSIONS:** This presentation will present full conclusions based on completed data analysis. Our preliminary results indicate a significant relationship between age and exercise fear-avoidance. We believe this may indicate a characteristic of exercise-specific fear-avoidance which is different from fear derived from acute injury or chronic pain. Fitness and rehabilitation science professionals should consider the potential influence of age on fear-avoidance as well as physical ability when determining exercise prescription and treatment planning for overweight and obese adults.



The Effects of Acute Moderate Exercise on Accuracy of Target-Directed Locomotion in Individuals with and without Intellectual Disabilities

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Scientific Research
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Recently, many studies have shown that aerobic exercise can improve a number of aspects of cognition and performance. There are many situations to depend on accuracy of target-directed locomotion in sports. For instance, as individual dribbling in soccer must pay attention to ball, locomotion by target will depend on a distance memory. **PURPOSE:** The purpose of this study was to examine the effect of acute moderate exercise on accuracy of target-directed locomotion under closed eyes in individuals with and without intellectual disabilities. **METHODS:** A total of 9 individuals without intellectual disabilities ($M_{Age} = 25.11 \pm 1.76$ yrs) and 8 individuals with intellectual disabilities ($M_{Age} = 21.50 \pm 4.47$ yrs) participated in this study. Testing took place 6 trial per conditions at a gym. After the participants identified the target distance of 3, 5 and 7 m under full viewing conditions, they were asked to walk independently to the remembered target distance with closed eyes. One week later, they were asked to walk with the same method right after participating acute moderate exercise for 30 minutes. Acute moderate exercise included running. To examine the effect of acute moderate exercise on accuracy of perceived target distance, the absolute errors of target-directed walking distance were calculated and analyzed using two-way Analysis of Variance (ANOVA)s with repeated measures. **RESULTS:** No significant difference was found between individuals with and without intellectual disabilities on absolute errors of target-directed walking distance under full viewing conditions ($F = .795, p = .387$). Significant differences between full viewing conditions and acute moderate exercise were found on absolute errors of target-directed walking distance in both groups ($F = 7.228, p = .017$) although the effect of exercise in individuals with intellectual disabilities appeared significantly the less than individuals without intellectual disabilities. **CONCLUSIONS:** The results of this study suggest that the larger distance memory is, the better effect of exercise. Adapted physical educators should consider the effect of acute moderate exercise on distance memory designing exercise programs for people with intellectual disabilities.

Development of Assessment Scale of Health-Related Physical Fitness for People with Visual Impairment

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Scientific Research
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PURPOSE: The purpose of this study is to develop a gender and age-dependent norm-referenced assessment scale for health-related physical fitness for the visually impaired people, and to present an adequate judging ratio compared with minimum standard ratio for health, a criterion referenced assessment for the visually impaired people. **METHODS:** The items chosen to measure of health-related physical fitness for 425 visually impaired people included hand grip strength for muscular strength, sit-up for muscular endurance, forward bending for flexibility, BMI for body composition and step test for cardiovascular endurance. SPSS 18.0 was used for every variables and then put into independent-sample t-test, one-way ANOVA and post-hoc test ($sig. = .05$). **RESULTS:** The age-dependent inadequate judging ratio in muscular strength of the visually impaired people appeared as 68.2~81.6%, those aged 40-49 showed 68.2%, the level similar to ordinary people while those aged 17-19 showed 81.6%, quite a large number of people who showed weaker than ordinary people in muscular strength. Inadequate ratio in their muscular endurance appeared as 61.8~89.5%, as those aged 50-60 showed 61.8%, higher level than that of ordinary people, and those aged 11-13 showed 89.5%, quite a high number of people who are weaker than ordinary people. Inadequate judging ratio in their flexibility appeared as 69.4~88.2%, as those aged 20-39 showed 69.4%, a similar level to the ordinary people while those aged 11-13 showed 88.2%, a great number of people who are worse than ordinary people in flexibility. **CONCLUSIONS:** Inadequate judging ratio in their BMI appeared as 67-75.3%, a similar level to the ordinary people in all age groups. However, those visually impaired teenagers appeared as 91.7~94.7% in cardiorespiratory functions which seem to be the alarming levels. Such results seem to be caused by visual problems and indicate that their cardiorespiratory functions need to be improved through continuous physical activities with the helps from auxiliary workers or auxiliary aids. The developed assessment scale is applicable to the health-related physical fitness by gender and age group, and could be used as a basic data for designing adequate programs for physical activities for the people who are impaired visually.



Parental Support of Physical Activity for Their Children with Disabilities

Scientific Research
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Parental influence and support are important for physical activity participation (PAP) of their children with disabilities (CWD).

PURPOSE: The primary purpose of this study was to construct a Theory of Planned Behavior (TpB) questionnaire to examine parents' perceptions toward supporting PAP of their CWD. **METHODS:** A total of 61 parents of CWD from the U.S. and South Korea (the U.S. = 29, South Korea = 32) completed a questionnaire developed based on the guidelines of Ajzen (2004). The largest disability group was parents of children with autism in both countries. The questionnaire contained six open-ended questions about parents' behavioral beliefs (BB), normative beliefs (NB), and control beliefs (CB) toward supporting PAP of their CWD. **RESULTS:** Two investigators coded answers to the questions, and agreed with the themes. The top 75% of the responses elicited from the study were used to construct a TpB questionnaire. Results of the study generated the following: BB (belief about the likely outcomes of supporting PAP for their CWD) such as enhancing socialization, increasing physical fitness, and learning sport skills; NB (normative expectations of others and motivation to comply with these expectations) such as organizations that support people with disabilities, spouses of the participants, and children's teachers including special education teachers and adapted physical educators; and CB (factors that may facilitate or impede supporting PAP of their CWD) such as accessibility, instructors' professional knowledge and experience, financial assistance, and child's preference. All of them were participating in physical activity programs at least 1 to 6 times (45 to 480 minutes) and 1 to 4 times (50 to 180 minutes) in the U.S. and South Korea, respectively. Most of the parents valued the quality of the programs their CWD participated in, $M=4.11$ (the U.S) and $M=4.53$ (South Korea) on a 5-point Likert scale. Interestingly, the most popular physical activity that the parents wanted their children with disabilities to learn was swimming followed by bicycle, baseball, basketball, soccer, track/field, gymnastics, volleyball, hockey, and dance in the U.S. and swimming followed by soccer, inline skating, and basketball in South Korea. **CONCLUSIONS:** Based on the results of this study, a main questionnaire including 5 BB, 4 NB, and 5 CB items was developed to examine parents' beliefs and intentions toward supporting PAP for their CWD. The main study in both countries will provide better understanding for facilitators and barriers for parental support of physical activity programs of their CWD.

Development of a Scale Measuring Belief to Predict Intention toward Physical Activity Participation in Individuals with Physical Disabilities

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Individuals' belief has been considered as a critical factor to predict their intention toward physical activity participation. However, little is known about relationship between belief and intention of individuals with physical disabilities to participate in physical activities. **PURPOSE:** The purpose of this study was to develop a scale measuring belief to predict intention of adults with physical disabilities toward physical activity participation using the theory of planned behavior (Ajzen, 2006). **METHODS:** Participants were 259 adults with physical disabilities in Korea who participated in physical activities (male =183, female=76). A questionnaire consisted of 35 items in 4 categories: 9 items (behavioral belief); 9 items (normative belief); 12 items (control belief); and 5 items (behavioral intention). Data were analyzed to determine whether the questionnaire was appropriate to measure individual's belief to predict his or her intention to participate in physical activities. Four types of data analyses were conducted using SPSS 18.0: (a) exploratory factor analysis; (b) Cronbach's α reliability analysis; (c) correlation analysis; and (d) multiple regression. **RESULTS:** Based on the exploratory factor analysis, four factors were extracted for 62% of the variance. The factor loading ranged from .44 to .77 in each item under the corresponding category. Based on the reliability analysis, Cronbach's α for each category ranged between .90 and .94. The value of .06 or above is considered acceptable for Cronbach's α (Cronbach, 1990). Based on the correlation analysis, behavioral intention was significantly correlated with: (a) behavioral beliefs, $r = .52$; (b) normative beliefs, $r = .52$; and (c) control beliefs, $r = .53$ (all $ps < .001$). The results of the multiple regression indicated the three predictors (i.e., behavioral beliefs, normative beliefs, and control belief) explained 39% of the variance ($F = 53.198, p < .001$). Further, it revealed that behavioral beliefs ($\beta = .206, p < .01$), normative beliefs ($\beta = .255, p < .001$), and control beliefs ($\beta = .270, p < .001$) significantly predicted behavioral intention. **CONCLUSIONS:** The findings of the present study indicated that the scale of belief about participation in physical activity for adults with physical disabilities was valid and reliable. In addition, the theory of planned behavior was an appropriate theoretical framework to predict intention toward physical activity participation for individuals who are physically disabled. Therefore, adapted physical education practitioners and leaders' effort is needed to promote a positive change in beliefs and intentions about participation in sports for the individuals who are physically disabled.



Influence of Title Sponsorship in Disabled Sports upon Corporate Image and Customer Loyalty

Scientific Research
P15

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In Korea, unlike non-disabled sports, most corporations are not support the title sponsorship to the disabled sports. The corporations indicated that the small number of audience in the disabled sports is the major factor for not sponsoring the disabled sports. From the title sponsors' perspective, sponsoring the disabled sport events is not providing a great deal of returns on investments. **PURPOSE:** This study assessed the influence sponsorship in sport for individuals with disabilities on corporate image and customer loyalty. **METHODS:** Participants (n=228) were spectators attending the 6th National Wheelchair Basketball Championship in South Korea completed three surveys (i.e., The Title Sponsorship, Choi, 2002; Corporate Image, Seo, 2000; & Customer Loyalty, Gang, 2010). A t-test, one-way ANOVA, and multiple regression analysis were conducted; significant level was set for $\alpha=.05$. **RESULTS:** Results indicated that in a championship type among socio-demographic characteristics, the championship held by SK Telecom (private enterprise) was indicated to be higher ($p=.000$) in all factors than the championship held by Korea Post (public corporation). There was no difference by gender. The age in more than the 40s was indicated to be higher ($p=.004\sim.000$) than other age groups in all factors except social-contribution image. As a result of examining influence of the perceived sponsorship upon corporate image and customer loyalty, it had effect on corporate image ($\beta=.416$, $R^2=.224$), social-contribution image ($\beta=.416$, $R^2=.173$), behavioral loyalty ($\beta=.422$, $R^2=.178$), attitudinal loyalty ($\beta=.412$, $R^2=.170$), and cognitive loyalty ($\beta=.463$, $R^2=.214$). Thus, all factors were indicated to be influenced. Moreover, results showed influence of corporate image upon customer loyalty, it had effect on behavioral loyalty ($\beta=.165-.479$, $R^2=.354$), attitudinal loyalty ($\beta=.225-.443$, $R^2=.370$) and cognitive loyalty ($\beta=.182-.482$, $R^2=.374$). **CONCLUSIONS:** The current study found out that private enterprise was reinforcing its corporate image and was receiving customer loyalty through title sponsorship in the higher level than public corporation. The highest level was indicated in the age group of over 40; the highest income level. If many enterprises are much interested in title sponsorship of the disabled sport events regardless of corporate form, it seems to be likely able to be an opportunity that both sports for the disabled and sponsor can grow.

Predictors of Physical Activity among European and American Hearing Impaired Children

Scientific Research
P16

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Most people with disabilities do not engage in enough physical activity. Physical activity is important because of the numerous psychosocial benefits associated with it. Unfortunately, research on physical activity for youth with hearing impairments is limited. **PURPOSE:** The purpose of the current exploratory study was to examine various demographic (i.e., gender, country), psychological (i.e., enjoyment) and social (i.e., sibling social support) predictors of physical activity. **METHODS:** Participants ($N = 64$) from the two large cities (Detroit and Atlanta) in the USA ($N = 30$) and Prague, Czech Republic ($N = 34$) with hearing impairments, completed a variety of scales. Participants were mostly male ($N = 42$) and female ($N = 22$) youth ($M_{age} = 14.1$, $SD_{age} = 2.1$). We obtained demographic information, (e.g., age, gender) and measures of the following multi-item constructs: Four measures of social support for physical activity from parents, classmates, friends, and siblings, physical activity enjoyment, physical education enjoyment, efficacy for overcoming barriers to being physically active, time spent outside, and self-reported physical activity. All scales had been previously used in similar research with youth, adolescents and young adults, and have a demonstrated a history of reliability and validity. For translation of scales in Czech, we used a modified direct translation method for participants from Prague. Participants answered from 5 (strongly agree) to 1 (strongly disagree). **RESULTS:** Differences among assorted variables according to country and gender were found, so these constructs were entered into a multiple regression first. Next all the psychosocial constructs were entered. The overall $F(10,53) = 2.04$, $p < .05$ was significant and we accounted for 28% of the variance in physical activity with 17% attributable to gender and country and 11% due to the combined psychosocial variables. No single psychosocial construct had an associated significant standardized beta weight although social support from friends ($B = .24$) and enjoyment of physical education were the largest ($B = .21$). These results tentatively suggest that USA males who enjoyed physical education and received support from their friends for physical activity were the most active participants relative to non USA participants or females from both countries, who did not perceive friendship support or who did not enjoy physical education classes. **CONCLUSIONS:** These exploratory findings suggest there is value in examining psychosocial models of physical activity engagement that include perceptions of enjoyment and social support while simultaneously considering the influence of gender and cultural socialization processes.



The Role of Motor Skills in the Physical Activity Behaviors of Children with Autism

Scientific Research
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Autism Spectrum Disorder (ASD) is the most common childhood neurodevelopmental disorder, affecting 1 in 88 children. ASD is characterized by deficits in social communication skills and restricted or repetitive behavior (APA, 2011). Motor skill deficits are also present in children with ASD including delays in infant motor milestones, abnormal gait patterns and postural control, and deficits in the performance of gross and fine motor skills. In typically developing children, positive relationships between motor skill performance and physical activity (PA) behavior have been demonstrated. However, further exploration of the relationship between motor skill performance and PA behavior in children with ASD is warranted. **PURPOSE:** The purpose of this project is to better understand the relationship between motor skills and PA behavior in children with ASD. **METHODS:** It is anticipated that 10 children, ages 2-5 years old, with ASD will participate in this study as part of a movement-based early intervention for young children with ASD. All participants will have a confirmatory diagnosis of ASD as indicated by standardized algorithms established from the Autism Diagnostic Observational Schedule (ADOS). All participants will also complete the Peabody Developmental Motor Scales 2nd ed. (PDMS-2), the Mullen Scales of Early Learning (MSEL), and a demographic questionnaire. Participants will be given an activity monitor to wear for the duration of 7 days in order to measure PA. Physical activity data reduction will be based on a 15-second epoch and assignment to pre-established PA categories, which have been validated in typically developing preschool aged peers (Pfeiffer et al., 2006). A linear regression model will examine how motor skills moderate the PA behavior of these young children. Important variables such as nonverbal problem solving, age, gender, socio-economic status, and ethnicity will be held constant. **RESULTS:** It is expected that motor skills will positively influence PA, holding important variables constant. **CONCLUSION:** Current trends in PA literature acknowledge significant positive relationships between motor skills and PA behavior in typically developing children. The expected results from this study may provide evidence of a similar relationship in children with ASD. The expected results could help inform practitioners and future research in ASD. Other implication may provide relevant information for PA programming for children with ASD.

Motivation to Engage in Physical Activity in Mexican Individuals with Disabilities

Scientific Research
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Providing sport and physical activity opportunities for individuals with disabilities has recently become a national priority in Mexico, considering the wealth of literature that illustrates the importance of physical activity in promoting health and preventing disease (Piéron, 2003; Rimmer, Braddock, & Pitetti, 1996). **PURPOSE:** To determine the motivations for Mexican individuals with disabilities to engage in physical activity. **METHODS:** A total of 66 individuals with disabilities (43 males and 23 females) were recruited and classified in four groups: intellectual disabilities ($n=47$), physical disabilities ($n=7$), visual impairments ($n=7$), or Deaf/Hard of hearing ($n=5$). Participants were recruited from several public and private schools for individuals with disabilities. A Likert-scale questionnaire with five motivation parameters (general motivation, intrinsic motivation, extrinsic motivation, physical activity participation, and persistence to practice physical activity) was used to evaluate their participation in physical activity. This questionnaire has been previously used on undergraduate students without disabilities to assess their motivations to participate in physical activity (Terrazas-Cervera, 2007). Research group received a specific training to administrate the test, particularly for subjects who do not verbalize or individuals with intellectual disability. ANOVA and Multiple regression analyses at a $p<0.05$ of significance were used. **RESULTS:** General motivation and persistence to practice of physical activity were the best predictors of physical activity participation (*adjusted* $r^2=0.89$, $p<0.05$). Group with visual impairments showed the highest intrinsic motivation to participate in physical activity ($F(3,62)=8.39$, $p<0.05$) compared to the other three groups. There were no other differences. **CONCLUSIONS:** General motivation and persistence are reliable predictors of physical activity participation of individuals with disabilities in Mexico, although this statement should be interpreted with care due to our small, convenience sample. Participants in this study demonstrated greater intrinsic motivation to participate in physical activity (e.g., to have a joyful experience) similar to individuals without disabilities as reported by Terrazas-Cervera (2007). Implications of these findings will be discussed further with professionals of Adapted Physical Activity in Mexico in terms of providing quality physical activity services for Mexicans with disabilities to engage in lifelong pursuits.



Diversity and Intensity of Activity Participation by Youth with Down Syndrome

Scientific Research
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Participation in physical activities is an important component of health behavior. A recent study (Waung & Su, 2012) examined patterns of activity participation among children with Down syndrome (DS) in Taiwan, but similar patterns have not been examined in the United States. **PURPOSE:** The purpose of this study was to describe the diversity and intensity of participation in activities by youth with DS. **METHODS:** Participants included 59 youth with DS ($M_{age}=12.21$; 54% female). We measured demographic variables including IQ (WASI) score ($M=58.48$, $SD=4.53$), height (135.14cm, 11.97), weight ($M=41.68$ kg, 15.39), BMI ($M=22.18$, 5.47) and body fat percentage (Slaughter et al., 1988; $M_{DS}=28.77\%$, 10.27%). Participants were also monitored for seven days with Actical accelerometry (Phillips Respironics) to measure moderate to vigorous physical activity (MVPA). To determine the number of activities in which youth participate (diversity) and the frequency of participation (intensity), parents (with child assistance) completed the Children's Assessment of Participation and Enjoyment (CAPE; King et al., 2004). Statistical analyses for the CAPE included descriptive statistics of diversity and intensity of activities and Pearson product-moment correlations with demographic variables. **RESULTS:** Youth with DS participated in an average of 28.31 (7.32) activities during the previous four months with an average intensity of 3.24 (0.79) indicating average participation of once per month. The five activities with highest percentage of participation were watching TV or movies (100%), pretend or imaginary play (96.6%), doing a chore (96.4%), listening to music (96.4%), and playing with toys (94.9%). Intensities reported for all five items indicate participation more than one time each week. Among physical activities, the five with highest participation were swimming (94.7%), walking or hiking (91.4%), playing on equipment (86.2%), dancing (81%) and doing individual physical activities (63.8%). However, intensity of participation for physical activities, except swimming and playing on equipment, were all reported as less than once per week. Activity diversity was significantly associated with IQ ($r=.31$, $p>.05$) and participation intensity was associated with MVPA ($r=.29$, $p>.05$). **CONCLUSIONS:** Youth with DS participate in predominately sedentary behaviors. Television viewing was the most common activity reported. The most common physical activities were swimming and walking. Large percentages of youth with DS participate in a variety of physical activities, but the frequency of participation is sparse. Future research should address interventions to promote frequency of participation in activities believed to promote health outcomes. Measuring health related outcomes must be a priority along with improving functioning.

Promoting Fitness and Health for Individuals with Disabilities: Resources for Professionals, Family Caregivers and Consumers

Practical Application
P20

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The collaborative health care team of an individual with disabilities includes family caregivers, clinicians, and health and fitness professionals. Individuals with disabilities may find it difficult to find reliable online physical activity and health information. This presentation will emphasize guidelines for adapted physical education and activity (NASPE Standards and Adapted Physical Education National Standards), and trustworthy resources and activities for occupational and rehabilitation professionals. The aim is to facilitate physical activity and enhance health knowledge among family caregivers and consumers with disabilities. Topics that will be discussed include: importance of fitness and health education for everyone; overcoming barriers to sport and exercise; adapted physical activity programs; accessible web site design principles; finding trustworthy and current health information according to Version 2.0 of international Web Content Accessibility Guidelines (Utah State University, 2010); consumer advocacy skills for health and wellness; and finding resources to manage disabilities and chronic illnesses. Presenters will share a checklist for use by consumers and professionals to determine web site accessibility based on four principles (Perceivable, Operable, Understandable, Robust); and illustrate use of the checklist with sample web sites, e.g. <http://www.ncpad.org/>; <http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html>; and <http://nihseniorhealth.gov/stories/stories.html>



Wheelchair Tennis: Starting a Program in Your Community

Practical Application
P21

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Wheelchair tennis is one of the fastest growing wheelchair sports in the world for individuals with lower body disabilities. Examples of disabilities that meet the criteria include amputation, paralysis, and limb shortening that interferes with functioning. A quadriplegic player is one who meets the criteria for permanent physical disability in at least three extremities. Wheelchair tennis integrates easily with the able-bodied game since it can be played on regular tennis courts, with regular balls and rackets; the only rule change is that wheelchair tennis players are allowed two bounces of the ball. Wheelchair tennis provides individuals with disabilities the opportunity to share in activities with their peers and family, since it can be played with able bodied individuals. The purpose of this presentation is to increase awareness about wheelchair tennis, so that adapted physical activity educators will learn about programming, teaching, and promoting the sport of wheelchair tennis. Topics include: history; health benefits; disabilities and the impact of play; recreational and competitive divisions; United States Tennis Association (USTA) program components (e.g QuickStart, Collegiate Tennis); training and tournaments; and resources.

Adapted Dance: Findings from a Dance Program for Individuals with Down Syndrome

Scientific Research
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Individuals with Down syndrome often experience low levels of physical activity and social participation, which leads to a lower quality of life. Physical activity for individuals with Down syndrome can take many forms but, those involving dance can positively influence both activity levels and social participation. **PURPOSE:** The primary purpose of this study was to explore the lived-experience of participation in an adapted dance program for individuals with Down syndrome as perceived by dancers, family members, and student-volunteers. A secondary purpose was to assess pre and post balance using the BERG balance test. **METHODS:** Twenty dance participants, age 12-30, participated in a 6-week adapted dance program. When the program was completed, dancers and family members participated in an unstructured interview or a small focus group. Student-volunteers completed a pre and post self-efficacy survey and/or wrote journal reflections. The BERG balance test was administered to participants both before and after the program. **RESULTS:** A total of 20 dance participants, 22 family members, and 16 volunteers participated in this study. Interpretive phenomenological analysis of interviews, focus groups, and journal reflections revealed several positive outcomes related to participation in the dance program. Five specific themes related to physical activity and social participation emerged from dancer/family member interviews and volunteer journal reflections: 1) development of new relationships, 2) increased physical activity, 3) increased confidence, independence, and ownership, 4) high motivation to attend dance compared to other physical activities, and 5) increased coordination/rhythmic acuity. Statistical analysis using a paired T-test for the Berg balance tests showed a significant improvement in balance ($p<.05$) with an effect size of .9675. Student-volunteer surveys indicated that self-efficacy may increase ($p<.05$) in working with individuals with Down syndrome as well as other diverse populations such as cardiac rehabilitation, children, and high risk individuals. **CONCLUSIONS:** The results of this study seem to indicate that adapted dance may be uniquely associated with activity adherence that is not otherwise seen in other physical activity programs. It seems that participants associated activity with positive social feelings, which suggest that this kind of programming may elicit exercise adherence not associated with behavior modification. Further studies should be conducted to examine if such findings can be replicated.



Traumatic Brain Injury and Obesity: What We Don't Know

Scientific Research
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PURPOSE: Traumatic brain injury (TBI) and obesity are significant health concerns in the US. Although obesity rates are higher in persons with disabilities than in the general population, little study has been given to the co-occurrence of obesity and TBI. This abstract will explore the occurrence of obesity in a sample of adults with TBI in Alabama over a ten year period. **METHODS:** The University of Alabama at Birmingham Traumatic Brain Injury Model System is one of 16 national Traumatic Brain Injury Model Systems. TBIMS tracks persons with TBI over time to better understand long-term outcomes after head injury. Data are collected at admission, and on a one, two, five and ten year basis using an array of standardized measures. For this abstract, data from the one and two year Alabama follow up are described using BMI data, CDC weight categories, and scores on walking and stair ascent questions from the Functional Independence Measure (FIM) to indicate mobility status. **RESULTS:** Data from 151 persons with TBI (114 males) were analyzed. Seventy-five per cent of the sample was male; 69% were Caucasian. Almost 50% were age 30 and younger. At one year post TBI, 28.8% were overweight and 21.9% were obese. By year two, the overweight percentage was 31% and the obese category increased to 23.8%. Mean FIM walking rank at one and two years respectively was 4.03 and 6.4 (Scale 1-7, higher ranks indicate greater independence) and stair ascent ranks were 2.78 and 5.94. Spearman correlations between the Satisfaction with Life Scale and obesity categories at one year ($r_s = -.182, p = .036$) and two years ($r_s = -.195, p = .025$) suggest life satisfaction decreases as weight increases. **CONCLUSIONS:** As participants in this sample became more physically able after TBI, weight gain continued. Findings suggest that further exploration of obesity in adults with TBI is necessary to develop an understanding of the scope and contributing factors to the problem (sedentary lifestyle, dietary factors, meta-cognitive factors, and medications) in order to develop successful interventions which include adapted physical activity and nutrition elements.

The Effects of Adapted Aquatics on Aquatics Skills in Children with Autism

Scientific Research
P24

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PURPOSE: The purpose of the study was to assess the effects of an adapted aquatics program on the acquisition of aquatic skills in children with autism. **METHODS:** Fifteen children, aged 4-15 years participated in a ten week adapted aquatics program. Each child was paired one on one with an undergraduate student who served as the instructor during the swimming sessions. The primary author, and certified American Red Cross Water Safety Instructor conducted both the pre and post-tests using the American Red Cross Swimming levels one through six (American Red Cross, 2005). Each week the child's assigned student instructor would create a swim lesson plan designed to improve aquatic skills and move the child up from one swimming level to another. The American Red Cross Swimming Levels (American Red Cross, 2005) demonstrate a logical validity and progression from basic skills, level 1, to more advanced skills, level 6. No research on the concurrent validity of the American Red Cross Swimming Levels with another tool was available. The skills assessed included: water entry and exit, breath control, buoyancy, changing direction and position, treading and swimming on the front, back and the side. Progression was measured via the aquatic skills checklists, and the exit skill requirements for each level. Pilot tests were conducted prior to the ten week study to assess intra-rater and inter-rater reliability. Five children were assessed on two occasions, one week apart, for the 27 individual skills within level one of the American Red Cross Swimming Levels. Using a Pearson Product Moment correlation, the overall co-efficient for the secondary researcher was $r = 0.8$. The results of the inter-rater reliability test showed that the overall correlation, between the investigator and an expert in aquatics, was strong ($r = .87$). The expert in the field of aquatics was a water safety instructor trainer certified by the American Red Cross. **RESULTS:** Two swimming skills were found to have statistically significant improvement in the fifteen children; 1) kicking on the back with simultaneous legs and 2) exiting the pool using the ladder or side of pool. In addition, each child learned an average of 4.4 new skills throughout the course of the program. **CONCLUSIONS:** It was concluded that participation in the ten week adapted aquatics program increased the aquatic skills of fifteen children with autism. Future research should focus on the measurement of aquatic skill development and the rate in which children with autism progress.



Sport for Peace: A Successful Curriculum Model for Children on the Spectrum?

Practical Application
P25

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Given the prevalence of the autism spectrum disorders (ASD) and the many characteristics associated with disorder (<http://www.cdc.gov/ncbddd/autism/index.html>), physical educators who teach students with ASD must make many considerations when planning their class's curriculum to meet the learning needs of all students. The purpose of this session is to discuss the theoretical implications of implementing Sport for Peace as a curriculum model that benefits all students, with particular focus on students with ASD. Sport for Peace (Ennis, 1999) is an extension of Sport Education (Siedentop, 1994). In Sport Education, the emphasis is removed from winning and losing, and placed on appreciating the sport including all of the roles and responsibilities that are involved with being a member of a sports team. This is accomplished by creating a sport season experience within each physical activity unit. Sport for Peace provides additional dimensions to the sport education model including teaching conflict resolution, and fostering respect and appreciation of peers in a caring environment. The researchers propose Sport for Peace as a more effective alternative to the multi-activity curriculum typically used in schools, because it naturally addresses the needs of students with ASD. Some of the more specific advantages of the model are (a) extended periods of time in units decreasing transitions and encouraging relationships to develop, (b) an explicit routine for each unit, (c) assigned roles and responsibilities that match student's personal strengths and have detailed explanations of social expectations, (d) tangible reinforcements, (e) focus on developing social skills in a caring, safe environment, and (f) a realistic sport experience encouraging generalization of skills. The other students in the class may also benefit from implementation of Sport for Peace because the sense of family and the context of care, that has been shown in previous research, may breakdown existing barriers to inclusion and social acceptance of all students (Azzarito & Ennis, 2003; Knop, Tannehill, & O'Sullivan, 2001; Tischler & McCaughtry, 2011). While the Sport for Peace model has great potential, there will be some challenges associated with this model for children with ASD including difficulties (a) interacting with peers due to challenges with communication skills, (b) demonstrating empathy appropriately, and (c) demonstrating social skills needed to develop relationships. Fostering genuine feelings of acceptance on the part of all students may also be difficult. These challenges will be discussed along with possible accommodations to help address the specific needs of students with ASD.

Cross Cultural Perspectives on Adapted Physical Education Teacher Standards

Practical Application
P26

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This presentation will discuss similarities and differences regarding Adapted Physical Education teacher education standards in the United States, Europe, and Japan. Until recently, teacher education standards that address the professional development/training needs of physical educators to work with children with disabilities on a global level had not been established. The emergence of teacher education standards (US, Europe, and Japan) that address the requirements of students with disabilities provide a platform to discuss cross cultural perspectives regarding students with disabilities and the specific knowledge teachers must know to address their needs. A comparative content analysis (Krippendorf, 2004) was conducted to describe and make inferences about the characteristics of communications and knowledge statements regarding standards written to address the needs of teaching children with disabilities in Physical Education. Preliminary findings suggest strong connections between subject areas and sub-disciplines that support a universal concept of training needs regarding children with disabilities. Program leaders, teacher educators, and practitioners can utilize this information when developing course content and training opportunities for students when addressing the needs of children with disabilities in Physical Education settings.



Challenging Expectations: Using Disability Studies Infusion to Enhance Disability Awareness and Attitudes Scientific Research P27

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PURPOSE: The purpose of this study was to determine the impact of infusing disability studies into general education curriculum on the awareness and attitude toward individuals with disabilities. **METHODS:** Fourteen general education courses and 792 students participated in this study. Seven courses were assigned to the “experimental” group ($n = 326$ students) and seven to the “control” group ($n = 466$ students). All students completed a survey that consisted of questions related to their academics, demographics, disability experience and the Attitudes toward Disabled Persons (ATDP) scale at the beginning and end of the semester. In addition, the EG experienced a 75-minute presentation related to Disability Studies and completed the survey one week later. **RESULTS:** Several themes were identified and results were categorized based on: 1) attitudes toward associating with persons with disabilities, 2) demeanor of persons with disabilities, 3) assumption of lives of persons with disabilities, 4) view of acquired disabilities, and 5) empathy toward persons with disabilities. The results were presented as the mean score for each group as indicated below: **CONCLUSIONS:** The results indicated that infusing disability studies topics had an immediate and long term impact on awareness and attitudes toward persons with disabilities. The EG demonstrated a more positive attitude and empathy toward persons with disabilities both immediately after the infusion session and at the end of the semester. The CG had a slightly less positive attitude and empathy at the beginning and end of the semester. The EG demonstrated a less disagreeable response regarding the demeanor of persons with disabilities and their ability to live “normal” lives, while the CG demonstrated a more disagreeable response. Finally, the EG demonstrated a greater level of disagreement of an acquired disability being personally devastating compared to the CG who indicated a greater level of agreement. In conclusion, infusing disability studies into general education curriculum can challenge expectations and lead to positive changes in participants’ awareness and attitudes toward persons with disabilities.

Effects of Two Reinforcers on Performance of PACER Test for Children with Intellectual Disabilities Scientific Research P28

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The fidelity of data collected during performance assessment must represent the student’s best efforts and the focal point of the assessment process. Numerous professionals in the field of adapted/general physical education have recommended the use of reinforcers, when needed, for students with disabilities, during physical fitness assessments (Jansma & French, 1994; Sayers-Meneer, Sims, & Phillips, 2007). It is clear that the fidelity of the data collected when an evaluation is being conducted is a major concern of both adapted and general physical educators related to the placement and programming process. **PURPOSE:** The purpose of this investigation was to determine if the test administration methods (i.e., PACER beeps with co-actor; and PACER beeps with verbal encouragement) in the PACER Test of the FITNESSGRAM influence the performance scores of children and youth with intellectual disabilities. **METHODS:** Participants were 13 youth (female =7, male = 6; CA = 10 - 16 years) with mild to moderate intellectual disabilities (IQ 37-73). Each participant was administered the PACER test from the FITNESSGRAM using random assignment methods: (a) beeps only as baseline; (b) beeps plus co-actor; and (c) beeps plus verbal encouragement. Log transformation was performed prior to the data analysis. Repeated measure analysis of covariance (ANCOVA) was used with the SPSS 19.0 with a significant level at .05. The independent variable was the test administration method with two conditions (i.e., beeps plus co-actor and beeps plus verbal encouragement; the dependent variables being the score on the PACER test (i.e., number of laps). The score from the baseline condition of the ‘PACER beeps only’ was treated as a covariate. **RESULTS:** Based on the data analyses, the participants with intellectual disabilities who received verbal encouragement showed significantly higher performance than those who received the co-actor treatment when the covariate was controlled. These findings did support the suggestions of numerous experts who have stated that verbal encouragement may positively impact performance (Parson, 2001; Winnick & Short, 1999). **CONCLUSIONS:** With the limitations of this pilot investigation (i.e., small sample size, and heterogeneous group), in adapted and/or general physical education, it is important to note that verbal encouragement should be provided children with intellectual disabilities to yield a more representative assessment of their cardiorespiratory performance during PACER test.



Asian Parents' Perspectives toward Adapted Physical Education

Scientific Research
P29

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There has been a steady increase in the number of Asians living in the United States, and currently there are about 14.4 million Asian in the U.S. (U.S. Census Bureau, 2011). As the Asian population in the US has increased there has been a concomitant increase in the numbers of Asian students with disabilities entering public school classroom. This increase requires administrators and educators, including adapted physical educators, to understand and provide culturally appropriate instruction and programming to these students. One way to better understand the cultural background and needs of Asian families with regards to adapted physical education is to talk directly to Asian parents who have children with disabilities. **PURPOSE:** The purpose was to gain understanding of the expectations of Asian parents of children with disabilities toward adapted physical education. **METHODS:** Participants (N=5) were two fathers and three mothers of child with disabilities who received adapted physical education services in a local school district. Each parent participated in one hour one-on-one interviews. Additionally, a focus group interview was conducted with three mothers. Both interviews were conducted in their preferred language. **RESULTS:** Transcripts were analyzed through a phenomenological method. Four themes emerged from data: (a) APE could provide a chance to challenge oneself to overcome disabilities, (b) There are differences in perspectives on the importance of APE between mothers and fathers; mothers answered APE is important as much as academic subjects to participate in community physical activities, and fathers took APE as recess or developing social skills, (c) Parents concerns over children's respect for APE teachers and peers, and (d) ideology of purpose of APE; means of achieving fundamental goals over their children's life. **CONCLUSIONS:** Results indicated that Asian parents in the study were familiar with what APE is, and parents wanted to communicate with APE teachers to improve their child's fundamental skills of physical education. They also believed that communications between parents and teachers would be critical for transition from school base APE to community physical activities.

The Effects of External Routine on the Backhand Service Performance among Intellectual Disability Badminton Players

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Scientific Research
P30

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Many research studies have been conducted on effects of mental training on athletes' performances. Performance routine training is one of psychological training skills that can enhance athletes' performance and attention stabilities (Kim, 2005). **PURPOSE:** This study investigated the effects of external routine techniques of the badminton backhand service on performance enhancements among intellectual disability (ID) badminton players. **METHODS:** The three-stage badminton backhand serve routine was developed. To develop a serve routine, semi-structured interviews with open-survey were conducted with three badminton experts, including coaches and referees. Participants were three high school badminton players (1 female and 2 males) with ID, who had less than 2 years of experience. An A-B-A-B single subject research design was conducted across three participants to evaluate the accuracy of backhand serve and the effects of external routine for 7 weeks. The sessions consisted of 3 first-baselines (A), 12 interventions (B), 3 second-baselines (A), 18 interventions (B), and 9 follow-ups. One day break was given between each session. Participants performed 6 backhand serves during a session. **RESULTS AND CONCLUSIONS:** The analyses of the curve plots of the data resulted in the following conclusions. First, external routine techniques were very effective for psychological training and performance enhancement for badminton players with ID. Second, results showed that improvement on psychological stability, attention level, and self-confidence of all three participants with ID. Third, external routine techniques have positive effects on serving accuracy and overall badminton performances.

**Evidence-Based Practice: A Quality Indicator Analysis of Peer-Tutoring in Adapted Physical Education**Scientific Research
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Adapted physical activity researchers (e.g., Bouffard & Reid, 2012) recommended using scientific evidence to support program decisions; this is referred to as “evidence-based practice” (EBP). In 2003, the Council for Exceptional Children’s Division for Research established a task force to assess the quality of individual studies in special education and identify effective practices. In the 2005 special issue of *Exceptional Children* (Odom et al., 2005), the task force identified research methodologies used in special education. For each methodology, indicators of research quality were presented to serve as standards for determining the strength of specific studies; higher indicator presence assumes increased strength for the assertion that the practice is evidence-based. **PURPOSE:** The purpose of the research was to conduct a quality indicator analysis of studies investigating peer tutoring for students with a disability in physical education. **METHODS:** An electronic search was conducted among English language journals published from 1980 to October 2010. Databases included ERIC, PsycINFO, Health & Psychosocial Instruments, Current Contents/ All Editions, and SPORTDiscus. Fifteen research studies employing group-experimental (Gersten, Fuchs, Compton, Coyne, Greenwood, & Innocenti, 2005) or single-subject designs (Carr, Halle, McGee, Odom, & Wolery, 2005) met inclusion criteria. Each study was assessed for the presence and clarity of quality indicators. **RESULTS:** Group designs met an average of 62.5% essential and 69% desirable indicators. An average of 80% of indicators were present for single-subject designs. **CONCLUSIONS:** Results suggest claims of peer-tutoring being an evidence-based practice might be premature. Recommendations for clarifying and applying the quality indicators are offered.

University Students’ Experiences During Adapted Physical Education Class and Level of Using Family-Provided Information

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Scientific Research
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The physical education teacher education (PETE) programs vary widely. In Turkey, adapted physical education (APE) course is compulsory in PETE programs but content is flexible. **PURPOSE:** In this study, student-teachers’ class experiences with individuals with disabilities and the level of using family-provided information are investigated. **METHODS:** Class requirements for this APE class were: (a) 3 class hours/week. (b) First 7 weeks is theory including 2 school visits and 2 movie assignments (c) 7 weeks of practice with students who have mild to moderate intellectual disabilities (N=20). Students who take this APE class read the parent-filled questionnaires, conduct interview with the APE teacher of participants, assess social skills and emotional development, body awareness, balance, locomotor skills, object control. They also conduct TGMD II before and after the program. They write lesson plans, a student-progress report and finally, a class evaluation. Data includes emerged themes and quantitative analysis of these documents (e.g. frequency count for certain words). **RESULTS:** Findings show that most students used family-provided information and tried to write their lesson plans accordingly. According to some of the progress reports, parent-reported challenging behavior was not observed. For instance, 12 parents indicated anger problems but student-teachers did not report anger, aggressiveness or temper tantrums. No significant improvements in motor skills were reported. All students except one used the family-provided information in the lesson plans. **CONCLUSIONS:** Non-existence of some parent-reported challenging behavior supports the notion that positive physical activity experience may help reducing problem behaviors. These findings are supported by an interview conducted with their APE teacher. Lack of motor improvement is understandable since the actual activity period was 5 weeks (1 class hour/week). Yet, the purpose of this program was to introduce student-teachers with individuals who have disabilities. Majority of student-teachers (about 85%) shared positive thoughts about this experience and recommended more practice time for future students. 3rd year PETE students take this course. In the same university, students specializing in APE take 2 more classes in their senior year. Moreover, they participate in a project that involves services for individuals with disabilities as part of a compulsory ‘public-service’ course. Finally, practicum in an inclusive or special education school is optional for 2 semester. Such experiences provide additional experience for APE specialty track.



The Analysis of Problems of Korean Inclusive Physical Education System

Scientific Research
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Implementation of an efficient and systematic organization is essential to providing a high quality inclusive physical education.

PURPOSE: The purpose of this study was to analyze the problems of the inclusive physical education system in Republic of Korea and thereby offer an insight into developing an effective inclusive physical education program. **METHODS:** To achieve this purpose, literature review and the internet search were first conducted to determine the factors of an inclusive physical education system. Based on this information, intensive interviews and observations were conducted on the following teachers that work in general high schools in Gyeonggi Province in Republic of Korea: three in inclusive physical education, two in special education, and one in adapted physical education. The collected information was analyzed in three steps: transfer all information, coding, and finding the problems. To ensure the validity and trustworthiness of this study, we conducted triangulation, member check and professional conference. **RESULTS:** First, the inclusive physical education system in Republic of Korea bifurcate the department that manages the teachers, and the supporting administrative department. Second, the current educational programs in Republic of Korea are inadequate to train inclusive physical education teachers. Third, a collaborative teaching system is not in place. Finally, there is inadequate legal accountability of the teachers. **CONCLUSIONS:** Changes in the current operating system and implementation of legal accountability to teachers are necessary to operate an effective inclusive physical education. First, the current separate departments for inclusive physical education and special education should be unified to increase efficiency. Second, universities and colleges should support more disability-related courses in physical education teacher training programs to train experts in this field. Third, a system of collaboration among teachers should be placed to encourage interactive sharing of information. Fourth, teacher accountability should be established through mandatory training for teachers, incentive structure and strengthening of Individualized Education Plan.

Determination of Contributing Factors and the Priority for the Successful Inclusive Physical Education

Scientific Research
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Many organic factors must be satisfied to establish and implement an effective inclusive physical education program. However, it is difficult to concurrently satisfy all the conditions, so these factors should be prioritized and satisfied accordingly. **PURPOSE:** The purpose of this study was to deduct relevant factors in operating an effective inclusive physical education system, and to determine the priorities of these factors in implementing them. **METHODS:** To determine the factors that contribute to an effective inclusive physical education, we used the Delphi technique, professional conference, and the Analytical Hierarchy Process (AHP). One hundred fifty three physical education teachers with prior experience in teaching inclusive physical education participated in the Delphi panel. First professional conference included six inclusive physical education teachers. The following second conference included: three Ph.D. experts and three doctoral candidates in adapted physical education. AHP was conducted through twenty five experts in adapted physical education, including three professors, three Ph.D. experts, three doctoral candidates, fifteen inclusive physical education teachers and an officer in the organization for physical activity for the disabled. **RESULTS:** The following five high level factors for an effective inclusive physical education were determined and prioritized in descending order: professional development in expertise (40.1%), more supports on inclusive physical education (21.0%), developing positive attitude toward students with disabilities (16.7%), developing task based program with specific focuses (14.1%), organizing peer support groups (8.2%). Furthermore, twenty three low level factors were determined and prioritized in descending order: establishing inclusive physical education as an independent major at universities and colleges (13.5%), conducting mandatory workshop for the teachers (10.9%), establishing governmental certificate program in the related field (10.7%), developing manual for an inclusive physical education program (7.8%), recruiting professional assistant teachers (7.1%), others. **CONCLUSIONS:** The importance of teacher professionalism cannot be overemphasized. The quality of education cannot surpass the quality of the teachers. Successful support for inclusive physical education is mandatory for the class, and a positive attitude toward inclusive physical education are mandatory. In addition, activities should be presented in to account for the different level of motor skills between students with and without disabilities. Finally, the use of peer tutoring which would benefit both students with and without disabilities is required.



Teaching Students with Disabilities in Physical Education Class - A 10 Year Perspective

Scientific Research
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PURPOSE: General physical education teachers are facing more and more challenges on how to teach and include all students in their instructional activities. Students with disabilities receive physical education instruction in a variety of settings and from physical education teachers with a variety of training. While much anecdotal information is available, little empirical data has been collected to determine the status of teaching physical education to students with disabilities. To determine the current status of teaching physical education to students with disabilities in the states of Kentucky, Ohio, and Indiana a survey was developed and completed by general physical education (GPE) teachers (those teaching students in regular physical education classes). The survey was first completed in the spring of 2001 and then again ten years later. **GOALS:** 1) Determine the current status and perceptions of physical educators teaching students with disabilities in GPE classes. 2) Determine what, if any, differences exist between the results of the two surveys. **METHODS:** The original survey was mailed to 200 randomly chosen GPE teachers throughout Kentucky, Ohio, and Indiana. The follow-up survey 10 years later was again sent to 200 teachers in each state, but was completed through an online survey. In both surveys, follow-up phone calls were made to teachers that received the survey but had not returned it. The data from each survey was analyzed to determine the existing conditions of teaching students with disabilities in GPE, and what similarities or differences existed between the results of the two surveys. Similar results indicated practices and perceptions that had changed little over the decade; dissimilar results indicated practices and perceptions that had changed. **RESULTS:** Results that were similar included the following: ~25% of GPE teachers received no help/support in the gymnasium, most GPE teachers have completed a university course in adapted physical education, ~50% of GPE teachers did not participate in the IEP process, and most GPE teachers had no money in their budget to buy specialized equipment. Results that were different included: More students with disabilities are included in GPE classes, fewer paraprofessionals provide instructional support in GPE classes, and less professional development about students with disabilities is provided by school districts. **CONCLUSIONS:** More collaboration with special education teachers, e.g. IEP meetings; behavior management issues; paraprofessionals, advocacy with school administration, e.g. professional development; equipment, and development of a more inclusive physical education curriculum are needed.

Sources of Knowledge of Russian Adapted Physical Education Students

Scientific Research
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The preparation of professionals in adapted physical education is relatively new in Russia since the profession did not exist during Soviet times. **PURPOSE:** Given the relative newness of the adapted physical education as a field of study in Russia, the purpose of this investigation was to examine what knowledge sources Russian adapted pre-service physical education teachers perceive helpful. Shulman's (1987) theoretical framework on teacher's knowledge and sources of teacher's knowledge guided the study. **METHODS:** Twenty four students (13 men and 11 women, M = 20.5 years) participated in the study. The participants were a cohort of adapted physical education students completing their fourth year of study at a mid-major university located in central Russia. The university instituted the adapted physical education major in 2002. The following data sources informed the study: semi-structured group interviews, content analysis of curriculum, stimulated recall interviews, and Q-sort rankings. All students were interviewed in small groups (2-3 per group), with each interview lasting about 90 minutes. Next time, students were asked to sort and rank eleven different knowledge sources for teachers (Shulman, 1987) then interviewed again and asked to explain their rank orderings. The analysis of qualitative data was performed using thematic coding to identify common themes (Denzin & Lincoln, 2003). Using data sources within and across contexts facilitated data triangulation during analysis. Q-sort rankings were calculated. **RESULTS:** The identified themes were 1) Lack of appropriate resources, 2) Deficiencies in learning from other teachers, and 3) Incongruence between coursework and main sources of knowledge. Teaching experience and student teaching were the top sources of knowledge identified by Q-sorting. **CONCLUSIONS:** The results of the study indicated that courses of study for adapted physical educators included a number of specialized courses that reflected strong medical foci. However, similar to previous research in the United States (Harding, 2005), Russian students identified teaching experience as their main source of knowledge. A stronger emphasis on pedagogical content knowledge during university's adapted physical education program is recommended.



Hungarian vs. U.S. Pre-Service Physical Educators' Self-Efficacy towards Including Children with Disabilities in General Physical Education

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Scientific Research
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PURPOSE: Compare Hungarian v US pre-service physical educators' self-efficacy beliefs towards including children with disabilities into general physical education. **METHODS:** Fifty physical education majors who were in their last year of school at the Semmelweis University in Hungary, and 44 physical education majors from three colleges/universities in Virginia, USA, were given the questionnaire: "Situational-Specific Self-Efficacy and Inclusion Students with Disabilities in Physical Education" (Block, Hutzler, & Klavina, 2012). The SSSE instrument consists of four parts: (1) description of a child with an intellectual disability (ID) followed by 11 questions, (2) description of a child with a physical disability (PD) followed by 12 questions, (3) description of a child with a visual disability (VD) followed by 10 questions, and (4) demographic questions. The 1-5 scale scores examined self-efficacy including students with PD, VD, and ID along with the average score for fitness modifications, skill modifications, and game modification across disabilities. The survey was translated from English to Hungarian following the seven steps described by Banville, et al. (2000).

RESULTS: US students showed significantly higher SE compared to Hungarian students in SE for questions specific to disability type: (ID - Hungary M=3.38, US M=3.77; t-test= 3.599 p=.001), for (PD - Hungary M=3.42, US M=4.037; t-test=5.237 p=.000) and (VD - Hungary M=3.38, US M=3.78; t-test=2.877 p=.005). Results also showed US students had significantly higher SE when questions focused on fitness modifications (Hungary M=3.44; US M=3.88; t=4.082, p=.000), skill modifications (M=3.40; US 3. 86; t=4.139, p=.000), and game modifications (Hungary M=3.34 US M=3.87; t=4.124, p=.000). One important demographic question focused on sport and physical education accessibility based on pre-service physical educators' experience relating to the ID, PD and VD populations. For ID 7% of US students responded not at all accessible, for PD 7% responded not at all accessible, and for VD 27% responded not at all accessible. In contrast, 20% of Hungarian students responded not at all accessible for ID, 80% responded not at all accessible for PD, and 50% responded not at all accessible for VD. Responses may reflect accessibility problems to meet individual needs of children especially with PD and VD in Hungary. **CONCLUSIONS:** Results show in this relatively small sample that US PETE students have significantly higher SE when it comes to including students with disabilities in general physical education compared to Hungarian students. Results will be discussed in terms of teacher preparation training in the US v. Hungary.

Development and Validation of the Physical Education Teachers' Attitude toward Teaching Students With Intellectual Disabilities Scale (PETATSID)

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One of the most important factors contributing to successful physical education programs is the attitude of physical educators toward teaching students with disabilities (Stewart, 1988; Tripp & Shenill, 1991). **PURPOSE:** The purpose of the current study was to develop a valid and reliable a scale in order to provide a Turkish method to measure PE teachers' attitude toward students with disabilities. Specifically, this study will: (a) examine the validity (b) provide internal consistency and reliability, (c) measure the construct validity. **METHODS:** Data were gathered by a survey method. **PARTICIPANTS:** Participants were physical education majors (N = 563) enrolled in teacher training program at four different universities in Turkey. Two hundred twenty (39.08%) were women and three hundred thirty three (60.92%) were men. **MATERIAL:** The first step in the development of the attitude scale was to gather a large pool of belief and/or intention statements. This was achieved by interviewing fifteen PE teachers in the regular primary schools. Following this we created a 27- item- scale with a 5-point Likert Scale (i.e., 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree) comprising of 14 positive and 13 negative items to measure PE teacher's attitude toward students with intellectual disability. **RESULTS:** Instrument internal structure was established through factor analysis and measurement of factor internal consistency. Using the .40 cut-off point for excluding items not permitting reasonable interpretation (Tabachnick & Fidell, 2007) in any factor, 6 items were excluded, and the analysis was based on 21 items, of which 12 items were positively and 9 items negatively phrased. Factor analysis revealed one total attitude scores and five factors in the attitude instrument. Construct validity was obtained through principal components analysis with oblique rotation and supported by principal components analysis with varimax rotation. Factor analysis found five factors accounting for 62,5% of variance. Results showed that attitude scale measures five factors: (a) benefits (Cronbach's $\alpha = .916$), (b) feelings (Cronbach's $\alpha = .711$) (c) supports (Cronbach's $\alpha = .511$) (d) acceptance (Cronbach's $\alpha = .667$), (e) fears Cronbach's $\alpha = .501$). Reliability, as estimated through coefficient alpha, was .859 for the total scale. **CONCLUSIONS:** The PETATSID appears to be a valid and reliable instrument for the measurement of preservice PE teachers' and in-service PE teachers' attitude toward students with ID.



Exploring Pre-Service Physical Educators' Self-Efficacy Beliefs toward Inclusion

Scientific Research
P39

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Pre-service physical educators come into their training program with perceptions of skills and abilities necessary for a specific occupation, also called a subjective warrant (Dewar & Lawson, 1984). Pre-service teachers, therefore, may enter PETE programs with pre-established beliefs regarding teaching, including self-efficacy beliefs in their abilities to successfully include students with disabilities, before acquiring direct experience or knowledge on the subject (Hodge & Jansma, 2000; Kudláček, Válková, Sherrill, Myers, & French, 2002). **PURPOSE:** The purpose of this study was to examine the self-efficacy beliefs of pre-service physical educators toward inclusion and the factors associated with those beliefs. **METHODS:** Forty-eight pre-service physical educators (n=35 males, n=12 females) enrolled in an adapted physical education course at a university were surveyed in the first week of the course. The Situational Specific Self Efficacy and Inclusion of Students with Disabilities in Physical Education (Block et al., 2010) and the Physical Educators' Self-efficacy Toward Including Students with Disabilities – Autism (Taliaferro et al., 2010) instruments were administered to gather information regarding participants' self-efficacy beliefs toward the inclusion of students with visual impairments (VI), physical disabilities (PD), intellectual disabilities (ID), and autism. **RESULTS:** Results indicated that pre-service teachers' self-efficacy beliefs were significantly positively correlated among all disability subscales ($p < .001$). Self-efficacy toward VI was found to be significantly negatively correlated with having a family member with a disability (Spearman's $\rho = -.299$, $p = .044$). While not significant, results indicated negative relationships between self-efficacy beliefs and the factors of having a family member with a disability and having prior APE coursework across disability types. Tasks in which participants reported the highest levels of self-efficacy included making the environment safe during games (PD; $r = .76$) and during sport skills (VI; $M = 3.89$, $SD = .93$), and collaborating effectively with others (autism; $M = 8.02$, $SD = 1.61$). **CONCLUSIONS:** Pre-service physical educators in this study reported fairly positive levels of self-efficacy in regard to their abilities to include students across disability types. It appears that pre-service physical educators' self-efficacy beliefs toward inclusion are inversely related to having previous coursework and exposure to individuals with disabilities. In agreement with Self-efficacy theory (Bandura, 1997), it can be speculated that pre-service physical educators may initially overestimate their self-efficacy beliefs when lacking familiarity with a task, and may form more realistic reappraisals of their abilities as experience and knowledge are obtained.

Kindergarten Children's Fundamental Motor Skills: Associations with Prematurity and Disability

Scientific Research
P40

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Premature birth is often associated with impaired health and functioning, especially during infancy. However, the extent to which early motor delays persist to school age has received little attention. **PURPOSE:** Given the importance of fundamental motor skill proficiency for children's participation in games, sports, and physical activity; our aim was to examine the fundamental motor skills of children born prematurely and full term in their first year of school (kindergarten). The interaction between prematurity and disability was also investigated. **METHODS:** Principals of eight schools in one school district in western Canada agreed to the inclusion of their school in this study. All children in kindergarten were invited to participate. The final sample was 260 children (boys = 52%); which represented 78% of the kindergarten children enrolled in these eight schools. Thirty-four children were born prematurely and 12 children lived with a disabling condition; 4 of those 12 were born prematurely. Digital video was used to record the children performing six locomotor skills (run, jump, hop, slide, gallop, and leap) and six object control skills (throw, roll, kick, strike, catch, and bounce) of the Test of Gross Motor Development – 2 (TGMD-2), plus a zigzag running pattern (dodge) during physical education lessons. Children were also timed while performing a stork stand (left and right foot). Parents indicated on a survey whether their child lived with a disabling condition and whether their child was born prematurely. Weeks of prematurity and details of the disabling condition were also noted. **RESULTS:** The motor skill proficiency of all children was quite low; with mean TGMD-2 percentile scores ranging between the 3rd and 18th percentile for object control skills and the 2nd and 21st percentile for locomotor skills. A multivariate analysis of covariance (MANCOVA) with disability (dichotomous) and prematurity (dichotomous) as factors and age in months as a covariate was used to analyze the dependent measures: object control skills, locomotor skills, dodge, and stork stand (right and left foot). The MANCOVA showed a significant overall effect for disability as suggested by Wilk's lambda of .896 with $F(5, 248) = 5.73$, $p < 0.001$. There was no main effect for prematurity ($p = .291$) or interaction between prematurity and disability ($p = .382$). **CONCLUSIONS:** There was no effect of prematurity status on motor skill proficiency. This result is quite positive. Although we do not know whether the children born prematurely had delays in motor development at birth; our results suggest that at the beginning of school (kindergarten), their skills were equivalent to the children not born prematurely. However, children living with a disabling condition exhibited significantly lower motor skill proficiency. The vast majority of children in this study would benefit from a concentrated effort to enhance motor skills; and this was especially true for children living with a disabling condition.



Infusing Disability Examples into Motor Learning Course for PETE Majors

Practical Application
P41

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The purpose of this poster session is to provide motor learning faculty with ready-to-use disability examples and how to infuse them into each motor learning topic to increase information, exposure, and awareness of Physical Education Teacher Education (PETE) majors of their specific responsibility in developing a foundation of motor learning concepts to be applied into their physical education program with or without students with disabilities on a daily basis. In this context, infusion refers to the systematic integration of disability examples throughout each topic of a motor learning course. For example, when the faculty presents a lecture on feedback to the class, it would be important to add “No feedback, no learning. Students with cognitive disorders do not use feedback as fully as their nondisabled peers. Due to their low reasoning abilities, including simple “yes” or “no” questions could be effective during and after practicing a skill, followed by physical guidance, if necessary.” At this point, the faculty continues the lecture as usual. The desired outcome of infusing these examples into a motor learning course is to increase information, exposure, and awareness of PETE majors of their specific responsibility in developing a sound foundation of motor learning concepts to be applied into their physical education program for students with or without disabilities. The reality is that the training of PETE majors to effectively work with students with disabilities in inclusive settings results from the collaboration efforts between each PETE faculty, the adapted physical educator, and the pedagogy profession in the form of in-service training, the availability of practical resources to be implemented into each course of the PETE program, and continuing specialized academic support by the adapted physical educator. The ready-to-use examples presented in this poster session represent the beginning portion of this collaboration which could result in positive attitudes toward including students with disabilities into physical education settings. Many PETE programs require one course in Adapted Physical Education (APE). Completing one course in adapted physical education isolated in the PETE curriculum is not enough exposure to prepare PETE majors to feel competent in including students with disabilities into regular physical education programs, especially when the content of the adapted physical education class is not practiced or reinforced elsewhere in the program (Rizzo and Davis, 1991). As a result, the PETE curriculum may fail to adequately prepare physical educators to include students with disabilities into their physical education programs successfully.

Factors Affecting the Development of APE Classes in Children with Disabilities

Scientific Research
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PURPOSE: The aim of this descriptive study was to investigate how social interactions, management and time of children with different disabilities engagement affect the development of adapted physical education classes and extracurricular program of adapted motor activity. **METHODS:** For data collection, videotaping was done of two weekly classes each one hour long. One class was in the aquatic environment (pre-sport activities) and the other one on the ground (posture and locomotion) both with six activities. Ten children with disabilities participated (7 boys and 3 girls), aged from 3 to 11 years. The following were used for the analysis: A) The matrix of the class time analysis 1) Class - total class duration, time in activity, and transition time, and 2) Time of engagement of the child; B) Matrix of adaptations; C) Matrix of social interactions including child/child and child/adult. **RESULTS:** It was verified that different interaction forms were used, such as physical contact, assistance, facial and verbal expressions. Interactions were highlighted through smiles and chats among children with cerebral palsy and willingness to provide assistance, like pushing colleagues’ wheelchairs and demonstrate tasks for an intellectually challenged child. Those behaviors motivated children to perform tasks. It was noted the relaxed atmosphere and friendly interactions made it possible for children with autism to show evidence of interactions through gestures, especially with peers with disabilities, facilitating the activities engagement. Extensive transitions in both classes, due to teacher’s difficulties regarding factors related to the structure of activities, provoked dispersion and caused a negative influence on students’ engagement. In contrast, good time management along with adaptations, presented in certain activities, contributed to children remaining longer periods of time in the proposed tasks that comprised classes’ best times and attended not only the needs, but also the students’ possibilities. The main difficulties occurred in activities developing locomotors skills, strength, agility, flexibility, understanding, creativity, communication, and socialization. Most of the adjustments related to additional information, information followed by demonstrations, help to move around, need to modify movements, stimuli and more time to perform tasks. **CONCLUSIONS:** Activity choice, time management optimization followed by assistance and stimuli (visual and/or verbal) represented the starting point to a closer relationship among students, and had a positive effect on their motor performance by favoring the activity engagement. This outweighs the importance of proper planning by the teacher. Thus, it allows the child to perform tasks with higher quality that will result in benefits on its integral development.



Thursday, October 11th

Social Development of a Child with Disabilities Engaged During Three Years in Extracurricular Program of Adapted Motor Activity

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Scientific Research
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Children with disabilities are more likely to decrease their social success when compared to their peers without disabilities and, in part, that failure might be assigned to impacts caused by the infant personal attributes, motor and/or intellectual factors, or even environmental ones, resulting in social skills restrictions. **PURPOSE:** The aim of this descriptive study was to investigate the social development of a child with mixed cerebral palsy (triple) and profound deafness in extracurricular program of adapted motor activity-AMA, for children with disabilities classes for three years. **METHODS:** For data collection, it was carried out the shooting of six classes between 2008 and 2010 and a cursive record of them. There were used: A) The matrix of the class time analyzing 1) Class - total class duration, time in activity and transition time, and 2) Time of engagement of the child; B) Matrix of adaptations; C) Matrix of social interactions analyzing the social interactions child/child and child/adult, d) Interview with parents. The cursive record was done by identifying amount and quality of social interactions involving the observed child, his peers with disabilities or adults present in the classes. Those interactions may start from the child or other participants. **RESULTS:** Over the three years, it has been observed the quality evolution on social interactions, although the number of interactions did not grow class after class. Through the motor improvement obtained, the child became more easily to understand and, moreover, adults and peers knew and understood his way of communicating and expressing by gestures and glances. The child interacted with his peers for being interested in what they were doing (running, jumping and dancing) and, on the other hand, the child interacted with adults because of the proposed activity or simply to play. Peers with disabilities have developed the sense to help him and, therefore, they interacted as a result of the proposed activities in order to see that child playing, motivating him or simply by showing affection. Thus, it was demonstrated the importance of friendships ties. This phenomenon was observed, mainly, on children with physical disabilities like cerebral palsy with or without cognitive impairment and children with Down Syndrome. In relation to adults, they interacted more often with the child, in order to help him, motivate him, explain and demonstrate the activities, get his attention and perform self-care tasks. **CONCLUSIONS:** The educational context favors the interactions between peers with and without disabilities or with adults, in the teaching-training process. The participation of children without disabilities contributes to the development of social skills from children with disabilities.

Saturday, October 13th

Moving from External to Internal Exercise Motivations: The Role of Disability Sport

Practical Application
P44

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A variety of exercise influences have been reported in the literature for persons with physical disabilities. Social support has been a positive influence on exercise change whereas inaccessible facilities, lack of information about programs, transportation restrictions and exercise cost have been consistent barriers to exercise. These exercise influences are established in the literature but are specific to persons in the pre-contemplation, contemplation or preparation stages of exercise change. However, much less research has examined exercise influences on regular exercisers. Disability sport participants are regular exercisers and research in this setting has demonstrated a shift from external exercise influences, or those factors most outside an individual's control, to internal influences that encourage behavior change. This shift is important to understand because once a disability sport organization recruits a new participant, it is essential to market participation benefits that address participants in action or termination stages of change. Therefore, the purpose of this oral session is to: 1) review exercise influence differences between novice and regular exercisers, 2) describe how disability sport organizations can encourage persons to shift from external to internal exercise motivations, and 3) document how disability sport organizations can market effectively to both novice and regular participants.

Field Test Prediction of Performance in Paralympic Athletes: Evaluation of the USOC Combine

Scientific Research
P45

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Multiple field tests of performance have been used in disability sport to monitor performance changes over time. With the increased application of science to sport training (Goosey-Tolfrey, 2010), greater emphasis is now being placed on prospective athlete identification and prediction of elite performance. The United States Paralympic Committee (USPC) has collected data on a combination of skills and the current project is an evaluation of its predictive ability regarding elite competition. **PURPOSE:** The purpose of the current study was to examine the reliability and predictive validity of the USPC combine in disability sport populations. Test items included a 20 meter sprint, a tennis ball toss, vertical jump, spider drill, two-handed medicine ball toss, balance test and 600 meter run. Populations tested included persons with amputations, cerebral palsy, spinal cord injury and visual impairments. **METHODS:** Retrospective data from 493 prospective Paralympic athletes were evaluated. Intraclass correlation coefficients were used to examine test reliability and discriminant analysis was used to examine predictive ability (i.e., correct classification into K-12, Club, College/National or International competitor). **RESULTS:** Reliability was strong across all field test items ($R > .95$) with the lowest reliability estimate on the balance test ($R = .89$). The three tests most frequently administered (sprint, spider, and medicine ball) correctly categorized 38% of cases into appropriate experience levels. Using these three variables, international experience level was correctly predicted zero times. Specific to each group, test combinations correctly predicted 39% of cases in persons with amputations, 40% of cases in persons with cerebral palsy, 47% of cases in persons with spinal cord injury and 50% of cases in persons with visual impairments. **CONCLUSIONS:** The sprint, spider, and medicine ball tests were suitable for all disability groups. The sprint, spider and medicine ball tests may not be the best combination to identify elite performance but seem appropriate to monitor training-related changes over time. Sport providers are encouraged to identify sport-specific test items rather than use a general combine assessment to predict skill performance.

Anxiety Levels in the Brazilian Athletes of Wheelchair Dance Sport

Scientific Research
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The Wheelchair Dance Sport (WDS) is an adapted sport of Ballroom Dance that involves people with physical disabilities and users of wheelchair, and in addition allows the involvement of people without disabilities – standing partner. WDS competitions are held in the system of rounds in which couples make simultaneous presentations. In this sort of competition, the presence of situations of pressure is capable to generate significant levels of anxiety in athletes, and that is one of the psychological components that influence the athletes at the occasion of the competition and that has been subject of research in competitive sport, including the adapted modality. **PURPOSE:** The aim of this study was to assess levels of anxiety (cognitive, somatic and self-confidence) of the WDS Brazilian athletes. **METHODS:** A total of 26 athletes, 12 wheelchair users and 14 walking partners, they are about 32,9±10,8 years old. The study was conducted during the course of three WDS Brazilian Championships in the years 2008, 2009 and 2010. To assess the anxiety level of the athletes it was used the Competitive Anxiety State Inventory -II (CSAI-2) 24 hours and 1 hour previous to each one of these competitions. The repeated measure ANOVA was used to evaluate the anxiety between groups and time, and the Pearson correlation to verify time of practice on wheelchair dance and anxiety. **RESULTS:** No difference was found in the three subscales of anxiety: cognitive (15,96±5,3 and 15,77±5,6; $p=0,682$), somatic (14,04±3,8 and 14,88±4,4; $p=0,122$) and self-confidence (26,81±5,4 e 26,81±4,9; $p=1,000$) for 24 hours and 1 hour previous to the competition, respectively. The level of anxiety tended to be higher in the wheelchair dancers compared with the standing partner for cognitive anxiety ($p=0,026$) and self-confidence ($p=0,047$), but not for the somatic anxiety ($p=0,071$). There were no significant correlations between time of practice and anxiety level. **CONCLUSIONS:** the levels of anxiety did not change with the proximity of the WDS competition among the three subscales of anxiety: cognitive, somatic and self-confidence. The wheelchair dancers tended to have higher level of anxiety compared with the standing partner, possibly due to their disabilities. The time of sport practice did not influence the level of anxiety.



Physiological Factors Associated with Marathon Performance in Runners with Visual Impairment and Blindness

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Scientific Research
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Marathon running is very popular for people with visual impairment and blindness. In previous studies involving runners who are sighted (RS), various physiological factors, for example maximal oxygen uptake, the oxygen cost of running and anaerobic threshold, as indicated by either ventilation threshold or lactate threshold were examined for their relationship with marathon performance (MP). Based on previous findings in RS, the lactate threshold, which is defined as the point when lactic acid begins to accumulate in the blood stream, is closely related to MP. However, no study has examined which physiological factors are associated with MP in runners with visual impairment and blindness (RVIB). **PURPOSE:** The purpose of this study was to clarify the physiological factor associated with MP in RVIB. **METHODS:** Nine RVIB (5 males and 4 females, 47.7 ± 9.1 years old) and 12 RS (7 males and 5 females, 39.9 ± 9.6 years old) volunteered for this study. They were all Japanese. They performed an incremental running test that was conducted with submaximal running (6 to 8 steps) of 4-min duration on a motor-driven treadmill. Physiological parameters involving oxygen intake, heart rate, blood lactic acid accumulation and other parameters were investigated during the incremental running test. The running speed at which lactic acid began to accumulate was defined as the lactate threshold speed (LTS). MP was determined based on records from marathons completed within 2 months before and after the time of this study for each runner. **RESULTS:** Although MP in RVIB (4h02m09s ± 31m04s) was significantly slower than that in RS (3h34m02s ± 28m25s) (p<0.05), the average LTS was not different between RVIB and RS (192.9 ± 20.0m/min vs. 204.8 ± 23.7m/min). A significant relationship between LTS and MP in RVIB and RS (r=0.908; p<0.01 and r=0.977; p<0.01, respectively) was found. However, other physiological factors, such as maximal oxygen uptake, were not related to MP for both groups. On the other hand, the difference between average marathon speed (AMS) and LTS in RVIB (-15.2 ± 11.1m/min) was significantly greater than that in RS (-3.4 ± 8.7m/min) (p<0.01). **CONCLUSIONS:** LTS was closely related to MP in RVIB as well as RS. However, the LTS of RVIB was superior to AMS as compared with RS.

Adapted Sport Programs in Angola

Practical Application
P48

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The Ministry of Youth and Sports (MYS), through the Angolan Paralympic Committee (APC), has been making significant contributions to the promotion and development of adapted sports in Angola. The outcome of these efforts has been 1) increased participation by individuals with disabilities in sport programs throughout the country, and 2) greater involvement by these athletes in international competitions in different sporting events - including athletics, wheelchair basketball, crutches football, and swimming. In addition to APC through its "Children's Project" has promoted other adapted sports. This presentation will highlight how sports activities for persons with disabilities are being promoted in Angola. We will also address some of the challenges and opportunities for working with these sports organizations and athletes with disabilities in Angola.

Characteristics of Physical Fitness of Elite Players with Disabilities

Practical Application
P49

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PURPOSE: The purpose of this study lies in identifying, analyzing and verifying any particularities in Physical Fitness fit for certain event for the improvement of athletic performance considering the characteristics of elite sports for the players with disabilities and then presenting a data which will help the elite players participating in international competitions including paralympics in conducting their training scientific ways. **METHODS:** Those five Korean Elite sports for the players with impairment include Cycle, Weightlifting, Judo, Track and Field, and Table tennis while measurement area includes Muscular Strength (Hand grip Strength), Muscular Endurance(Sit-up), Flexibility(seated Flexion, Hold both Hands behind the Back), Speed(50m running, 20m Wheelchair Marathon), Agility(Whole Body Reaction), Cardiorespiratory Functions(lung Capacity). The basic statistics such as average and standard deviation for each event were estimated for the data analysis with SPSS 18.0, and relative location by event was compared by using the standard scoring. **RESULTS:** Followings are the results of this study: they turned out to be high in Muscular Strength, Muscular Endurance, Flexibility, Lung Capacity while low in Speed and Agility in relation with Cycle, and high in Muscular Strength, Speed, Agility while low in Muscular endurance and Lung Capacity in relation with Weight lifting, and high in Speed, Agility and Lung Capacity while low in Muscular Strength in relation with Track and Field and Table tennis showed high in Flexibility, Speed, Agility and low in Muscular Strength and Lung Capacity. **CONCLUSIONS:** Such results were alike in the events for the non-disabled players. In Judo case, the disabled players showed high in Speed and Lung Capacity and low in Flexibility and Agility while non-disabled players showed high in Muscular Strength, Muscular Endurance and Flexibility and such results seem to indicate any functional and physiological problems caused by disabilities. However it also implies that a physical fitness of health -oriented training is necessary to improve athletic performance of the disabled members of the national team. Any analysis on the characteristics of the elite players with disabilities could be used as a basic data in making a prognosis for athletic performance and assessment system, and also as a basic data for training based on sports science including systematic training programs.

Hand-Eye Coordination and Reaction Time in Collegiate Able-Bodied and Collegiate Wheelchair Basketball Players

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Scientific Research
P50

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Elite, able-bodied athletes are often the focus of scientific sport research when investigating athletic performance. Less frequently is the relationship between skill-related fitness and athletic performance investigated. Even less frequently is skill related fitness a focus of investigation for elite, disabled athletes. **PURPOSE:** The purpose of this study was to compare hand-eye coordination and reaction time in elite male, able-bodied, collegiate basketball players and elite male, collegiate, wheelchair basketball players. Hand-eye coordination and reaction time are both skill related fitness components needed to excel in basketball. **METHODS:** Participants were fifteen collegiate wheelchair basketball players competing in a tournament in Birmingham, Alabama representing three universities (UTA n = 7, UA n = 4, and UI n = 4) and fifteen able-bodied collegiate basketball players from two NCAA Division I universities in Birmingham, Alabama (SU n = 6 and UAB n = 9). All participants were between the ages of 19 and 24 years and had not suffered a head or upper limb injury that prevented them from playing 3 weeks prior to testing. The 30 participants completed two assessments. The Plate Tapping Test was used to assess hand-eye coordination and the Latham Yardstick Test was used to assess reaction time. Both assessments had been used previously to assess both populations. **RESULTS:** The data was normally distributed. Statistical analysis included an independent sample t-test to assess the differences in hand-eye coordination and reaction time between the able-bodied and disabled populations. Results showed no statistical significance ($P \leq 0.05$) between able-bodied and disabled athletes when comparing hand-eye coordination and reaction time. Per the request of the coaches for the wheelchair teams analysis was conducted comparing the five participating universities on hand-eye coordination and reaction time for both dominant and non-dominant hands. Statistical significance was found in the comparison for non-dominant hand reaction time when comparing individual schools ($P = .009$). Reaction time with either hand is a vital skill needed to compete successfully in basketball. **CONCLUSIONS:** The results indicate no difference in hand-eye coordination and reaction time between able-bodied and disabled athletes. Results from both groups suggests elite, able bodied basketball players do not have an advantage over elite, disabled basketball players in areas of skill-related fitness. Despite small participant groups, the significance of non-dominant hand reaction time remains meaningful because it supports the idea that elite, able-bodied athletes do not have an advantage over elite, disabled athletes in areas of skill-related fitness.



Camp Abilities Brockport

Practical Application
P51

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Camp Abilities is held annually at the campus of The College at Brockport, State University of New York every June. It is a one-week, comprehensive, developmental sports camp for children between the ages of 9-19 who are blind, or deaf-blind. This camp was started 17 years ago by Dr. Lauren Lieberman and Dr. Monica Lepore, who together with the staff provide 1:1 instructional situations for each child that attends. Since our first year, we have served more than 50 children with a visual impairment, from all types of socioeconomic stature, ethnic backgrounds, as well as different levels of skills and abilities. Our purpose is to empower children with sensory impairments to be physically active and productive members of their schools, communities, and society in general. Because children with visual impairments have been shown to have lower levels of health-related physical fitness than their peers, the Camp plays a vital role in reinforcing each child's self-esteem and confidence in their ability to master specific sports, recreational and social activities. Second, Camp Abilities provides a great opportunity to train undergraduate and graduate students how to teach sports and recreational activities to children with sensory impairments. Lastly, each summer different research experiments have been conducted, such as health related fitness, attitude research, Wii sports, talking pedometers, instructional strategies, and gross motor development of children with visual impairments. The information gathered has been used to develop things like gaming programs and assessments that have been presented at conferences and published in journals worldwide. Children that attend Camp Abilities are provided with opportunities to participate in a wide-range of sports and recreational activities. Sports that take place each day at camp include beep-baseball, track and field, tandem biking, judo, gymnastics, goalball, and swimming. In addition, many recreational activities are available in the evenings such as rollerblading, showdown, basketball, fishing, and tactile bingo. We also bring in a special activity each night including things like canoeing and kayaking, rock climbing, archery and horseback riding. Our diverse program is a jam-packed week of sports, activities, and fun. Since Camp started at Brockport in 1996, it has now expanded to other states in the country such as Pennsylvania, Arizona, Maryland, and Alaska; as well as other countries like Ireland and Costa Rica!

Thermal Aquatic Massage

Practical Application
P52

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The application of therapeutic massage in a 94 degree pool has been in use at Lakeshore Foundation with clients with physical disabilities and chronic health conditions for just about one year. Using traditional massage techniques of Deep Tissue, Neuromuscular Therapy and Myofascial Release, the client is floated on the water's surface with the aid of bolsters and water pillows to support proper musculoskeletal alignment and provide comfort while floating supine. The client receives massage therapy techniques appropriate to their health condition at a slow, rhythmic pace, using breath and the water to support the work. The therapist is always in contact with the client, usually working wherever needed. Water depth would typically be 3 to 4 and ½ feet deep. Conditions treated have ranged from spinal cord injury, strokes, Parkinson's Disease, cerebral palsy, chronic pain, fibromyalgia ankylosing spondylitis, spinal muscular atrophy and spina bifida, post rehabilitation from a variety of joint replacements and surgeries. Client health histories, conditions are discussed and reviewed to develop a treatment plan. Due to the use of warm water to float the client a state of deep relaxation is promoted, and through the quieting of the sympathetic and enhancing the parasympathetic nervous system. Some of the changes noted are decreased rate of respiration and increased depth of respiration, increased peripheral vasodilation, decreased activation of striated muscles, decreased spasticity, decreased muscle spasm. Clients receive massage therapy from underneath the water surface with additional joint movement adding to the efficiency of the massage. Clients report many of the benefits after the first session, usually decreased pain is the first change noted, then, increased range of motion, increased muscle relaxation, decreased muscle spasm and spasticity, increased sense of relaxation. Some of the long-term benefits include improved sleep patterns, decreases in pain, greater and long lasting range of motion and improved mobility. Thermal Aquatic Massage is indicated for many persons with a wide range of health conditions.



Most Relevant Injuries on Brazilian Wheelchair Rugby National Team Athletes

Scientific Research
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Wheelchair Rugby is a sport practiced by Paralympic athletes of both genders, with impairment in at least three limbs. The practice of this sport causes a specific pattern of injuries. **PURPOSE:** To study the major injuries in athletes practicing this sport in order to identify and take preventive action. **METHODS:** The sample consisted of 350 cases that were obtained on the log of incidents recorded by ABRC/CPB's Department of Health, collected during a period of four years, including training camps, national and international championships. The subjects were 20 male athletes, age range of 20-46 years, divided into 11 offensive athletes and 09 defensive athletes, members of the Brazilian wheelchair rugby national team. Each time that an intervention was made, it was logged as a case. **RESULTS:** Related to the affected segment, it was observed that osteotonomuscular lesions occur with higher incidence in the upper limbs, corresponding to 90% of the total, bruises involving the lower limb (10%). Related to the event of occurrence, 55% of injuries occurred in official games by direct trauma and muscle fatigue. Related to the severity of the injuries, 95% were grade I, allowing the athlete to return to training within less than 7 days. Regarding the most frequent injuries was observed that the bruises in the region of the forearm, palm and lateral side of the spine accounted for 50% of cases, followed by traumatic injuries involving the joints of the wrist, elbow and fingers (30%) osteotonomuscular injuries involving the shoulder, arm and forearm (10%) and bruises in the region of the legs (10%). Related to playing position, was observed that offensive players suffered a higher rate of osteotonomuscular injuries (90%) compared to defensive players (10%). Related to complaints during training and official games, was observed that corporal hyperthermia represented 30% of complaints, followed by muscle fatigue (60%) of headaches and dizziness (10%). These temperatures ranged from 101.30oF to 103.10oF during the games. After cooling therapy, measured body temperatures values returned to normal. **CONCLUSIONS:** The results emphasize that careful study of the clinical and cardiac conditions of the athlete have great relevance in the preparation of practitioner of this sport. It is essential to the health department to know possible dysfunctions deriving from the spinal cord injury and history of previous injuries for appropriate treatment and prevention measures. An individualized chair and a protection arsenal for the game are essential to reduce the number of injuries.

Study of Body Temperature in Athletes with Incomplete Spinal Cord Injury Practitioners from Wheelchair Rugby

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Athletes with Incomplete Spinal Cord Injury above T1 present changes at the control of thermoregulation and may lead to a frame of body hyperthermia. **PURPOSE:** To study the variation of body temperature in athletes with incomplete spinal cord injury, practitioners of wheelchair rugby, with the purpose to trace preventive measures. **METHODS:** The study included 17 male athletes, with incomplete spinal cord injury in C5, C6 and C7 levels, these being, 13 with high score and 04 with low score, belonging to Brazilian Wheelchair Rugby Team. The athletes were evaluated by the Medical Department and undergo to blood and urine tests to rule out the presence of infections. The temperatures were measured simultaneously with axillary mercury and tympanic digital thermometers, collected during the period of three years, in weeks of training, national and international championships, before and after warm up, during the 3 time outs and after the game. **RESULTS:** From the 17 evaluated athletes, only 04 of the high score, presented during the game sudden increase of their body temperature and symptoms of thermal stress, involving labial dryness, thirst, muscle fatigue, dizziness, mental confusion and consequent drop of sport performance in court. The temperatures measured of the athletes oscillate between 36.00°C and 36.50°C at the beginning of warm up, 38.00°C after the warm up and the 1st (first) time out, evolving from 38.50°C to 39.50 after the 2nd (second) and 3rd (third) warm up and end of the game. The remaining athletes showed no changes in their body temperature. There were no differences in temperature levels between the axillary mercury and tympanic digital thermometers. **CONCLUSIONS:** The results answer the questions emerge from the study emphasizing that the constant monitoring of the athletes' body temperature is critical to the safe practice of the sport.



Comparison of Online and Offline Learning of a Step-Up Task in Stroke Survivors

Scientific Research
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Stroke is a leading cause of disability, including balance, gait and other and motor deficits. In terms of everyday tasks, such as stepping onto a step, stroke survivors are less able to step onto higher steps without being at risk for losing balance and falling. **PURPOSE:** The aim of this study was to investigate the effects of three different approaches (clinician guarded, high repetitions; robot-guarded, high repetitions; and robot-guarded, low repetitions with increased height difficulty) to a step-up training program on the online (within session) and offline (between sessions) learning to achieve higher step heights in stroke survivors. We hypothesized that participants who received the robot-guarded step-up training program while challenged by increasingly difficult heights would demonstrate greater online and offline gains in step height. **METHODS:** The KineAssist[®] Balance and Gait Training Robotic System was used to guard participants since it is able to respond to impending falls by catching a person safely under very challenging balance task conditions. 31 stroke survivors participated and were randomly assigned to one of 3 groups: 1) clinician guarded, high repetitions (N=9); 2) robot-guarded, high repetitions (N=12); and robot-guarded, low repetitions with increased height difficulty (N=10). Part of a larger scope balance training study, all participants practiced a 5 minute step-up and down task on wooden steps at different heights, leading with their paretic side, once a week over a six week period. Step height and number of repetitions for each level was recorded. **RESULTS:** Over the course of six weeks, on average all participants tested at higher intensity levels in all groups (offline learning gains). We also observed improved online performance during the sessions, although both robot-guarded groups obtained higher step heights than the group guarded by the clinician. Exercise load (# of reps x step height) did not change for the different groups. **CONCLUSIONS:** Robot-guarded step-up training provides a suitable environment for stroke survivors to practice the step-up task. When the task is made increasingly difficult, the robot-guarded condition allows for better online learning. A non-changing exercise load value for all groups suggests that, with steady increases in step height, repetitions were decreased to maintain a consistent load during the 5 minutes training session. The principles of motor learning that were used to investigate the step-up task will also be used to study other balance tasks included in a larger study. Funding for this study provided by DOE/NIDRR Grant # H133E070013.

Muscle Performance Adaptations with Concurrent Resistance and Aerobic Training in Older Women

Scientific Research
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Performing both resistance and aerobic training is recommended for reducing the risks for chronic diseases and disability. Human aging is associated with substantial decrements in overall muscle strength and even greater reductions in muscle power which commonly account for functional limitations and disability particularly in older women. Thus, it would be important to understand the effects of different frequencies of performing concurrent training on strength and power adaptations in older women. **PURPOSE:** To compare the effects of one, two, and three sessions per week of concurrent resistance and aerobic training on leg press (LP) strength and knee extension (KE) strength and power in older women. **METHODS:** Seventy-five older women (age: 64.9±3.9 yrs) were randomly assigned to one of three 16 week concurrent exercise training groups. 1R&A (n=25) performed one resistance training (RT) and one aerobic training (AT) session per week; 2R&A (n=28) performed two RT and two AT sessions per week; and 3R&A (n=22) performed three RT and three AT sessions per week. For RT, subjects performed two sets at 80% one repetition maximum (1RM) for eight different exercises. For AT, subjects walked on a treadmill and progressed so at week eight they were exercising for 40 min at 79% of maximum heart rate. Pre and post training bilateral 1RM LP strength and unilateral KE isokinetic peak torque (PT) and mean power (MP) were assessed at slow (60°/s) and fast (240°/s) velocities. Group comparisons were made using two-way ANOVA with repeated measures across time. **RESULTS:** Leg strength and power were increased ($p \leq 0.001$) across all groups for all variables. There were no significant ($p > 0.05$) interactions of time and group for any variable indicating there were no differences between groups in leg strength and power improvements. Increases across the three groups were 1RM LP 10-14%; 60°/s PF 8-11%; 240°/s PF 4-9%; 60°/s MP 8-12%; and 240°/s MP 7-11%. **CONCLUSIONS:** Results indicate there are no differences in muscle performance adaptations with one, two, or three sessions per week of concurrent training in older women. Results support designing concurrent training programs for older women with only one session per week of RT and AT for effectively enhancing leg strength and power during the first 16 weeks of training. This rather low total volume of training might also facilitate high exercise compliance which is critical for reducing risks for chronic visceral diseases and physical disabilities. Supported by NIH Grant R01 AG027084.

Eight Weeks Functional Training Improves Muscle Endurance, Balance, Power, and Speed in Athletes with Disabilities

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Athletes with disabilities are competing at higher levels of national and international contest and are showing potential at the Paralympic Level. High intensity functional training is an effective method in training these athletes. **PURPOSE:** The purpose of this study was to determine whether a high intensity functional training program was effective in improving athletic muscle endurance (ME), dynamic balance (DBAL), power (P), and speed (S) in athletes with various disabilities. **METHODS:** Nine individuals (Mean age = 18, Males n = 6, Females n = 3) with disabilities varying from cerebral palsy, visual impairment, spinal cord injury, and spina bifida participated. Each athlete performed pre and post-tests which consisted of: 1 min push-up, 1 min sit-up, stabilometer, vertical jump (VJ), medicine ball throw (MBT), and 40 yard dash. Athletes participated in one 45 minute training session per week for 8 weeks. Training sessions included a dynamic warm-up, a high intensity training incorporating ladder agility drills, hurdles for balance and flexibility, sand pit for balance, bodyweight core training, muscle strength and endurance exercises, cable columns for core strength, medicine balls for power and core stability, over-speed workouts on treadmills, stability balls for balance, tennis balls for hand-eye coordination, and an appropriate cool down. The athletes participated in training according to ability level. **RESULTS:** Eight weeks of functional training considerably improved ME (40.6% sit-ups, 40.0% push-ups), DBAL (178%), P (13.0% MBT), and S (10.6%). **CONCLUSIONS:** These results indicate that an 8 week functional training program was effective in improving muscle endurance, dynamic balance, power, and speed in athletes with various disabilities. Supported by Disabled Athletes Sports Association (DASA)

Feasibility of a Clinical Test to Identify Vestibular Hypofunction in Children with Sensorineural Hearing Loss

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Scientific Research
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Children with severe to profound sensorineural hearing loss (SNHL) may have accompanying vestibular hypofunction (VH). The saccule is part of the vestibular system and assists in moderating balance responses. Children with VH may experience difficulty performing high level balance activities. The gold standard diagnostic test of saccular function is the Vestibular Evoked Myogenic Potential (VEMP). However, it is often unavailable clinically. Therefore, clinicians need a simple, valid test of balance to correspond with VEMP. **PURPOSE:** The purpose of this study was to determine the sensitivity and specificity of the Foam Eyes Closed Test (FECT) for children with SNHL. **METHODS:** Seventeen children [age = 8.95(1.79) years] with severe to profound SNHL and no other neurological problems participated. All children completed three tests: 1) VEMP was recorded via electromyography of the sternocleidomastoid muscle in response to audible clicks or mastoid bone taps. Absent VEMP, pInI mean amplitude <50 μ V, and asymmetry ratio >50% were considered abnormal. 2) Sensory Organization Test (SOT) measured sway as the child stood as still as possible on a force platform during six conditions. A sway score was calculated for each condition, ranging from 0 (fall) to 100 (no sway). A vestibular ratio (condition 5 eyes closed, floor moving/ condition 1 eyes open, stable surface) was calculated. 3) The FECT measured ability to stand on a thick piece of foam with eyes closed. Subjects completed three trials; mean time (seconds) was recorded. Cut-off values for SOT and FECT were determined by Receiver Operating Curves. Logistic fit analyses and sensitivity/specificity analyses were calculated for: 1) VEMP score (gold standard) by SOT vestibular ratio, 2) VEMP score (gold standard) by FECT, and 3) SOT vestibular ratio (gold standard) by FECT. **RESULTS:** VEMP responses were abnormal (N = 9) and normal (N = 7). 1) Using SOT vestibular ratio cut off score of 32.29 (VEMP as gold standard): AUC = 0.81, sensitivity = 77.78%, specificity = 85.71%. 2) Using FECT cut-off score of 13.5 sec (VEMP as gold standard): AUC = 0.62, sensitivity = 55.56%, specificity = 85.71%. 3) Using FECT cut-off value of 20.1 sec (SOT as gold standard): AUC=0.79, sensitivity=75%, specificity=88.9%. **CONCLUSIONS:** These results suggest that the FECT may have potential for identifying children with SNHL who have saccular dysfunction and failing scores on SOT. This simple test is easy for therapists and teachers to administer and could guide interventions for balance and postural control in this population.



Assessing Reliability of Graduate Students Rating Physical Performance Outcome Measures in People with Movement Disorders

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The University of Alabama at Birmingham (UAB) and the Lakeshore Foundation recently initiated a research collaboration. Several longitudinal projects are in progress that require staff to demonstrate inter- and intra- rater reliability for all outcome measurements. With student and staff turnover a common occurrence, we aimed to develop a program for training all individuals to become proficient in our commonly utilized outcome measures. **PURPOSE:** The primary aim of this project was to determine reliability between two classes of graduate students performing physical performance outcome measures for individuals with Parkinson Disease (PD). **METHODS:** 19 UAB graduate students (class of 2012 = 4, class of 2013 = 15) were included in the project. Students currently measuring outcomes for individuals with PD assisted in training new students with the administration and scoring of the following physical performance tests: Berg Balance, MiniBEST, Functional Gait Assessment, Timed Up-and-Go, 9-hole peg test, 6 minute walk test and 10-meter walk tests. Videos of individuals with PD performing the outcome measures were developed and made available via an Internet portal. Students from both groups were asked to view and rate performance of the videotaped physical function tests for individuals with PD. Reliability was established between raters and between classes using Cronbach's alpha. **RESULTS:** Successful rating of the videos was completed by 15 students. 4 students did not submit scores for an adequate number of items to be included in the analysis. Reliability within (Cronbach alpha = 0.984 and 0.999) and between (Cronbach alpha = 0.997) groups was excellent. Using a correlation matrix, no correlation score was below 0.8 for the group as a whole. **CONCLUSIONS:** Results of this project indicate that excellent reliability exists between the two groups of students performing physical function tests. Establishing reliability improves the methodological quality of longitudinal studies when multiple raters are used. Group training and videos of physical function tests were used to establish reliability between two classes of graduate students rating physical function tests. Reliability within and between groups was shown to be excellent (Cronbach alpha > 0.8). Methodological concerns for the method of testing reliability included use of videos for rating, student confidence in rating and obtaining sufficient data to perform statistical tests to establish reliability. This method could be improved by improving video quality, encouraging students in their clinical decision making, equalizing group size and repeating measures in order to perform an intraclass correlation coefficient (ICC) for interrater reliability.

Systematic Review of Methodological Quality and Outcome Measures in Exercise Interventions for Adults with SCI

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PURPOSE: The primary aims of this study were to evaluate the methodological quality of exercise intervention studies in adults with spinal cord injuries (SCI); and to classify the reported outcome measures according to the International Classification of Functioning, Disability and Health (ICF). **METHODS:** Electronic searches of PubMed, CINAHL, SPORTDiscus, PsychINFO, Scopus and the Cochrane Center Register of Controlled Trials from 2001-2011 were performed. Selected studies were evaluated for methodological quality using the Downs and Black checklist. Outcome measures were extracted and linked to categories of the ICF using standardized linking rules. **RESULTS:** 239 abstracts were retrieved, 55 studies met eligibility criteria. The mean methodological quality score was 14.8 ± 3.2 out of 28 on the Downs and Black checklist. 364 outcome measures were extracted with 323 concepts linked to 31 second-level ICF categories across the four components. **CONCLUSIONS:** Studies of exercise interventions for adults with SCI included in this review are generally low in methodological quality, primarily reporting outcomes related to Body Function and Body Structure components of the ICF. It is recommended that studies utilize higher methodological quality in order to reduced bias and include outcome measures targeting more categories in the Activities and Participation component so as to reflect the potential benefits of exercise on health and functioning in this population.



Ai Chi - An Aquatic Therapy Practice that Restores a Sense of Health and Vitality

Practical Application
P61

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Ai Chi is the most commonly practiced form of aquatic therapy in the world today. It originated in Japan, the work of Jun Konno, and combines elements of T'ai Chi, Qigong, and Shiatsu. Each of these - T'ai Chi, Qigong, and Shiatsu, come to us from the Far East. All three offer a path to complete and integrated health through nourishing breath-taking, and slow meditative movements. Practiced in shoulder depth water with a temperature ranging from 86-95 degrees Fahrenheit, Ai Chi is composed of slow, broad movements and deep breathing. The Ai Chi practitioner begins with a wide base of support by stepping the legs more than hip distance apart (sometimes referred to as sumo stance), relaxing the knees, feeling connected to the pool bottom through the feet. The instructor invites the practitioner(s) to place their right hand on their heart and their left hand on their belly, inhaling slowly and deeply through the nose, exhaling slowly and deeply through the mouth. From the opening posture, the first movement comes: contemplating. The practitioner raises both arms straight out from the shoulders, to the front allowing them to rest on the surface of the water. Slowly, the palms are turned up and an inhale is taken. The palms turn slowly down toward the pool bottom and an exhale is offered. Contemplating is the first of 19 postures in Ai Chi. Each posture flows from the one preceding it and leads to further involvement of the body, concluding with the final posture of suspending which is executed off the pool bottom. It takes approximately 30 minutes to complete the 19 postures, repeating each 3-5 times. For people living with chronic pain (including injured military personnel), fibromyalgia, MS, depression, anxiety, eating disorders, CVAs, etc. Ai Chi provides slowness and repetition which improve the kinesthetic sense. An increase in mental alertness occurs as the mind and body move together - breathing and engaging with the flow of the water. The movements unite mental, physical, and spiritual energies and give the practitioner space and time to reflect and observe themselves. At its very core, Ai Chi offers the practitioner an opportunity for complete engagement of their life force (chi) which seeks the wisdom of self healing. An Ai Chi practitioner living with fibromyalgia at Lakeshore Foundation said, "Doing this three times a week has saved my life and I'm not kidding."

Climbing Wall Adaptations and Benefits for Individuals with Physical Disabilities

Practical Application
P62

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A typical climbing wall, whether indoors or outdoors, may seem like an impossible challenge for many individuals with physical disabilities. The purpose of this presentation is to show how minor adaptations help individuals with many disabilities to climb successfully and experience the numerous physical and psychological benefits associated with climbing. We took individuals with a wide variety of physical disabilities, including: hemiplegic CP, ataxia, visual impairment and paraplegia and had them climb our 23 foot indoor climbing wall. Some individuals required a chest harness while others required no adaptations at all. Some individuals required placement changes of the holds while those with visual impairments required some verbal cues. We found that all individuals were able to participate and challenge themselves to their level of comfort. Most were able to reach the top of the wall. In conclusion, we observed that the climbing wall is a great avenue for individuals with physical disabilities to acquire strength, including that on the non-dominant side, along with dexterity, agility, and spatial awareness. The climbing wall also provides an opportunity for these individuals to overcome their fears in a controlled environment and participate with their able-bodied peers in a recreational activity. It was also noted that individuals' sense of personal accomplishment were very high after being able to conquer the climbing wall.



The Influence of Parent/Caregiver Physical Activity Levels on the Physical Activity Levels of Children/Adults with Disabilities

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P63

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There are numerous benefits associated with regular physical activity and parents/caregivers have a major influence on their children regarding their choices and behaviors as it relates to physical activity levels. **PURPOSE:** The purpose of this study was to examine the physical activity levels of both children and adults with disabilities and their parents/caregivers. **METHODS:** Participants for this study included children and adults enrolled in the Special Needs Activity Program (SNAP) at Indiana University and their parents/caregivers. The parents/caregivers were asked to complete the Aerobics Center Longitudinal Study Physical Activity Questionnaire (Blair et al., 1989), the Modifiable Activity Questionnaire (Kriska & Casperson, 1997), and the Physical Activity Scale for Individuals with Physical Disabilities (Washburn et al., 2002)). **RESULTS:** A total of fifteen parents (mean age 42) and thirteen caregivers completed the surveys (mean age 41) along with thirteen adults with disabilities (mean age 40) and fifteen children (mean age 10). The types of disabilities reported for the adults were developmental disability (n=9), cerebral palsy (n=1), bi-polar disorder (n=1), attention deficit disorder (n=1), and hearing impairment (n=1). The types of disabilities reported for the children were seizure disorder (n=2), attention deficit hyperactivity disorder (n=2), Down syndrome (n=2), and autism (n=9). The results of the completed surveys indicated that there was a statistically significant difference between the activity levels of the parents/caregivers and the children/adults with disabilities. The parents/caregivers physical activity levels reported met the nationally recommended guidelines for physical activity (Janssen, 2010) while the children and adults with disabilities did not meet the nationally recommended guidelines for physical activity. The type of disability reported did not have a statistically significant effect on the overall activity levels of both children and adults with disabilities. **CONCLUSIONS:** While the results of this study provide some data regarding physical activity patterns among parents/caregivers of children and adults with disabilities, there were some limitations. Some of the limitations for this study included a small sample size and the use of surveys designed to ascertain physical activity levels. Future research should involve a direct measure of physical activity patterns (ex. activity monitors, heart rate monitors, pedometers, etc.) along with the use of surveys/activity recalls.

The Effectiveness of Swimming for Breaking the Vicious Cycle of Deconditioning in Cerebral Palsy

Scientific Research
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Youth with cerebral palsy (CP) are considerably less active and have lower physical fitness than their able-bodied peers, leading to a cycle of deconditioning. The implementation of community-based exercise and sport programs into the therapy program can be a solution for breaking and reversing this cycle. Swimming is a community-based activity that can be introduced. **PURPOSE:** The purpose of this study was to investigate the effect of a swimming intervention on the factors contributing to the vicious cycle of deconditioning of youth with CP. **METHODS:** Fifteen children, diagnosed with CP, aged 7 to 17 years and at levels I to III on the Gross Motor Function Classification Scale, participated in a randomized controlled trial comparing a learn-to-swim program (10 weeks, 2/ wk, 30 to 60 minutes) to no extra therapy/activity, with a 5-week follow-up period. The primary outcome measures were swimming skills, walking capacity, pain and fatigue. The secondary outcome measures were coordination, functional independence, self-esteem and QOL. A repeated measures ANOVA was used to analyse the data with SPSS v19, effect sizes (ES) and their confidence intervals (CI) were calculated. **RESULTS:** Participation level to the program was 95 %. The experimental group had a significant ($p < 0.01$) increase of 26 % in swimming skills compared to a 7 % increase in the control group. For the experimental group this result remained significant at follow up ($p < 0.01$). After the intervention period, the experimental group had an increase of 11.6 meters on the 1-min walk test with an ES of 0.68, compared to a decrease of 7.7 meters for the control group. At follow-up, the experimental group had an increase of 18.9 meters compared to baseline (ES of 1.18, [CI 0.05 - 2.32]). For the 10-meter walk test the control group had a 0.13 m/s decrease after the intervention, compared to an increase of 0.02 m/s for the experimental group. There was no significant deterioration for pain or fatigue. The secondary outcome measures have not been analysed to date. **CONCLUSIONS:** These results show the positive improvements in swimming skills and walking capacity for youth with CP, without affecting the levels of pain or fatigue. This demonstrates that swimming is a safe and effective physical activity for youth with CP. The possibility of replacing part of the tiresome intensive therapy program with swimming in order to increase adherence to therapy and physical activity towards adolescence and adulthood should be considered.



The Physical Activity Levels of Special Olympic Athletes Golfing Nine-Holes

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The U.S. Department of Health and Human Services (USDHHS) (2010) suggest that obtaining 2.5 hours of moderate to vigorous physical activity (MVPA) per week is associated with health benefits. Although it has been suggested that golf is an activity that can help meet physical activity recommendations, there is little research on the duration and intensity of physical activity while playing a round of golf. Further, there is a dearth of evidence that individuals with intellectual disability when playing golf achieve a physical activity threshold that has health benefits. **PURPOSE:** The purpose of this study was to measure the amount of moderate to vigorous physical activity individuals with intellectual disability achieve while walking nine holes of golf. **METHODS:** Participants in this study included eight males and one female ranging in age from 20-39. All participants were current Special Olympic athletes with mild intellectual disability and no physical disability. The weight of each participant was measured with and without their golf bag. Participants wore an Actigraph GT1M accelerometer that was placed just above their right hip and data were collected over the period of time it took each participant to play nine holes of golf. All of the data were downloaded from the accelerometers and exported to an Excel spreadsheet for data management. **RESULTS:** The average time to complete the nine-hole round of golf was 139 minutes. During this time, the group averaged 59.11 minutes of MVPA and a Metabolic Equivalent (MET) level of 2.86. The mean k/cals expended for each golfer was 650.72, and this represented a 23.2% increase by carrying the additional weight of the golf bag. The results of this study illustrated that by walking nine holes of golf three times per week, individuals with intellectual disabilities could acquire 177.33 minutes of MVPA, which would alone meet the USDHHS (2010) physical activity recommendations of at least 150 minutes of MVPA per week. Results also showed that each individual would expend an average of 1,952.16 calories from walking nine holes of golf three times per week. **CONCLUSIONS:** These results demonstrate that very important health benefits can be achieved just through the walking associated with playing golf.

The Development of the Access to Worksite Wellness Survey for Employees with Disabilities (AWWSED)

Scientific Research
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In 2010, an estimated 10.3 percent of non-institutionalized persons, ages 21-64, in the United States reported a disability. The literature indicates that the day-to-day experiences of persons with disabilities tend to be more stressful than for those without disabilities (Henderson & Bryan, 2004), and workers with disabilities tend to experience unique job stressors (Gignac, Sutton, & Badley, 2007). To date, there is a paucity of research concerning the work-life needs of these workers and their access to employer-sponsored wellness resources. **PURPOSE:** The purpose of this study was to design a survey tool to assess individuals with disabilities perceptions of access of worksite wellness resources. **METHODS:** Survey items were identified from the literature and national survey questionnaires on employment, disability, or wellness. Researchers identified 45 items each classified into one of following categories: 1) Demographics, 2) Employment Information, 3) Health & Disability Information, 4) Worksite Wellness Resources, and 5) Factors influencing participation. To assess content relevance the Delphi method was employed. An expert panel of 10 members took an online survey ranking the items on a 5-point likert scale with 1 being a poor match to 5 being an excellent match. **RESULTS:** Content-validity coefficients were estimated using the data from the expert panel. The coefficients were compared to binomial probability table (Aiken, 1985) to test for significance. Based on the results, researchers removed 15 items. On advice of a survey consultant, 7 survey items were consolidated into 3 items while retaining all relevant content and 1 item was split into 2 parts for increased clarity. The final survey was culled down to 27 items. **CONCLUSIONS:** The Delphi method provides evidence to the content validity of the Access to Worksite Wellness Survey for Employees with Disabilities. This survey may be a valuable tool in helping researchers and employers understand the needs of workers with disabilities.



Influence of Specific Reinforcement Techniques on Traverse Climbing Wall Performance of Children with Autism

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Instructing school-aged students with disabilities how to climb can lay the foundation for obtaining skills that can be transferred into community activities pertaining to adventure education. **PURPOSE:** Purpose of this study was to investigate whether six youth with autism spectrum disorder may be able to increase climbing wall performance using three different reinforcement techniques that are traditionally used in special education settings, as well as, with climbing wall programs. **METHODS:** An alternating treatments with no baseline design was used to evaluate the effects of three treatment interventions (IV) on climbing performance (DV). The treatment interventions were a(n): (a) token economy (i.e., retrieve a ball from a climbing hold at different distances to trade in for preferred reward) in addition to a continuum of assistance, (b) visual stimulus (i.e., touching a climbing noodle at different distances) in addition to a continuum of assistance, and (c) verbal praise, in addition to a continuum of assistance. The climbing performance for this study was defined by task completion percentage (i.e., how much of the climbing curriculum was achieved during a climb) and the independence level percentage displayed (i.e., how much assistance was needed during a climb) by the participants during each climb. **RESULTS:** Based on visual inspection of the independence level performance data, the use of visual stimuli more effectively increased Participants 2, 5, and 6 level of independence when compared to token economy and verbal praise. With Participants 1 and 4, the token economy was more effective in increasing level of independence. With Participant 3, verbal praise was more effective when compared to token economy and visual stimuli. Based on the visual inspection of the task completion percentage performance data, the visual stimuli were more effective in increasing task completion for Participants 2, 5 and 6. The use of a token economy was more effective in increasing task completion when compared to visual stimuli and verbal praise for Participants 1 and 4. Verbal praise was more effective when compared token economy and visual stimuli for participant 3. Descriptive data (Means) for the participants' independence level percentage scores, as well as, task completion percentage scores were ranked across type of treatment. Based on the rank sums of independence level percentage scores including all six participants, the visual stimulus ranked the highest followed by the token economy and verbal praise, respectively. Based on the rank sums of task completion percentage including all six participants, the visual stimulus ranked the highest followed by the token economy and verbal praise. **CONCLUSIONS:** Based from this study, it was concluded that climbing performance within community-based activities of youth with Autism Spectrum Disorder can increase through the use of extrinsic motivational techniques.

The Determinants of Exercise Participation Among People with Disabilities in South Korea: A Multilevel Modeling Approach

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Regular participation in exercise has several benefits to sustain healthy life for people with disabilities and has become a public health priority to reduce the health disparities in this population. However, a majority of evidences has noted that the prevalence of exercise among this population is still significantly low compared to those without disabilities, and little is known as to what factors may affect the regular participation in exercise among this population. **PURPOSE:** The purpose of this study was to examine the determinants of exercise among people with disabilities in South Korea using an ecological perspective. **METHODS:** Data came from a national-wide survey for exercise participation among people with disabilities conducted by Korea Sports Association for the Disable (KOSAD) during 2010-2011 years. A total of 1,500 individuals with disabilities were randomly selected from 16 local areas using the proportional stratified sampling scheme. The individuals were interviewed to disclose detailed information (i.e., frequency, duration, and purpose) on exercise participation in the past year and were categorized into four groups [i.e., no exercise (NO-EX), insufficient exercise (I-EX), sufficient exercise for rehabilitation (S-EX-R), and sufficient exercise for leisure time activity (S-EX-L)] based on the recommended level of exercise by KOSAD (i.e., 2-3 days/wk at least 30 minutes durations for sufficient exercise). The proportions of accessible exercise facilities (i.e., social welfare center, public gym, and public exercise area) and sports clubs for the disabled to the population of disabled across 16 local areas were also obtained. Multilevel multinomial logistic regression was performed using demographic characteristics and environmental variables as individual- and local level predictors of exercise participation among people with disabilities. **RESULTS:** Using NO-EX as a reference, there were significant individual level effects of age, gender, family income, and types of disability on likelihood to be I-EX, S-EX-R or S-EX-L (p 's <.05). Among four local level predictors, the proportion of accessible sports club for disabled across local areas was a only significant predictor on likelihood to be I-EX [Odds ratio (OR)=2.06, 95% confidence interval (CI)=1.13-3.74], and S-EX-L (OR=2.09, 95% CI=1.18-3.73). **CONCLUSIONS:** Based on the ecological perspective to explain the exercise participation among people with disabilities, we found the accessible sports clubs for the disabled within each local area significantly explained the discrepancies in exercise participation among people with disabilities. The public efforts to promote the sports club activity for the disabled should be encouraged.



Maslul-A Unique Therapeutic Sports Center for Children

Practical Application
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Children with delayed acquisition of developmental milestones often have a difficult time trying to fit-in at school and at various social activities and are at risk for developing secondary emotional and social disabilities. Play is of the utmost importance for normal development of emotional, physical and social skills in children. Research has found that 5-7% of school aged children who are diagnosed with ADHD are concurrently found to have DCD. These children are at risk for developing significant gaps in motor skills, emotional aptitude, a low level of self esteem and in some cases anxiety or clinical depression. Another at-risk population is children with physical and mental disabilities, such as cerebral palsy (CP), traumatic brain injury, and mental retardation and autism spectrum disorders. Research has shown that children with these difficulties tend to engage in minimal physical activities, have very little opportunity to do so and are at significant risk for developing secondary morbidity. In an attempt to prevent or bridge these gaps, over the past 7 years Maslul has developed multiple programs to allow children and young adults to take part in adapted physical activities designed to be appropriate to the child's age, level of functioning and culture.

- The programs are designed to enhance basic psychomotor skills while cultivating self esteem.
- Though therapeutic in nature, the programs are loads of fun.
- It is our preface that the sooner we intervene there will be less cumulative damage.
- Unique family classes were first introduced in 2011.
- The groups are smaller than normative sports classes, with skilled professionals as therapists.
- In 2011 some 300 children ages 4-28 years took part in Maslul's special therapeutic programs.

To summarize, when children with special needs are given adequate conditions to improve upon their basic psychomotor skills, the gaps created between themselves and their peers can be minimized. Increased physical activity can prevent secondary morbidity and the chance of developing secondary psychosocial disabilities is significantly reduced, thus allowing for the development of healthy and sound adults with greater self esteem and self confidence.

Family Training – A Much Needed Time-Out for Parents and Children

Practical Application
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As a center that primarily treats children with mild to moderate developmental difficulties, Maslul focuses on personal growth in the physical, emotional and social arenas via therapeutic sport activities. The literature has shown that active involvement of parents in their children's therapy assists in many ways. The purpose of the program was to allow "time alone" for a parent with his/her child in the middle of the week and thus assist in cultivating a bond where the benefits can be mutual. This model consisted of twenty children aged 6-12 yrs (median age- 8 years old) and their parents who took part in a unique program at Maslul's facility in Jerusalem. 6-8 sessions of 45-minutes each, designed to allow a child with a minor therapeutic goal (as prescribed by a therapist or physician) together with his/her parent to participate in a joint physical activity class in a specialized children's gym. The children had minor developmental disabilities (ADD/ADHD, DCD, over weight, low muscle tone, weakness of shoulder girdle and more) and attended the regular school system. The program consisted of a wide range of activities designed to enhance parent-child relationships, increase physical conditioning, boost self-esteem and develop self-image. Each couple completed various activities requiring mutual support and cooperation, such as running/walking side-by-side on treadmills, helping each other complete crunches (sit-ups) and push-ups, playing on the electronic sports wall, jumping on a trampoline, completing outdoor training activities, etc. At the end of every class the parents were encouraged to repeat some of the tasks at home on their own and in the following class they discussed how it went. The nearly perfect attendance record is evidence that the time spent with their children was very gratifying for the parents. Follow-up satisfaction questionnaires that were completed by the participating parents demonstrated that 95% of the parents appreciated a structured activity that they can attend regularly with their children. Additionally, having these activity based on adapted physical activity, a legitimate form of therapy prescribed by professionals, makes it even more worthwhile and important. All parents reported that the time spent with their children was satisfying, joyful and beneficial, and if given the opportunity they would like to repeat the program. As one father stated: "I was unaware of how to get my daughter to be physically active." After the parent-child program I know how to play with her outdoors". We recommend that additional programs, which are easy to apply, be developed. Parents and children can use adapted physical activities to promote their therapeutic goals. Furthermore, for children with developmental disabilities, learning disabilities, ADHD, mild psychosocial difficulties and children who are overweight- spending quality time with a parent by engaging in sports proves to be a win-win situation.



Effects of Combined Exercise on the FPD of an Individual with Cerebral Palsy

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Exercise has positive impact on a hemiplegic gait pattern in persons with cerebral palsy; however, its relationship with Foot Pressure Distribution (FPD) has not been proven. **PURPOSE:** The purpose of this study was to investigate the effects of a 16-week combined exercise program on the gait patterns of an individual with cerebral palsy. **METHODS:** A single subject pre-post design was used in this study. The participant was a 47-year female with a congenital cerebral palsy. The degree of disability she had was Physical Disability Level 3 in Korean classification (being able to walk independently). Her height and weight were 158 cm and 34 kg, respectively. The exercise program used in this study consisted of stair walk, squat, elliptical cycle, trampolines, treadmill jogging, and body vibration. A 60-min. exercise session was held in a gym 3 times a week for 16 weeks. A recent product of foot pressure (Pedar-X, Germany) was used to measure the FPD variables (average and maximum foot pressure, ground reaction force, contact area, the center of pressure, and velocity). The data on the FPD variables were collected before and after the 16-week exercise program. A series of descriptive statistics were used to evaluate the changes of variables after the program ended. **RESULTS:** Results revealed that the average foot pressure on left and right side were both improved to 42% and 28%, respectively. In the maximum foot pressure, the improvement of the left foot was much greater than that of the right foot (115% and 2%, respectively). Results also indicated that the ground reaction force on both left and right foot became greater after exercise (88% and 78%, respectively). Also, results on the contact area showed that the change rate of the right was slightly greater than that of the left foot (16% and 13%, respectively). The results of the graphical analyses revealed that the center of pressure on the impaired side was better distributed after exercise. In addition, the participant's gait velocity was improved up to 13%. **CONCLUSIONS:** Based on the results of this study, it is concluded that an individual with cerebral palsy may benefit from participation in a combined exercise program as she or he improves the gait patterns. Limitations related to sample size and generalizability should be further discussed.

ACES: Active Children Exercise and Swim; "Play with a Purpose"

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Children with physical disabilities often endure hours upon hours of therapy in their lifetime. The ACES program at the Lakeshore Foundation achieves many of the same benefits in a fun and "therapy free" environment. It combines functional skills with the fun of being in an aquatic setting. The class takes place at the Lakeshore Foundation in Birmingham, AL and includes children ages 4-18 with a variety of disabilities. The class is 45 minutes in length, two days a week, and works on various skills and muscles in the body. The class has shown dramatic improvements in areas such as balance, coordination, strength, flexibility, and range of movement. The improvement of each child is measured based on a basic scale developed at the Lakeshore Foundation as well as parental testimony and observation of the children. This scale includes items such as trunk stability, lower and upper body strength, hand/ eye coordination, and breathing skills. Each child is scored each day based on how much assistance they require to complete each task from no assistance to 100% assistance. The results vary from child to child, but many children have made dramatic improvements and went from needing 100% assistance to none. The makeup and activities of the class are adapted to the participant's needs and goals. These activities include walking on the balance beam, walking up and down steps, fine motor skills, and balance skills on a flotation mat. The children leave happy and confident in what they have accomplished.

State-Wide Survey of Physical Activity Participation by Individuals with Autism Spectrum DisordersScientific Research
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Individuals with an autism spectrum disorder (ASD) are, in general, not physically active at the frequency and intensity recommended for optimal health. Researchers (Pan & Frey, 2006; Obrusnikova & Cavalier, 2011) suggest this is in part because of sensory, motor, and social challenges. Previous research on physical inactivity in this population has not focused on direct responses from individuals with ASD and their caregivers across an entire state or large geographical area. **PURPOSE:** The purpose of this study was to collect responses of one state's residents with ASD and their caregivers regarding participation, or lack thereof, in physical activities by individuals with ASD. **METHODS:** Using a cross-sectional survey design, investigators captured survey responses from the perspectives of (a) individuals with ASD (n=57) and (b) caregivers for individuals with ASD (n=82). Survey data included demographic information; specific ASD diagnosis; type, frequency, mode, and duration of physical activities; sources of encouragement related to physical activity; challenges to participation in physical activities; and, nature of physical activity related to daily living routines. **RESULTS:** Reported barriers to physical activity centered on sensory challenges consistent with characteristics of ASD, such as bright lighting, loud noise, and difficulty in understanding social situations. Individual challenges to physical activity included medical comorbidities, lack of motivation, and awareness of deficit when compared to peers. Across groups, individuals with ASD and their caregivers identified a preference for and desired ability to engage in physical activities, like walking and swimming, that (1) did not require a great deal of physical coordination, (2) could be engaged in as an individual or as part of a group, (3) did not require a great deal of social skills, and (4) could be sustained for periods long enough to be of benefit to the participant. Individuals with ASD and caregivers both expressed strong desire to increase physical activity participation, even in group settings. Caregivers' suggestions included tailoring facilities and activities to individuals with ASD. **CONCLUSIONS:** These results provide novel insight into the challenges of physical activity for individuals with ASD in one state, yet still exemplify these individuals and their caregivers possess a definite interest in increasing activity levels. These results are encouraging for the continued promotion of adapted physical activities for individuals with an ASD and will serve as guidance for future interventions.

State-Wide Survey of Physical Activity Professionals Working with Individuals with Autism Spectrum DisordersScientific Research
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Physical activity professionals serve as key change agents in promoting the health and wellness of individuals with autism spectrum disorders (ASD). In order to promote physical activity in this population, physical activity service providers must set up individuals with ASD for success during physical activities, whether for exercise or recreation. **PURPOSE:** The purpose of this study was to survey physical activity providers (e.g., adapted/physical educators, parks and recreation employees, therapeutic recreation specialists, personal trainers, coaches) across one state regarding physical activity programming for individuals with ASD and the providers' personal beliefs and professional development relative to serving this population. **METHODS:** Investigators administered an online survey to collect numeric and narrative data from physical activity providers. Information collected included: population and age range served, aspects of their programs that individuals with ASD participate in, frequency of participation, need for accommodation, barriers to success, the providers' perceptions of the benefits of physical activity for this population of individuals, the providers' related professional development, and the providers' perception of comfort in working with this population. **RESULTS:** Respondents (physical activity providers)(n=22) averaged 13.7 years of experience working with individuals with ASD. In various settings, individuals with ASD participated in most of the offered programs, albeit with individual accommodations across curriculum, personnel, and equipment. Through their responses to scaled measure and open-ended questions, physical activity providers demonstrated a comprehensive understanding of the physical and physiological needs of children with ASD. Despite their well-informed responses, they noted gaps in their professional training for working with individuals with ASD and their need for more hands-on training opportunities, particularly related to successful integration of individuals with ASD in inclusive activities, activity modifications, and ways to motivate individuals with ASD to be more physically active. Primary barriers to success were large group sizes and a need for additional personnel. **CONCLUSIONS:** The collected information can serve as a guideline for future professional development training of physical activity professionals regarding physical activity for individuals with ASD. The results indicate a desire for increased education and strategies for serving individuals with ASD. The results can also be used to advocate for the provision of appropriate physical activity programs and services for individuals with ASD.



Riding Therapy for Children with Cerebral Palsy: A Case Study

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People with disabilities need, for their development, motor activities that are specific and adequate to their characteristics. Among them there is the riding therapy renowned in Brazil as an educational and therapeutic method that uses the horse through an interdisciplinary approach, seeking the biopsychosocial development of people with disabilities. **PURPOSE:** The purpose of this study was to evaluate in a quantitative and qualitative way the performance of motor skills and emotional aspects of a child with cerebral palsy (CP) practicing riding therapy. **METHODS:** The study was a case study, with a nine years-old female child with CP type spastic diplegic, a participant of the Extension Project in the University UNESP "Riding Therapy: a motor activity for the development of People with Disabilities ". For quantitative evaluation we used the Gross Motor Function Measure (GMFM) on two occasions: at the beginning of the program (pretest) and after 10 sessions (posttest). To obtain qualitative data we created a Checklist, which analyzed the performance of the practitioner, in all sessions, through the shooting. **RESULTS:** Data from pre and post tests of the GMFM showed difficulties in gross motor skills, skills related to the movement of the head, limbs and trunk. The results obtained in the Checklist, after analyzing the shooting allowed the observation of the improvement of postural alignment, head position and straightening of the trunk starting at the third session. The performance of the shoulder and pelvic girdle ranged between levels: severe and moderate, and control of muscle tonus, which showed bad quality in the beginning and evolved to regular at the end. In the emotional aspect with regard to the interaction; practitioner-therapist and practitioner-animal we found out that after the third session the participant responded to stimulus by clapping her hands, increasing contact with the animal and reducing insecurity. The results lead to the conclusion that although there were no statistically significant changes observed in the quantitative data measured by the GMFM, the data obtained through the checklist allowed the observation of qualitative improvement in attitude and behavior interacting with the therapist and the animal, and emotional manifestations during the sessions and the program of riding therapy. **CONCLUSIONS:** We conclude that riding therapy program provided some improvement in emotional and motor aspects of the practitioner and uses of researching tools to analyze the importance of riding therapy as a therapeutic treatment for people with CP.

Evaluating Wellcat Fit: A Peer-Assisted Physical Activity Program for College Students with Depression

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Depression is one of the most prevalent mental health issues experienced by college students and is among the leading causes of disability in the United States (Center for Disease Control and Prevention, 2011). Several studies conclude that physical activity is an effective treatment for depression either by itself or as an adjunct to other treatment, such as psychotherapy and antidepressant medications (Babyak et al., 2000; Dunn, Trivedi, Kampert, Clark, & Chambliss, 2005; Klein et al., 1985). Self-efficacy for physical activity has consistently been identified as a correlate of physical activity participation in both healthy individuals and those with chronic diseases and disabilities (Doerksen, Umstatt, & McAuley, 2009; McAuley & Blissmer, 2000). There have been several physical activity interventions with the sole purpose of encouraging college students to increase their physical activity, but only one (Mailey et al., 2010) has focused on effective methods to implement physical activity programs for college students suffering from depression. **PURPOSE:** The purpose of this study is to examine if a peer-assisted physical activity program, Wellcat Fit, affects depression symptoms and self-efficacy for physical activity in college students with depression. **METHODS:** 9 students 18 to 32 years of age, diagnosed with mild to moderate depression, participated in an 8 week physical activity program as part of the treatment for their depression. The program entitled "Wellcat Fit", was suggested as part of depression treatment by physicians at the Student Health Center at CSU Chico. Wellcat Fit paired each participant with a peer exercise buddy to provide social support throughout the program. Peer exercise buddies were students, 20 to 25 years of age, majoring in kinesiology. Participants in Wellcat Fit completed the Zung Self-Rating Depression Scale (Zung, 1965), Self-Efficacy for Exercise Scale (Marcus, Selby, Niara, & Rossi, 1992), and 7 Day Recall of Self-Reported Physical Activity (Sallis et al., 1985) before and after the program. **RESULTS:** Zung depression scale scores decreased from a mean of 45.7 to 36.2 over the eight week program. Self-efficacy for physical activity scores improved from 10.7 to 16.7 over the eight week program. Scores on the 7 day recall indicated improvements in physical activity participation. Additionally, 75% of participants reported the program to be very beneficial on a 5-point likert scale. **CONCLUSIONS:** In this pilot study, statistical significance was not found possibly due to a small sample size (n = 9). However, due to the large effect size (0.4) and the apparent trends in the data, Wellcat Fit may be an effective adjunct intervention for treating college students with depression. Based off the decrease in depression symptoms, improvements in self efficacy for physical activity, and increased participation in physical activity; Wellcat Fit should be examined with a larger population to determine effectiveness.



Outdoor Camping Experience for Children with Physical Disabilities: A Win/Win Service Learning Experience

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Camp Horizon is an annual overnight camping experience designed to expose children with physical disabilities from 5 to 18 years of age to real-world engagement activities in the outdoor environment. The camping experience occurs in an accessible campground setting with students enrolled in the Doctor of Physical Therapy (DPT) program at the University of Tennessee at Chattanooga (UTC) serving as counselors. This presentation will discuss the win/win service-learning experience that Camp Horizon affords the camper/student PT counselor dyads. For the campers, it offers an opportunity to engage in social activities with other children who experience similar movement system challenges. The age range of campers permits the older campers to assume developmentally appropriate leadership roles and help the younger campers to better take advantage of the wide array of activities available to them. It also permits the campers to experience a one-on-one partner relationship with an adult counselor focused exclusively on helping the child optimally engage in unique and exciting outdoor movement experiences. For the DPT students who serve as counselors at Camp Horizon, it affords the opportunity to practice a wide variety of patient-care skills learned in the classroom in a fun, real-life setting. Under the watchful supervision of camp staff comprised of medical professionals employed by Children's Therapy Services at Erlanger Medical Center in Chattanooga, TN, the DPT students attend to all of the campers caregiving needs and problem solve how to facilitate the campers' engagement in modified physical activities appropriate for the individualized needs of each camper. This serves to extend the DPT students' experience base to include independent performance of all activities of daily living required for children with a variety of disabling conditions over a 32-hour period while simultaneously engaging the children in a wide range of adapted camp activities including crafts, swimming, canoeing, archery, horseback riding, low ropes adventure course, creative movement, and campfire skits / songs. Further, this learning experience exposes the DPT students to professional modeling through their engagement with camp staff and requires the students to demonstrate adherence to professional values associated with the provision of pro bono services, both to the campers and their families through the respite services provided. It provides the students opportunities to work collaboratively among themselves and with the camp staff to design, execute and evaluate camp activities and to express creativity in offering suggestions for improvement in camp design for subsequent years.

Inclusion Training Intervention for Afterschool Program Staff

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Staff contributes greatly to the quality of afterschool programs. The ability of these programs to include youth with disabilities depends largely on the behaviors of staff. **PURPOSE:** The purpose of this study is to examine the effect of theory-based training on afterschool staffs' knowledge, intention and behavior of including youth with disabilities in afterschool programs as well as physical activity during afterschool programs. **METHODS:** This quasi-experimental study will recruit afterschool organizations that will provide a three hour inclusion training for their staff. Organizations will be stratified based on the type of afterschool program site (school based youth, community based youth, and teen). Two hundred and fifty staff will be recruited to participate in the study and each afterschool program site within the stratified groupings will be randomly assigned to a training or non-training group. All staff will fill out a survey at three assessment periods. First, approximately 2 weeks before the training, then again two weeks after the training time, and finally six weeks after the training. **RESULTS:** This study is currently in the data collection stages so there are no results to report as of right now. Preliminary results will be available for discussion by the conference dates. **CONCLUSIONS:** Conclusions cannot be drawn right now because the study is currently in the data collection phase.



The Motor Skills of Young Children with Autism: Standardized Assessments and Natural Setting Observations

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Scientific Research
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Autism Spectrum Disorder (ASD) is a pervasive developmental disorder characterized by deficits in social skills, communication and repetitive or restricted interests (APA, 2011). Currently prevalence statistics indicate 1 in 88 individuals are diagnosed with autism (CDC, 2012). Research has indicated motor skill delays and deficits in children in ASD. This includes delays in reaching infant milestones, abnormal gait and stance patterns, and deficits in gross and fine motor skills. However, further exploration of the relationship between standardized motor skill assessment performance and motor skill performance in the context of which they are used (i.e., physical education or play) is warranted. **PURPOSE:** The purpose of this project is to understand how the motor skills in young children with autism, based on standardized assessment, relate to motor skill performance in a natural context. **METHODS:** It is anticipated that 10 children, ages 2-5 years and 11 months old, with ASD will participate in this study. All participants will have confirmed diagnosis of ASD, as indicated by the Autism Diagnostic Observational Schedule (ADOS). All participants will also complete the Peabody Developmental Motor Scale 2nd ed. (PDMS-2), the Mullen Scales of Early Learning (MSEL), and a demographic questionnaire. All participants will also complete a 10-minute video analysis in an environment supportive of motor skill engagement. The PDMS-2 contains 6 subtests: (1) reflexes, (2) stationary, (3) locomotion, (4) object manipulation, (5) grasping, and (6) visual-motor integration. This is a valid and reliable assessment for young children. The 10-minute video will analyze motor skills in a natural context and will be scored based on frequency and quality. The MSEL is a developmental assessment organized into five subscales: (1) gross motor, (2) fine motor, (3) visual reception, (4) receptive language, and (5) expressive language; and is a valid and reliable assessment for young children. **RESULTS:** It is hypothesized that children will perform better motor skills in a naturalistic environment, compared to the motor skills performed in the PDMS-2. We hypothesize that assessment instruction, the interpretation of instruction, and inability to imitate novel movements make performance more difficult during the PDMS-2 administration. **CONCLUSIONS:** The expected results from this study could provide relevant information for addressing motor assessment needs of children with ASD as well as future implications for early motor skill intervention.

Preferences of Injured Service Members: Delivery of Adapted Recreation Programs with Supplementary Health-Related Information

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Adapted sport and recreation programs for injured service members have grown significantly over the past several years. Engaging in physical activity following injury can have a significant impact on overall health and well-being. Such programs offer the unique opportunity to provide participants and their families with additional health-related information that can enhance health-related knowledge and ultimately improve health outcomes. In order to design such programs that meet the health needs and preferences of injured military and their families, a greater understanding is required regarding desired health-related information content and preference for service delivery (i.e., telehealth, face-to-face interactions). Understanding preferences from a consumer-informed approach may help enhance existing programs and may ultimately be more cost effective. **PURPOSE:** The purpose of this study was to determine the preferences of injured service members regarding incorporation of supplemental health-related information into adapted sport and recreation programs. **METHODS:** At the end of a three-day program of adapted sport and recreation activities, participants (n = 43) completed a brief survey, as part of a larger ongoing study. The survey assessed their preferences for possible incorporation of various types of health-related information they perceived would help supplement the sport and recreation program and their preferred method of delivery for such information. **RESULTS:** Information related to adapted equipment, activities in their community, and resources for injured military were of interest to the largest number of participants (> 90%). Information related to strategies for living with traumatic brain injury and coping with emotional health were also topics of interest to a large percentage (> 80%). In terms of preference for service delivery of supplemental health-related information, the highest percentage preferred delivery of information offered in person (i.e., onsite) followed by email (84%), dvd/cd (79%), social networking (77%), and telephone (72%) formats. **CONCLUSIONS:** This consumer-informed needs assessment among injured military highlights several important health-related topic areas that injured service members would recommend incorporating into adapted sport and recreation programs. Injured military appear interested in comprehensive approaches to improve their health in addition to services that focus on exposure to adaptive equipment and recreational activities. Additionally, a large percentage of these individuals appear to prefer an in-person approach over other service delivery approaches. From a health promotion standpoint, this information can help inform the modification of existing programs along with the development of new programs for this population. Implications for health policy and health promotion will be discussed.

Physical Activity Interventions in Adult Populations with DisabilitiesScientific Research
P81

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This presentation is based on a published literature review (Cervantes & Taylor, 2011) on physical activity interventions among adults with disabilities. **PURPOSE:** The presentation addresses key findings regarding theoretical frameworks, target groups with disabilities, outcome measures and results from existing published physical activity interventions are presented. Implications and future recommendations to stimulate future research are offered. **METHODS:** A comprehensive literature search was conducted using the following online academic databases (from 1998 to 2009): Academic Search Complete; CINAHL Plus with Full Text; Cochrane Library; MEDLINE with Full Text; Physical Education Index; PsycINFO; PubMed; and SPORTDiscus. The searches were limited to manuscripts published in English and in peer-reviewed journals. The keywords used to identify relevant literature were *disability, disabilities, intervention, program, people, individuals, persons, and adult or adults*. Terms were combined with *physical activity, exercise, sport, leisure, and recreation*. Inclusion and exclusion criteria were applied. **RESULTS:** The full search process produced 213 articles. After initial screening, 189 abstracts were reviewed. Of those, 176 were excluded (did not meet inclusion criteria). The full-texts of 13 articles that reported physical activity interventions among adults with disabilities were reviewed. Among those studies that failed to meet inclusion criteria, the most common reason for exclusion was that exercise was designed to increase or enhance a fitness component or body function rather than increasing overall physical activity (i.e., physical activity was not an outcome). Results were discussed in terms of participants' characteristics (e.g., ages, gender, ethnicity, disability type, etc), intervention characteristics (e.g., theoretical basis, type, duration, etc), research designs and activity measures. Overall, most studies focused on women. Intervention approaches were mixed and ranged from educational workshops to exercise support groups. Interventions ranged from one week to six months. Fewer than 50% of the studies specified a theoretical framework to guide the intervention. In addition to physical activity, most studies included other outcomes (e.g., fitness, functional capacity, etc). **CONCLUSIONS:** There was a paucity of research on physical activity interventions among adults with disabilities during the timeframe covered by the literature search. Most reviewed studies did not measure physical activity outcomes; thus, a relatively low number of studies met the inclusion criteria. It is unfortunate the paucity of interventions to increase physical activity among adults with disabilities considering the high levels of physical inactivity in this population. To meet national public health concerns with physical inactivity, there is a need for more physical activity interventions for adults with disabilities.

Dispositions of People with Pervasive Developmental Disorders in the Context of Adapted Motor Activity: Longitudinal StudyScientific Research
P82Angela T. ZUCHETTO¹, Cristiani de FRANÇA², & John Peter NASSER¹¹Departamento Educação Física, Centro de Desportos, Universidade Federal de Santa Catarina, Brazil; ²Prefeitura Municipal de Florianópolis, Santa Catarina, Brazil

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Dispositions are characteristics and/or behaviors of the person which can influence, positively or negatively, interactions in the immediate environment. **PURPOSE:** The aim of this study was to determine the developmentally generative and disruptive dispositions of people with pervasive developmental disorders in the context of adapted motor activity. **METHODS:** This research is characterized as qualitative, descriptive and longitudinal. The sample consisted of two teenage males, with pervasive developmental disorders and 14 and 16 years of age at the beginning of the study. They were analyzed during three years when they were engaged in an extracurricular program of adapted motor activity, in a public school. All program sessions are filmed; however, 14 and 11 filmed sessions were used to observe the development of participant 1 and 2, respectively. Data collection was obtained through filmed sessions and cursive records of them. Data were analyzed descriptively, according to an analysis matrix of personal attributes in the context of adapted motor activity based on the Bioecological Theory of Human Development. **RESULTS:** Regarding the developmentally generative dispositions, P1 showed evolution in the behavior of participating in activities and attending the demands and remained regular in behaviors of collaborating, helping colleagues and talking. P2 evolved in the first two years, but as he remained one year without participating in the program, in the fourth year (3rd of effective participation), showed a decrease in behaviors of attending, participating and talking. Regarding the developmentally active disruptive dispositions, P1 physically or verbally attacked and disturbed in only 2 and 3 sessions, respectively. By observing the passive disruptive dispositions, P1 showed behaviors of not participating and isolating himself in smaller numbers over the years. P2 showed to be regular on these dispositions. **CONCLUSIONS:** Given this situation, this study allowed to check the progress regarding the developmentally generative dispositions which required less complex behaviors. However, when involving reciprocal interactions with peers such behaviors remained regular.

**Relation between BMI and Motor Performance of Children with Disabilities**Scientific Research
P83Angela T. ZUCHETTO¹, Talita M. CAVALCANTE¹, Rosiane PICK², Cristiani de FRANÇA¹, & Paula A. ZANON³¹Federal University of Santa Catarina, Brazil; ²Study and Development of Children and Youth Clinic, CEDIJ, Brazil; ³City Hall of São José, Santa Catarina, Brazil

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PURPOSE: The objective of present study was to analyze the relation between BMI and the motor performance of children with disabilities, comparing those variables to gender. **METHODS:** Seventeen children with disabilities participated in the study, 12 boys and 5 girls, from 7 to 10 years old ($M = 8.44$, $SD = 1.23$) who participated regularly in physical activities twice a week (50 minutes each class) in a regular public school. To verify the nutritional status anthropometric measurements of body mass (Kg), height (m) and BMI (Kg/m^2) calculation, using the z-scores of relative BMI for age in months were assessed. Triceps and subscapular skinfolds were measured for body composition results. The Test of Gross Motor Development – second edition (TGMD-2) was used to analyze the motor performance. The Spearman Test was used to correlate data. To compare variables between boys and girls *t Test* of Independent Student. **RESULTS:** In relation to anthropometric measurements, the average weight was equal to $M = 30.28$ ($SD = 8.84$) average height equals to $M = 1.31$ ($SD = 0.08$) and average BMI equivalent to $M = 17.47$ ($SD = 3.54$). Regarding nutritional status, 52.9% ($n = 9$) were eutrophic, 41.2% ($n = 7$) were overweight and 5.9% ($n = 1$) were obese. Results showed that the average score of the subtest locomotion was 19.47 ($SD = 9.56$) and the object control was 23.71 ($SD = 10.08$). Correlation analysis between BMI and motor performance proved to be very weak. Independent *t tests* revealed no significant differences between genders for BMI and motor performance. **CONCLUSIONS:** Although the study demonstrated a weak correlation between motor performance and BMI, it is important motor and nutritional interventions, so that these people may achieve better development and consequently better quality of life.

The Influence of Self-Efficacy and Team-Efficacy on Wheelchair Basketball Players' PerformanceScientific Research
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According to Bandura's (1977) self-efficacy theory, it was hypothesized that the players, and teams with high Self-Efficacy (SE), and Team-Efficacy (TE) would perform better than the players and teams with low SE, and TE. It was also hypothesized that team-efficacy would predict team performance better than SE. **PURPOSE:** This study was designed to test the predictability of SE and TE on individual and team performance on wheelchair basketball. **METHODS:** 49 male wheelchair basketball players from six teams, who participated in 12th Daegu Cup Wheelchair Basketball Championship in 2009, were asked to respond *the Self-Efficacy Scale* (Kim, 1996), and *the Team-Efficacy Scale* (Kim, 1996) right before the tournament. *The Self-Efficacy Scale* consisted with 23 questions and *the Team-Efficacy scale* had 13 questions using a 5-point Likert-type scale. To examine the Influence of SE and TE on wheelchair basketball, t-test, one-way ANOVA, correlation, simple and multiple regression analysis were used. **RESULTS:** Results indicated that SE was a significant predictor of the player's individual score ($r = .372$, $p = .009$); however, it is not a significant predictor of the player's individual foul ($r = .188$, $p = .195$) and TE ($r = -.105$, $p = .472$). Moreover, TE was a significant predictor of teams' performance ($r = .629$, $p = .000$), but there were no significant associations between TE and SE ($r = .188$, $p = .195$). The teams that advanced to higher rounds exhibited higher SE and TE than the teams that did not advanced. Furthermore, the champion team exhibited higher TE score [$F(3, 45) = 17.17$, $p = .000$] and higher SE score [$F(3, 45) = 3.12$, $p = .035$] than the losing team. Sheffe post hoc test was conducted to determine which groups were significantly different in TE and SE. Post hoc tests reveal that the champion team demonstrated higher TE than the second place, the semi-finalist, and the quarter finalist. **CONCLUSIONS:** Generally researchers have applied Bandura's self-efficacy theory to non-disabled athletes. The current study applied self-efficacy theory to athletes with a disability and to test the predictability of SE and TE on wheelchair basketball player's individual performance and team performance. The current study supports Bandura's self-efficacy, and individuals' achievement was predicted by SE and team performance was predicted by TE. However, SE did not predict team performance in the current study.



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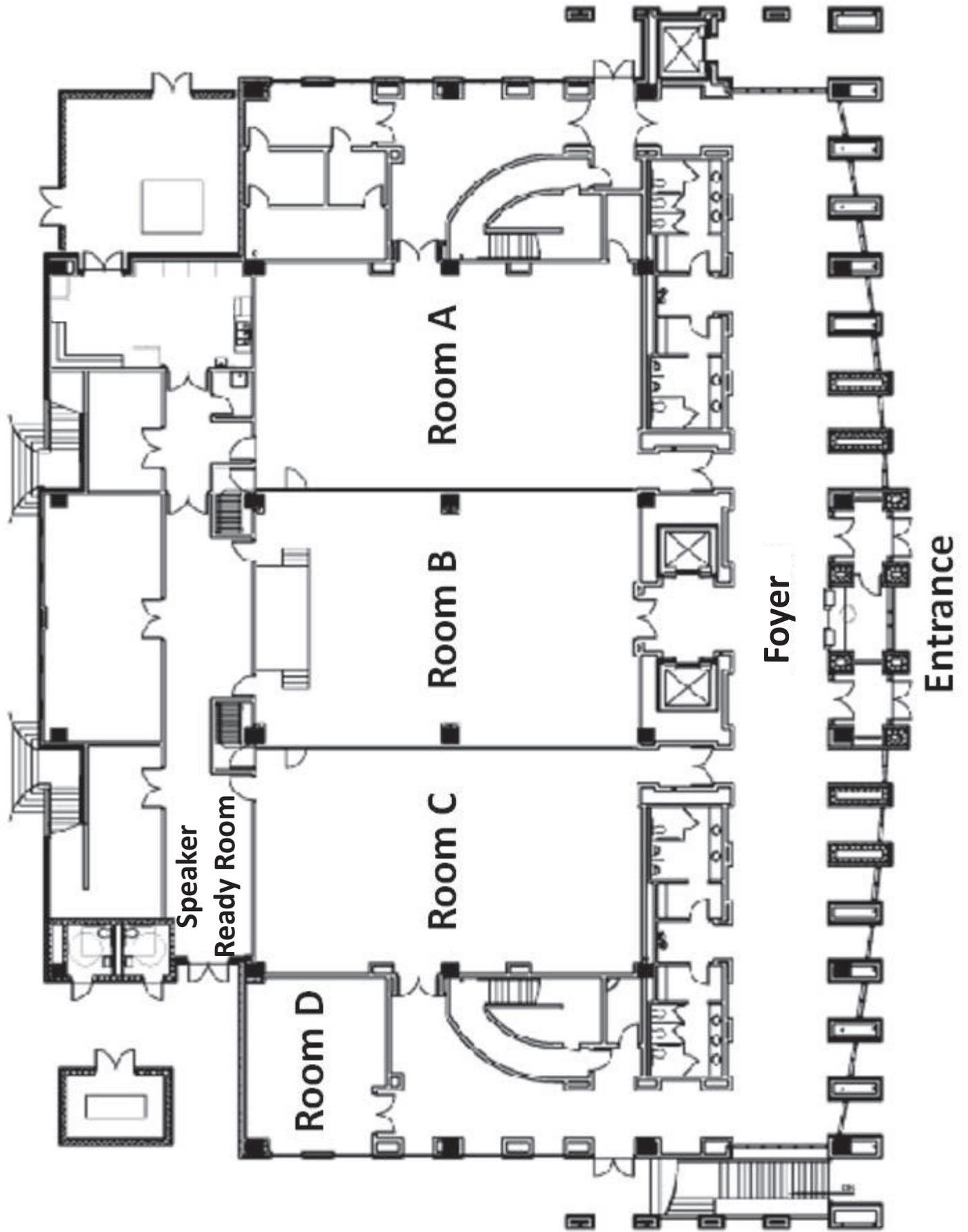


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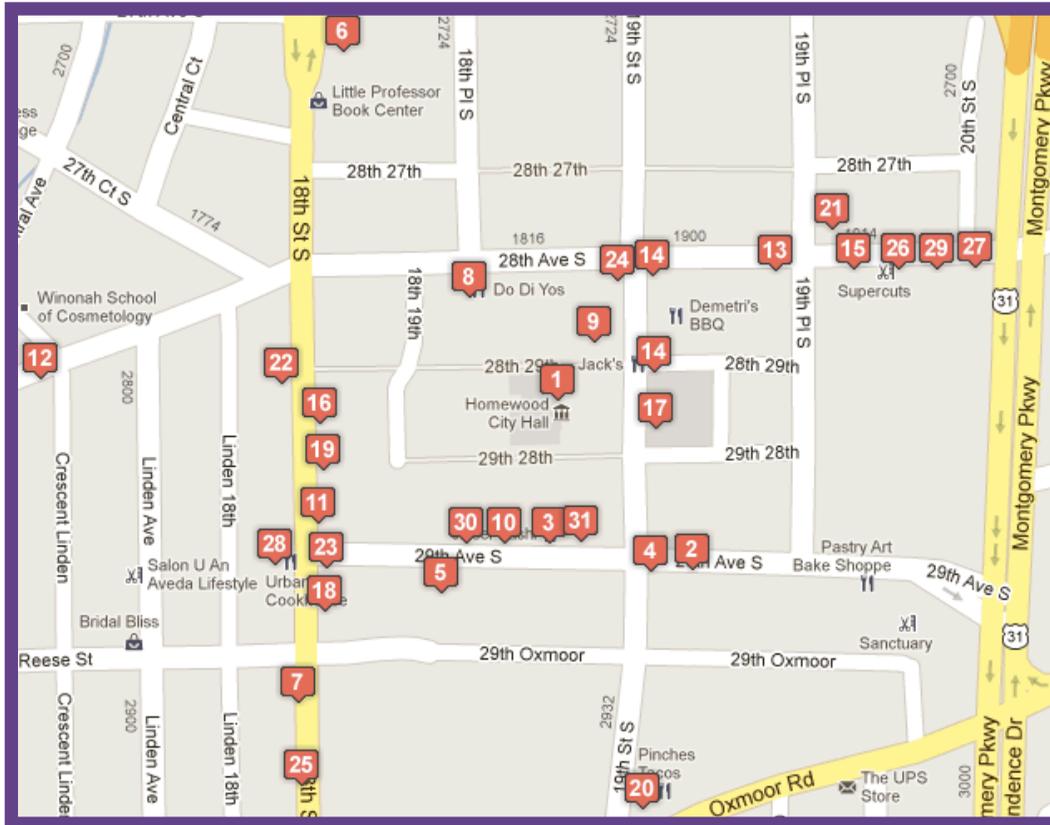
Conference Venue - Rosewood Hall

CONFERENCE VENUE MAP





Area Dining



Free Wifi
 Happy Hour
 Sports Bar
 Live Music
 Delivery/Take-Out
 Vegan/Vegetarian
 Gluten-Free

\$-Relative Pricing According to UrbanSpoon.com Walking Distance is Relative to Rosewood Hall

Points of Reference

Rosewood Hall
www.rosewoodhall.com
 2850 19th Street S
 Homewood, AL 35209

Aloft Hotel (205-874-8055)
 1903 29th Avenue S
 Homewood, AL 35209
 Walking Distance: .07 miles (1 min.)

(\$15-25 per entrée) \$\$\$

Jinsei Sushi (205-802-1440)
www.jinseisushi.com
 Type: Japanese/Sushi
 Walking Distance: .07 miles (1 min.)

Michael's Steak and Seafood
 (205-871-9525)
www.eatatmichaels.com
 Type: Steakhouse, Seafood, American
 Distance: .08 miles (1 min.)

(\$10-15 per entrée) \$\$

Dave's Pizza (205-871-3283)
www.davesontheweb.com
 Type: Pizza
 Walking Distance: .15 miles (3 min.)

DeVinci's Pizza (205-879-1455)
www.devincispizza.wordpress.com
 Type: Italian, Breakfast/Brunch
 Walking Distance: .30 miles (7 min.)

Digiogio's Restaurant (205-871-9995)
www.digiogiosrestaurant.com
 Type: American
 Walking Distance: .23 miles (5 min.)

Do Di Yo's (205-453-9300)
www.dodiyos.com
 Type: Greek
 Walking Distance: .11 miles (2 min.)

Jackson's Bar and Bistro
 (205-870-9669)
www.jacksonsbarandbistro.com
 Type: American
 Walking Distance: .11 miles (2 min.)

Lovoy's (205-870-9811)
www.lovoys.com
 Type: Italian
 Walking Distance: .14 miles (3 min.)

Oak Hill Bar and Grill (205-870-8277)
 Type: American
 Walking Distance: .21 miles (5 min.)

Steak-Out (205-871-0000)
 Type: Sandwiches/Subs, Delivery
 Walking Distance: .28 miles (6 min.)



(Under \$10 per entrée) \$

13 Arby's (205-871-9772)
www.arbys.com
Type: American/Fast Food
Walking Distance: .12 miles (2 min.)
 

14 Demetri's Barbeque (205-871-1581)
www.demetrisbbq.com
Type: Barbeque, Breakfast/Brunch
Walking Distance: .07 miles (1 min.)

15 Homewood Gourmet
(205-871-1620)
www.homewoodgourmet.com
Type: Southern/Soul, Subs, American
Walking Distance: .16 miles (3 min.)
 

16 Momma Goldberg's
(205-834-8871)
www.mommagoldbergsdeli.com
Type: Sandwiches/Subs
Walking Distance: .21 miles (5 min.)
 

17 Jack's (205-879-9321)
www.eatatjacks.com
Type: Burgers/Fast Food
Walking Distance: .02 mile (<1 min.)


18 O'Carr's Delicatessen
(205-879-2196)
www.ocarrs.com
Type: Sandwiches/Subs/Salads
Walking Distance: .21 miles (5 min.)

19 O'Henry's Coffees (205-870-1198)
www.ohenryscoffees.com
Type: Coffee
Walking Distance: .22 miles (5 min.)

20 Pinches Tacos (205-536-6511)
www.pinchestacos.com
Type: Mexican
Walking Distance: .14 miles (3 min.)
   

21 Planet Smoothie (205-290-9333)
www.planetsmoothie.com
Type: Smoothies
Walking Distance: .14 miles (3 min.)
 

22 Sam's Super Sandwiches
(205-871-0046)
Type: American
Walking Distance: .20 miles (4 min.)

23 Salem's Diner (205-877-8797)
www.salemsdiner.com
Type: Diner
Walking Distance: .21 miles (5 min.)

24 Salsarita's (205-637-7712)
www.salsaritas.com
Type: Mexican
Walking Distance: .07 miles (1 min.)
   

25 Savage's Bakery (205-871-4901)
www.birminghammenus.com/savages
Type: Bakery, Sandwiches, Desserts
Walking Distance: .22 miles (5 min.)

26 Subway (205-871-7782)
www.subway.com
Type: Sandwiches/Subs
Walking Distance: .16 miles (3 min.)


27 TCBY (205-970-8229)
www.tcbby.com
Type: Desserts, Ice Cream
Walking Distance: .16 miles (3 min.)

28 Urban Cookhouse (205-879-0883)
www.urbancookhouse.com
Type: American
Walking Distance: .18 miles (4 min.)


29 Yoe Express (205-871-4747)
Type: Chinese, Delivery
Walking Distance: .16 miles (3 min.)
 

30 Zoe's Kitchen (205-870-1100)
www.zoeskitchen.com
Type: Mediterranean
Walking Distance: .14 miles (3 min.)
 

31 Which Wich Superior Sandwiches
(205-637-3311)
www.whichwich.com
Type: Sandwiches/Subs
Walking Distance: .07 miles (1 min.)
 

If you're up for a longer walk:

Little Donkey (205-703-7000)
www.thelittledonkey.com
Type: Mexican
Walking Distance: .43 miles (10 min.)

Steele City Pops (205-969-8770)
www.steelcitypops.com
Type: Desserts/Ice Cream
Walking Distance: .43 miles (10 min.)
  

Nabeel's Cafe and Market
www.nabeels.com
Type: Greek, Italian, Mediterranean
Walking Distance: .66 miles (15 min.)
 

Driving distance dining:

Brookwood Mall (205-870-7990)
www.shopbrookwoodmall.com
780 Brookwood Village
Birmingham, AL 35209
Driving Distance: 2.04 miles (5 min.)

Options:

- Applebee's \$
- Bellissimo Pizza & Wings \$
- Brio Tuscan Grill \$\$\$
- Charley's Grilled Subs \$
- Chick-Fil-A \$
- China Wok \$
- Cocina Superior \$\$\$
- Five Guys Burgers and Fries \$
- Great American Cookie Co. \$
- Jason's Deli \$
- O'Henry's Coffees \$
- Subway \$
- Teriyaki Express \$
- Zea Rotisserie & Grill \$\$\$

Notes

A big thank you to all of our sponsors



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