NAFAPA

2014

12th North American Federation of Adapted Physical Activity Symposium

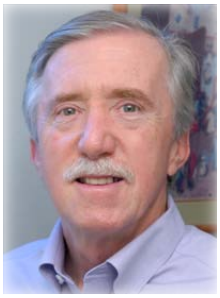
"Generating New Scientific Knowledge in Adapted Physical Activity to Benefit Individuals with Disabilities"

Ann Arbor, MI

October 16 – 18

UNIVERSITY OF MICHIGAN
SCHOOL OF KINESIOLOGY
CENTER FOR PHYSICAL ACTIVITY & HEALTH IN PEDIATRIC DISABILITIES

Welcome to the 2014 NAFAPA Symposium



Dear Colleagues,

We would like to welcome you to Ann Arbor and the University of Michigan, for this year's research symposium of the North American Federation of Adapted Physical Activity. The School of Kinesiology and the Center on Physical Activity & Health in Pediatric Disabilities are proud to host this symposium. I want to especially thank my senior doctoral student Andy Pitchford for helping to organize an excellent program and communicating with those who have registered for the symposium. The symposium sessions will be held in the Student Union and across the street in the University of Michigan's Museum of Art (UMMA). If time permits I would encourage you to visit the museum's free exhibits.

This year's program is very strong with presenters from several countries and many universities in North America. We have 3 excellent keynote presenters, two of whom are outside of our disability research community. Each of the keynote speakers conducts excellent research that can be applied to research involving individuals with a disability. Please take time to interact with them following their talks.

In 2006, the last time we hosted the symposium there were 125 people who registered. We were pleased with that number and used that data to plan this year's symposium and conference fees. You can imagine how surprised and thrilled we were when early registration closed in September and we had 196 people who registered knowing that we would probably also get another 10-12 people registering later. Our surprise eventually turned to fear, given we had to quickly arrange for more motel rooms, transportation, and larger rooms in the Student Union. I am confident that we were successful in meeting most of the needs for a much larger attendance. Depending on which of the concurrent sessions you select to attend, a room may be rather full.

Lastly, the best thing about most conferences I have attended over my career are the interactions I had with other researchers attending the conference. I have learned a great deal from these personal interactions. I challenge you to introduce yourself to other attendees and ask questions of the speakers and those presenting posters. I also recommend that following a specific research talk or poster, based on the results presented, try to consider what you feel is the most important follow-up research question(s) that needs to be pursued in the future.

Sincerely,

Dale A Ulrich, PhD
Symposium Chair

Message from the NAFAPA President

On behalf of the North American Federation of Adapted Physical Activity (NAFAPA), welcome to the 2014 NAFAPA Symposium at the University of Michigan in Ann Arbor. This year's conference theme "Generating New Scientific Knowledge in Adapted Physical Activity to Benefit Individuals with Disabilities" encapsulates the purpose of NAFAPA which is to conduct, implement, and disseminate research in the practice of adapted physical activity.

The theme of "Generating New Knowledge" also caused me to reflect on an article by Klaus Mainzer focusing on the dynamics of innovation. Mainzer argues that innovation emerges from problem-oriented research overcoming traditional discipline-specific boundaries. I'm sure that a problem-orientated approach to research resonates with many of you. But true innovation, Mainzer argues, lies at the intersection of disciplines and perspectives. The NAFAPA symposium provides you with a wealth of opportunities to exchange ideas and discover novel opportunities. This year's Keynote Speakers, Drs. Cairney, Weiss, and Hasson come to us with a common focus on physical activity, but from diverse perspectives. These world class researchers will provide us with opportunities to continue our lifelong learning, but also to think beyond our own domains and perhaps generate new insights.

I encourage everyone to attend at least one of the graduate student proposal sessions on Friday and Saturday. These sessions are intended to assist graduate students develop quality research proposals by providing a forum for constructive feedback. The success of these sessions depends on input from those of us who have been around for a little while; I hope you can attend. I also encourage you to vote for your favourite NAFAPA logo and attend and the business meeting on Friday 17th at 4.45pm. While at the symposium, feel free to reach out and share your thoughts with any one of the NAFAPA officers.

Finally, on behalf of the NAFAPA officers, I'd like to thank the Conference Chair, Dr. Dale Ulrich for his leadership, Mr. Andrew Pitchford for his amazing energy and organizational abilities, the Scientific Committee, and all those who have worked hard to make this a truly great symposium.

I hope that during the NAFAPA 2014 symposium you are able to reacquaint with colleagues, meet new friends, and exchange and connect with new ideas.

Viviene Temple

NAFAPA President

NAFAPA Board

President	Viviene Temple, University of Victoria
President Elect	Susan Kasser, University of Vermont
Past President	John Foley, State University of New York, Cortland
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David Porretta, The Ohio State University

Gregory Reid, McGill University (retired)

Kerri Staples, University of Regina

Viviene Temple, University of Victoria

Andy Pitchford, University of Michigan (student)

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David Porretta, The Ohio State University

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Patricia Austin Graduate Student Award Committee

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Bill Harvey, McGill University

Kyle Pushkarenko, University of Alberta (student)

Chantelle Zimmer, University of Alberta (student)

Session Chairs

Stamatis Agiovlasitis, Mississippi State University

Dwan Bridges, California State University, Los Angeles

Janice Causgrove Dunn, University of Alberta

Ron Davis, Texas Women's University

Phil Esposito, Texas Christian University

John Foley, State University of New York, Cortland

Georgia Frey, Indiana University

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Susan Kasser, University of Vermont

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Megan MacDonald, Oregon State University

Laurie Malone, Lakeshore Foundation

Jeff Martin, Wayne State University

Terry Rizzo, California State University, San Bernardino

Suzanna Rocco Dillon, Wayne State University

Deborah Shapiro, Georgia State University

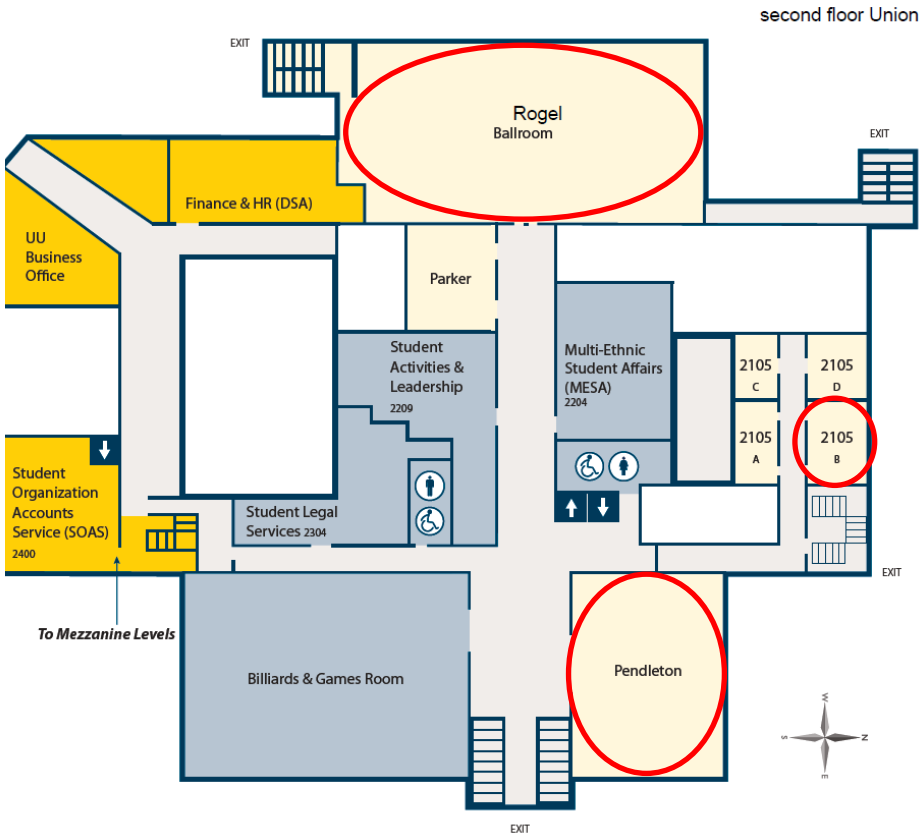
Kerri Staples, University of Regina

Viviene Temple, University of Victoria

Dale Ulrich, University of Michigan

Joonkoo Yun, Oregon State University

Michigan Union floor plans



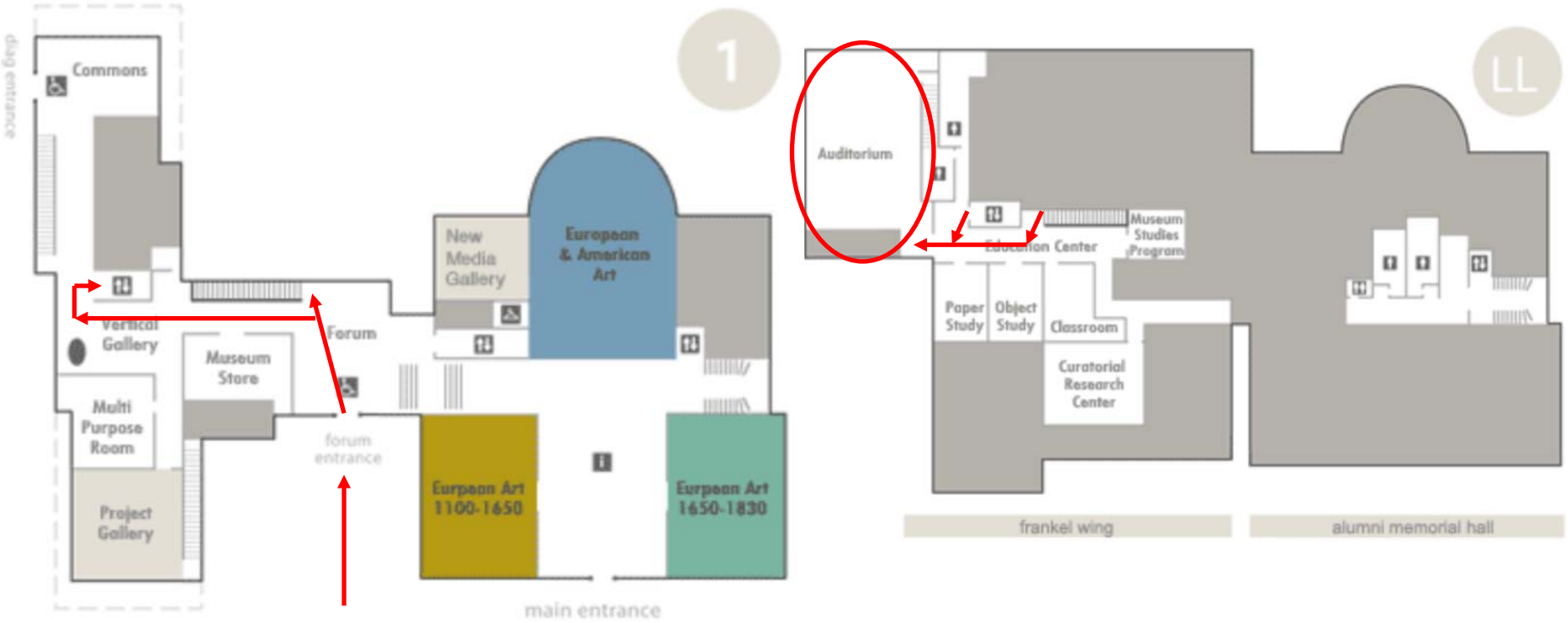
NAFAPA rooms on the Michigan Union 1st floor

Anderson (verbal presentations)
Kuenzel (verbal presentations)
Wolverine (verbal presentations)
Union Opera Lounge (breakfast and refreshments)

NAFAPA rooms on the Michigan Union 2nd floor

Rogel Ballroom (Thursday reception, Saturday lunch, posters)
Pendleton (Friday lunch)
2015 B (Graduate Student Proposals)

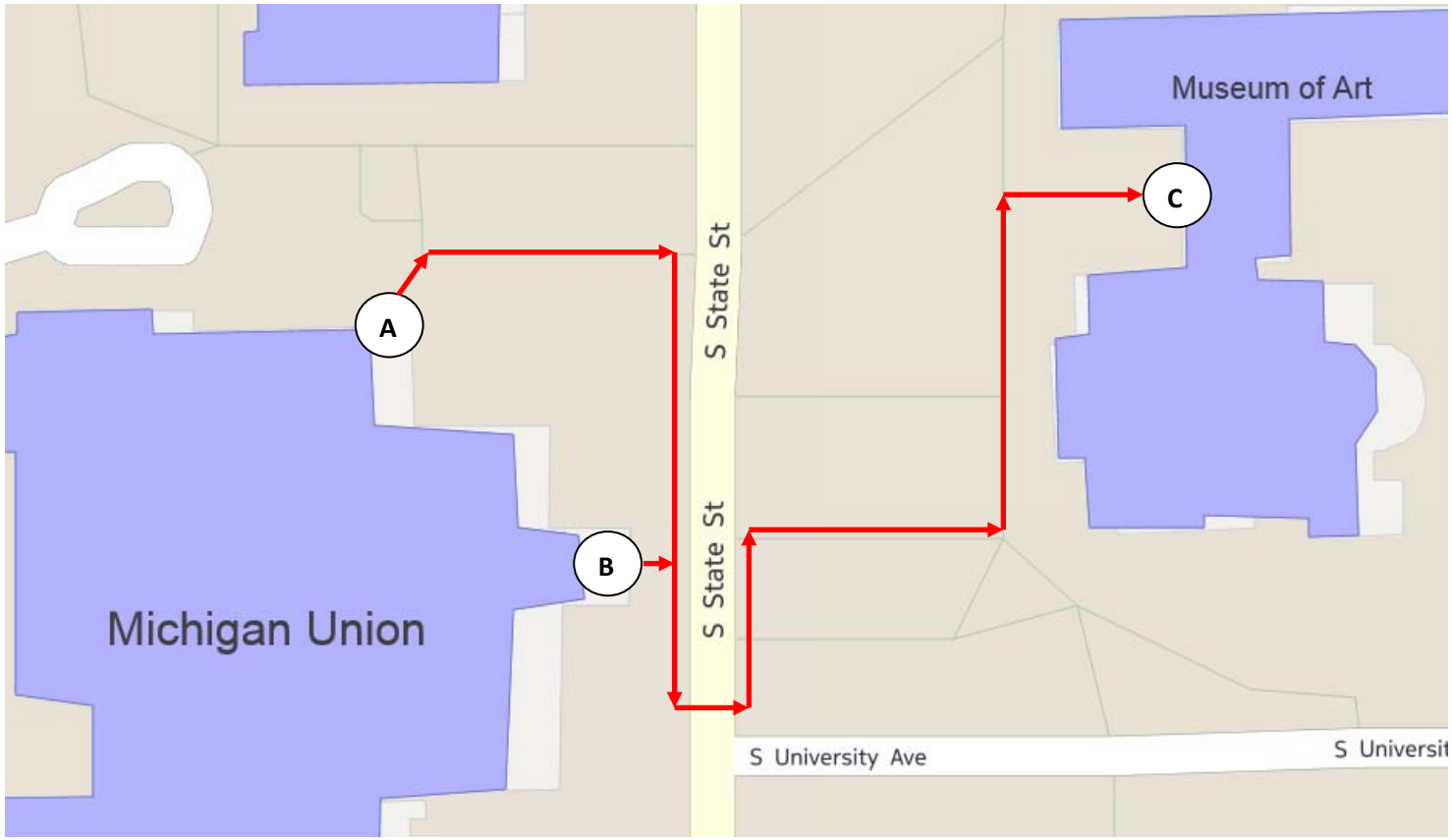
University of Michigan Museum of Art (UMMA) floor plan



NAFAPA sessions are located in the Helmut Stern auditorium of UMMA

The auditorium is located on the Lower Level of UMMA.
Enter through the Forum Entrance (glass windows) and take the elevator or stairs to the lower level.

Walking Directions from Michigan Union to UMMA



A: Accessible entrance on ground floor of Michigan Union

B: Front entrance from 1st floor of Michigan Union (stairs)

C: Forum Entrance to UMMA (glass windows)

Friday, October 17

	Anderson	Kuenzel	Wolverine	UMMA	2105B	Pendleton	Opera
7:00			APAQ Meeting 7:00-8:30				
7:20							
7:40							
8:00							Continental Breakfast 8:00-9:30
8:20							
8:40							
9:00	Temple, Foley, Lloyd, Pitchford & Esposito	Obrusnikova		Moran	Case		
9:20		Staples		Rossow-Kimball	Pushkarenko		
9:40		Bishop		Grenier	Jung		
10:00		Tepfer		Lieberman	Ryuh		
10:20	***Transition Break: 10:20 – 10:40***						Refreshments
10:40	Jin, Yun & Moon	Siebert		Shapiro	Smith		
11:00		Meek		Lieberman	Owen		
11:20		Kim		Munster	Brinker		
11:40		Obrusnikova		McClain	Kassee		
12:00						LUNCH 12:00-1:00	
12:20							
12:40							
1:00				KEYNOTE Weiss 1:00-2:00			
1:20							
1:40							
2:00	***Transition Break: 2:00 – 2:10***						
2:10	Stanish	Nishiyori		Grenier & Goodwin	Smith		
2:30	Ringenbach	Nishiyori			Yao		
2:50	Noerr	Hauck			Ross		
3:10	Holzapfel	Lee			Guzman		
3:30	***Transition Break: 3:30 – 3:40***						Refreshments
3:40	Bremer	Jin	Loovis		Applegate, Martinez & Rhoades		
4:00	Tyler	Healy	Kozub				
4:20	Schenkelberg	Barry	Loovis		Blagrave		
4:40	***Transition Break: 4:40 – 4:45***						
4:45	Business Meeting 4:45 – 5:45						
5:00							
5:15							
5:30							
5:45							

	Keynote Speaker		Verbal Research		Graduate Student Proposal
	Building Session		Poster Presentation		Business
	Transition Breaks				Food

Saturday, October 18

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<tr><td></td><td>Anderson</td><td>Kuenzel</td><td>UMMA</td><td>2105B</td><td colspan="2">Rogel</td></tr>
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<tr><td>10:15</td><td colspan="4">Transition Break: 10:15 – 10:25</td><td>Refreshments</td></tr>
<tr><td>10:25</td><td></td><td></td><td rowspan="2">Pat Austin Award 10:25-11:00 Ketcheson</td><td></td><td></td><td></td></tr>
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<tr><td>11:00</td><td colspan="4">Transition Break: 11:00 – 11:10</td><td></td></tr>
<tr><td>11:10</td><td rowspan="2">Davis, Malone, Barfield & Martin</td><td rowspan="2">Porretta</td><td rowspan="2">Broadhead, Dillon & Rizzo</td><td></td><td></td><td></td></tr>
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<tr><td>5:40</td><td>Taylor</td><td>Connolly</td><td></td><td>Garcia</td><td></td><td></td></tr>
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	Keynote Speaker		Verbal Research		Graduate Student Proposal
	Building Session		Poster Presentation		Business
	Transition Breaks				Food

Thursday, October 16	
3:00pm – 7:00pm Lobby	NAFAPA Registration Table Open
6:00pm – 7:00pm Rogel Ballroom	**Welcome Address** Viviene Temple, President of NAFAPA **Opening Comments** Dale Ulrich, Symposium Chair **Thursday Keynote** John Cairney, McMaster University Physical activity and health issues in developmental coordination disorder **Closing Comments** Susan Kasser, President-Elect of NAFAPA
7:00pm – 8:30pm Rogel Ballroom	**Reception** Hors d' Oeuvres and Cash Bar with the Community H.S. Jazz Band

Friday, October 17	
7:00am – 8:30am Wolverine	APAQ Review Board (with breakfast)
8:00am – 12:00pm Lobby	NAFAPA Registration Table Open
8:00am – 9:30am Opera	Continental Breakfast

9:00 – 10:20	Concurrent Sessions
Anderson 9:00-10:20	**Special Session:** *The Special Olympics International Health Promotion Database: The Power and Challenges of 'BIG' data* R1. Andrew Pitchford & Phil Esposito – Data collection at Special Olympics International events for the Healthy Athletes database: Perspectives of clinical directors of health promotion R2. John Foley – Technical and methodological issues of working with BIG data R3. Meghann Lloyd, J. Foley & V. Temple – Using the Special Olympics International Healthy Athletes Database to Understand Body Mass Index of Children and Youth with an Intellectual Disability by Country Economic Status R4. Viviene Temple, J. Foley & M. Lloyd – The Relationship between Body Mass Index and Country Economic Status among Adult Special Olympians Session Chair: Viviene Temple
Kuenzel 9:00 9:20 9:40 10:00	**Verbal Research Presentations** R5. Iva Obrusnikova, A. Cavalier, L. Guttentag, D. Cirelli, & D. Alszczyk – Using video prompting to facilitate motor skill acquisition in children with developmental disabilities R6. Kerri Staples, L. Fiorante, A. Bonutti – Providing Opportunities for Children with Intellectual Disabilities to Improve the Performance of Fundamental Movement Skills R7. Jason Bishop – Correlations between Perceived and Actual Fundamental Motor Skills of Children with ADHD R8. Amanda Tepfer, M. Kile, S. Lipscomb, M. McClelland & M. MacDonald – Motor Skill Proficiency and School Readiness in At-Risk Preschool Children Session Chair: Deborah Shapiro
UMMA 9:00 9:20 9:40 10:00	**Verbal Research Presentations** R9. Thomas Moran & Andrea Taliaferro – Combating Task and Environmental Constraints through the Empowerment Model R10. Brenda Rossow-Kimball & Donna Goodwin – Beyond Empowerment: A Shift Toward Personal Coherence R11. Michelle Grenier – Doing Things My Way: Physical Education and Teaching with a Disability R12. Lauren Lieberman, L. Snell & L. Cruz – Journey to Wholeness: Voices of Women Living with Disabilities Session Chair: Suzanna Rocco Dillon
2105B 9:00 9:20 9:40 10:00	**Graduate Student Proposals** G1. Laynie Case – The Effects of Video Modeling on TGMD-3 Performance among Children with ASD (Advisor: J. Yun) G2. Kyle Pushkarenko – Parents' Perceptions of Physical Literacy in Children and Adolescents with Autism Spectrum Disorders (Advisor: J. Causgrove Dunn) G3. Jaehun Jung – Validity and Reliability of the Smart Start in Preschool-aged Children with/without a Developmental Delay and/or a Disability (Advisors: S. Kim, L. Zittel, & M. Looney) G4. Yon-joong Ryuh – The effect of inclusive soccer program on the social distance of children without disability toward people with disability and on the social skill of children with developmental disability (Advisor: Y. Lee) Session Chair: Jeff Martin

10:40-12:00	Concurrent Sessions
Anderson	**Building Session**
10:40	B1. Jooyeon Jin, Joonkoo Yun & Dal-Hyun Moon – Mediation and moderation analyses in adapted physical activity research
Kuenzel	**Verbal Research Presentations**
10:40	R13. Erin Siebert, J. Hamm & J. Yun – Parental Influences on Physical Activity Participation of Children with Disabilities
11:00	R14. Geoffrey Meek & Antonia Dzakula-Meek – Physical Activity Participation Experiences and Awareness of Parents of Children Who Attend a Motor Development Program
11:20	R15. So-Yeun Kim & Mihye Jeong – Direct and Indirect Measures of the Theory of Planned Behavior: Parental Support of Physical Activity Participation of Their Children with Disabilities
11:40	R16. Iva Obrusnikova, S. Dillon & T. Davis – Using the Theory of Planned Behavior to Assess Intentions to Play with Peers with Disabilities in Middle-School Physical Education: Preliminary Findings
	Session Chair: Ron Davis
UMMA	**Verbal Research Presentations**
10:40	R17. Martin Block, D. Shapiro, C. McDaniel & Y. Koh – Policies and Practices of Youth Sports Organizations in Accommodating Children with Disabilities
11:00	R18. Lauren Lieberman & Fabiana Cieslak – Instructional Preferences in Aquatics for Children with Visual Impairments
11:20	R19. Mey van Munster & Lauren Lieberman – Including students with disabilities in Elementary Physical Education: a case in western NY
11:40	R20. Dwan Bridges, Z. McClain, E. Bridges, & S. Lee – Service Perceptions among Asian Immigrant Parents of Children with Disabilities
	Session Chair: Lauren Lieberman
2105B	**Graduate Student Proposals**
10:40	G5. Lindsay Smith – Implementing a Multi- Sport Skills Camp for Girls ages 8-11 with Autism Spectrum Disorder (ASD) (Advisor: M. Lloyd)
11:00	G6. Susannah Owen – Anodal and Cathodal tDCS as a therapy in Autism Spectrum Disorder (Advisor: G. Frey)
11:20	G7. Mary Kathleen Brinker – Efficiency of Video Modeling with the use of Aurasma® compared with Picture Prompting in Teaching the use of Free Weights to 15-20 Year Olds with Autism in a Community Recreation Environment (Advisor: S. Bock)
11:40	G8. Caroline Kassee – Conventional strength training intervention versus a Nintendo Wii intervention for upper limb function in children with CP: A home study (Advisor: M. Lloyd)
	Session Chair: Phil Esposito

12:00-1:00 Pendleton & Anderson	Buffet Lunch

1:00-2:00 UMMA	**Friday Keynote** Maureen Weiss, University of Minnesota Motivating youth with disabilities to initiate and continue being physically active

2:10-3:30	Concurrent Sessions
Anderson	**Verbal Research Presentations**
2:10	R21. Heidi Stanish, S. Crouter, A. Must, K. Chui, L. Bandini, M. Maslin & R. Fleming – Developing and maintaining physical fitness among adolescents with Down syndrome
2:30	R22. Shannon Ringenbach, L. Moss-Hunt & S. Holzapfel: The 6 Minute Walk Test and the Fitness of Young Adults with Down syndrome
2:50	R23. Kyra Noerr, J. Streepey, K. Stanton-Nichols, & R. Swinford – Effect of an Adapted Dance Program on Young Adults with Down Syndrome
3:10	R24. Simon Holzapfel & Shannon Ringenbach – Assisted Cycling Therapy (ACT) improves Verbal Fluency in Adolescents with Down Syndrome
	Session Chair: Stamatis Agiovlasitis
Kuenzel	**Verbal Research Presentations**
2:10	R25. Ryota Nishiyori, S. Bisconti & B. Ulrich – Functional near-infrared spectroscopy (fNIRS): A brief tutorial
2:30	R26. Ryota Nishiyori, S. Bisconti & B. Ulrich – Changes in motor cortex activity of infants' reaching and stepping patterns
2:50	R27. Janet Hauck & Dale Ulrich – Methodology for Objective Physical Activity Monitoring During Infancy
3:10	R28. E. Bizzigotti, A. Cusmano, A. Farshchiansadegh & Mei-Hua Lee – The use of body-machine interfaces to examine developmental change in motor learning
	Session Chair: Dale Ulrich
2105B	**Graduate Student Proposals**
2:10	G9. Kelsea Smith – The Effects of a 10 week Aquatic Exercise Program on Balance in People with Multiple Sclerosis (Advisor: T. Jung)
2:30	G10. Wei-Ru Yao – The considerations in designing training programs for athletes with physical disabilities (Advisor: D. Shapiro)
2:50	G11. Samantha Ross – Fundamental motor skills and physical activity in children with mobility disabilities (Advisor: M. MacDonald)
3:10	G12. Ubaldo Guzman – Determine the effects of therapeutic exercise in seated balance among people with SCI (Advisor: T. Todd)
	Session Chair: Dwan Bridges
UMMA	**Building Session**
2:10-2:50	B2. Michelle Grenier & Donna Goodwin – The "Life" of the Social Model and Its Potential Influence on APA

3:40-4:40	Concurrent Sessions
Anderson	**Verbal Research Presentations**
3:40	R29. Emily Bremer & M. Lloyd – Exploring a fundamental motor skill intervention for 4 year old children with autism spectrum disorder
4:00	R30. Kiley Tyler, K. Menear & M. MacDonald – The Physical Fitness & Physical Activity of School-Aged Children with ASD in Comparison to Typically Developing Peers
4:20	R31. Michaela Schenkelberg, R. Rosenkranz, G. Miliken, D. Dzewaltowski – Social but sedentary: Implications of social groups on sedentary behavior of children with autism
	Session Chair: Meghann Lloyd
Kuenzel	**Verbal Research Presentations**
3:40	R32. Jooyeon Jin, M. Felix & G. Tymeson – PETE majors' self–efficacy change toward inclusion after student teaching experience
4:00	R33. Sean Healy, M. Block & J. Judge – Certified Adapted Physical Educators' Perspectives on Advantages and Disadvantages of Online Professional Development
4:20	R34. Maebh Barry, D. Collier, A. James & C. Houston-Wilson – Are We Ready to Teach Children with Autism Spectrum Disorders and Emotional/Behavioral Disorders? The experiences of Pre-Service Physical Education Teachers and their Professors
	Session Chair: Janice Causgrove Dunn
Wolverine	**Verbal Research Presentations**
3:40	R35. Michael Loovis & Pauli Rintala – Familiarization Protocols in the Assessment Process with Individuals with Intellectual Disabilities and Autism
4:00	R36. Francis Kozub, T. Rispoli, K. Tierney & C. Williams – Measuring functional balance in individuals with Intellectual Disabilities
4:20	R37. Michael Loovis, R. Miller & K. Pitetti – Revisiting the Bruininks-Oseretsky Test of Motor Proficiency (BOT-2) for Children and Adolescents with Intellectual Disability
	Session Chair: Terry Rizzo
2105B	**Graduate Student Proposals**
3:40-4:20	G13. Eileen Applegate, Desiree Martinez & Mathew Rhoades – College Students Perceptions and Attitudes Toward Disability Before and After Exposure to Adapted Physical Activity (Advisor: H. Pennington)
	Verbal Research Presentations
4:20-4:40	R38. Josephine Blagrave – Autism, Physical Activity, Exercise and Physical Education – Current Research and Future Directions
	Session Chair: Michelle Grenier

4:45-5:45 Anderson	**NAFAPA Business Meeting**

Saturday, October 17

8:00-9:30 Rogel	Continental Breakfast

8:45-10:15 Rogel	**AM Poster Session** * indicates a graduate student poster entered in the Greg Reid Poster Award competition
	AM1. *Emily Bremer & Meghann Lloyd – School-based fundamental motor skill intervention for 4-7 year old children with autism spectrum disorder AM2. *Alexandra Boyle, E. Pryzysucha & C. Zerpa – Reliability of the Movement Assessment Battery for Children – second edition for age band 2 (7 to 10 years old): Pilot Study AM3. *Tara Chisholm & Nancy Spencer-Cavaliere – A Qualitative Investigation of Barriers and Facilitators to Physical Activity Opportunities for Persons with Disabilities in a Small Southern Alberta City AM4. *Margret Czolpinski & Eryk Przysucha – The Effects of Nordic Walking on Aerobic Capacity, Rate of Perceived Exertion and Pain in Older Adults with Osteoarthritis of the Lower Extremities AM5. *Jaymie Elder, K. Alston & V. Temple – Concurrent Validity of the 20m and 30m Six-Minutes Walk Test for Special Olympics Athletes AM6. *Joseph Evans, M. Felix, J. Jin, G. Tymeson & R. Mikat – A comparison of XBOX Kinect and Nintendo Wii boxing on physical activity levels of adolescents with autism spectrum disorder AM7. *Will Helser, G. Tymeson, J. Jin & M. Felix – Physical educators' sport recommendations for students with autism spectrum disorder in high school AM8. *Megan Irwin, M. MacDonald & L. Robinson – Divergence: acquisition of motor developmental milestones as early indicator of autism spectrum disorder AM9. *Sean Jones, E. Bremer & M. Lloyd – The Impact of Leisure and Recreational Activity Participation on the Quality of Life of Families with a Child with Autism Spectrum Disorder (ASD) AM10. *Jae Chun Lim, Y. Kim, T. Fujii & T. Todd – Effects of Nintendo Wii Intervention on Postural Control in Youth with Autism Spectrum Disorder AM11. *Mara Nery-Hurwit, S. Driver & A. Dixon-Ibarra – Participants' experiences with a physical activity health promotion program AM12. *Gwi-taek Park, S. Chu, J. Oh & Y. Lee – The effects of parents supported Physical Activity (PA) program on parents' perception AM13. *Jared Rehm, J. Fox, J. Patel, B. Romer, A. Jagodinsky & W. Weimar – Investigating Trunk Motion's Relationship with Wheelchair Propulsion Initiation

	AM14. *Amanda Tepfer, W. Baltzer, M. Udell & M. MacDonald – Dog Ownership and Physical Activity for Children with Cerebral Palsy AM15. *Erin Wentz, J. Hauck & D. Ulrich – The impact of an early and aggressive tummy time program in infants with Down syndrome and in typically developing infants: Preliminary data AM16. *Wei-Ru Yao, C. Liao & D. Shapiro – Parents' perceived barriers and its impact on physical activity for their children with disabilities AM17. *Chantelle Zimmer & Kerri Staples – A Test of the Activity Deficit Hypothesis in Children with Movement Difficulties 20 Years Later AM18. Stamatis Agiovlasitis, B. Sandroff & R. Motl – Prediction of Oxygen Uptake during Treadmill Walking in Persons with Multiple Sclerosis AM19. Vinicius Cardoso, M. Haiachi, A. Gaya – Sport for children and youngsters with disabilities in Brazil. Providing skills in school environment AM20. Andrew Colombo-Dougovito – Pre-service adapted physical education teacher challenges toward teaching motor skills to children with autism spectrum disorder AM21. Veronique Diriker & Alan Kirk – Building Strong and Lasting Organizations: Developing a Community of Volunteers and Donors AM22. Lisa Dorman, K. Johnson & M. Olsen – Reframing Organizational Need(s) in the Development of Youth Disability Sport AM23. David Geslak – Exercise is the Gateway to Build Fitness, Self-Esteem and Relationships AM24. Jessica Hamm & Joonkoo Yun – A Systematic Review of Health Related Quality of Life Frameworks among Individuals with Autism Spectrum Disorders AM25. Mihye Jeong – Professional Knowledge on Teachers' Behavior in Teaching Student with Disabilities AM26. Cathy McKay – Paralympic School Day: Advocacy, Action, Awareness AM27. Kimi Peterson – Post Rehabilitative Exercise Program Excels Functional Fitness in Rare Unknown Neuromuscular Disorder AM28. Brandi Heather, L. Lieberman, J. Foley & R. Lytle – Developing Advocacy: Empowering Undergraduate Students to Find Their "Voice"

10:25-11:00 UMMA	**Introduction** Janice Causgrove Dunn, Patricia Austin Award Chair **Patricia Austin Graduate Student Award Presentation** Leah Ketcheson The effects of an early motor skill intervention using research supported strategies on motor skills in young children with Autism Spectrum Disorder

11:10-11:50	Concurrent Sessions
Anderson 11:10	**Building Session** B3. Ronald Davis, Laurie Malone, J.P. Barfield & Jeffrey Martin – The Paralympic Research and Sports Science Consortium (PRSSC): An Opportunity to Contribute to the Advancement of Paralympic Athletes and Coaches through Science
Kuenzel 11:10	**Building Session** B4. David Porretta – Physical Activity, Disability, and Quality of Life: A Multidisciplinary Approach
UMMA 11:10	**Building Session** B5. Geoffrey Broadhead, Suzanna Dillon & Terry Rizzo – Maintaining Physical Education in the Reauthorization of IDEA in the U.S.

11:50-12:50 Rogel	Buffet Lunch

12:50-1:00 Rogel	**Presentation of Graduate Student Awards** Greg Reid Outstanding Student Poster Award Patricia Austin Graduate Student Award

1:00-2:00 Rogel	**Saturday Keynote** Rebecca Hasson, University of Michigan Physical activity and disease patterning in children and adolescents: Implications for pediatric disability research

2:10-3:40 Rogel	**PM Poster Session**
	PM1. Stamatis Agiovlasitis & Robert Motl – Cross-Validation of Oxygen Uptake Prediction during Treadmill Walking in Persons with Multiple Sclerosis PM2. Jennifer Bouquet, A. Young & P. Esposito – Daily adapted physical education and fundamental motor skills in children with Down syndrome PM3. Rebecca Bryan – Paraeducator Support in General Physical Education: Who is accountable for what? PM4. Gioella Chaparro, K. Vrongistinos, S. Stecyk & T. Jung – Comparison of balance outcomes between aquatic and land-based exercise programs in older adults with knee osteoarthritis PM5. Andrew Colombo-Dougovito – Effect of gender and disability on gross motor performance in kindergarten children PM6. Kathryn Corvey, K. Menear, J. Preskitt & N. Menachemi – The Relationship between Autism Spectrum Disorder Severity and Obesity, Overweight, Physical Activity, and Sedentary Behavior PM7. Leah Fiorante, V. Sutherland & K. Staples – The Promotion of Physical Fitness Capacities among Children with Intellectual Disabilities PM8. Toshihiro Fukushima, M. Ide, E. Horikawa & K. Yabe – Wheelchair marathon extends vasodilator capacity of forearms of athletes with spinal cord injury PM9. Justin Haegele, & Jihyun Lee – An Analysis of Trends in Adapted Physical Activity Quarterly Research PM10. William Harvey, D. Fainer, V. Sayer, R. Joober & N. Grizenko – Children with Attention-Deficit Hyperactivity Disorder and Obesity: A Pilot Study PM11. Brittany Hogan – Benefits of Using Target Activities to Assist in Improvement of Striking in Striking and Fielding Games for Individuals with Autism: A Comparative Case Study PM12. Susan Kasser, A. Goldstein, P. Wood & J. Sibold – Symptom Variability, Affect and Physical Function in Ambulatory Persons with Multiple Sclerosis: Understanding Patterns and Time-Bound Relationships PM13. Youngdeok Kim, E. Seo, Y. Koh & M. Kang – Examining Longitudinal Trajectories of Physical Activity Among People With Physical Disabilities in South Korea Using a Growth Mixture Modeling PM14. Hyun-jin Kwon, H. Maeng, J. Oh & Y. Kim – The effects of dancesport activity on age-related hormones in older adults with intellectual disability PM15. Byron Lai, B. Jeng, M. Narasaki-Jara & T. Jung – An Investigation of the Post-Exercise Hypotensive Response Following an Acute Bout of Aquatic and Overground Treadmill Walking in People Post-Stroke PM16. Cathy MacDonald & Michelle Zitomer – Lived experiences of therapeutic horseback riders: A self-determination perspective

	PM17. Hayley Morrison – Finding and Implementing Relevant Resources in Adapted Physical Activity (APA): It's easier said than done… PM18. Sangsoo Park, Y. Koh & M. Block – Contributing Factors for Successful Inclusive Physical Education PM19. T. Rispoli, C. Williams, C. Narsi, D. Collier & F. Kozub – Rate of force development in persons with Intellectual Disabilities following a six week powerlifting program PM20. Takahiro Sato, S. Hodge, A. Samalot-Rivera & V. Volmar – Physical Education Teacher Candidates' Perspectives about Instructing Children with Disabilities in Adapted Aquatics PM21. Karen Slater & Bobbi-Jo Atchison – Creating standardized delivery of Functional Electrical Stimulation (FES) exercise programs for people living with paralysis: a provincial framework PM22. Louisa Summers – The Effects of 12 Months of Therapeutic Exercise and Horse Back Riding on Strength, Endurance, Postural Control, and Cognitive Function in One Veteran with Anoxic Brain Injury PM23. Andrea Taliaferro & Lindsay Hammond – Promoting physical activity for adults with Intellectual Disabilities: A SWOT Analysis PM24. Teri Todd & Nancy Miodrag – IFiT: Into Fitness Together A Peer-Mentoring Physical Activity Program for College Students with ASD PM25. Kirsti Van Dornick & Gordon Bell – Time motion analysis of men's sitting volleyball PM26. Jiabei Zhang – Motor Skill Regression Characteristics of a Boy with Childhood Disintegrative Disorder: A Case Study

3:50-4:50	Concurrent Sessions
Anderson	**Verbal Research Presentations**
3:50	R39. Andra Lenius – Fit For Action: A comparative case study of the implementation of an adapted fitness and conditioning program for teens and Transition Age Youth with moderate functioning Autism Spectrum Disorder
4:10	R40. Yumi Kim, J. Lim, T. Fujii, T. Todd, T. Jung & K. Vrongistinos – Effects of Taekwondo training on postural control in youth with autism spectrum disorder
4:30	R41. Shannon Dieringer, D. Porretta, D. Sainato, J. Goodway & M. Plummer – Music as a Strategy to Promote Task-Oriented Behaviors for Children with Autism Spectrum Disorders: Pilot through Replication
	Session Chair: Georgia Frey
Kuenzel	**Verbal Research Presentations**
3:50	R42. Mara Nery-Hurwit, S. Driver & L. Kincl – Development of an integrated online health promotion program for individuals with disabilities
4:10	R43. Donna Goodwin, B. Atchison, K. Edwards, K. Johnston & K. Yi – Transition to an Active Lifestyle: Exercising in a Group Context
4:30	R44. Elyse Lappano – Hiding in Plain Sight – Sustainable Physical Activity Program Development and Evaluation for Youth with Special Needs: An Evaluative Case Study
	Session Chair: Susan Kasser
2105B	**Graduate Student Proposals**
3:50	G14. Alexis Knudtson – Comparison of Balance Between Hearing-Impaired and Normal-Hearing Young Adults (Advisor: T. Todd)
4:10	G15. Natalie Fleming – Changes in gait and balance change through pregnancy (Advisors: T. Jung, M. Jara & J. Romack)
4:30	G16. Victoria Sutherland – Exercise Treatment for Women with Breast Cancer. Not Just Surviving, Thriving! (Advisor: K. Staples)
	Session Chair: Kerri Staples
UMMA	**Building Sessions**
3:50-4:20	B6. Danielle Peers, N. Spencer-Cavaliere & L. Eales – Say what you mean: Rethinking disability language in *Adapted Physical Activity Quarterly*
4:20-4:50	B7. Geoffrey Broadhead – Creating Superior APA Science: Possibility – Probability?
	Session Chair: John Foley

5:00-6:00	Concurrent Sessions
Anderson	**Verbal Research Presentations**
5:00	R45. Janice Causgrove Dunn & Donna Goodwin – Undergraduate Education in Adapted Physical Activity
5:20	R46. Jihoun An & Bomna Ko – Classroom-Based Service Learning Program of Teaching Students with Disabilities
5:40	R47. Jennifer Taylor & Joonkoo Yun – Effectiveness of Inclusion Training for Afterschool Program Staff
	Session Chair: Joonkoo Yun
Kuenzel	**Verbal Research Presentations**
5:00	R48. Yeshayahu Hutzler, M. Oz, N. Dagan & S. Barak – Game of Life: Preliminary results of a motor-social intervention through soccer
5:20	R49. Heather Pennington – Applying the Neurological Side of Functional Exercises in Adapted Physical Activity
5:40	R50. Maureen Connolly, C. Boyd & T. Craig – An Analysis of Images Depicting Stressed Embodiment in an Adolescent Male with Autism Spectrum Disorder (ASD): A Sensitized Approach Combining Laban Movement Analysis and Phenomenological Attunement
	Session Chair: Laurie Malone
2105B	**Graduate Student Proposals**
5:00	G17. Kristin Dobranowski – Is Measuring Best? Evaluating Reported Body Mass Index in Persons with Intellectual Disabilities (Advisors: R. Balogh & M. Lloyd)
5:20	G18. Brenda Jeng – Comparison of cardiorespiratory responses between pool floor and overground walking in people post-stroke (Advisor: T. Jung)
5:40	G19. Elizabeth Garcia – The effects of telecommunication exercise program on self-efficacy and exercise adherence people with Parkinson's disease (Advisor: T. Todd)
	Session Chair: Megan MacDonald

Abstracts

Key:

R1 – R50:	**Verbal Research Presentations**
B1 – B7:	**Building Sessions**
AM1 – AM28:	**Poster Presentations: AM Session**
	AM1 – AM17 are in the Greg Reid Student Poster competition
PM1 – PM26:	**Poster Presentations: PM Session**
G1 – G19:	**Graduate Student "Work-in-Preparation" Proposals**

Research Symposium: *The Special Olympics International Health Promotion Database: The Power and Challenges of 'BIG' data*

This symposium involves five researchers from five different universities: Drs. Viviene Temple, John Foley, Meghann Lloyd, and Phil Esposito, and doctoral candidate Mr. Andy Pitchford.

The **aim of the symposium** is to share with participants the strengths and challenges associated with the Special Olympics International databases, including: how these data are collected, data management and cleaning, and the power and limitations of research arising from the databases.

R1: **Data collection at Special Olympics International events for the Healthy Athletes database: Perspectives of clinical directors of health promotion**

E. Andrew Pitchford[1] and Phil Esposito[2]

[1]School of Kinesiology, University of Michigan
[2]Department of Kinesiology, Texas Christian University

Special Olympics International (SOI) is a global not-for-profit organization that provides programming in sport training and competition for individuals with intellectual disabilities. A secondary mission of SOI is to improve the health and health service access of people with intellectual disabilities. Healthy Athletes is an SOI program that offers free health screenings at SOI events including medical exams, dentistry, vision, audiology, physical therapy, podiatry, and health promotion. Since 1997, Healthy Athletes has provided health screenings to approximately 1.4 million SOI athletes and trained more than 120,000 healthcare professionals. Data collected during health screenings are entered into the SOI Healthy Athletes Software (HAS) for analyses of program evaluation, and by request, independent research. The HAS database contains health information from more than 60,000 screenings across 165 countries, making it the largest available health database on individuals with intellectual disabilities. A series of peer-reviewed papers have been published in recent years utilizing this HAS database to describe and examine issues of overweight and obesity among children and adults participating in SOI (Foley, Lloyd & Temple, 2013; Foley, Lloyd, Vogl & Temple, 2014; Lloyd, Temple & Foley, 2012; Temple, Foley & Lloyd, 2014). This database has the potential to be used for empirical research on a variety of health topics, but researchers must also be aware of the limitations and challenges associated with these data.

This presentation will serve as a methodological introduction to a series of research presentations utilizing the HAS database. Clinical Directors of Health Promotion for the states of Michigan and Texas will describe the training process, data collection methodology, and database entry procedures within the Health Promotion section. In addition, the challenges of conducting quality health screenings at SOI events and the limitations of the HAS database will be discussed.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: The Healthy Athletes program and HAS database from Special Olympics International are made possible in part by funding from the US Centers for Disease Control and Prevention (#U101DD000302).

Research Symposium: *The Special Olympics International Health Promotion Database: The Power and Challenges of 'BIG' data*

R2: **Technical and methodological issues of working with BIG data**

John T. Foley

Department of Physical Education, State University of New York, Cortland.

As the information age moves forward there is a driving need to garner knowledge from available data that is collected. Current technology increases the ease at which data is collected and entered into databases by multiple people in multiple locations. Data storage has become very affordable and easy to access resulting in large silos of data – also referred to as big data. Governments, non-profit organizations, and businesses gather information that may interest health and physical activity researchers. However, there are technical and methodological issues in working with big data. As with any dataset there is an expectation that there are some errors in the data and that prior to analysis the diligent researcher goes through a data cleaning process and examines every variable of interest. Common problems associated with larger datasets are multiple entries of the same information, date formatting inconsistencies, outliers, text entry inconstancies and character encoding issues. Because of the large number of data points finding errors can be a long and tedious process. However, recent software developments have provided the opportunity for database and statistical programs to have better data management tools that assist in the process of data cleaning. This presentation will cover the fundamentals of data cleaning and provide examples used from the Special Olympics International data.

Research Symposium: *The Special Olympics International Health Promotion Database: The Power and Challenges of 'BIG' data*

R3: **Using the Special Olympics International Healthy Athletes Database to Understand Body Mass Index of Children and Youth with an Intellectual Disability by Country Economic Status**

Meghann Lloyd[1], John T. Foley[2], Viviene A. Temple[3]

[1] University of Ontario Institute of Technology
[2] SUNY Cortland
[3] University of Victoria

INTRODUCTION

The World Health Organization reports that over 40 million children under the age of 5 were overweight in 2011 and high obesity rates are no longer considered to be a problem reserved for developed countries. Over the past two decades there is evidence of a nutrition and activity transition in many developing countries contributing to higher rates of obesity being found in these regions. In fact, many low and middle income countries are now experiencing a "double burden of disease" where both infectious and chronic diseases are co-occurring at high rates. Individuals with intellectual disabilities are at higher risk for health disparities; however little is known at the population level about the BMI status in this population, particularly among children.

METHODS

This study is a secondary analysis of BMI status (underweight, normal weight, overweight and obese) in children and youth (8-<18 years) participating in Special Olympics by country economic status. A total of 14,032 participants (n= 8,856 male) measured height and weight records were available from the Special Olympics International Health Promotion database. The 141 countries were coded according to The World Bank's classification of country economic status. BMI prevalence rates were calculated using International Obesity Task Force cut-offs. Chi-squared analyses and fisher exact test were used to examine differences in weight status by economy and sex.

RESULTS

Overall, 27.87% of Special Olympics participants from low-income economies, 31.04% from lower middle-income, 25.29% from upper middle-income, and 42.36% from high-income economies had BMI levels outside of the normal range.

CONCLUSIONS

The high levels of both underweight and overweight/obesity found in this population represent a double burden of health risk. More research is needed to understand why such disparities exist, and to develop health promotion initiatives targeted at both healthy nutrition and physical activity.

Research Symposium: *The Special Olympics International Health Promotion Database: The Power and Challenges of 'BIG' data*

R4: **The Relationship between Body Mass Index and Country Economic Status among Adult Special Olympians**

Viviene A. Temple[1], John T. Foley[2], Meghann Lloyd[3]

[1] University of Victoria
[2] SUNY Cortland
[3] University of Ontario Institute of Technology

INTRODUCTION

There is a strong relationship between economic prosperity and health in the general population and research examining interactions between health and poverty among persons with a disability is a priority. This study compared the prevalence of underweight, normal weight, overweight, and obesity among adult Special Olympics participants by country economic status.

METHODS

A total of 19,295 (male, n=12,037) measured height and weight records were available from the Special Olympics International (SOI) Health Promotion database. The 159 countries in the database were recorded according to The World Bank's classification of country economic status as: low-income (LI), lower middle-income (LMI), upper middle-income (UMI), and high-income (HI). Body mass index (BMI) prevalence rates were calculated for men and women by country economic status. Odds ratios, adjusted for age and sex, were used to examine differences in BMI by country economic status.

RESULTS

Accounting for age and sex, 23 of the 24 BMI comparisons were significant. SOI participants from LI countries were 1.56, 1.33, and 1.43 times more likely (1/OR) to be underweight than SOI participants from LMI, UMI and HI countries, respectively. Conversely, participants from HI countries were 3.56 times more likely to be obese than participants from UMI countries, participants from UMI countries were 2.22 times more likely to be obese than participants from LMI countries, and participants from LMI countries were 1.89 times more likely to be obese than participants from LI countries.

CONCLUSIONS

Women, older participants, and those from higher income countries were much more likely to be obese and SOI participants from lower income countries were at much greater risk of underweight. Considerably more basic research on the key behaviours associated with BMI status and how the nexus of biology, socioeconomic status, and the psychosocial environment is associated with underweight or obesity is needed to explain these differences.

R5

Using video prompting to facilitate motor skill acquisition in children with developmental disabilities

Iva Obrusnikova, Albert Cavalier, Lily Guttentag, Denise Cirelli, & Devon Alszczyk

University of Delaware

INTRODUCTION

Over the past decade, researchers have started to explore the use of video to facilitate physical activity in children (e.g., Obrusnikova & Cavalier, in review; Zetou et al., 2002). Video Prompting (VP) is a video-based instructional strategy that incorporates modeling and has recently shown effectiveness in teaching a wide range of behaviors. VP combines visual and auditory prompts to provide a sequence of learning cues of a motor skill; a student watches a cue and performs the skill element corresponding to that cue before watching the video clip of the subsequent learning cue and performing that skill element (Cihak et al., 2006). **The purpose** of this project is to provide preliminary evidence of the effectiveness of VP on the acquisition of gross motor skills in school-aged children with developmental disabilities.

METHODS

This study will utilize a multiple-baseline-across-participants design (Barlow, Nock, & Hersen, 2008). A convenience sample of six participants with a developmental disability, aged (8-10 years) will be randomly divided into three groups, each consisting of a boy and a girl. Observational motor skill data were collected via a digital camcorder in each session. Motor skill acquisition was assessed with validated developmental sequences for the standing long jump. Qualitative data were collected with a self-report enjoyment scale and semi-structured interviews.

RESULTS

The results demonstrated that all participants' standing long jump performance improved in the treatment condition. The four themes elicited in the interviews with the participants and their instructors were: attention, motivation, task comprehension, and task reproduction.

CONCLUSION

The study suggests VP may be an efficient strategy in teaching fundamental motor skills to school-aged children with developmental disabilities.

R6

Providing Opportunities for Children with Intellectual Disabilities to Improve the Performance of Fundamental Movement Skills

Kerri L. Staples, L. Fiorante, A. Bonutti

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INTRODUCTION

Children with intellectual disabilities (ID) are at an even greater risk for obesity and have an increased prevalence of obesity-related health conditions than their typically developing peers (Rimmer et al., 2010). Impaired performance of movement skills is a potential contributor to increased rates of obesity (Lloyd et al., 2012) and decreased levels of physical activity (Bandini et al., 2013; Esposito et al., 2012; MacDonald et al., 2012) found among children with ID. Children with autism spectrum disorders (ASD) have significant difficulty performing the movement skills essential for successful and meaningful participation in physical education and group based PA (Pan et al., 2009; Staples & Reid, 2010). It is also speculated that motor delays experienced by children with Down syndrome persist and are further constrained by ID, in turn impacting the learning of new skills.

METHODS

The focus of this research is on improving the performance of fundamental movement skills among a group of 8 to 12 year old children with ID who participated in a 15-hour physical activity program. These athletes are diagnosed with ASD, Down syndrome, global developmental delay, or fetal alcohol spectrum disorder. The *Test of Gross Motor Development* was used to assess 10 athletes (4 boys, 6 girls) before participation and 6 athletes (1 boy, 5 girls) following the program.

RESULTS

Data analysis for the initial post-program assessments is underway and data collection will continue throughout the summer with additional cohorts of athletes with ID.

CONCLUSIONS

This presentation is aimed at understanding the role of physical activity and sport- based programs in helping children with ID to develop the requisite skills to participate successfully in community sport.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: Special Olympics Canada

R7

Correlations between Perceived and Actual Fundamental Motor Skills of Children with ADHD

Jason C. Bishop

West Virginia University

INTRODUCTION

Children's self-perceived and actual competence contribute to their motivational orientation (Harter, 1987). Therefore, the aim of this study is to exam the correlational associations between perceived and actual fundamental motor skills (FMS) of children with attention deficit/hyperactivity disorder.

METHODS

40 children with ADHD (31 males, 9 females; M_{age} =10.40; SD = 1.01) were match with 40 children not diagnosed with ADHD. Each group completed the pictorial scale of perceived physical competence for children with mild retardation (PSPPCCMMR; Yun & Ulrich, 1990) to assess perceived competence of completing FMS. The TGMD-2 (Ulrich, 2000) was administered to assess actual FMS competence. TGMD-2 results of each group were compared to normative data. Correlational analyses were performed to assess the omnibus and group relationship between perceived and actual locomotor skills. Alpha was set at .05.

RESULTS

Children with ADHD scored in the 16th percentile and more than three years below age equivalence (6 years, 6 months) in locomotor skills and 5th percentile and more than three years below age equivalence (6 years and 3 months) in object control skills while children without ADHD scored closer to age equivalent norms in both locomotor (50th percentile and 9 years, 9 months) and object control skills (37th percentile and 9 years, 0 months). Significant correlations were only found in the overhand throw ($r = .31$, $p < .01$). Assessed by group, the correlation was only significant in the ADHD group ($r = .47$, $p < .01$).

CONCLUSIONS

This study confirms previous research that children with ADHD experience motor delays compared to their peers and provides initial evidence of their lack of association between perceived and actual FMS competence. Adapted and GPE teachers may need to alter their teaching approach to best meet the motor learning needs of children with ADHD.

R8

Motor Skill Proficiency and School Readiness in At-Risk Preschool Children

Amanda Tepfer[1], Molly Kile[1], Shannon Lipscomb[2], Megan McClelland[1] & Megan MacDonald[1]

[1] Oregon State University, College of Public Health & Human Sciences
[2] Oregon State University-Cascades, College of Public Health and Human Sciences

INTRODUCTION

The preschool years are filled with tremendous amounts of growth in all areas of development. Previous work indicates that active play is positively associated with self-regulation and early academic achievement, key components of school readiness (Becker et al., 2013). Yet, how these constructs present in young at-risk preschool children is unknown. Examining the relationships of these developmental constructs is an initial step towards providing essential services focused on improving early developmental trajectories and ultimately school readiness for young at-risk preschool aged children.

PURPOSE

The purpose of this study was to examine relationships between early childhood motor skills with self-regulatory and academic achievement skills in at-risk preschool children.

METHODS

Twenty-four children from Head Start classrooms were assessed on motor skills, self-regulation, and early academic achievement, at one time point. Motor skills were assessed using the Peabody Developmental Motor Scales, 2nd ed. (Folio & Fewell, 2000). Self-regulation was assessed using the Head-Toes-Knees-Shoulders (HTKS) Task (Ponitz et al., 2008). Academic achievement was measured using the applied problems and letter-word identification subtests of the WJ-III (Woodcock & Mather, 2001).

RESULTS

Hierarchical multiple regressions were run on SPSS (version 22) separately for motor skills and behavioral self-regulation and motor skills and early academic achievement. Stationary skills (β = .412, p=.05) and visual motor skills (β = .396, p=.07) significantly predicted higher self-regulation. Visual motor (β = .483, p=.02) and object manipulation (β = .34, p=.03) skills significantly predicted higher early literacy skills. Visual motor (β = .678 p=.001), grasping (β = .450, p=.04), object manipulation (β = .544, p=.01), and stationary (β = .649, p=.001) skills significantly predicted early math skills.

CONCLUSION

These findings suggest specific aspects of fine and gross motor skills predict different components of school readiness in at-risk preschoolers. More research with larger samples and specific disabilities should be examined.

R9

Combating Task and Environmental Constraints through the Empowerment Model

Thomas E. Moran[1] & Andrea R. Taliaferro[2]

[1] James Madison University
[2] West Virginia University

INTRODUCTION

Individuals with disabilities face a variety of challenges, known as constraints, that impact one's success during physical activity. While we may be unable to change the individual constraints each student brings into the gym, professionals are able to influence the complexity that the task and environment presents to each student.

METHODS

The purpose of this presentation is to demonstrate how the components of the Empowerment Model are designed to combat task and environmental constraints to help individuals with disabilities successfully engage in physical activity. This lack of physical activity "may be associated with the gap between the individual's needs, interests, and functional level and the barriers that are often present in their environment" (Washburn et al., 2002, p.1). The empowerment model has three unique and overlapping components: programming, training, and support. The focus of this presentation will be to share the programming spectrum of the model and how each program design combats or minimizes the impact of constraints.

RESULTS

Initial pilot data collected on the model showed the necessity for the development of the varying programming levels to not only address the wide range of constraints that each student has, but also to combat the overlapping constraints that both the task and the environment present to each student. Case study data will be shown to illustrate the challenges of specific students and how the model attempts to combat existing constraints.

CONCLUSION

Much additional work needs to be done to validate the effectiveness of the model. Initial pilot data illustrates the necessity for a foundational model that will provide a framework through which physical educators, coaches, community instructors can systematically combat the constraints each student and their associated abilities and disabilities presents.

R10

Beyond Empowerment: A Shift Toward Personal Coherence

Brenda Rossow-Kimball[1] & Donna L. Goodwin[2]

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[2] Faculty of Physical Education & Recreation, University of Alberta

INTRODUCTION

Service delivery for people considered to have intellectual disabilities has been historically framed by four paradigms (Polloway et al., 1996); (a) facility-based, (b) services-based, (c) supports-based, and (d) empowerment. Most recently, the capabilities paradigm has been introduced to APA. Each paradigm reflects the social milieus, culture, and moral disposition of society at the time. Under the empowerment paradigm, the experience of self-determination remains curtailed by others perceptions of decision and choice making abilities. We will challenge dominant discourses of empowerment and capability for people labelled with intellectual disabilities through their retirement leisure experiences.

METHOD

Through engaged narrative inquiry, selected storied experiences of retirement of three men labelled with intellectual disability will be shared. Walking alongside the men for nearly a year, the coherence in their shared experiences of *past, place*, and *community* came to light.

RESULTS

As paradigms shifted from patriarchal, medical-model perspectives to a focus on self-determination, the storied lives of the men illustrated that even under the empowerment paradigm, they remained tied to a grand narrative of inadequacy, hopelessness, underachievement, and dependence. It was not until they rejected structured retirement programming that enhanced opportunities to express own interests and resourcefulness was possible and competing stories of confidence, pride, service to the community, and resistance emerged.

CONCLUSIONS

The authors suggest that a new paradigm is on the horizon – *personal coherence*. The ‘strengths perspective’ places the central focus of the strengths and resourcefulness of people in their environments rather than their perceived deficits and problems. The personal coherence paradigm goes further to value personal wisdom, history, and place as a way in which to bring meaningfulness to the lives of people labelled with intellectual disability. The significance of a personal coherence paradigm is the potential to rewrite the grand narrative of inadequacy, hopelessness, underachievement, and dependence to one of possibility, hope, and personal growth.

R11

Doing Things My Way: Physical Education and Teaching with a Disability

Michelle Grenier

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INTRODUCTION

Having a disability and being a teacher can reveal matters of equality and respect and be critical sites for examining practices associated with ability, competence, and pedagogy (Anderson, 2006). While there is a growing literature base that examines disabled students' experiences in physical education, there is virtually no research that examines the experiences of physical education teachers with disabilities.

METHOD

Using the Capability Approach (CA), interpretive case study explored the experiences of a physical education teaching intern with a physical disability, significant school members, and the students he instructed through student focus group interviews, semi-structured interviews of adults and documents including lesson plans and journals. The CA highlights individual achievement; what a person is able to do, and considers one's freedom to realize his or her well-being.

RESULTS

The results yielded three primary themes. The first, *the fluid nature of the disability discourse* demonstrated the complexity of disability and explored the contrast between static tendencies that stereotype disability and the disability experience (Biklen, 2000). The second theme, *doing things my way*, reflected Ben's (intern) need to distinguish himself and his skills by defining contexts for experiencing competence. The third and final theme, *agent of change* explored how Ben's experiences as a teacher with a disability informed his educational narrative.

CONCLUSION

Discussions on disability, curriculum and disability sport have, for the most part, been relegated to the area of adapted physical education (Fitzgerald & Kirk, 2009). If and when PETE programs give serious consideration and attention to what disabled individuals can provide within educational domains, the most notable achievement is that they may challenge myths and the stereotypes associated with having a disability.

R12

Journey to Wholeness: Voices of Women Living with Disabilities

Lauren Lieberman, Linda Snell & Luz Cruz

The College at Brockport

INTRODUCTION

Women with disabilities need the same general health care as women without disabilities, and may also need additional care to address their specific needs. However, research has shown that many women with disabilities may not receive regular health screenings within recommended guidelines (Armor, Thierry, & Wolffe, 2009). This information leads us to ask some questions with regard to the overall health and well-being of women with disabilities, for example:

- Where can a women with a disability and her caregivers learn about how to navigate the journey of life with their unique set of circumstances?
- What are the day-to-day experiences of women with disabilities?
- Who is there to ensure that they are being supported in their health care, relationships, fitness and their overall wellness?

The purpose of this book is to explore the ways women with a variety of disabilities are navigating life as they search for wholeness of body, mind, and spirit.

METHODS

Thirteen women with disabilities were asked to write their life experiences as it related to their disability, family, vocational experiences, relationships, navigating health care and friendships. The participants were from 44-88 years old and the disabilities ranged from spina bifida, deafness, visual impairment, multiple sclerosis, orthopedic disabilities and severe arthritis. The authors then reviewed these stories and came up with common themes and sub-themes among the participants.

RESULTS

The results included the themes of: Positive impact, focus on what I can do, family and friends, be open to receive support from others, the costs of health care caused fear and frustration, perseverance, living beyond the disability-reaching out to help others, the disability does not define who we are, and lastly, advice to other girls and women with disabilities

CONCLUSIONS

Women with disabilities have unique experiences and challenges. These results will help health care providers, teachers, friends and family understand their needs and desires when navigating their journey to wholeness.

G1 Graduate Student “Work-in-Preparation” Proposal

The Effects of Video Modeling on TGMD-3 Performance among Children with ASD

Laynie Case

Advisor: Joonkoo Yun

Oregon State University

INTRODUCTION/BACKGROUND

Children with autism spectrum disorders (ASD) have been shown to have motor skill delays and deficits. However, there is inconsistent research on whether these deficits are due to lack of movement skills or inaccurate assessment methods. Due to relative strengths in processing visual stimuli as opposed to verbal stimuli within this population, instructional and assessment strategies that incorporate visual presentations are recommended. One visual support approach that has found to be successful among children with ASD is video modeling. Video modeling has been shown in the research to improve and maintain behaviors such as social and communicative skills, play skills, and self-help skills. It is hypothesized that video modeling strategies may also improve motor performance by enhancing accuracy of motor skill assessments. Therefore, the purpose of this proposed study is to examine the effects of video modeling on the assessment of motor skills among children with ASD.

PROPOSED METHODS

The Test of Gross Motor Development-3 (TGMD-3) will be used in this study. Approximately 15 children with ASD (ages 3-10) will be recruited to participate in the study. Participants with ASD will perform the TGMD-3 under two protocols (traditional condition and video modeling condition) in a random order. The video modeling condition will involve video demonstrations of the selected TGMD-3 skills. The videos will include skills performed by an adult model, and will be shown to each child on an Apple iPad. The two testing conditions will be completed on two distinct days within 2-3 days of each other. A repeated-measures one-way ANOVA will be generated in order to examine the differences between the testing conditions. It is expected that gross motor quotient scores will be higher following the video modeling condition than the traditional condition of assessment.

G2 Graduate Student "Work-in-Preparation" Proposal

Parents' Perceptions of Physical Literacy in Children and Adolescents with Autism Spectrum Disorders

Kyle Pushkarenko

Advisor: Janice Causgrove Dunn

University of Alberta

INTRODUCTION/BACKGROUND

Physical activity (PA) is a critical element in regards to the overall healthy development of children and adolescents. Engagement in PA not only impacts one's physical well-being, but also their cognitive and social functioning; resulting in a holistic improvement to one's quality of life. Despite these outcomes, rates of sedentary behaviour and physical inactivity continue to increase among typically developing youth in North America. These trends may be further amplified in children and adolescents with autism spectrum disorders (ASD) due to the motor, cognitive, and social barriers that exist. As a result, these populations may be further hindered from obtaining the health benefits associated with PA.

A concept that has acquired much attention in those who aim to facilitate the holistic development of children is physical literacy (PL). PL is defined as **"moving with competence and confidence in a wide variety of physical activities in multiple environments … benefiting the healthy development of the whole person" (Physical and Health Education Canada, 2014).** Currently, literature exists in support of PL among typically developing youth, however little is known about whether it is attainable in those with ASD. The purpose of this study is to determine whether the current conceptualization of PL is a legitimate construct by examining the perspectives of parents of children and adolescents with ASD.

PROPOSED METHODS

Participants will be purposefully sampled from an established PA program whereby a primary diagnosis of ASD is prevalent. The *PLAYparent* and *PLAYinventory* tools from the *Physical Literacy Assessment for Youth* will be used to obtain information about parents' perceptions of PL as it relates to their child. Subsequently, semi-structured interviews will be utilized to acquire greater insight into the proposed research question. Data will then be analyzed in order to examine detailed accounts of parental perceptions on the concept of PL.

G3 Graduate Student “Work-in-Preparation” Proposal

Validity and Reliability of the Smart Start in Preschool-aged Children with/without a Developmental Delay and/or a Disability

Jaehun Jung

Advisors: So-Yeun Kim, Lauriece L. Zittel & Marilyn Looney

Northern Illinois University

INTRODUCTION / BACKGROUND

The Smart Start (Wessel & Zittel, 1995), a curriculum-based and criterion-referenced tool, was developed to provide classroom teachers with help planning instructional responsive for preschool-aged children. There is a limited research regarding validity and reliability evidence of the Smart Start. The purpose of this study will be to investigate validity and reliability evidence of the Smart Start in preschool-aged children with/without a Developmental Delay (DD) and/or a disability. Three research questions for each group include 1) Will a rater demonstrate acceptable intra-rater reliability when measuring using the Smart Start?, 2) Will two raters establish acceptable inter-rater reliability when assessing using the Smart Start?, and 3) Will total scores of Fundamental Movement Skills (FMS) from the Smart Start show acceptable levels of correlations with the TGMD-2 scores?

PROPOSED METHODS

A total of 40 preschool-aged children including 20 participants with a DD and/or a disability will be recruited in early childhood centers/programs. The Test of Gross Motor Development-Second Edition (TGMD-2) (Ulrich, 2000) will be used as a criterion assessment tool. All participants will perform 12 FMS, and their performances will be recorded. Two trained raters will score their performances using the Smart Start and TGMD-2. Inter-rater and intra-rater reliability will be calculated using the proportion of agreement, Kappa coefficient, and Intra-class Correlation Coefficient (ICC). For the proportion of agreement and Kappa coefficient, each of the Smart Start’s key elements of locomotor and object control skills will be used as Dependent Variables (DV). The dependent variable for the ICCs will be the sum of locomotor skills, object control skills, and total score of the Smart Start. In order to determine validity evidence for the Smart Start, the Pearson correlation coefficient will be used. The sum of locomotor skills, object control skills, and total score of the Smart Start and TGMD-2 will be used as DV.

G4 Graduate Student “Work-in-Preparation” Proposal

The Effect of Inclusive Soccer Program on the Social Distance of Children without Disability toward People with Disability and on the Social Skill of Children with Developmental Disability

Yon-joong Ryuh

Advisor: Yong-ho Lee

Seoul National University, Seoul, Korea.

INTRODUCTION / BACKGROUND

The purpose of this study is to examine effects of inclusive soccer program on social distance of children without disability toward people with disability and social skill of children with developmental disability. In order to achieve this purpose, children with and without disability are included in the inclusive soccer program. The importance of inclusive education is well addressed in the literature and many researchers have attempted to investigate how to make full and successful inclusion. However, it is very difficult to integrate successfully due to the negative attitude of children without disability toward their peers with disability. Social distance is an attitude that covers an area of behavioral concepts, usually expressed as a negative behavioral aspect. This means that if social distance of children without disability toward peers with disability is large, ‘discriminatory behavior’ for children with disability will be expressed. The consequence may give children with disability a negative impact in adapting in school life, social skill, and inclusive education. As addressed in many literatures, physical activity is good and effective educational context for inclusive education. Particularly soccer is the most popular sports among children in Korea and effective sports event for children with and without disability playing altogether. Thus, it will be very effective and meaningful for both groups of children to experience positive educational experience through the inclusive soccer program.

PROPOSED METHODS

The current study used quasi-experimental design. The subjects of experimental group will consist of 20 children without disability and 10 children with developmental disability and the subjects of control group will also consist of 20 children without disability and 10 children with developmental disability. Instrument to measure social distance and social skill are selected from the previous research and will be used for the pre- and post-test. SPSS 18.0 will be used for data analysis and α=.05 is set for statistical significance level.

B1

Mediation and moderation analyses in adapted physical activity research

Jooyeon Jin[1], Joonkoo Yun[2] & Dal-Hyun Moon[3]

[1] University of Wisconsin-La Crosse
[2] Oregon State University
[3] San Francisco State University

PRIMARY ISSUE(S) TO BE PRESENTED & DISCUSSED:
This building session will address (a) the importance of mediator and moderator effects in adapted physical activity (APA) research, (b) different statistical analysis techniques to test theses effects and (c) future directions to identify mechanisms of change using the mediating/moderating approach in APA research.

IMPORTANCE OF ISSUE:
APA research has multifactor complexity, such as complicated contexts (e.g., context-dependent limitations) and diversity of individuals' abilities (e.g., person-by-treatment interactions). This complexity might cause difficulty in determining what works and a lack of theory-driven interventions (Reid, Bouffard, MacDonald, 2012). In order to reveal the complex mechanisms in APA research, it is necessary to distinguish among correlates, determinants, covariates, mediators, and moderators. Although the notions on all these terminologies are not new, methodological approaches on mediator and moderator effects have been particularly underutilized in APA research. Furthermore, recent statistical analysis techniques allow us to examine more complicated mediator and moderator effects. Thus, it is imperative to clearly know what the mediators and moderators mean and how to test the mediating and moderating effects within the context of APA. Hopefully, this building session helps APA researchers to systematically explore and understand the subtle behavior change process for individuals with disabilities.

BRIEF OUTLINE OF THE SESSION:
- What are mediator and moderator effects and why are they important in APA research?
- Classical mediation analysis
- Mediation analyses using advances techniques (e.g., structural equation modeling)
- Mediation and Moderation
- Future directions and discussions

REREFERENCE TO ESTABLISH THE IMPORTANCE OF THIS ISSUE:
http://davidakenny.net/cm/mediate.htm
This webpage (last updated in April 9, 2014) is made by David Kenny who has published numerous articles regarding the mediation and moderation. He is also an author of the classical mediation paper "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations (1986)." The information on this webpage would be very useful for attendees who are interested in this building session.

R13

Parental Influences on Physical Activity Participation of Children with Disabilities

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INTRODUCTION

Physical activity (PA) reduces secondary health conditions and improves functioning for activities of daily living. However, many children with disabilities are not meeting the recommended PA guidelines. Parental support has been found to be one of the most influential factors related to PA behaviors of youth without disabilities; however this relationship has not been well documented among children with disabilities. The purpose of this study was to examine the influence of parental support and behavior on PA levels of children with disabilities.

METHODS

Parents of children with disabilities were recruited through agencies that serve individuals with disabilities, returning 99 completed and usable surveys. Hierarchical multiple regressions were used to evaluate which variables predicted children's PA. The first model used variables related to parental practices and behaviors and the second model used variables from the first model and variables related to parent's PA orientation to predict PA levels of children with disabilities.

RESULTS

Results of the hierarchical regression revealed that both models were significant, $R = .53$, $F_{(8,90)} = 4.44$, $p < .01$, and $R = .62$, $F_{(12, 86)} = 4.56$, $p < .01$, respectively. The first model explained only 28.30% of the variance ($R^2 = .28$), but by adding the set variables related to parent's PA orientation explained an additional 11% of the variance ($R^2 = .39$). Under the full predicted model, parental support (beta = 1.98, $p = .05$), parental control (beta = 2.60, $p < .05$), and parents' perceived competence in their child's PA skills (beta = 3.20, $p < .01$) significantly influenced PA levels of children with disabilities.

CONCLUSIONS

This indicates that parent support, style, and perceived competence affect the PA levels of children with disabilities. Future health promotion strategies for children with disabilities should incorporate these results by educating parents and working with them to increase their children's PA.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: This study was supported in part by an OSEP training grant from US Department of Education to Movement Studies in Disability at Oregon State University (H325D100061).

R14

Physical Activity Participation Experiences and Awareness of Parents of Children Who Attend a Motor Development Program

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INTRODUCTION

Preparing children with disabilities for a lifetime physical activity has been an important goal of a university-based after-school physical activity program, but hitherto has not been a focus as a program outcome. The purpose of this study examined how parents of children with disabilities value and approach physical activity both for themselves and their children and how a redesigned Physical Activity Participation model (Smith, 1986) can be a catalyst to effective and sustained community-based physical activity.

METHODS

Parents of children (n = 15) attending a motor development program consented to participate in interviews that focused on both their physical activity experiences and those of their children. Initial questions were from the ACTIVITYGRAM® (Welk & Meredith, 2008) and the Exercise (Physical Activity) section of BRFSS (2013). In addition questions were developed in relation to the personal participation processes of the Physical Activity Participation model: initiation counseling, participation skills, community awareness, attitude development and transitional assistance. The interviews were transcribed and analyzed for themes. Using Moustakes' (1994) phenomenology the themes were synthesized into meanings and essences.

RESULTS

Parents and children were not physically active enough. The identified themes for physical activity levels were: limited past and present parental physical activity; we tried, but community involvement was difficult; thankful for program; program was only outlet; new opportunities; not enough at school or in community. The parents were unaware of the personal participation processes, but realized the importance of these processes in helping them make better choices, being better initiators for their children; and insisting community programs be more welcoming.

CONCLUSIONS

There is a need for parents to model effective physical activity behaviors, possibly including involvement in the program and more unstructured family based physical activities. Of greater importance was the need to educate parents of the personal participation processes to maximize community physical activity opportunities.

R15

Direct and Indirect Measures of the Theory of Planned Behavior: Parental Support of Physical Activity Participation of Their Children with Disabilities

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INTRODUCTION

The Theory of Planned Behavior (TPB) measures individuals' intentions to perform a specific behavior. Ajzen (2004) suggested that if the purpose of the study is to predict intentions and behavior, the direct measures of attitude (ATT), subjective norm (SN), and perceived behavioral control (PBC) are sufficient. However, if researchers would like to understand the basis for these factors, researchers must elicit and assess accessible behavioral belief (BB), normative belief (NB), and control belief (CB). The purpose of this study was to compare results of the direct measures (ATT, SN and PBC) with the indirect measures (BB, NB and CB) of the TPB in assessing parental support for physical activity participation (PAP) of their children with disabilities (CWD).

METHODS

A total of 240 parents of CWD in South Korea completed a questionnaire constructed following Ajzen's TPB guideline (2004). The questionnaire was consisted of instruction, the TPB questions and other background questions.

RESULTS

Standard multiple regression analysis revealed that the direct measures of the TPB explained 34% of the variance in parents' intentions, F (3, 224) = 58.28, $p < .01$. SN was not a significant predictor of intention. Intention, SN, and PBC except ATT were significant predictors of parents' behavior in supporting PAP of their CWD. The proportion of variance in behavior explained by intention, SN, and PBC was 61%. The indirect measures of the TPB explained 46% in parents' intentions, F (3, 214) = 61.12, $p < .01$. CB was not a significant predictor of intention. Only intention was a significant predictor of parents' behavior in supporting PAP of their CWD. The proportion of variance in behavior explained by intention was 56%.

CONCLUSIONS

The direct and indirect measures of the TPB showed different results. When researchers choose one, either direct or indirect measures, they should be cautious.

R16

Using the Theory of Planned Behavior to Assess Intentions to Play with Peers with Disabilities in Middle-School Physical Education: Preliminary Findings

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[2] Wayne State University
[3] SUNY Cortland

INTRODUCTION

Current literature suggests that intentions of students without disabilities play a critical role in the successful inclusion of students with disabilities in general physical education (GPE). To date, the only scale developed to measure the intentions and beliefs to socially interact with a peer with a physical disability in GPE is the Children's Intentions to Play with Peers with Disabilities in Middle School Physical Education (CIPPD-MPE) (Obrusnikova et al., 2011). The four-factor CIPPE-MPE scale consisting of behavioral, normative, control beliefs, and behavioral intention was developed using the *theory of planned behavior* (TPB; Ajzen, 1991). While the researchers showed structural validity and internal consistency of the four-factor CIPPD-MPE scale, they failed to include direct measures of TPB (i.e., attitudes, subjective norm, perceived behavioral control) in the scale. Therefore, the purpose of this study was to (a) revise the CIPPD-MPE scale by adding direct measures of the TPB and (b) provide preliminary evidence of structural validity and internal consistency.

METHODS

A background questionnaire and a pilot version of the seven-factor CIPPD-MPE were administered to a convenience sample of 262 middle school students (67% girls) from two different states of USA.

RESULTS

Results of an exploratory factor analysis revealed seven factors that explained 63% of variance in the model, which is larger than the variance in the four-factor model. Internal consistency of the seven subscales ranged between .70-.92. All subscales were significantly correlated with intention ($p < .01$), with behavioral beliefs consistently having the strongest correlation ($r = .65$).

CONCLUSIONS

The study provides preliminary evidence for structural validity and internal consistency of the seven-factor CBIPPD-MPE scale to predict intention of children without disabilities to play with a hypothetical peer with a physical disability in GPE.

R17

Policies and Practices of Youth Sports Organizations in Accommodating Children with Disabilities

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[2] Kinesiology Program, Georgia State University

INTRODUCTION

The purpose of this pilot study was to understand how community youth sports organizations in Virginia and Georgia provide information to coaches and support to children with disabilities to facilitate the inclusion of children with disabilities.

METHODS

An online survey created and validated for this study was distributed to 300 youth volleyball and soccer club directors in Virginia and Georgia. The survey took approximately 10 minutes to complete.

RESULTS

Twenty-six club directors (22 soccer, 3 volleyball, 1 no reply) completed the survey. The majority of club directors did not provided recreation-level coaches with training or written resources to assist them with the inclusion of children with disabilities in their sport programs. However, the majority of directors said they would allow the child's parent or "buddy" to assist the child during the game and would be willing to assign an extra coach or staff member to assist with a team that has a child with a disability. Club directors also said they would allow accommodations that just apply to a child with a disability (e.g., hitting a ball held by a peer in volleyball), and they would allow a child with a disability to play down an age level (e.g., 12 year old playing in a league for 10 year olds). However, they would not allow a child with a disability to use crutches or a wheelchair during a game, they would not be willing to allow changes that would affect all players (e.g., lowering the net in volleyball or using a Nerf ball in soccer).

CONCLUSIONS

While a small sample, club directors are willing to make some accommodations to include children with disabilities, but even at the recreation level they are reluctant to make accommodations that may compromise safety or affect the integrity of the game.

R18

Instructional Preferences in Aquatics for Children with Visual Impairments

Lauren J. Lieberman & Fabiana Cieslak

The College at Brockport

INTRODUCTION

Children with visual impairments are behind their sighed peers in motor skills and need to increase their physical activity levels (Houwen, Visscher, & Lemminck, Lieberman, Byrne, Mattern, Watt & Fernandez-Vivo 2010, Wagner, Haibach & Lieberman, 2013). Swimming is a sport that many children with visual impairments enjoy and experience success, but unfortunately swimming is particularly complex to teach children with visual impairments. In addition, there is currently no research in the area of instructional preferences related to aquatics for children with visual impairments. The purpose of this study was to determine which instructional strategies athletes with visual impairments and their coaches preferred during swim instruction.

METHODS

Thirteen athletes with visual impairments and fourteen coaches participated in qualitative interviews on their preferences after a week of instruction. A thematic approach was utilized to ensure the analysis was undertaken in a theoretically and methodologically sound manner.

RESULTS

Three key themes emerged, each a compilation of a set of subthemes. The first theme, physical guidance, included a quicker learning process and both passive and active learning. The second theme, tactile modeling, was comprised of barriers as well as better instruction. The final theme was teaching strategies, which encapsulated subthemes depending upon the situation and child feedback.

CONCLUSIONS

Instructional styles used in swimming depends upon the skill being taught, the previous experience of the child, the size and experience of the instructor, and the preference of the student.

Implications for Practitioners: The results revealed an in depth analysis of children with visual impairments' and coaches' preferences in swimming. Instructors must discuss the skills being taught to the student ahead of time. They must both take specific variables of skills being taught, the previous experience of the child, the size and experience of the instructor and the preference of the

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: A special Thank you goes out to Camp Abilities in Brockport for their support for this research project.

R19

Including students with disabilities in Elementary Physical Education: a case study in western NY

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INTRODUCTION

Education in USA has been oriented by the principles of inclusion. According to past and recent Federal Legislation, Physical Education is considered to be a direct service that must be provided to all students with disabilities, in order to accommodate their special needs. Studies have demonstrated the advantages of including students with disabilities in general Physical Education settings, however it is still a distant reality from the majority of New York public schools. The present research aims to analyze how inclusion has been developed at the elementary level of a school district located in western New York. Specifically, it is intended to investigate the modalities of inclusion support that are being provided to students with disabilities in Physical Education settings.

METHOD

Under educational focus and qualitative approach, a Case Study was developed. With the IRB approval, the field research was carried out in a school district located in a suburban area, involving 11 students with cerebral palsy (2), intellectual disability (3), visual impairment (1) and autism (5), from PK to 5th grade. The data collection instruments were: 1. observation, systematically registered through field diary notes, throughout a period of 2 months (72 classes); 2. semi-structured interview with the Assistant to the Superintendent for Inclusive Education, Adapted Physical Education (APE) and General Physical Education (GPE) teachers.

RESULTS

The primary condition for meeting the needs of students with disabilities within the context of Physical Education were: 1. the different modalities of support provided by GPE / APE teachers and aides/ paraeducators; 2. the variation of placement of student with disabilities in the continuum of inclusion; and 3. universally designed approaches and strategies to teaching.

CONCLUSION

In this sense, the school district studied can be considered an example that is possible to think/idealize physical education from the perspective of human diversity.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: CAPES Foundation, Ministry of Education of Brazil, Brasília/DF 70040-020, Brazil.

R20

Service Perceptions among Asian Immigrant Parents of Children with Disabilities

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[4] The Ohio State University

INTRODUCTION

Although disability is not ethnicity or race specific, it is known that cultural differences may influence how a disability is perceived (An & Hodge, 2013; Daudji et al., 2010). This study aims to describe perceptions of disability among Asian immigrant parents of children with disabilities in a western state of the United States. Furthermore, this study explores how these perceptions influence services that may be available to their children and how the services are utilized.

METHODS

A descriptive mixed-method research design that employed semi-structured interviews and a questionnaire using a Likert-scale for twenty parents who immigrated to the United States from Asia. The children have documented disabilities and receive adapted physical education services as part of their Individualized Education Program.

RESULTS

Themes were identified that directly related to the parents' cultural beliefs and service barriers. Percentages were high with regard to their perceptions of services offered for their children with disabilities, and low percentages with regard to their comfort level of utilizing specific services.

CONCLUSIONS

Understanding Asian immigrant parents' perception of services for their children with disabilities is of importance for expanding knowledge of professionals in the field. Further research should be conducted on Asian immigrant parent perceptions in overcoming service barriers that may impede services in adapted physical education. This research may help develop strategies that can positively alter Asian immigrant parent perceptions, which may promote a better quality of life for their children with disabilities.

G5 Graduate Student "Work-in-Preparation" Proposal

Implementing a Multi-Sport Skills Camp for Girls ages 8-11 with Autism Spectrum Disorder (ASD)

Lindsay Smith

Advisor: Meghann Lloyd, PhD

University of Ontario Institute of Ontario

INTRODUCTION / BACKGROUND

ASD is associated with restricted or repetitive behaviours, social reciprocity, and deficits in nonverbal communication. ASD occurs more commonly in boys with a gender ratio of 4:1. Consequently girls consistently are grouped with boys for school and interventions, which may not be optimal for their development. Gender specific interventions may optimize learning potential for girls with ASD. Children with developmental disabilities such as ASD are more likely to be less physically active than peers, and demonstrate poor motor skills. Girls with typical development tend to be less active than boys and demonstrate motor skills of poorer quality; this is often magnified in girls with disabilities. One of the greatest barriers to physical activity (PA) is perceived self-competence of the necessary skills to participate. Active girls tend to have a more positive self-image, and greater self-esteem. The intersection of disability, gender and PA has rarely been examined; the objective of this study is to implement a one-week Multi-Sport skills camp for girls ages 8-11 with ASD to enhance motor and social skills, physical self-perceptions, and PA.

PROPOSED METHODS

20 girls ages 8-11 with ASD will be included in this proposed study. A one week Multi-Sport Skills Camp will focus on motor skills and PA, and will consist of warm up activities, skill instruction, active games and sports, and free play time for girls with ASD. The study will follow a pre-test-post-test design with an 8 week follow up. Standardized assessments will be used to measure motor and social skills, physical self-perceptions, and physical activity. Descriptive characteristics on all variables will be completed as well as repeated measures ANOVA on all motor skill and psycho-social variables across 3 assessments. A bivariate model and multiple regressions will be used to understand how variables relate, and which variable is the greatest predictor for PA.

G6 Graduate Student “Work-in-Preparation” Proposal

Anodal and Cathodal tDCS as a therapy in Autism Spectrum Disorder

Susannah Owen

Advisor: Dr. Georgia Frey

Indiana University, School of Public Health, Department of Kinesiology

INTRODUCTION / BACKGROUND

Restricted, repetitive behaviors (RRBs) are one of the core diagnostic criteria of autism spectrum disorder (ASD) yet there is little information on the causes and treatment of these debilitating symptoms. These behaviors range from simple repetitive motor behaviors to more complex cognitive behaviors such as compulsions and restricted interests. Two distinct types of RRBs have been conceptualized. “Lower order” repetitive sensory and motor behaviors and “higher order” rigid cognitive behaviors. Perry et al. (2007) demonstrated that sensorimotor gaiting and RRBs reflect inhibitory abnormalities. According to the motor control theory, the RRBs common to those with ASD occur as the result of a deficient motor system and its attempts to maintain homeostasis and engage in goal-oriented motor skills (Radonovich et al., 2013). Impairments in motor control are the most commonly reported findings in ASD. The purpose of this study is to determine if inhibition/excitation can be manipulated using tDCS in a manual dexterity task.

PROPOSED METHODS

This study will consist of two groups of five individuals, ages 18-25 years, with the clinical diagnosis of ASD and two groups of five age-matched, neuro-typical controls. Each group will perform baseline block of three, 30 second peg board trials with 3” rest between trials. Next, each group will receive either real or sham tDCS for 30” as an intervention. Anodal tDCS will excite the motor cortex and cathodal tDCS will inhibit the motor cortex. This condition will be randomized between groups. Each group will repeat the three blocks of peg board trials after the intervention to determine if the anodal or cathodal tDCS has an effect on performance and whether the effect is positive or negative.

Efficiency of Video modeling with the use of Aurasma® compared with Picture Prompting in Teaching the use of Free Weights to 15-20 Year Olds with Autism in a Community Recreation Environment

Mary Kathleen (Kathy) Brinker

Advisor: Dr. Stacey Bock

Illinois State University

PURPOSE

The purpose of this study is to compare the efficiency of two interventions in dumbbell usage in a community fitness center environment. The two independent variables being manipulated are video modeling with Aurasma® and picture prompting. The participant population will be 15-20 year olds with high-functioning autism. The experimental design is an Adapted Alternating Treatment Design (AATD), which compares the efficiency of the two evidence-based practices by specifically looking at trials to criterion.

INTRODUCTION / BACKGROUND

The National Standards Project through the National Autism Center (NAC, 2009) cited many emerging or established treatments that are potentially replicable in a physical education setting. Both video modeling and picture prompting have been shown to be evidence-based practices within special education classrooms, community based instruction for activities of daily living (ADL's), and vocational tasks. No research in visual best practices has been conducted in physical education settings and/or community recreation activities, specifically addressing the needs of our students with high-functioning autism. There is a significant gap in the literature with physical education and recreation programming for students with autism. The audience for this study is community recreation therapists, adapted and standard physical educators, and disability sport organizations (DSO's).

PROPOSED METHODS

The experimental design is an Adapted Alternating Treatment Design (AATD) (Sindelar, Rosenberg, & Wilson, 1985). The AATD allows for a strong functional relationship to be shown between two or more independent variables and the dependent variable due to the concurrent interventions being assigned randomly to behaviors, which are counterbalanced and replicated across students. The order of the study will be baseline, efficiency (trials to criteria) of the two interventions of video modeling with Aurasma® and picture prompting on weightlifting with dumbbells (bicep curl and tricep extension). Additionally, further experimental control will be demonstrated when the best condition is counterbalanced with the opposite behavior.

G8 Graduate Student “Work-in-Preparation” Proposal

Conventional strength training intervention versus a Nintendo Wii intervention for upper limb function in children with CP: A home study

Caroline Kassee

Advisor: Meghann Lloyd, PhD

University of Ontario Institute of Technology

INTRODUCTION / BACKGROUND

Cerebral palsy (CP) is one of the most common causes of physical disability in children, in which upper limb dysfunction due to spasticity is prevalent. Upper limb dysfunction can severely limit a child’s ability to perform many of the activities of daily living, so it is therefore imperative that children with CP acquire upper limb motor skills. In order to rehabilitate the upper limb in pediatric CP, researchers first need to know about the effectiveness of various treatment techniques. Two treatments that warrant further investigation are strength training and a Nintendo Wii intervention. Strength training and Nintendo Wii interventions as a therapeutic approach are becoming more widely accepted in clinical practice, and have shown positive clinical and functional outcomes. However, there are few studies that examine strength and Wii interventions in the context of upper limb pediatric CP, and there are no studies that directly compare interventions in terms of upper limb functionality.

PROPOSED METHODS

The purpose of this study is to examine the comparative effectiveness in terms of functionality, for a strength training intervention and a Nintendo Wii intervention for children ages 7 to 12 with spastic CP centered in the upper limbs. No less than n=10 participants will be recruited and randomized to either the strength training group or the Wii intervention group. The strength-training group will function as a control for the Wii intervention group, as it is a more task-specific intervention that targets only one domain of function, and therefore had more predictable functional outcomes when compared to the Nintendo Wii. Each group will then undergo an 8-week intervention, training at home 5 days a week for 40 minutes per day. Pre-test, post-test and follow up measures will be collected using body function measures and standardized assessments in order to determine similarities and differences between groups.

R21

Developing and maintaining physical fitness among adolescents with Down syndrome

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INTRODUCTION

Youth with Down syndrome (DS) exhibit low levels of health-related fitness which likely contributes to their existing health disparities. Translational research is needed to explore changes in fitness through the use of community based programs. This RCT examined: 1) the effects of a 12-week progressive exercise training program on fitness in adolescents with DS, and 2) whether changes in fitness could be maintained during a 12-week maintenance period.

METHODS

Adolescents with DS were randomly assigned to an exercise program (EP) or a wait-list (WL) control. EP participants engaged in aerobic exercise and weight training 3 days/week at a YMCA. Supervisors and coaches taught participants to master exercises, support one another, and gain skills to maintain/generalize behavior. Aerobic capacity, muscular strength and endurance, and body composition were measured at baseline, weeks 6, 12, 18, and 24. Linear spline mixed regression model was used to examine the change in outcomes during the intervention (0-12 weeks) and maintenance periods (12-24 weeks).

RESULTS

Fourteen (mean age ± SD; 17.8±2.3yr; 43% male) and 10 (17.6±2.2yr; 30% male) participants were assigned to EP and WL, respectively. Changes in heart rate at minutes 6 and 12 during a modified Balke treadmill test did not differ between groups in weeks 0-12. However, the EP group had greater decreases in heart rate during maintenance resulting in a difference of 6 and 9 bpm lower than the WL group ($P<0.05$). At week 12, EP group demonstrated higher 1-RM leg press ($\Delta=120.1$ lb, $p=0.051$), $50\%_{max}$ chest press reps ($\Delta=5.60$, $p=0.044$), and $50\%_{max}$ leg press reps ($\Delta=5.00$, $p=0.109$). Fat-free mass and body fat percentage did not change along time or between groups.

CONCLUSIONS

A YMCA-based program showed promise for engaging adolescents with DS in exercise, but work is needed to develop interventions to increase fitness.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: This research was funded by NIH grant #1R21HD062933-01.

R22

The 6 Minute Walk Test and the Fitness of Young Adults with Down syndrome

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INTRODUCTION

The aim of this study is to evaluate whether or not fitness can be determined using a well-researched six minute walk test (6MWT) in a young adult population with Down syndrome (DS). This holds importance in today's health industry because this particular target group is at high risk for several cardiovascular, cognitive and clinical factors that contribute to their well-being and longevity. As well, the findings of this research will contribute to the research that currently exists regarding fitness and the DS population and provide pertinent knowledge towards intervention programs.

METHODS

Fourteen young adults with Down syndrome (Mean chronological age = 21.45 years, Mean mental age = 6.07 years; 3 Female and 11 Male) performed one 6MWT at a self-selected pace. BMI, Godin's Leisure Physical Activity and preferred walking speed on a treadmill were also collected. Analysis of the collected data was completed using the program SPSS (19^{th} edition). Single-tailed, bivariate correlations were run using this program and Pearson values were reported. The distance in the 6MWT was correlated using the above method with each of the following measures: BMI, preferred walking speed, leisure activity.

RESULTS

The results showed that 6MWT walk distance increased with decreased BMI and 6MWT walk distance increased with increased walking speed and increased leisure activity.

CONCLUSIONS

These findings are clear indicators of physical fitness relating to healthy physical behavior. This data suggests that this physical test is an adequate indicator of fitness levels in populations with DS, which may additionally provide avenues for intervention and treatment to improve health. Future research could use this test as an outcome measure and walking exercise interventions need to be investigated on multiple levels of outcome measures (e.g., physical, mental, and clinical) in young adults with Down syndrome.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT

This research was supported by the Centers for Disease Control and Special Olympics.

R23

Effect of an Adapted Dance Program on Young Adults with Down Syndrome

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[2] Franklin College

INTRODUCTION: The purpose of this study was to examine the effect of an adapted dance program on young adults with Down syndrome. The adapted dance program (Live*Laugh*Dance) is offered during the summer and is a service learning aspect of an adapted physical activity exercise science course. The programs focuses on dance as a means of physical activity and expression for young adults with Down syndrome as well as an opportunity for undergraduate exercise science students to practice planning and instructional modifications. Over the course of two years, the authors collected four sets of data: balance, rhythmic acuity, rate of perceived exertion, and small moment reflections for the participating undergraduates.

METHODS: Data were collected over a two-year period during the summer. Participating dancers were assessed on balance and rhythmic acuity prior to starting the dance program and immediately after the program finished. Balance was assessed using a reach test and rhythmic acuity using the rhythmic acuity scale. During the dance program, dancers were asked to report their rate of perceived exertion (RPE) using a modified RPE scale (Omni Pictorial Scale) previously validated. Dancers reported their RPE after completing moderate physical activity either practicing a dance or participating in skill building. Participating undergraduates worked with dancers one on one. After each dance session, the students completed a reflection referred to as, "small moment reflections" in which the students chose a particular moment that was meaningful and reflected on the meaning.

The rhythmic acuity measurement (RAM) measures how well one can find and maintain the beat of the music by both clapping and stomping. Dancers were assessed pre and post using a 2-minute pre-recorded CD that measured clapping and stomping with an isolated drum beat as well as a layered beat (i.e. music added to the drum beat). Paired t-tests showed significant increases in isolated ($p = .003$), layered ($p = .011$), and combined scores ($p = .004$) scores. These results suggest that participation in semi-weekly dance classes for six weeks may increase rhythmic acuity in individuals with Down syndrome.

No changes in static balance were found from pre-test to post test; however, for dynamic balance measured during the reaching tasks, the center of pressure velocity in the direction of the reaches tended to be significantly increased [$F(1,20) = 4.03$, $p = 0.0585$]. This increased velocity suggested that the subjects completed the reaches faster following the dance intervention.

Participating student reflections revealed five major themes suggesting students were impacted by their experience that shifted their ways of thinking about movement and abilities of those with Down syndrome. Initial review of two student reflections, five processes resulted: 1) not knowing, 2) extra care, concern, caution, 3) scorching heat, 4) extra care, concern, and caution, and 5) "blossoming eden". Initial review of all student reflection also reveals emerging themes around vulnerability and hopefulness.

CONCLUSIONS: The Live*Laugh*Dance program was designed to improve both dance and creative skills of young adults with Down syndrome. While it was apparent the dancers engaged and adhered to the dance program, whether the dancers demonstrated improved their physical ability was questionable. Data analysis suggests that dance program was an effective means of engaging physical activity to facilitate adherence and improve physical skills of the participants. Additionally, undergraduate students appeared to have positive and instrumental experiences as a result of their service learning experience suggesting that the dance program positively affected both the dancers and participating students. Alternative means of physical activity, like dance, may be unique means of facilitating activity adherence and changing the perception of participating students.

R24

Assisted Cycling Therapy (ACT) improves Verbal Fluency in Adolescents with Down Syndrome

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INTRODUCTION

People with Down Syndrome (DS) have pronounced deficits in verbal abilities. Verbal fluency has been shown to improve in response to exercise in other clinical populations. The purpose of this study was to assess the impact of an 8 week, 3x/week novel cycling intervention on verbal fluency in adolescents with DS.

METHODS

Eighteen adolescents with DS (age 9-26 yrs) were randomized to either voluntary, stationary cycling (VC) in which they cycled at a self-selected cadence or a novel cycling modality termed assisted cycling therapy (ACT) in which a motor augmented their voluntary cadence by at least 35%. The verbal fluency test used here consists of letter fluency items (words that start with S/F) and category fluency items (animals/food). This test is designed to assess semantic knowledge, retrieval ability, and executive function.

RESULTS

At baseline, our sample averaged 2.9 ± 3.5 words named during the letter fluency test and 8.5 ± 4.6 during the category fluency test. After 8-weeks of cycling, both the ACT group and VC group improved their combined category and letter fluency scores (Cohen's d = .58 and .13, respectively). These improvements approached conventional levels of significance (p = .097 and .206, respectively). Both groups showed non-significant improvement in category fluency, but only ACT showed trends of improvement in letter fluency (p = .193). Overall, there was a significant cumulative pre/post improvement after 8 weeks of cycling when combining both groups and all verbal fluency categories (p = 0.018).

CONCLUSION

ACT seems to be more effective than VC to improve letter fluency. These results are consistent with previous research that found improvements in executive function following ACT.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: This research was supported by the National Institutes of Health

R25

Functional near-infrared spectroscopy (fNIRS): A brief tutorial

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The use of functional near-infrared spectroscopy (fNIRS) has been expanding dramatically over the past five years in studies of early cognitive development as well as motor skill performance and development. This technology creates new opportunities to examine cortical brain activity during functional gross and fine motor tasks in both healthy individuals and those with motor disabilities. In this talk we will explain how the technology works, its advantages and disadvantages over other brain-imaging techniques, and share examples of data derived from our own work and that of other motor behavior researchers.

fNIRS is an non-invasive optical imaging technique that assesses changes in cortical hemodynamics in specific areas of the brain during goal-directed activities, similar to fMRI. A major advantage of fNIRS over other brain-imaging techniques (e.g. fMRI & EEG) is that it is less susceptible to movement artifact. This allows researchers to measure real-time cortical activity during performance of more complex skills such as reaching and stepping.

Here we will illustrate the utility of fNIRS by sharing an overview of fNIRS work in adults focused on motor behavior, and the relatively limited work from infant studies. In addition, we will share results from our own laboratory involving infants and adults performing similar tasks to illustrate changes in the brain that can be observed over developmental time. We will also address reasonable future questions that would involve persons with disabilities such as Parkinson’s disease, Down syndrome, developmental coordination disorder, and spina bifida.

R26

Changes in motor cortex activity of infants' reaching and stepping patterns

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INTRODUCTION

Infants develop patterns of neural activation as they repeat cycles of perceiving and acting, enabling them to achieve their goals. Initially, many neurons and combinations of muscles produce the desired motor outcomes (e.g., reach and walk); efficient neuromotor responses emerge with practice. We hypothesize that younger infants, with less experience in motor skills, will show dispersed areas of cortical activation that narrow compared to older infants, with more experience using these skills.

METHODS

We used functional near-infrared spectroscopy (fNIRS) to monitor cortical hemodynamics of the motor cortex as infants reached for toys and stepped while supported over a treadmill. Six younger (26.1 ± 3.5weeks) and six older infants (51.9 ± 1.7 weeks) took part in the study. We positioned a customized headgear over the motor cortex of each infant's head. Infants performed 10 reaching and stepping trials. *Reaching:* We secured infants into a customized infant seat and presented toys at midline. After each reach, infants watched a video during rest. *Stepping:* We held infants under the arms in an upright position to enable stepping for 30 seconds on the treadmill. We held the infants so they rested against her chest during rest. We compared rest with task phase to detect activation in cortical hemodynamics.

RESULTS

Young infants during reaching showed activation in 7 channels, while older infants showed activation in 4 channels ($p < 0.05$). During stepping, younger infants showed activation in 8 channels while older infants showed activation in 6 out of 12 channels ($p < 0.05$).

CONCLUSIONS

Younger infants showed dispersed areas of activation compared to older infants in both skills. Our data support our hypotheses that infants improve cortical involvement in patterned behavior through self-initiated efforts to achieve the goal. In cycle of perceiving and acting they refine the neural activity, which enables their smoother and more reliable motor outcomes.

R27

Methodology for Objective Physical Activity Monitoring During Infancy

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INTRODUCTION

Physical activity (PA) measurement is common in health-related research. Unfortunately, there is scarce literature to support the methodology of measuring infant PA (Hauck & Ulrich, 2013). Furthermore, objective PA measurement in infancy is complicated by the fact that infants do not locomote independently; therefore much of their physical displacement throughout the day is the result of adult or mechanical handling. The purpose of this longitudinal study was to provide initial standardized procedures for objectively monitoring PA during infancy; accounting for infant-produced movement only.

METHODS

Twenty-seven infants participated from one to six months of age. Objective PA was collected once monthly over a 24-hour period using an Actical accelerometer placed on the ankle and wrist. Accelerometer counts (15s epoch) were corroborated by a comprehensive monitoring log completed by the guardian. Observations of infants producing activity in various positions and devices were monitored and recorded to establish ceiling values of infant-produced PA counts.

RESULTS

Linear mixed modeling revealed a significant linear trend of increased PA with age occurring at the wrist and ankle. Additionally, accelerometer counts >500 were rarely achieved in prone or supine position with the exception of use of a kicking or jumping device. Multiple incidences of counts >500 occurring in short succession without indication of using said devices should generate suspicion.

CONCLUSIONS

Twenty-four hour PA measurement during infancy is feasible. Co-completion of a comprehensive monitoring log can be accomplished with high fidelity. Data reduction is time consuming, but feasible in smaller investigations. Infant PA monitoring is only recommended when a comprehensive log is also utilized. Continued investigation of measurement reliability is strongly encouraged.

R28

The Use of Body-Machine Interfaces to Examine Developmental Change in Motor Learning

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How does learning in children differ from that in adults? This issue has important implications both from a theoretical motor development standpoint as well as in pediatric rehabilitation. Addressing this question has methodological challenges because in typical motor tasks, any differences in learning strategies between children and adults are often confounded by differences in task familiarity and anthropometric changes.

In order to minimize these confounds, we investigated how children and adults acquire a motor skill in a virtual task using a body-machine interface (BMI). A body-machine interface transforms body movement into the control of an external device. In addition to being a novel task, it allows tasks to be body scaled - thereby ensuring that both children and adults could perform the task using their existing movement abilities.

Participants learned to use their shoulder movements to control a computer cursor in a center-out reaching task to 8 different targets. Shoulder movements were measured using 4 inertial measurement units (IMU) attached to the participants' upper body and mapped to cursor position. Both children and adults practiced for a total of 160 trials toward 4 targets.

Results showed that initially in practice, children had longer movement times (~50%) compared to adults. This difference in movement time was also associated with a change in the movement strategy. The analysis of the task and null space variance showed that children tended to use greater exploration (i.e. greater task space and null space variance) when compared to adults initially in learning. However, by the end of practice, the performance and exploration for the two groups were similar.

These results suggest that children tend to use greater exploration initially in learning. Future studies will investigate how this difference in learning strategy may be exploited to facilitate motor learning in children.

G9 Graduate Student “Work-in-Preparation” Proposal

The Effects of a 10-week Aquatic Exercise Program on Balance in People with Multiple Sclerosis

Kelsea Smith

Advisor: Taeyou Jung, PhD

California State University, Northridge

INTRODUCTION/BACKGROUND

Affecting almost half a million people in the United States, multiple sclerosis (MS) is one of the most common neurological disabilities amongst adults (Noseworthy, 2000). One of the main motor deficits associated with MS is a decrease in balance, which leads to an increase of the fall risk (White, 2004). The effects of exercise have been well documented for various clinical and functional outcomes, as well as quality of life among people with MS (Rietberg, 2005; Freeman, 2010; Taracki, 2013). However, limited research investigated the effects of aquatic exercise on balance. Few studies utilized a biomechanical tool, such as computerized posturalgraphic balance assessment instrument, for examining static and dynamic balance outcomes after exercise intervention in population with MS. Thus, the purpose of this research is to examine the effects of a 10-week aquatic exercise program on balance in people with MS.

PROPOSED METHODS

Twenty participants (18-65 years old) with MS will be recruited for this study, randomly assigned to either an aquatic intervention or control group. The 10-week aquatic intervention will take place in an accessible swimming pool (85-95 degrees Fahrenheit). The intervention group will receive one hour of aquatic group exercise program twice a week. Each 50-minute session will consist of a warm up (10 minutes), static and dynamic balance exercises (30 minutes) and a cool down (10 minutes). The control group will be instructed to continue daily activities as before. Balance will be measured before and after the 10-week session in both groups, using computerized posturographic balance test equipment (Neurocom Balance Master, NeuroCom International, Clackamas, OR, 2010). Sensory-organization test on a dynamic forceplate and functional balance tests on a long forceplate will be performed by each participant. Research variables assessed will include a composite score for each tests, latency for motor control test, sway energy for adaptation test, transfer time for sit to stand test, and rising and impact index for step and over test. Statistical analysis will be performed using a mixed model ANOVA.

G10 Graduate Student "Work in Preparation" Proposal

The considerations in designing training programs for athletes with physical disabilities

Wei-Ru "Andy" Yao

Advisor: Dr. Deborah Shapiro

Georgia State University

BACKGROUND

Parent's reasons for their children's involvement in sport guide their choice of programs for their children with disabilities. The expectations of the athlete also are crucial for ensuring continued participant motivation. Coaches often design programs for athletes with disabilities from their own perspectives of the needs of athletes without considering the goals of parents and/or the participants. These potential disagreements between the motives of the parent's, athletes and coaches, might lead to a parent transferring their child to another team or activity or stopping participation altogether; athletes may lose confidence or withdraw from sport and for coaches, the team climate and leadership on their team could be negatively impacted.

PURPOSE

The purpose of this study is to investigate how well coaches understand the reasons parents and athletes participate in sport, and how this knowledge influences the way coaches design or alter their training programs. The following research questions will guide this study: (a) What reasons do athletes and parent's each self report for participating in sport (b) What do coaches think are the motives of parents and athletes with disabilities for sport participation? and (c) how do coaches use this knowledge to design and/or cope with the discrepancy of agreement?

PROPOSED METHODS

Participants will be youth 12-18 years of age with physical disabilities who participate in wheelchair basketball. Parents and athletes will individually and independently complete a sport motivation survey. Coaches will complete this same survey twice, once from the perspective of the parent and the second time from the perspective of the athlete. Semi-structured interviews with coaches will be used to understand the impact of parent and athlete motives on the structure of their training programs. Grounded theory method will be used in analyzing the data along with triangulation for the data to verify the credibility of results.

G11 Graduate Student “Work-in-Preparation” Proposal

Fundamental motor skills and physical activity in children with mobility disabilities

Samantha Ross

Advisor: Dr. Megan MacDonald

Oregon State University, College of Public Health & Human Sciences

INTRODUCTION/BACKGROUND

Children with mobility disabilities (i.e. cerebral palsy, spina bifida, and global delay) report significantly lower levels of overall physical activity (PA), with less time spent in structured activities, compared to peers without disabilities. Delayed development of fundamental motor skills (FMS), a characteristic of this population, is posited to limit children’s further development of complex movement patterns required for participation in structured PA. A positive relation between better FMS and high PA levels has recently been supported in children with physical disabilities (Capio, Sit, Abernethy, & Masters, 2012). However, the mechanisms facilitating this pathway are still not fully understood in children with mobility disabilities. The present study aims to examine the extent to which a child’s skill capacity (FMS proficiency) is consistent with use of FMS (performance) and participation during structured PA opportunities. We hypothesize that FMS proficiency will be positively associated with frequency of observed FMS attempts during structured (facilitated) PA settings. Expected outcomes will inform our understanding of the extent to which poor FMS proficiency serves as a primary limiting factor for participation in structured PA supporting the development of PA promotion programs for this population.

PROPOSED METHODS

Participant FMS proficiency motor skills will be evaluated using the Test of Gross Motor Development-2 (TGMD-2; Ulrich, 2000). Children will be observed in two independent structured PA opportunities. Each session will be video coded for motor skill performance using one-minute interval direct observation to collect data on frequency of FMS attempts (adapted from TGMD-2). Overall PA level and environmental factors for each specified setting will be assessed (SOFIT).

G12 Graduate Student “Work-in-Preparation” Proposal

Determine the effects of therapeutic exercise in seated balance among people with SCI

Ubaldo Guzman

Advisor: Dr. Teri Todd

California State University of Northridge

INTRODUCTION / BACKGROUND

Individuals with Spinal Cord Injury face significant challenges in maintaining seated posture (Shin and Sosnoff, 2013). Most of these individuals spend time in wheel chairs. Balance and strength exercises in a seated position may improve motor function and allow individuals to complete activities of daily living with out assistance from others. There have been no previous studies showing the effectiveness of a therapeutic exercise program on improving seated balance in individuals with SCI. Thus, the main objective of this study is to determine the effects of therapeutic exercise in seated balance among people with SCI**.**

PROPOSED METHODS

The study design will be a randomized controlled intervention to assess seated balance. Intervention will go for 8 weeks (3x/week) and consist of balance and strength exercises. 16 participants with lower level injury (T10-L4) will be recruited to participate and randomly divided into 2 groups of 8, an experimental group (Intervention) and a control group (no intervention). The American Spinal Injury Association Motor Strength Scale will be used to assess muscle strength**.** The assessment tools to assess static and dynamic seated balance will be the domain 3 of the Berg Balance Scale (BBS) and the Modified Functional Reach Test (MFRT). The Neurocom Long force plate will be the instrumentation used to measure 2 outcomes of static and dynamic seated balance. Clinical Test of Sensory Interaction on Balance (CTSIB) will measure static balance as the participant sits still with eyes open on a firm and unstable surface. Limits of Stability (LOS) will test dynamic balance as the participants lean towards targets in eight different directions. Data for postural sway, reaction time, endpoint and max excursion will be collected during each test. Statistical analysis will be used to compare both groups to ascertain efficacy of seated balance.

B2

The "Life" of the Social Model and Its Potential Influence on APA

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PRIMARY ISSUE (S) TO BE PRESENTED & DISCUSSED:

- Review the relevance of the social model and its continued influence on research and practice
- Extend upon the model to include elements of identity, communication, and individual agency
- Underscore assumptions and discourses on ability using a relational lens

IMPORTANCE OF ISSUE:

The social model underpins much of the qualitative research in APA as a mechanism for shedding light on experiences of individuals with disabilities and how cultural values systems work to impede or advance one's ability to function in the world. The session advances the continued need for qualitative research in order to acknowledge multiple realities and/or describe historical factors that contribute to marginalization and exclusion.

BRIEF OUTLINE OF THE SESSION:

Two diverse yet complementary papers will critically explore key principles of the social model of disability, reflected through the eyes of its founders and critics (Oliver, 2013). Comparisons will be drawn between the medical model and the social model as a way to shed light on what Shakespeare (2006) describes as a false dichotomy. *The first paper will move beyond the "formal" social model framework as an avenue for emphasizing identity and individual agency through articulations of the capability approach (Silva & Howe, 2012).* In addition, Habermas' (1989) theory of communicative action for individuals with severe disabilities will highlight communication as relational actions embedded in context that rely on co-operation and a common framework of interpretation. The second paper will take a reflexive look at *ableism as an ethical project in APA* (Allen, 2009). *Using the social model of disability and a relational ethical lens (Burgum & Dossetor 2005), ableistic discourses pertaining to chasing normal, exclusion agendas, and hidden disability labour will be examined*. The paper will also be framed by what counts as disability knowledge and the voices of authority in APA with final thoughts being given to insights for professional practice and research. We will argue that the fundamental principles of the social model remain central to both research and practice in APA. However, *we will conclude the session by underscoring assumptions and discourses around impairment and disability* that while appearing to be liberating and well accepted are important to call into question reflexively (Tremain, 2005).

REREFERENCE TO ESTABLISH THE IMPORTANCE OF THIS ISSUE:

Oliver, M. (2013). The social model of disability: Thirty years on. *Disability & Society, 28*(7), 1024-1026. http://dx.doi.org/10.1080/09687599.2013.818773

R29

Exploring a fundamental motor skill intervention for 4 year old children with autism spectrum disorder

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INTRODUCTION

Children with Autism Spectrum Disorder (ASD) have fundamental motor skills (FMS) that are significantly delayed and of poor quality, which may inhibit their engagement in active play and limit opportunities for further development. The purpose of this study was to examine the effectiveness of a FMS intervention at improving the motor skills of 4 year old children with ASD and to determine whether intervention intensity had an impact on the motor outcomes.

METHOD

This study employed a counter-balanced experimental design. Participants in the experimental group (Group 1; n=5) attended a FMS intervention for 1 hour/week for 12 weeks, while the control group (Group 2; n=4) did not receive the intervention. Group 2 subsequently received the intervention for 2 hours/week for 6 weeks. The Peabody Developmental Motor Scales-2 (PDMS-2) was used to assess the participant's motor skills at baseline, post-intervention, and at a 6-week follow-up for each group. Magnitude of change scores were calculated for PDMS-2 variables and a t-test was employed to detect differences between the experimental and control group following the intervention. A two-way repeated measures ANOVA was used to assess the impact of intervention intensity between both groups at each time point.

RESULTS

Results indicate that when compared to the control group, the experimental group significantly improved on the PDMS-2 object manipulation raw score ($p=0.029$), and PDMS-2 total motor quotient ($p=0.044$) following the intervention. Findings from the two-way repeated measures ANOVA demonstrated a significant time effect for all PDMS-2 variables, indicating improvements following the intervention and skill retention at the 6-week follow-up; however, no significant group by time interactions were present.

CONCLUSIONS

The results of this study indicate that a FMS intervention can be effective at improving the motor skills of 4 year old children with ASD; however, future research with larger samples is necessary.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: Emily was funded by a Queen Elizabeth II Graduate Scholarship in Science and Technology and a Canadian Institutes of Health Research (CIHR) Canada Graduate Scholarship

R30

The Physical Fitness & Physical Activity of School-Aged Children with ASD in Comparison to Typically Developing Peers

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INTRODUCTION

Autism spectrum disorder (ASD) is characterized by impairments in social-communication deficits, and through the presence of restricted, and repetitive behaviors, interests, or activities (APA, 2013). Although physical health disparities such as low motor skills, and obesity has received significant attention, literature comparing the physical activity and fitness of children and youth with ASD to typically developing peers is scare. The purpose of this investigation was to examine the physical fitness and physical activity levels of school-aged children with ASD (N=17) in comparison to typically developing peers (N=12).

METHODS

Participants with ASD completed the Autism Diagnostic Observation Schedule to confirm ASD diagnosis, a developmental assessment- the DAS-II or SB5, and a series of physical fitness assessments: 20-meter multistage shuttle, sit-and-reach test, handgrip strength, body mass index. Physical activity was measured over 7-days, using accelerometry, and pre-established cut-points of physical activity (Freedson et al., 2005).

RESULTS

Data analysis consisted of a MANCOVA revealing a between-subjects effects that showed a significant difference in strength ($p=.03$), and an approaching significance in flexibility ($p = .06$); indicating that children with ASD have lower levels of flexibility and strength than children without ASD. The ANCOVA was used to determine the difference between the physical activity levels of children with ASD and typically developing peers. Between-subjects effects showed a significant difference in sedentary ($p = .00$), light ($p = .00$), moderate ($p = .00$), and total moderate to vigorous physical activity ($p = .01$), indicating that children with ASD have lower levels of sedentary, light, moderate and total moderate to vigorous physical activity than children without ASD.

CONCLUSIONS

Children with ASD are less physically fit and less physically active than typically developing peers. Adapted physical activity and education programs are one avenue with intervention potential to combat these lower levels of physical fitness and physical activity.

R31

Social but Sedentary: Implications of Social Groups on Sedentary Behavior of Children with Autism

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INTRODUCTION

Compared to neurotypical (NT) children, children with Autism Spectrum Disorders (ASD) spend more time in sedentary behavior (SB), any waking activity in a sitting or reclining position with an energy expenditure of ≤1.5 metabolic equivalents, during the weekdays. SB is a risk factor for overweight in children, which in turn poses additional health consequences including increased risk for Type II diabetes and cardiovascular risks. The purpose of the study was to explore how SB of children with ASD is influenced by the social environment during free play and organized settings.

METHODS

Six male children with ASD attending an inclusive summer camp were matched with NT peers by age (mean = 5.5 years, SD = 0.52). Research assistants recorded SB during free play and organized activity sessions using a modified Observational System for Recording Physical Activity of Children-Preschool version. Social group composition (one-to-one with an adult, one-to-one with a peer, in a group of peers, in a group with an adults, and solitary) was simultaneously recorded. The influence of social group composition by diagnosis (ASD, NT), by setting on frequency of SB was determined using a generalized linear mixed model.

RESULTS

In free play, children with ASD spent significantly more time ($p < .05$) in SB when they were one-on-one with an adult (74.2%), one-on-one with a peer (65.2%), in a group with an adult (55.5%) or in a group of peers without an adult (71.8%) compared to when they were solitary (31.9%). No significant differences by social environment were observed for SB during organized activity.

CONCLUSIONS

Social deficits characteristic of ASD may facilitate SB in children with ASD during summer camp free play social contexts compared to a solitary context. The present pilot data suggest further exploration of the role of social context on children with ASD is necessary.

R32

PETE majors' self-efficacy change toward inclusion after student teaching experience

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INTRODUCTION

Many physical education teacher education (PETE) programs offer an introductory adapted physical education (APE) course with a clinical and student teaching opportunities in a sequence to help PETE majors to build teaching competencies, such as self-efficacy, toward inclusion (Jin, Yun, & Wegis, 2013). However, PETE majors may have challenges during the student teaching due to the different teaching environment where one student with a disability is included with 20-30 students without disabilities, instead of the one-on-one based clinical setting (e.g., a gym/swim program). The purpose of this study was to examine whether PETE majors' self-efficacy toward inclusion is improved between post-introductory APE course and post-student teaching.

METHODS

A total of 42 PETE majors enrolled in an introductory APE course accompanying with a clinical participated in this study. The participants' self-efficacy was assessed using the Self-Efficacy Scale for Physical Education Teacher Education Majors toward Children with Disabilities (Block et al., 2013) at the end of the introductory APE course from Fall 2010 to Fall 2012 (5 semesters) and at the end of their student teaching from Fall 2012 to Spring 2014 (4 semesters).

RESULTS

Paired sample t-tests revealed that PETE majors' self-efficacy regarding four factors and three instructional situations across intellectual disability (ID), physical disability (PD), and visual impairment (VI) were not significantly improved, except for self-efficacy regarding ID staying on task, ID fitness testing, ID teaching sport skills, and ID play sport ($P<.01$). In addition, regressions found that self-efficacy regarding ID staying task, ID teaching skills, and ID play sport of PETE majors with APE minor were significantly more improved than non-APE minors ($P<.01$).

CONSCLUSIONS

Study findings indicate that hands-on experiences during the PETE period may be inadequate to build PETE majors' self-efficacy toward inclusion. PETE programs may provide 'real-world' hands-on opportunities to effectively train PETE majors toward inclusion.

R33

Certified Adapted Physical Educators' Perspectives on Advantages and Disadvantages of Online Professional Development

Seán Healy, Martin E. Block, and Joann P. Judge

University of Virginia

INTRODUCTION

E-learning is being increasingly used to provide training to in-service and pre-service teachers. For the field of adapted physical education, such a method of teacher training may be an effective means to alleviate the shortage of certified adapted physical educators (CAPEs) and provide professional development to those currently working in the field. This study seeks to gain the perspective of CAPEs on e-learning as a method of professional development.

METHODS

A survey comprised of a series of open-ended questions about online professional development was administered to a sample of 344 randomly selected CAPEs. A thematic analysis was conducted following the guidelines proposed by Braun and Clarke (2006).

RESULTS

Six themes arose from participant responses; related to benefits and disadvantages of e-learning.

Benefits:

- Flexibility: E-learning offered a flexibility of time, travel and pace of learning.
- Increased learning opportunities: learners had increased access to experts, exposure to educational media, and an increased choice of course types
- Community of learners: e-learning provided access to a community of learners, colleagues and experts in the field.

Disadvantages:

- Lack of social interaction: e-learning may limit opportunities to share ideas, collaborate with others, and to communicate effectively
- Lack of practical experiences: e-learning environment did not allow for authentic hands-on experiences.
- Technology issues: computer compatibility, navigation, and technical issues may be barriers to e-learning.

CONCLUSIONS

344 CAPEs provided their perspective of e-learning as a means of professional development. Thematic analysis resulted in the emergence of six themes relating to the benefits and disadvantages of e-learning. Results will allow for future online professional development of CAPEs to be designed and implemented with their perspectives taken into account.

R34

Are We Ready to Teach Children with Autism Spectrum Disorders and Emotional/Behavioral Disorders? The experiences of Pre-Service Physical Education Teachers and their Professors.

Maebh Barry, Douglas H. Collier, Alisa James, and Cathy Houston-Wilson

INTRODUCTION

Given what are considered to be the best pedagogical practices as well as the current economic climate, school districts are inclined to integrate children with autism spectrum disorders (ASD) and emotional and/ or behavioral disorders (EBD) in general physical education classes. Thus, the quality of the preparation of pre-service physical education teachers, with respect to these populations, is of the utmost importance. Thus, this investigation examined the nature and depth of the training pre-service teachers received during their undergraduate physical education program as well as their perceptions of how prepared they feel to work with these groups in an integrated physical education setting.

METHODS

Two distinct groups took part in this research; undergraduate pre-service teachers (16 in total) and tenure track adapted physical education (APE) professors (four in total). Data were collected through semi-structured interviews at four colleges located in the northeastern United States with four students from each institution being interviewed in each focus group. The four APE professors (each from a different institution) were interviewed separately. Interviews were audio taped and transcribed verbatim. Content validity of the semi-structured interview questions was established through review by five nationally known experts in the field of adapted physical education. Document data and demographic data was also collected. Using a qualitative methodology, categories were identified and themes extracted.

RESULTS

Preliminary findings indicate a lack of adequate preparation in both the classroom and practicum environments. Specifically, pre-service teachers and APE professors believed inadequate time was spent on the topics of ASD and EBD, particularly in the areas of effective behavior management techniques and teaching strategies. Regarding practicum experiences, half of the pre-service students received no exposure to children with ASD and/or EBD while the remaining students were rarely exposed to these students in an integrated environment. All professors acknowledged the need for improved practicum experiences, and more diverse student teaching placements.

CONCLUSIONS

Given the data, it is recommended that significantly more emphasis should be placed on effective teaching strategies for students with ASD and EBD in both classroom and practicum environments; particularly with regard to issues around effective behavior management. With respect to practicum experiences, it is imperative that they are effective, substantial and take place, to a significant degree, in inclusive environments.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: I would like to acknowledge the immense support I have received from my committee members, in particular, my thesis chair Dr. Douglas H. Collier. As well, I would like to thank The College at Brockport – State University of New York for the Distinguished Professor's Award for Graduate Student.

R35

Familiarization Protocols in the Assessment Process with Individuals with Intellectual Disabilities and Autism

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Are standardized procedures employed by widely used assessment instruments producing valid results for physical fitness, motor proficiency, and motor skills testing in individuals with intellectual disabilities (ID) and autism? This presentation will address two important issues related to familiarization: as an antecedent in the administration of test items and as standardized protocols for use in new and existing test batteries. The subject of familiarization has been proposed a number of times since the late 1980s. Initially, researchers in the area of exercise testing recognized that without some enhanced, pre-testing acquaintance with measurement tools, such as treadmills, the participants' performance (e.g., persons with intellectual disability) would yield less than valid data (Fernhall & Tymeson, 1987; Fernhall et al., 2001; Pitetti et al., 1993; Rintala et al., 1992). Additionally, researchers interested in the measurement of motor skills have acknowledged that familiarization with or the addition of various prompts to administrative procedures yields a more realistic estimate of participants' performance (Breslin & Rudisill, 2013; Tomac, Hraski, & Goran, 2012). From this research, it seems clear that consideration should be given to validating familiarization protocols when measuring fitness, motor proficiency, and motor skills in individuals with ID and autism. Additionally, researchers and test developers should consider employing enhanced administrative procedures to help practitioners accumulate the most valid and reliable data possible.

R36

Measuring functional balance in individuals with Intellectual Disabilities

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INTRODUCTION

Adults with intellectual disabilities have higher incidence of falls with some estimates placing fall risks at 34 %. This value is consistent with older adults from the general population and supports the notion that adults with intellectual disabilities may experience balance deficits typically associated with age related declines found in the general population (Cox, Stancliffe, Durvasula, & Sherrington, 2010). An important research consideration is to determine which balance protocols yield the most accurate estimates of balance. Further, it is important to find functional and practical estimates of balance to help practitioners determine which individuals are at heightened risk for falls.

METHODS

Participants with intellectual disabilities (n = 8) were studied using three different balance measures. These included force plates, Berg Balance Scale, and the BESS. Participants were tested on two days. This included force plate estimates using a two legged static standing position, one leg static balance, and a tandem stance. Further, on the same day participants were given three trials using the BESS protocol which includes standing in the same stances as the force plate on a two inch foam pad. Berg estimates were given one week later. Time and fatigue of participants were rationales for using two days to test balance. Scores on the force plates were compared to a group of individuals without disabilities to examine balance deficits.

RESULTS

Data support the notion that individuals with intellectual disability are experiencing balance deficits that force greater adjustments and increase the length of path for the center of pressure (F = 25.82, $p < .001$, $Eta^2 = .62$) when compared to typically developing peers. Relationships between balance measures were not significant in most cases ($p > .05$) and evidence for validity of either the Berg or BESS protocols were not found in these data.

CONCLUSION

Balance is an important consideration for both research and interventions for persons with intellectual disabilities. Data from the limited sample did not support the use of either the Berg or BESS protocol for adults with Intellectual Disabilities based on these data.

R37. **Revisiting the Bruininks-Oseretsky Test of Motor Proficiency (BOT-2) for Children and Adolescents with Intellectual Disability**

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INTRODUCTION: The Bruininks-Oseretsky Test of Motor Proficiency (BOT-2) is used for evaluating motor deficits in children and adolescents [1]. The BOT-2 manual maintains that youth with intellectual disability (ID) display inferior scores on coordination and balance items when compared to normally developing youth due to limitations in initiating/executing movement and skill acquisition. Recent work has established a revised BOT-2 (revBOT-2) for youth with ID that incorporates a familiarization protocol (FP). The revBOT-2 has reported reliability scores equal to or higher than those reported in the BOT-2 manual [2]. Our purpose was to present statistically robust data of youth with ID to compare to BOT-2 standards using the revBOT-2.

METHODS: Participants (age:12-15 yrs.) with ID, but without Down syndrome, performed eight items from three subtests of the BOT 2: Balance (BAL-4, standing on line eyes closed; BAL-5, walking heal to toe on line; BAL-7, standing on one leg on balance beam); bilateral coordination (BLC: 1, touching nose with index finger, eyes closed: BLC-4, jumping in place, sides synchronized ; BLC-6, tapping feet and fingers), and upper limb coordination (ULC:-1:dropping and catching ball, two hands; ULC-5, dribbling ball, one hand). A minimum of 129 participants was tested for each item. The FP protocol involved two demonstrations by examiner, two practices by participants, followed by two performances for score. Best score was used for data analysis.

RESULTS: Mean and standard deviations of scores for each item are presented in Table 1. The test column represents the number of participants tested for each item. The highest score possible established by BOT-2 [1] are presented in the "Max" column.

Table 1: Male and Female Mean and Standard Deviations of Items Scores Compared to BOT-2 Maximum Scores

Item	G	Score	Tests	Max		Item	G	Score	Tests	Max
BAL-4	M	7.7 ±3.0 sec	66	10		BAL-4	F	5.7±3.6 sec	63	10
BAL-5	M	4.8±1.9 steps	91	6		BAL-5	F	4.5±1.9 steps	69	6
BAL-7	M	5.9±3.5 sec	87	10		BAL-7	F	3.6±2.5 sec	66	10
BLC-1	M	5.2±1.5 touch	91	6		BLC-1	F	5.7±1.6 touch	66	6
BLC-4	M	4.4±2.2 jump	91	6		BLC-4	F	3.6±2.6 jump	68	6
BLC-6	M	9.2±2.3 taps	93	10		BLC-6	F	8.7±2.7 taps	66	10
ULC-1	M	4.9±1.8 catch	80	6		ULC-1	F	4.6±1.2 catch	77	6
ULC-5	M	8.1±2.8 drib	80	10		ULC-5	F	7.2±3.2 drib	82	10

CONCLUSION: These results support the assumption that individuals with ID can, with appropriate familiarization, produce scores on the revised BOT-2 that exceed expectations. Given that these scores are a more valid indicator of motor proficiency in this population, any resultant programming should have greater clinical and instructional relevance.

G13 Graduate Student "Work-in-Preparation" Proposal

College Students Perceptions and Attitudes Toward Disability Before and After Exposure to Adapted Physical Activity

Eileen Applegate (STUDENT B), Desiree Martinez (STUDENT A), Matthew Rhoades (STUDENT C)

Advisor: Heather Pennington

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Many people incorrectly perceive individuals with physical disabilities, particularly in regards to independence and participation in adapted physical activity (APA). Furthermore, previous research has found that such negative societal attitudes can decrease acceptance into general society, making the individual with a disability feel like an outsider. It is vital for the adapted physical education (APE) profession to understand the types of interventions that will positively affect the perceptions of specific demographic groups toward individuals with disabilities.

PURPOSE: The purpose of the proposed study is to identify factors impacting college students' (ages 17-25 years old) perceptions and attitudes toward individuals with disabilities. More specifically, the study will investigate three interventions and their impact on perception: a disability experience (DE) assignment, coursework in APE, and participation in adapted intramural sport (AIS) tournament.

METHODS:
STUDENT A: Approximately 18 students will participate in a DE assignment for 24 hours. For the assignment, students will be divided equally amongst three simulated disabilities: visual impairment, hemiplegic cerebral palsy, and paraplegia (wheelchair). Students will be interviewed and surveyed before and after the assignment to measure any changes in their perceptions of individuals with disabilities. The proposed scale is the Interaction with Disabled Persons Scale (IDP) (Gething & Wheeler, 1992). **STUDENT B:** Approximately 50 students will participate in a semester-long APE course consisting of lectures, speakers, videos and experiences with APA. Changes in student perceptions toward individuals with disabilities will be assessed via pre- and post-qualitative surveys. The proposed scale is the Attitudes Toward Disabled Persons Scale (ATDP). **STUDENT C:** Approximately 50 students will participate in one or more of the following AIS tournaments: Goalball, Sit Volleyball, and Wheelchair Basketball. Changes in student perceptions toward individuals with disabilities will be assessed via pre- and post-qualitative surveys that will be developed to measure perceptions toward APA and individuals with disabilities.

RESULTS: Upon completion of the proposed study, it is expected that there will be identifiable factors that will positively impact college students' perceptions toward individuals with disabilities.

CONCLUSION: The proposed research is expected to identify effective ways of improving college students' perceptions and attitudes toward individuals with disabilities by investigating the impact of DE assignments, courses in APE, and participation in AIS tournaments on these perceptions. Such knowledge can aid APE professionals in developing interventions to impact future generations and additional demographic groups.

R38

Autism, Physical Activity, Exercise and Physical Education—Current Research and Future Directions

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This session will provide an overview of current research related to physical activity, exercise and physical education as it relates to individuals with autism spectrum disorders (ASD). Recent numbers suggest an incidence of 1 in 68 children are diagnosed with this disability in the United States, thus the need for training and evidence based practices is increasing exponentially. While the current diagnostic criterion for ASD does not include motor deficits, research within the past five years has provided evidence illustrating deficits in motor skills, physical fitness, and general physical activity patterns.

Physical activity promotes better health in children and adults in the typical population. For individuals with ASD the benefits from physical activity reach even further. When individuals with ASD participate in physical activity, reductions in stereotypic behavior occur (Levinson & Reid, 2008; Celiberti et al., 1997) and classroom engagement increases (Petrus et al., 2008), thus promoting learning. Motor engagement studies for this population have been typically quantitative in nature, examining time on task for motor skills (Pan, 2008) with new studies focused on motor proficiency and physical fitness (Pan, 2014).

Until recently, there has been limited focus on the impacts of physical activity, physical education and adapted physical education on children and young adults with autism. Deficits in research regarding this population include the perspectives of individuals with ASD and qualitative examination of the population during their recess time with regard to their movement patterns. Also, research has been limited as to whether the skills addressed during movement interventions/programming actually affect recess behavior. This session will focus on current research and future directions in the field of motor research and ASD as well as provide an overview of the topic as an introduction to three research presentations aimed at autism.

AM1

School-based fundamental motor skill intervention for 4-7 year old children with autism spectrum disorder

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INTRODUCTION

Children with Autism Spectrum Disorder (ASD) have fundamental motor skills (FMS) that are significantly delayed. These delays may inhibit a child's ability to engage in free play and physical education classes. The purpose of this study was to pilot a FMS intervention in an Early Intervention Classroom (EIC) for 4-7 year old children with ASD and to explore its impact on the motor skills and overall behaviour of the participants.

METHOD

Five children participated in this study as part of their classroom routine in an EIC. The classroom took part in a FMS intervention for 30 minutes per day, 3 days a week, for two 6-week blocks (fall 2013 and winter 2014). Assessments were conducted at three separate time points: Baseline, Post Intervention-1, and Post Intervention-2. Motor skills were assessed with the Test of Gross Motor Development-2 (TGMD-2). An interview was conducted with the classroom teacher at the completion of the study in order to evaluate the impact of the program on the motor skills and overall behaviour of the participants. Motor skill data was examined for individual changes at each assessment and further qualitative conclusions were drawn from the interview.

RESULTS

Individual improvements were found in 80% of the participant's locomotor raw scores and 60% of the participant's object control raw scores as measured by the TGMD-2. The qualitative data revealed numerous benefits to the participants play skills, ability to engage in motor activities, and their understanding and recognition of essential FMS.

CONCLUSIONS

Results from this pilot study suggest that a school-based FMS intervention can result in individual improvements to the participant's motor skills and overall behaviour. These findings may shape the future development of school-based early intervention curricula and the importance of teaching FMS to young children with ASD; however, more research is warranted.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: This study was funded by a Special Olympics Canada Small Research Grant

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM2

Reliability of the Movement Assessment Battery for Children – second edition for age band 2 (7 to 10 years old): Pilot study

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Lakehead University

INTRODUCTION

The purpose was to examine the reliability of age band 2 (7 through 10 year olds) of the Movement Assessment Battery for Children – Second Edition (MABC-2). To date, no research has been conducted on the reliability of this section of this test despite the fact that many items were altered when compared to the original version.

METHODS

Eighteen typically functioning children (4 boys, 14 girls) (M = 8 years, 9 month, SD = 1 year) participated in the study. Intra-class correlation (ICC) coefficient was used to examine the reliability of MABC-2 via test-retest experimental design. Each child participated in two, 30 minutes sessions, one week apart. The reliability of the total score (TSI) and 3 sub-scores (manual dexterity; ball skills; balance) was examined.

RESULTS

The ICC coefficient for the total composite score (Total Impairment Score) was 0.66, thus indicating that caution is warranted when making inferences based on this score. The sub-components had ICC values of 0.63, 0.82 and 0.61 for manual dexterity, aiming and catching and balance, respectively. These values indicate, once again, that at least some aspects of the test need further examination in respect to measurement error.

CONCLUSIONS

The results suggest that MABC-2 exhibits only moderate degree of reliability across majority of the items/scores, for children between the ages of 7-10. In regards to future investigations, a larger sample and implementation of different methods of estimation (e.g., internal consistency; intra-observed reliability) are warranted.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM3

A Qualitative Investigation of Barriers and Facilitators to Physical Activity Opportunities for Persons with Disabilities in a Small Southern Alberta City

Tara Chisholm and Nancy Spencer-Cavaliere

University of Alberta

INTRODUCTION

Little is known about the physical activity experiences of people with disabilities who live in rural communities. The purpose of this study was to perform an in-depth exploration of the barriers and facilitators to physical activity for people with disabilities living in a small southern Canadian city.

METHODS

Interpretive description was employed as the methodological approach. Data were collected using individual semi-structured interviews, photo elicitation, and reflective notes with 12 participants living in a small city, who self-identified as having a disability.

RESULTS

A number of barriers and facilitators were identified through the thematic analysis of the data. For example, lack of access to adapted equipment was identified as a critical barrier; the importance of having a close knit community was recognized as a key facilitator.

CONCLUSIONS

While some of the findings were unique to the context of a small city, others supported previously identified physical activity barriers and facilitators for people with disabilities from larger urban centres. The results are discussed within the context of understanding how living in a small city may challenge or support physical activity engagement for people with disabilities. In closing, recommendations for policy makers, practitioners and future research are presented.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: Canadian Institutes of Health Research (CIHR) Graduate Scholarship

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM4

The Effects of Nordic Walking on Aerobic Capacity, Rate of Perceived Exertion and Pain in Older Adults with Osteoarthritis of the Lower Extremities

Margret Czolpinski & Eryk Przysucha

Lakehead University

INTRODUCTION

The purpose was to examine if bouts of Nordic Walking have positive effects on aerobic capacity, rate of perceived exertion as well as pain in elderly individuals with osteoarthritis of the lower extremities. It is well known that low-impact aerobic exercise represents a valuable, non-pharmacological, treatment of osteoarthritis. Nordic walking, involving ambulation with ski-poles, is an activity where the activation of the upper body affords greater intensity of exercise while assuring lower degree of impact on the joints and, from the psychological standpoint, diminished levels of perceived exertion. This is of critical importance for individuals with osteoarthritis who often do not participate in physical activity due to resulting physical stress on their body, and/or feeling of tiredness/exhaustion.

METHODS

Ten participants with osteoarthritis in the lower extremities, over the age of 50, were recruited. Participants were excluded if they had a specific condition that affects gait (e.g. cerebral palsy, Parkinson's disease, multiple sclerosis, stroke) and could not perform moderate intensity physical activity. A certified Pole-walking instructor demonstrated the proper "walking" protocol to the participants who engaged in two walking sessions, one involving regular walking and one involving Nordic protocol. Each session lasted approximately 60 minutes. A repeated-measures design was implemented as the aerobic capacity (Rockport Walk Test), the rate of perceived exertion (Borg Rate of Perceived Exertion scale) and pain (Visual Analog Pain scale) were measured across both sessions.

RESULTS

Significant changes in VO_2max ($t(9) = 2.92$, $p \leq .01$) were seen across the conditions. No significant differences were evident in rate of perceived exertion (RPE) ($t(9) = .59$, $p = .56$) or pain across the two conditions ($t(9) = 1.31$, $p = .22$).

CONCLUSIONS

This study showed that the addition of poles while walking for individuals with osteoarthritis of the lower extremities increased their exercise intensities, while rate of perceived exertion and pain were not affected. Thus, Nordic walking may represent an exercise regime which improves the physical well-being of this population, without jeopardizing their mental/psychological status.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM5

Concurrent Validity of the 20m and 30m Six-Minute Walk Test for Special Olympics Athletes

Jaymie Elder, Kendal F. Alston, & Viviene A. Temple

University of Victoria

INTRODUCTION

A modified version of the Six-Minute Walk Test (6MWT) was recently validated as a measure of cardiorespiratory fitness for adults with intellectual disability (Nasuti et al., 2013). This modified form of the test (the criterion for this study) involved walking back and forth around cones set 30m apart far as possible in 6 minutes with a 1:1 pacer and encouragement every 15s. Many school gymnasiums where Special Olympics sports are held do not accommodate the 30m distance. Therefore the aim of the study was to determine the concurrent validity of a shorter 20m-6MWT with the criterion-6MWT. Although changing the distance seems like a small change, it increases the motor coordination demands due to the increased number of turns.

METHODS

Participants (n=9, mean age=33.3 ± 3.5 years) were recruited through Special Olympics. Individual support needs as measured by the Supports Intensity Scale ranged from <1% to 14%, suggestive of low support needs. Following familiarization, participants completed two criterion 6MWTs and two 20m-6MWTs. Linear regression was used to examine the relationship between the 20m-6MWT and the criterion. Intraclass correlation coefficients were computed to examine test–retest reliability.

RESULTS

Average distance walked for the 20-m 6MWT was 595.7m ± 70.3 and 613.7m ± 80.4 for the criterion-6MWT. Linear regression revealed that the 20m-6MWT was significantly related to the criterion-6MWT (R^2=.95, p<.001) and the test – retest reliability of the criterion-6MWT and the 20m-6MWT were .90 and .95, respectively.

CONCLUSIONS

The results of this study suggest that the 20m-6MWT has very strong concurrent validity with the criterion-6MWT and both tests have excellent reliability. Each version of the test is straightforward and practical with few time, space, measurement, and equipment requirements. However, the 20m version of the test has greater utility as it can be conducted in smaller spaces such as elementary school gymnasiums.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM6

A comparison of XBOX Kinect and Nintendo Wii boxing on physical activity levels of adolescents with autism spectrum disorder

Joseph Evans, Manny Felix, Jooyeon Jin, Garth Tymeson, Rick Mikat

University of Wisconsin-La Crosse

INTRODUCTION

Active video games (AVGs) have become a popular means to achieve physical activity goals (PA), and researchers found its positive influences on adolescents' PA promotion (O'Donovan & Hussey, 2012). AVGs may be an effective way to promote PA of adolescents with autism spectrum disorder (ASD) as those with ASD tend to learn through visual supports and technology-aided instruction. However, researchers have rarely studied the contributions of AVGs on PA levels of adolescents with ASD. The purpose of this study was to compare PA levels of this population when they play XBOX Kinect and Nintendo Wii boxing AVGs.

METHODS

Participants (N=15) were 12-21 years-old males with ASD. Each participant engaged in a 6-minute session of boxing game using Kinect (no remote required) and Wii (remote required) consoles in a counter-balanced order with a 5-minute break between sessions. Participants wore ActiGraph GT3X+ accelerometers on their wrists and upper hips and an OMRON HJ-720IT pedometer on the right hip to measure the percentage of time spent in moderate to vigorous physical activity (MVPA) and step counts respectively.

RESULTS

A repeated measures ANOVA found no significant differences in MVPA levels (%) between Kinect and Wii consoles at any of the accelerometer locations. Also, a one-tailed paired t-test showed no significant differences in step counts between the consoles. However, there was a significant difference on accelerometer locations ($p < .01$) with wrist worn accelerometers achieving higher MVPA than hip (M difference = 41.6%).

CONCLUSIONS

Study findings indicate that both XBOX Kinect and Nitendo Wii boxing help adolescents with ASD to attain MVPA. Future research should investigate the effects of different AVGs beyond boxing and also address the longitudinal impacts of AVGs on different outcomes, such as fitness, stereotypical behaviors and various learning attributes (e.g., attention, communication and social skills) in this population.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM7

Physical educators' sport recommendations for students with autism spectrum disorder in high school

Will Helser, Garth Tymeson, Jooyeon Jin, Manny Felix

University of Wisconsin-La Crosse

INTRODUCTION

With recent emphasis of equal opportunities for students with disabilities to participate in extracurricular interscholastic sports, more attention to appropriate sport activities is emerging. Because of increasing prevalence of students with autism spectrum disorder (ASD) and their unique social characteristics, it is important to consider the types of sport activities that afford their meaningful and successful participation. The purpose of this study was to identify physical educators' perspectives on appropriate sport activities for students with high and low functioning ASD.

METHODS

A total of 277 high school physical educators (97=Male; 152=APE license) across the U.S. completed an online questionnaire. They were asked to rate15 sport activities using a 5-point likert-type scale (1=least recommended; 5=most recommended) for students with ASD to participate in an integrated sport setting with nondisabled peers

RESULTS

For students with high functioning ASD, teachers recommended individual sports (M=4.07) over team sports (2.53). The highest three recommended sports were: track and field (M=4.57); swimming (M=4.56); and cross country (M = 4.51). The lowest three recommended sports were: football (M=1.93); ice hockey (M=1.99); and lacrosse (M=2.23). For students with low functioning ASD, teachers also recommended individual sports (M=3.02) over team sports (M=1.69). Although mean ratings were lower for the low functioning group, the highest and lowest recommended sports were similar to the high functioning group.

CONCLUSIONS

Physical educators recommended that participating in individual sports would be more appropriate for both low and high functioning students with ASD than team sports. Minimal social, cooperative, and task as well as strategy requirements relative to team sports may be more suitable for students with ASD that less struggle with communication and socialization. Other sport participation issues for students with ASD, such as strategies to maximize the participation and barriers that obstruct the participation may be addressed in the future research.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM8

Divergence: acquisition of motor developmental milestones as early indicator of autism spectrum disorder

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INTRODUCTION

Children with autism spectrum disorder (ASD) exhibit deficits in motor skill performance **(**Lloyd, MacDonald & Lord, 2013; Staples & Reid, 2010**).** Recent work suggests delays in early motor skill development could aid in early identification of the disorder. The purpose of this study was to examine motor developmental milestones of children with autism spectrum disorder (ASD) compared to their peers without ASD.

METHODS

17 children with (n= 8) and without ASD (n= 9) between the ages of 2-7 years (M = 55.7 months SD = 16.26) were recruited for this study. Age of developmental milestones were collected through parental report and nonverbal problem solving was assessed using the Mullen Scale of Early Learning visual reception organization and fine motor subscales. Independent t-tests compared group differences in weight at birth and age at which participants met the developmental motor milestones of sitting and walking.

RESULTS

Nonverbal problem solving was significantly lower for children with ASD ($t_{(13)}$= -2.32, p < 0.05). No significant differences were found between groups in birth weight ($t_{(14)}$ = -1.10, p = 0.29) or age of achieving unsupported sitting ($t_{(13)}$= - 0.30, p = 0.77). However, significant differences were found for age and the onset of walking ($t_{(15)}$ = 2.79, p < 0.05).

CONCLUSIONS

These results suggest delayed onset of walking, prior to the presence of other motor skill delays. This delayed onset of walking may serve as an initial developmental concern to parents of children with ASD.

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* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM9

The Impact of Leisure and Recreational Activity Participation on the Quality of Life of Families with a Child with Autism Spectrum Disorder (ASD)

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University of Ontario Institute of Technology

INTRODUCTION

Families of children with Autism Spectrum Disorder (ASD) often experience challenges that influence the quality of life of the entire family unit. These difficulties include engaging their children with ASD in physical activity programs and/or leisure and recreational activities, which may have important health benefits. It is important to understand the role of recreation and leisure activities in overall family quality of life (FQOL).

METHODS

Families (n=484) with a child 0-18 with ASD on the Durham ABA waitlist, were mailed a survey that consisted of six sections of the Family Quality of Life Survey: Main caregivers of people with intellectual or developmental disabilities. One of these sections was "Leisure and Recreation". In addition to the quality of life questions, parents were asked to report basic demographic information about their child and their child's diagnosis. 151 surveys were returned completed (32% response rate).

RESULTS

The average age of the children in this sample was 7.3 years (19% female). 86% of families reported that leisure and recreation were either very important or quite important to their FQOL but only 30% of families reported that they engaged in leisure and recreation activities either a great deal or quite a bit. Of the families that reported participation in leisure and recreation activities, only 49% reported that the family member with ASD is either always or almost always involved with the rest of the family.

CONCLUSIONS

Physical activity is an important aspect for positive developmental outcomes for children with ASD and for the overall FQOL. Results indicate that parents feel that leisure and recreation activities for their child with ASD and family as a whole is important for their overall FQOL but, they are not engaging in these activities on a regular basis. More research is needed to best serve families of children with ASD in all domains, including recreation.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM10

Effects of Nintendo Wii Intervention on Postural Control in Youth with Autism Spectrum Disorder

Jae Chun Lim, Yumi Kim, Takuto Fujii, & Teri Todd

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INTRODUCTION

Children with Autism Spectrum Disorder (ASD) have a lack of postural control along with their primary characteristics (deficits in social communication; restricted and repetitive patterns of behavior). Previous research showed that postural control in children with ASD does not develop at the same rate as their peers without disabilities and never reaches adult level (Minshew et al., 2004). Recently, Nintendo Wii has been used in a number of research and therapeutic settings to improve postural control in both healthy individuals and those with disabilities. This study aims to evaluate the effects of Nintendo Wii activities on postural control in youth with ASD.

METHODS

Three youth with mild to moderate ASD (2 males & 1 female) participated in 40 minutes of Wii activities twice a week for 8 weeks. The Neurocom Balance System was used to assess stance duration and sway velocity during bi- and unilateral stance at pre, mid, post and 4 weeks following the intervention. Functional balance tests including sit-to-stand and step-quick-turn were assessed as well.

RESULTS

Preliminary results show improvements in unilateral stance duration of 1.93-2.63/10 seconds following 4 or 8 weeks of intervention. COG sway velocity decreased 1.87-3.45 degree/second following 4 or 8 weeks of intervention. Data collection is ongoing and results from functional tests are inconclusive at this time.

CONCLUSIONS

Initial analysis of the data show improvements in postural control, therefore Wii activities may be beneficial for youth with ASD. However, this study is limited to a small sample size of youth with mild to moderate ASD. Future studies should consider a larger sample size with a diverse spectrum of disorders.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM11

Participants' experiences with a physical activity health promotion program

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INTRODUCTION: Despite the growing evidence that physical activity can prevent functional decline, secondary conditions, and improve quality of life, individuals with multiple sclerosis (MS) are more sedentary than the general population, and face many barriers to participation. Consequently, there is a need for evidence-based programs that promote the adoption and maintenance of physical activity participation, although there is a lack of such interventions. An important step in developing effective physical activity interventions is ensuring that stakeholders are included in the process and their feedback is used to improve the program. Therefore, the purpose of this study was to complete a qualitative program evaluation of the "Health Education for Persons with Multiple Sclerosis (HEMS)" intervention.

METHODS: Eight participants (mean age = 57, 75% female, 87.5% relapse-remitting MS) completed the focus group interviews one month after the conclusion of the 8-week HEMS intervention. The focus groups consisted of programmatic questions, as well as questions about participants' experiences with physical activity during the intervention, such as barriers, facilitators, motivation and social support. Transcribed interviews were then coded by three researchers to identify themes.

RESULTS: Four meta-themes emerged including: (a) program feedback, (b) barriers, (c) facilitators, and (d) physical activity.

CONCLUSIONS: Qualitative data from the program evaluation indicated that, overall, individuals benefited from the HEMS intervention, and frequently encountered barriers and facilitators to activity and engagement in the intervention. Participants felt they benefited from goal setting, the social support of the group, and improved their knowledge of physical activity. Participants suggested that future iterations of the intervention should include a self-compassion component, adaptations to the measurement tools, and expansion of recruitment efforts to reach a wider audience. One avenue that may lend itself to larger participant recruitment may include an online intervention.

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* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM12

The effects of parents supported Physical Activity (PA) program on parents' perception

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INTRODUCTION

Despite the fact that physical activity plays central role in promoting health and wellbeing, physical inactivity is serious health issues among people with disabilities. One of the reasons for physical inactivity is due to lack of opportunities to engage in meaningful physical activity on a consistent manner. According to literature, children with disability have higher dependency on their parents when engaging in physical activity program than their non-disabled peers. Parental support is very important when motivating children with disabilities to participate in physical activity program. Thus, the main purpose of this study was to investigate the effects of parents supported PA program as part of parent education on parents' perception.

METHODS

In order to achieve this purpose, the participants (14 children with disability and their parents) were recruited and randomly assigned to experimental group (7 children with disability and their parents) and control group (7 children with disability and their parents). In-depth interview was conducted with mothers to examine their perception about the parent-supported PA program. Data were analyzed utilizing qualitative content analysis. Triangulation was conducted to establish trustworthiness of the data.

RESULTS

The preliminary results of this study show that parents supported PA program provided parent to know the new things (personality, motor function) about their children which they could not see in daily life. Also, parents supported PA program provided the experience of positive effects of physical activity to both children and parents. Last, parents supported PA program enhanced emotional connection between children and parents.

CONCLUSIONS

Through this study, the result shows that parents supported PA program provided positive perception about the physical activity program to parents, which will allow both parents and children participate continuously in physical activity program. Also, enhanced emotional connection between children and parents will increase the cohesion with all members of family.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM13

Investigating Trunk Motion's Relationship with Wheelchair Propulsion Initiation

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INTRODUCTION

Wheelchair sports like basketball and tennis require the ability of an athlete to stop then quickly accelerate. Much of the research on propulsion has focused on the initiation of propulsion from rest, or at a constant speed with trunk motion a common variable. Therefore, the purpose of this project was to consider the influence of trunk motion on acceleration and velocity immediately after a stop. .

METHODS

Seven wheelchair basketball athletes were recruited for this project (31.4 yrs, 176 lbs). Participants were fitted with retroreflective markers and a strap with a non-impeding rod aligned with the spinal column. Participants initiated propulsion under three conditions: from rest, immediately after braking, and a pause after braking. Dartfish TeamPro 5.5 video analysis software (Dartfish, Alpharetta, GA, USA) was used to measure acceleration, velocity and changes in trunk angle. Statistical analysis included correlations for the trunk angle to bar angle, and change in trunk angle across conditions. Repeated measures ANOVAs were utilized to find differences in acceleration and velocity due to condition.

RESULTS

The trunk angle and bar angle correlated (r=.909). The 1st push tended to have the highest acceleration and the second push tended to have the highest velocity but not significantly greater. More trunk flexion was found for the first push in all conditions, but no difference was noted between conditions.

CONCLUSIONS

A bar strapped to the participant's back is an effective means for measuring two dimensional trunk motion during wheelchair propulsion. Most participants in the present study demonstrated significant trunk control. Therefore, more participants, with different levels of trunk control are required to discern the role of trunk motion during stop and start propulsion.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM14

Dog Ownership and Physical Activity for Children with Cerebral Palsy

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INTRODUCTION

Cerebral Palsy (CP) is a motor disorder caused by damage to the developing brain, affecting 3.6 per 1000 children in the United States (Arneson et al., 2009). Current therapies aim to improve gross motor abilities and promote independence in motor function, self-care, and other functional activities (Butler, 2010). Unfortunately, adherence to therapies is often low. Alternative therapies have gained attention and therapy that includes the family dog, is one avenue that has been postulated to provide motivation (Thompson, Ketcham, & Hall, 2014), while simultaneously aligning with public health childhood obesity initiatives (Salmon et al., 2010).

PURPOSE

The purpose of this pilot study was to examine the effects of an 8-week animal assisted adapted physical activity program with the family dog and children with CP, on gross motor skills and physical activity (PA).

METHODS

Children with CP (n=4) between the ages of 9 and 15 completed the program. Physical activity was measured for 7-days using the ActiGraph GTX3+ accelerometer, implementing a 30 – epoch. Gross motor capacity was assessed using the Gross Motor Function Measure (GMFM) and mobility was assessed using the Timed Up and Go Test. Gross motor skills were assessed using the Test of Gross Motor Development, 2nd ed. (TGMD-2, Ulrich, 2000). Each assessment was performed at baseline and post-intervention, following the 8-week program.

RESULTS

Visual analysis (Bobrovitz & Ottenbacher, 1998) was used to interpret and analyze the data for each child, evaluating change in GM skills and PA. Motor skills improved an average of 4 points and MVPA increased an average of 108 minutes per day following the intervention.

CONCLUSION

Incorporating the family dog into an adapted physical activity program may be beneficial for improving motor skills and participation in physical activity for children with cerebral palsy. Thus, dog ownership may support positive physical activity behaviors among some children with CP.

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AM15

The impact of an early and aggressive tummy time program in infants with Down syndrome and in typically developing infants: Preliminary data

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INTRODUCTION

With the endorsement of "Back to Sleep," infants prefer the supine position while awake and parents avoid the prone position. Infants with Down syndrome (DS) have difficulty acquiring skills in anti-gravitational postures. Insufficient time in prone coupled with a diagnosis of DS puts these infants at risk for progressive motor delays. The purpose of this study is to examine the impact of a daily, parent/caregiver implemented, tummy time program (goal 90 minutes/day) on motor development and physical activity (PA) levels in infants with DS and in TD infants.

METHODS

Thirteen infants with DS and nine TD infants, aged 4 to 15 weeks at study entry, are participating in the study. Participants are asked to accumulate 90 minutes per day of deliberate, wakeful tummy time. Daily tummy time is logged by families until the infant can independently transition in/out of sitting. Monthly visits are made at each participant's home for instruction in tummy time activities, height/weight measurements, motor assessment progress as determined by the PDMS-II and Bayley Motor Scales, and delivery of Actigraph accelerometers (2) for 24 hour (right wrist and ankle) PA measurement. Infants are monitored for 12 months following study entry. Data is being compared to historical data on similar cohorts with DS and TD, monitored in a similar manner, that did not receive the intervention.

RESULTS

Preliminary findings indicate that babies participating in the tummy time intervention have a lower ponderal index, higher scores on the Bayley Motor Scales and greater raw PA count data than matched babies in both cohorts not participating in the intervention. Two by two contrasts between the four groups are in progress.

CONCLUSION

Preliminary data suggests that increasing daily tummy time towards 90 minutes positively impacts motor development and physical activity levels in young infants with DS and TD.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM16

Parents' perceived barriers and its impact on physical activity for their children with disabilities

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Georgia State University[1]
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INTRODUCTION

Parents' considerations about barriers for the participation of their children with disabilities in physical activity could increase the possibility of child's sedentary lifestyle. The purposes of this study were to investigate the effects of children's disability type and severity on parents' perceived barriers for their child's participation in physical activity, and whether perceived barriers could predict children's physical activity levels.

METHODS

Participants were 184 parents (father=78, mother=106) who had children (male=113, female=71) with physical (n=42), hearing (n=35), visual (n=7), and intellectual disabilities (n=95), ranging from mild (n=52), moderate (n=74), and severe (n=58). The Sport Barriers Questionnaire (Hsu, Hsu, & Li, 2006), was used to measure parents' perceived barriers. Parent's report of the frequency and length of time of weekly exercise engaged in by their children (Hsiao, 2004) was used to assess children's physical activity levels. Data were analyzed using two-way MANOVA, Pearson correlation and multiple linear regression.

RESULTS

A significant main effect was found for disability type on the parents' perceived barriers (Wilks' $\lambda = .79$, $F(21, 477.21) = 1.91$, $p < .05$). No interaction and no effects of severities of disability were found. Post hoc test revealed parents of children with intellectual disabilities reported lacking support from significant others as the primary barrier impacting their children's participation in physical activity more so than children with other disabilities. A total of 12.6% of variance in length of time children with disabilities were engaged in physical activity could be predicted by parents' perceived barriers.

CONCLUSION

Parents' perceptions of barriers did not influence the time children with disabilities spent on physical activity. Researchers should focus on identifying and understanding reasons parents' want their children to engage in physical activity rather than overcoming parents' concerns about barriers to physical activity for their children with disabilities.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM17

A Test of the Activity Deficit Hypothesis in Children with Movement Difficulties 20 Years Later

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INTRODUCTION

Children who are not proficient in the performance of fundamental movement skills may have limited opportunities to participate in activities and organized games that require the use of more complex skills. This notion is referred to as the activity deficit hypothesis; the belief that children with movement difficulties (MD) are less active than their same aged peers. This study examined the relationship between fundamental movement skill performance and accelerometer-based estimates of physical activity (PA) among children with and without MD. It was hypothesized that children who demonstrated less proficient movement performance would have lower levels of PA due to difficulties in their ability to execute and adapt these skills in various activities.

METHODS

Twenty children who were identified as having MD via the *MABC-2* and 15 typically developing peers between 7 and 10 years of age participated in this study. The movement performance of each child was assessed using the *TGMD-2* and PA levels were quantified over 7 consecutive days using GT3X+ accelerometers. The time engaged in different physical activity intensities was calculated based on 2 weekdays of wear time using the Puyua (2002) cut points.

RESULTS

The time children spent in light and moderate-to-vigorous physical activity (MVPA), relative to their wear time, was significantly and moderately correlated with their performance on the object control subtest of the *TGMD-2*. A significant inverse relationship was also found between children's object control performance and sedentary behavior. Overall, children with MD were significantly less active than their same aged peers and spent more time engaged in sedentary and light intensity activities.

CONCLUSION

The findings from this study illustrate the need to develop interventions that improve the (learning and) performance of fundamental movement skills among children in order to increase their participation in PA or rather, decrease the amount of time they spend being sedentary.

* Entrant in the *Greg Reid Outstanding Student Poster* competition

AM18

Prediction of Oxygen Uptake during Treadmill Walking in Persons with Multiple Sclerosis

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INTRODUCTION

People with Multiple Sclerosis (MS) have increased rate of gross oxygen uptake (gross-VO_2) during walking. Therefore, the American College of Sports Medicine (ACSM) equation predicting gross-VO_2 from walking speed may not be appropriate and an equation specifically for persons with MS may be needed. Gross-VO_2 in persons with MS may further vary as a function walking disability. This study therefore attempted to develop an equation predicting gross-VO_2 from speed and an index of walking disability and examined the accuracy of its prediction. This study also evaluated the validity of the ACSM walking formula for persons with MS.

METHODS

The gross rate of oxygen uptake (gross-VO_2) was measured with open-circuit spirometry in 43 persons with MS (47 ± 9 years; 38 women) with limited mobility problems during five treadmill walking trials, each lasting six minutes, at 2.0, 2.5, 3.0, 3.5, and 4.0 mph (53.6, 67.0, 80.4, 93.8, and 107.2 $m \cdot min^{-1}$). The 12-Item Multiple Sclerosis Walking Scale (MSWS-12) and the Patient Determined Disease Steps (PDDS) provided indices of walking disability.

RESULTS

Multi-level modeling with random intercepts and slopes demonstrated significant effects of speed and MSWS-12 ($p \leq 0.014$; $R^2 = 0.70$). PDDS was not a significant predictor of gross-VO_2. Gross-VO_2 predicted by the regression equation did not differ from actual gross-VO_2 across speeds. Mean absolute error of prediction across speeds was 9.06%. The Bland-Altman plot indicated zero mean difference between actual and predicted gross-VO_2 with modest 95% confidence intervals. The ACSM formula under-estimated gross-VO_2 across speeds ($p < 0.001$).

CONCLUSIONS

Speed and MSWS-12 score are jointly highly predictive of gross-VO_2 during treadmill walking in persons with MS. In contrast, the ACSM formula under-estimates the gross-VO_2. Future research should examine whether this formula is accurate with persons with MS in different stages of progression.

AM19

Sport for Children and Youngsters with Disabilities in Brazil: Providing Skills in School Environment

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INTRODUCTION

Brazil currently has a high growth in the Paralympic Sports (PS). The continual progression in medals ranking makes Brazil is considered a Paralympic power in the world. In The Paralympics Games 2012, Brazil reached the 7th place in the ranking of medals, for in Rio de Janeiro, 2016, the target set by the Brazilian Paralympic Committee (BPC) is the 5th place. Thus the aim of this study was to analyze the development of actions that may favors the admission of children and youngsters with disabilities in sport and contribute for academic skills.

METHODS

This is a descriptive exploratory study in primary sources and institutional disclosure of BPC, aimed to explore the literature about the children and youngsters with disabilities in PS.

RESULTS

Are evidenced government actions directed to children and youngsters with disabilities, this actions seeking promote the admission in adapted sports and provide positive skills. The program Paraolímpicos do Futuro created in 2006 by BPC and has been a precursor, with aims to introduce the practice of sport for disabled people in the elementary and secondary schools of Brazil. Also, the program Clube Escolar Paralímpico, aiming to promote formal sports activities for children and youth with disabilities enrolled in formal education institutions. In 2009, was created Paralimpíadas Escolares, with the aim of promote integration and increase the participation of students with disabilities in sports activities, this program is the most largest national paralympic competition for youngsters with disabilities in Brazil. In 2013, was participated 1.200 students of 26 units of federation.

CONCLUSIONS

Thus, we can see these actions developed in Brazil, providing positive results for academic and motor skills of children and youngsters people with disabilities. The PS should be a support tool for the school environment and not just a tool for select of athletes.

AM20

Pre-service adapted physical education teacher challenges toward teaching motor skills to children with autism spectrum disorder

Andrew M. Colombo-Dougovito

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INTRODUCTION

Adapted physical education (APE) teachers face a variety of challenges when teaching motor skills to individuals with disabilities. These challenges are magnified when combine with the unique behaviors of individuals with autism spectrum disorder (ASD). To better prepare future APE teachers, these challenges must be understood. This study sought to answer: 1) What factors most influence pre-service APE teachers when teaching individuals with ASD? 2) What is the APE teacher's perception of his/her own utilized teaching strategies?

METHODS

Utilizing qualitative analysis, a purposive sample of 4 pre-service APE teachers (1 male, 3 females) was chosen. Data was collected through ethnographic interviews and observations. Participants were interviewed to gain insight into his/her past experiences, perceptions, as well as opinions on emergent themes. Each participant was observed 4 times over the course of 4 consecutive weeks while working one-on-one with a child with ASD; each observation was kept through running record, as well as analytic and reflective notes. Inductively, through thematic analysis, themes were allowed to emerge giving insight into what was occurring.

RESULTS

Four main themes emerged from within the data: physical environment influences, instructional challenges, behaviors from the child with ASD, and past experiences/perceptions of instructional strategies. These main influencing factors played a roll in how the pre-service APE teacher taught motor skills to the child with ASD.

CONCLUSIONS

By understanding the factors influencing future APE teachers, future training can be modified and adapted to fit those needs. This analysis reveals that APE teachers need to build a set of strategies when working with individuals with ASD, as well as learn to be flexible within each lesson. Additionally, future APE teachers lack fundamental knowledge of individuals with ASD and strategies to adapt instruction. Future training programs can utilize this information when building coursework within programs.

AM21

Building Strong and Lasting Organizations: Developing a Community of Volunteers and Donors

Veronique Diriker[1] & Alan B. Kirk[2]

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The purpose of the poster presentation is to share with the APA provider community practical information related to the recruitment, engagement and retention of volunteers, donors and prospective donors.

This presentation will provide APA service providers and program managers with a step by step method of developing external resources and creative community partnerships that will result in a strong and lasting team of supporters. The poster will present a clear step-by-step process to secure funding and engagement of volunteers (from academic programs as well as external communities). The objective will be to explore ways in which a cadre of unified and committed ambassadors with influence and affluence can be developed. The presenters have a history of successful resource and organizational building and invite participants to stop by for discussion and sharing of ideas.

AM22

Reframing Organizational Need(s) in the Development of Youth Disability Sport

Lisa Olenik Dorman[1], Ph.D., C.A.P.E., Katrina Johnson[2], Ed.S, & Michele Olsen[3], Ph.D., A.C.S.M. Fellow, C.D.S.S.,

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[3] Professor of Exercise Science, Auburn University Montgomery, and Research Director for the Ability Sport Network

The issues surrounding the development and sustainment of after school athletic programs in disability sport are multidimensional. Informed by the federal legislative and Office of Civil Rights mandate to provide extracurricular activities to public school students with disabilities, Huntingdon College, community members, special educators, and legislators in Alabama secured the **first permanent** Disability Sport Education budget line in the Educational Trust Fund budget.

The Ability Sport Network received sustainable support and quickly established measureable outcomes through the combination of complex lobbying strategies and through purposeful community and public school outreach. After receiving an initial grant of 250,000.00 and then an additional 210,000.00 from the newly formed budget line and through the Alabama Council of Higher Education, the first wheelchair basketball teams were successfully developed, physical education/teacher education was enhanced at two institutions of higher education, the extracurricular needs were met for middle school and high school students with disabilities at 14 different schools, and 49 teaching and coaching professionals from the area completed the Certified Disability Sport Specialist training.

This poster will outline the steps we took to create value and claim value in the bargaining process and in youth disability sport program development; identifying the relevant relationships with the schools, parents, and disability advocacy groups; integrating the allied discipline of exercise physiology and opportunities to determine evidenced-based physiological statuses of youth disability sport athletes; and, the integration of service learning in higher education.

AM23

Exercise is the Gateway to Build Fitness, Self-Esteem and Relationships

David S. Geslak

Exercise Connection, Chicago, IL

Research has shown that exercise provides individuals with autism and special needs the opportunity to build social skills, improve academics, increase self-esteem and enhance language through movement. However, more studies still need to be done to further impact this community.

For the past 10 years, David S. Geslak, has put children and adults within a structured and visual exercise environment and has seen them transform using unconventional exercises not performed in the autism community. Agility ladders, dumbbells and diverse abdominal exercises have helped his students improve motor development, enhance their speech and improve muscle tone. These exercises will be demonstrated and discussed on research development.

David has also developed the Visual Exercise System (VES) to better engage individuals in exercise. This system, available as an iPad App in Sept 2014, can aid in research and the further development of exercise programming. Research currently states that effective visual supports in early childhood settings include visual schedules to increase task engagement, visual scripts to encourage social interaction, and picture cues to support play skill development. Will learn the VES Protocol's and how they can be used in research.

The EC Protocol has been adopted by and currently being used within 24 special education classrooms in North Suburban Special Education District in Illinois. As well as, other organizations throughout Illinois and the ADVANCE Center in Cairo, Egypt.

Content of the presentation will cover: 1) creating activities using masking tape or chalk that can help to improve gross & fine motor coordination and language development; 2) integrating exercises and activities into lesson plans; 3) the importance of visual supports used in an exercise environment; 4) the use of agility ladders and dumbbells in research; and 5) the protocol of the Visual Exercise System.

AM24

A Systematic Review of Health Related Quality of Life Frameworks among Individuals with Autism Spectrum Disorders

Jessica Hamm and Joonkoo Yun

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INTRODUCTION

Health-Related Quality of Life (HRQOL) is a multidimensional concept that is an important outcome within research and treatment. Understanding an individual's HRQOL can help explain how they perceive their physical, mental, and emotional wellbeing. This can provide information on factors that need to be improved to achieve optimal health. However, currently many different frameworks are used in HRQOL research, which has led to inconsistencies and different interpretations that create difficulty understanding HRQOL. One population with inconsistent findings on HRQOL, is individuals with Autism Spectrum Disorders (ASD). HRQOL can be an important outcome measure for individuals with ASD, because they have an increased risk for depression and other mental health issues. The purpose of this paper was to identify the different HRQOL models within research on individuals with ASD to create a better understanding of the current frameworks.

METHODS

Multiple online search engines and data based systems (e.g. Academic search premier, Medline, Web of Science, etc.) were used to capture studies pertaining to individuals with ASD and HRQOL. Of 181 initially identified articles, 13 met inclusion criteria and were analyzed. The primary author systematically reviewed each article based on the two main categories of research methods and HRQOL frameworks.

RESULTS

The majority of studies used quasi-experimental and cross-sectional study designs. Of 13 studies reviewed all considered HRQOL to be multidimensional. Each study recognized the different factors of HRQOL, however, the main analysis was often based on a summary score. The number of factors included within the instruments ranged from 4 to 8, which led to difficulties in comparing factors across studies. Only 2 HRQOL instruments were utilized more than once.

CONCLUSIONS

It is important to recognize the discrepancies within HRQOL research and to systematically break down studies to understand the multiple factors included within the definition of HRQOL.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: This study was supported in part by an OSEP training grant from US Department of Education to Movement Studies in Disability at Oregon State University (H325D100061).

AM25

Professional Knowledge on Teachers' Behavior in Teaching Students with Disabilities

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INTRODUCTION

Physical educators' professional attributes and competence are important for physical educators to provide effective physical education for both students with and without disabilities in general physical education classes. The purpose of this study was to examine what factors affect physical educators' behavior in teaching students with disabilities in general physical education classes.

METHODS

A convenience sample of 94 Korean physical educators completed a survey. The questionnaire developed to examine physical educators' previous experience working with individuals with disabilities, adapted physical education courses taken, professional knowledge in teaching students with disabilities, competence, and modifications as teaching behavior. Participants for this study had experience working with students with disabilities and had full-time teaching duties in physical education at secondary schools in Korea. The participants recruited by visiting in-service programs.

RESULTS

A standard multiple regression analysis was used to examine whether physical educators' previous experience working with individuals with disabilities, adapted physical education courses taken, professional knowledge in teaching students with disabilities, and competence significantly predict physical educators' teaching behavior. The results of the multiple regression indicated the four predictors explained 34% of the variance, F (4, 89) = 12.72, $p < .01$, $R = .60$, $R^2 = .32$. It was found that professional knowledge significantly predicted teaching behavior ($\beta = .40$), as did competence ($\beta = .27$). However, previous experience working with individuals with disabilities and adapted physical education courses taken were not significant predictors of teachers' behavior in teaching students with disabilities.

CONCLUSIONS

This study showed that the physical educators' professional knowledge and competence affect physical educators' teaching behavior. Further studies should focus on how to provide physical educators with more professional knowledge and how to support physical educators to be competent in teaching students with disabilities.

AM26

Paralympic School Day: Advocacy, Action, Awareness

Cathy McKay

James Madison University, Department of Kinesiology

The Paralympic School Day program integrates Paralympic ideals and values with educational activities that provide meaningful, personal contact between students and Paralympians. When planned and executed using Allport's contact theory, Paralympic School Day creates multiple opportunities for contact, supports dialogue about inclusion, and provides a realistic and holistic portrayal of disability sport This poster will introduce Paralympic School Day in conjunction with Allport's contact theory, including planning and execution recommendations. The process through which Paralympic School Day can impact and change attitudes and perceptions toward inclusion will be introduced.

The IPC's Paralympic School Day program is well researched in Europe and has proven to be highly successful in increasing awareness of and education about disability sport. In the U.S., research is lacking on the effectiveness of the Paralympic School Day program. The session is important to disability research and to adapted physical activity practice, as education about the Paralympic School Day program and its use in the U.S. can help leaders in the field know and understand the value of the program, the manner in which to support theory with practice, and the critical role the Paralympians play in the program. Further, relationships with Paralympians create multiple opportunities for disability sport education and inclusion discussions. Lastly, focusing on Paralympic School Day as an effective awareness curriculum will cultivate the awareness and meaning of the Paralympic movement in the U.S. While this awareness is much improved in recent years, we have a long way to go, and this session will continue to bring light to the topic.

BRIEF OUTLINE OF THE POSTER:

1. Poster will apply Allport's contact theory to the Paralympic School Day curriculum, dividing Paralympic School Day activities into theory components.

2. Poster will showcase the planning and execution components of Paralympic School Day.

3. Poster will showcase student participation in Paralympic School Day.

McKay, C. (2013). Paralympic School Day: A disability awareness program. *Palaestra*. 27(4), 14-19.

AM27

Post Rehabilitative Exercise Program Excels Functional Fitness in Rare Unknown Neuromuscular Disorder

Kimi Peterson

Lindenwood University

Individuals dealing with neurological and paralyzing conditions are treated under a medical rehabilitation and physical therapy. When gains in strength or function are not seen any longer, therapy is ended and individual is left with to self improve. This case study is aimed to show that post rehabilitation exercise using functional training can be effective in achieving gains not only in a physical state, but also a mental state. An individual with a rare undiagnosed neuromuscular disorder was chosen for this case study. Sixteen weeks (120 minute secessions, three times per week, one in water, and two on land) of strength training, conditioning, walking, and weight shifting were implemented. Equipment that was used, but not limited to: TRX Suspension Training, squat machine, suspension treadmill, resistance bands, and ankle weights. Pre and post test were measured using the manual muscle testing scale, implemented by a physical therapist (Kelly Behlmann, certified PT). Improvements in psychological growth, enhancement in activities of daily living (ADLs), and strength increased as measured. For example, the right quadriceps increased from the number one on the scale to a two negative. Upper abdominals started with zero contraction, to gaining contraction of the number one on the scale. Subjective improvements in transfers and strength were noticed by doctors. Points of contact and need of support reduced from six to one to allow the client to stand more independently. Walking with appropriate gate increased from six feet to 46 feet in distance. The client's psychological status improved by showing realistic drive towards goals in life, a returned to athletics, and readiness to continue exercise. Within the limits of this case study, it has been shown that prescribing post rehabilitation, exercise was effected in gaining muscle strength and contraction, as well as increased independent in walking distance in an individual with a paralyzing neurological condition. Results can be used to impact other individuals with neurological conditions with prescribing functional post rehabilitative exercise programs. Future reach would like to include more research subjects and different methods of exercise and equipment.

AM28

Developing Advocacy: Empowering Undergraduate Students to Find Their "Voice"

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[3] SUNY Cortland
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INTRODUCTION

For the past 50 years there has been move in educational research to contextualize and add more meaning to the education of undergraduate and graduate students attending schools of higher learning. This has lead to a push for transformational teaching which can be defined as "the expressed or unexpressed goal to increase students' mastery of key course concepts while transforming their learning-related attitudes, values, beliefs, and skills" (Slavich & Zimbardo, 2012). Some of the high impact practices commonly used in transformational teaching in the APA field include volunteering, field experiences and social advocacy. Transformational learning theory posits that instructors can facilitate student's change in attitudes, values and beliefs when they engage in high impact practices. We suggest engaging in this practices can help to develop student's ability to advocate on the part of another's.

METHODS

Examples of four transformational teaching practices in preparation programs for professionals in the field Adapted physical activity/education from four different institutions were reviewed to identify high impact practices that were used to the promote social advocacy for individuals with disabilities. While advocacy is often situational, some believe that individuals with strong values and beliefs along with a positive attitude towards a cause are precursors to being an impactful advocate.

RESULTS

All four programs used a variety of high impact teaching practices with the majority centered on a field placement. Reflective writing was commonly used to provide introspection into to experience. The writing provided students with the opportunity for self discovery and an opportunity gain further insight from their practical experiences. Specific work focused on social advocacy was used but was often reserved for the upper level adapted physical activity/education course or graduate level course.

CONCLUSION

Transformational teaching practices provided students with the opportunity to share methods and ideas about building students awareness around the importance of advocacy in their learning experiences and eventual professional practices.

Patricia Austin Graduate Student Award Presentation

The effects of an early motor skill intervention using research supported strategies on motor skills in young children with Autism Spectrum Disorder

Leah Ketcheson

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University of Michigan, School of Kinesiology

INTRODUCTION

Despite recent evidence to suggest that children with ASD have motor delays early in development there are very few evidence-based treatments targeting the motor behavior in children with ASD. The objective of this study was to measure the effectiveness of an early and intensive motor skill intervention employing research supported strategies from Classroom Pivotal Response Teaching (CPRT) on motor skills (i.e.: locomotor and object control skills) in young children with ASD.

METHODS

The study was conducted 5 days a week for 4 hours per day lasting for 8 weeks and was completed in a naturalistic setting paralleling a youth sport camp environment. The ratio of participant to trainer was 1:1, enabling a constant dyad of instruction and feedback between the participant and trainer. The Test of Gross Motor Development –2 (*TGMD-2*) was assessed for both the experimental group (received intervention) and control group (did not receive intervention) at pre measures (time 1) post measures (time 2) and 4 weeks following the intervention (time 3).

RESULTS

A general linear model analysis was conducted to examine the within group differences on motor skills and socialization at each time point. Results from the gross motor quotient on the *TGMD-2* reveal that in the experimental group, there was a + 32.73(SE=3.51) unit difference between time 2 and time 1 ($p<0.01$), and a - 5.73(SE=1.72) unit difference between time 3 and time 2 ($p>0.05$). In the control group, there was a + 5.0(SE=3.88) unit difference between time 2 and time 1 ($p>0.05$), and a - 2.35(SE=2.00) unit difference from time 3 to time 2 ($p>0.05$) when examining the *TGMD-2* gross quotient.

CONCLUSIONS

Study findings may be used to inform policy makers and service providers to include motor skill programming as part of the early intervention services delivered to young children with ASD.

B3

The Paralympic Research and Sports Science Consortium (PRSSC): An Opportunity to Contribute to the Advancement of Paralympic Athletes and Coaches through Science

Ronald Davis[1], Laurie A. Malone[2], J.P. Barfield[3], & Jeffrey Martin[4]

[1] Texas Woman's University
[2] Lakeshore Foundation
[3] Radford University
[4] Wayne State University

PRIMARY ISSUE (S) TO BE PRESENTED & DISCUSSED:
Informing the international professorate of a mechanism for conducting, collaborating, and disseminating quality research for the benefit of developing Paralympic athletes and coaches.

IMPORTANCE OF ISSUE:
To date, no research structure has existed within the U.S. Paralympics organization to systematically address development of high performance athletes and coaches. Currently many Paralympic sports lack high performance plans that include evidence-based sport science initiatives to improve athlete and coach performance. Membership in the PRSSC is an opportunity for current and future researchers to contribute to this body of knowledge in a coordinated fashion. This session will provide an overview of the purpose, structure, and research goals of the PRSSC and how you can get involved.

BRIEF OUTLINE OF THE SESSION:

1. The PRSSC is the first attempt by U.S. Paralympics to promote the advancement and conduct of Paralympic research and sport science through collaborative study.

2. The PRSSC recognizes the need to generate research examining grassroots sport participation to high performance development of Paralympic athletes.

3. The PRSSC provides a vehicle for addressing identified research questions generated by athletes, coaches, and national governing bodies.

4. The PRSSC offers an organizational structure for communication and collaboration amongst sport scientists that will result in evidenced based results for coaches, athletes, and sport governing bodies.

REREFERENCE TO ESTABLISH THE IMPORTANCE OF THIS ISSUE:
Thompson, W. R. & Vanlandewijck, Y. C. (2013). Science and the Paralympic movement. British Journal of Sports Medicine, 47(13), 811.

B4

Physical Activity, Disability, and Quality of Life: A Multidisciplinary Approach

David Porretta

Ohio State University

PRIMARY ISSUE (S) TO BE PRESENTED & DISCUSSED:
Researchers in adapted physical activity can play a direct role in affecting the quality of life (Schalock et al., 2007) of individuals with disabilities. However, little attention has been placed on research in adapted physical activity that directly influences overall quality of life beyond its traditional health-related benefits.

IMPORTANCE OF ISSUE:
This building session is designed to expand the understanding that physical activity contributes to quality of life beyond health related benefits for individuals with disabilities. For this session, physical activity is presented within the broader context of quality of life for individuals with disabilities. Ways will be explored in which researchers can play a more direct role in affecting the quality of life of individuals with disabilities through a multidisciplinary research approach.

BRIEF OUTLINE OF THE SESSION:
Physical activity is essential to life. For individuals with disabilities, physical activity plays a unique role in that it is both habilitative (acquiring physical activities for the first time) and rehabilitative (relearning physical activities) in nature. In essence, quality of life is a multidimensional concept which includes eight domains that reflect positive values and life experiences (Schalock et al., 2007). The eight domains that are sensitive to time and culture include: 1) interpersonal relationships, 2) social inclusion, 3) personal development, 4) physical well-being, 5) self-determination, 6) material well-being, 7) emotional well-being, and 8) rights. Quality of life is also influenced by the interactions of personal and environmental factors across the life-span, thus taking on an ecological dimension. Given the multidimensional concept of quality of life and the essential nature of physical activity for persons with disabilities, a multidisciplinary perspective is offered. Finally, illustrations of multiple disciplinary study within the contexts of physical activity and quality of life for persons with disabilities are provided.

REREFERENCE TO ESTABLISH THE IMPORTANCE OF THIS ISSUE:
Kober, R. (Ed.). (2010). *Enhancing the quality of life for people with intellectual disabilities: From theory to practice.* New York: Springer.

B5

Maintaining Physical Education in the Reauthorization of IDEA in the U.S.

Geoffrey Broadhead[1], Suzanna Dillon[2], & Terry Rizzo[3]

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PRIMARY ISSUE (S) TO BE PRESENTED & DISCUSSED:
Federal special education legislation (PL 108-446: IDEA, 2004) mandates physical education (PE) for individuals with disabilities. This building session will briefly review issues associated with the reauthorization of IDEA and identify strategies to advocate for the continuation of PE in IDEA. Strategies may include, but not limited to, attending regional hearings, establishing national talking points, using social media and more. Audience participation is essential to implement a national strategy to advocate for PE in the law.

IMPORTANCE OF ISSUE:
Session participants know the importance for the need of advocacy for the continuation of Physical Education (PE) as a direct service in the reauthorization of the Individuals with Disabilities Education Act (IDEA). This building session will seek professionals to promote national activities initiated by the *NCPEID* and discuss national advocacy initiatives for inclusion of PE in IDEA. The purpose is to secure support from *NAFAPA* members and agree on strategies to build a national cohesive voice to continue PE in IDEA. Session Participants will identify leaders and organizations essential to developing a strategic plan to advocate for the continuation of PE in IDEA. As a result of this building session the expectation is that session participants will help plan and implement effective strategies to convey the importance of the continued inclusion of PE in IDEA.

BRIEF OUTLINE OF THE SESSION:
1. Included in this session is a brief review the principles of IDEA and the history about the inclusion of PE in the original Education for All Handicapped Children Act (PL 94-142, 1975) and IDEA (2004).
2. The session will ask program participants to identify effective strategies for professionals and non-professionals to advocate for the inclusion for PE in the reauthorization. For example, *NAFAPA* leaders may identify key U.S. legislators to help advocate for PE in IDEA. Additionally, it is anticipated that session participants will identify strategies to use at the local, state, regional and national level to advocate for the inclusion and continuation of PE in the reauthorization of IDEA.
3. Similarly, they know the importance of attending national hearings about IDEA in various locations in the United States and identify professionals to prepare 'talking points' to advocate for the maintenance of PE in the reauthorization of IDEA.
4. The focus will include, but not be limited to, using social media and other technologies suggested by *NAFAPA* members to advance our message about the importance of PE in the reauthorization of IDEA.

REREFERENCE TO ESTABLISH THE IMPORTANCE OF THIS ISSUE:
Individuals with Disabilities Education Improvement Act of 2004. Retrieved from http://www2.ed.gov/legislation/FedRegister/finrule/2006-3/081406a.pdf

PM1

Cross-Validation of Oxygen Uptake Prediction during Treadmill Walking in Persons with Multiple Sclerosis

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[2]Department of Kinesiology and Community Health, University of Illinois at Urbana-Champaign

INTRODUCTION

We previously developed an equation for predicting the gross rate of oxygen uptake (gross-VO_2) during treadmill walking (R^2=0.70) in persons with Multiple Sclerosis (MS). Predictors included walking speed and total score from the 12-Item Multiple Sclerosis Walking Scale (MSWS-12)—an index of ambulation problems. In this study, we examined the validity of the prediction equation in another sample of persons with MS similar in attributes to the original sample.

METHODS

Participants were 18 persons with MS with limited mobility problems (42±13 years; 14 women). Participants completed the MSWS-12 and undertook three treadmill walking trials, each lasting 6 minutes, at 2.0, 3.0, and 4.0 mph. Gross-VO_2 was measured with open-circuit spirometry.

RESULTS

Across all speeds combined, absolute percent error was 9.5±7.2%. The correlation between actual and predicted gross-VO_2 was 0.91 ($p<0.001$). R^2 was 0.83, demonstrating no shrinkage from the original R^2. Thus, the prediction equation was valid with this new sample. Absolute percent error was small: 8.3±6.1%, 8.0±5.6%, and 12.2±9.0% at 2.0, 3.0, and 4.0 mph, respectively. Actual gross-VO_2 did not differ significantly from predicted gross-VO_2 at 2.0 and 3.0 mph. However, actual gross-VO_2 was significantly higher than predicted gross-VO_2 at 4.0 mph (20.3±2.5 vs. 17.7±0.5 $ml \cdot kg^{-1} \cdot min^{-1}$; $p<0.001$). Bland-Altman plots indicated nearly zero mean difference between actual and predicted gross-VO_2 with modest 95% confidence intervals at 2.0 and 3.0 mph. At 4.0 mph, however, mean difference was 2.60 $ml \cdot kg^{-1} \cdot min^{-1}$, indicating some underestimation of actual gross-VO_2, and the 95% confidence intervals were wider than at slower speeds.

CONCLUSIONS

Speed and MSWS-12 score provide valid prediction of gross-VO_2 during treadmill walking at slow and moderate speeds in persons with MS. However, there is a possibility of small underestimation of gross-VO_2 for walking at 4.0 mph. Future research should attempt to refine the equation predicting gross-VO_2 from walking speed in persons with MS.

PM2

Daily adapted physical education and fundamental motor skills in children with Down syndrome

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[2]Starpoint School, Texas Christian University, USA

INTRODUCTION

Infants and children with Down syndrome demonstrate delays in the acquisition and development of motor milestones and fundamental motor skills. One method of decreasing the extent of these delays is through early intervention. The purpose of this study was to examine the motor skills of children with Down syndrome enrolled in a comprehensive early childhood education program. A unique component of this program is the implementation of 30 minutes of daily adapted physical education.

METHODS

Motor skills of 13 children (7 with Down syndrome; 3 female, 4 male: 6 typically developing; 2 female, 4 male) were compared using the Test of Gross Motor Development-2. Tasks included locomotor skills (run, gallop, hop, leap, slide, and horizontal jump) and object control skills (strike, dribble, catch, kick, roll, and overhand throw) skills. Children ranged in chronological age from four to seven years (4.97 ± 1.24). Children with Down syndrome were recruited from a comprehensive early childhood program. Typically developing children were recruited from Sunday school classes in the community.

RESULTS

Within each group, there were no significant sex differences ($p = 0.26$; effect size (ES) = 0.74). There were no significant differences between the two groups in locomotor raw scores ($p = 0.73$; effect size (ES) = 0.22), locomotor age equivalent ($p = 0.57$; (ES) = 0.33), object control raw scores ($p=0.11$; (ES) = 1.10), and object control age equivalent ($p = 0.41$; (ES) = 0.56).

CONCLUSIONS

Results from this study might support daily adapted physical education as a method of decreasing the extent of developmental delay in children with Down syndrome. Adapted physical education provides structured opportunities for children with Down syndrome to learn and practice fundamental motor skills, which may have an impact on the acquisition of later movement skills.

PM3

Paraeducator Support in General Physical Education: Who is accountable for what?

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INTRODUCTION

Paraeducators are asked to provide support in various settings with little or insufficient training. To magnify the lack of paraeducator training, teachers report being unprepared to supervise or manage paraeducators. The limited training for both the paraeducators and teachers often results in a scarcity of communication between the adult team members and inappropriately shifts the responsibility for the students with disabilities to the paraeducator. Due to the aforementioned, the intent of this study is to identify the knowledge and interpretation of district and CEC standards, describe how accountability measures related to supervision are implemented or interpreted, and identify training needs.

METHODS

This qualitative investigation was based on an empirical phenomenological framework (Giorgi, 1997; Giorgi, 2009; Patton, 2002). Phenomenological analysis, according to Patton (2002), works to understand and expose the meaning, organization, and fundamental nature of the lived experience of a particular phenomenon for a person or group of people. A questionnaire, semi-structured interviews, and systematic observations provided the approach for collecting the interpretations of paraeducator (n=4) and teacher (n=11) experiences with standards, accountability, and training.

RESULTS

Synthesis of the data revealed the phenomena surrounding the standards of supervision and training of the paraeducator in general physical education. The themes addressed include, dissemination of standards: standards exist? accountability: whose responsibility is it? and train us to work as a unit.

CONCLUSIONS

The overview of the district standards for paraeducators in the two school districts revealed that they had done little more than describe the IDEA (1997) and NCLB (2001) minimum qualifications and list the responsibilities of paraeducators. Only one participant had knowledge of the CEC standards for paraeducators. The paraeducators had not received any training surrounding physical education, and the physical education teachers had not had any training in how to utilize paraeducators.

PM4

Comparison of balance outcomes between aquatic and land-based exercise programs in older adults with knee osteoarthritis.

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INTRODUCTION

Balance improvement has been well documented in healthy older adults after participating in aquatic or land-based exercise programs. Aquatic exercise is frequently recommended for people with arthritis. While various effects of aquatic exercise have been studied, limited research has investigated its effects on balance among people with osteoarthritis (OA). The purpose of the study was to compare balance outcomes between aquatic and land-based exercise programs in older adults with knee OA.

METHODS

A total of 20 participants (Mean age 69.5 ± 14.5, 17 females, and 3males) with knee OA were randomly assigned to an aquatic exercise group or a land exercise group. The aquatic group participants completed a 45-minute Arthritis Foundation Aquatic Program (AFAP) 3 times a week for 12 weeks while the land exercise group performed the Arthritis Foundation Land Program (AFLP). Balance outcomes were assessed by using a computerized posturographic balance test equipment (Neurocom Balance Master, NeuroCom International, Clackamas, OR, 2010) and a psychometric balance measure, the activities-specific balance confidence (ABC) scale. The dynamic posturographic balance tests were performed pre and post-intervention including scores from the sensory organization test (SOT), motor control test (MCT), adaptation test (AT), and the limits of stability test (LOS).

RESULTS

MANOVA showed no group-interaction in all balance measures except in the ABC scale in which the land exercise group revealed greater improvement ($p < .05$). Within group analyses demonstrated that both groups had significant increases in MCT and AT scores after 12-week intervention (all p s$< .05$) while no significant changes were noted in SOT score.

CONCLUSION

The findings indicate that both aquatic and land exercise programs can help older adults with knee OA. Land-based intervention may be more effective in increasing balance confidence than aquatic exercise in this particular population.

PM5

Effect of gender and disability on gross motor performance in kindergarten children

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INTRODUCTION

In order to better understand what needs to be done to improve motor skill development, individual differences must be understood. Individuals with disabilities have been demonstrated to have lower motor performance across a variety of testing procedures. Additionally, gender has been shown to have an effect on motor performance, although, the effects are not as clearly defined. Boys typically perform better in object control skills and females demonstrate a higher ability in movement activities, like hopping and balancing. Little has been done to understand interaction of gender and disability on gross motor performance.

METHODS

Utilizing data from the Early Childhood Longitudinal Study - 1998-99 (ECLS-K), a large sample (N = 9584) was delineated using the variables of gender (Male, Female) and disability (Yes, No). A two-way factorial ANOVA was used to analyze the interaction of gender and disability on gross motor performance.

RESULTS

The two-way ANOVA revealed a non-significant result ($F(1, 9580) = 4.112$, $p = 0.256$, partial $eta^2 = 0.000$), however significant effects were seen in both gender ($F(1, 9580) = 59.101$, $p < 0.05$, partial $eta^2 = 0.006$) and disability ($F(1, 9580) = 125.926$, $p < 0.05$, partial $eta^2 = 0.013$). The simple effects of gender and disability on each other were utilized to further analyze the interaction. A small effect size, $d = 0.267$, is seen in between the gender groups, with the female population being slightly higher. Between the groups with and without disabilities, a moderate effect size, $d = 0.352$, demonstrates the group without disabilities performing slightly better than the group with disabilities.

CONCLUSIONS

While a non-significant interaction effect was observed, the significant main effects mirrored what is seen in the literature; further strengthening the findings of previous studies. Interestingly, in this study, the female participants, regardless of disability or not, performed better on motor tasks, when compared to their male counterparts.

PM6

The Relationship between Autism Spectrum Disorder Severity and Obesity, Overweight, Physical Activity, and Sedentary Behavior

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INTRODUCTION

Previous studies, based on small sample sizes and limited geographical locations, reported that overweight, obesity, and inactivity occur at higher rates in individuals with an Autism Spectrum Disorder (ASD) than in typically developing individuals. Physical activity and sedentary behavior may also differ for children with ASD compared to typically developing peers. The objective of this study is to use nationally representative data to determine the relationship between ASD severity and obesity, overweight, physical activity, and sedentary behavior.

METHODS

This study utilized the 2011-2012 National Survey of Children's Health, a representative cross-sectional survey which included 65,680 children aged 6-17, including 1,385 children with an ASD. Logistic regression was used to estimate odds ratios for each level of ASD severity and each of the four outcomes. Demographic and co-morbidity variables were included as controls. Two models were estimated for each outcome, one controlling for demographic factors and another including demographic factors and co-morbidities.

RESULTS

Mild and moderate ASD were associated with higher odds of obesity when controlling for demographic factors, though this finding became insignificant when co-morbidities were added to the model. Severe ASD was associated with lower odds of meeting physical activity guidelines (OR 0.34, $p<0.01$) when adjusted for demographic variables and co-morbidities. Children with moderate ASD had lower odds of sedentary behavior (OR 0.50, $p<0.01$) after adjustment for demographic and co-morbidity factors. No significant association between ASD and overweight was detected. Demographic and co-morbidity predictors varied in significance over the four outcomes.

CONCLUSION

ASD is not independently associated with obesity and overweight status, but is associated with lower levels of physical activity and sedentary behavior. Future physical activity interventions that target this population should measure the impact on body weight and activity versus sedentary lifestyle behaviors.

PM7

The Promotion of Physical Fitness Capacities among Children with Intellectual Disabilities

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INTRODUCTION

Participation in physical activity leads to positive health benefits for all children, including children with intellectual disabilities (ID). However, children with ID are less likely to participate in community sport and recreation. This restricted participation frequently coincides with reports of increased rates of obesity (Esposito et al., 2012; Lloyd et al., 2012; MacDonald et al., 2012) and lower levels of physical fitness among children and youth with autism (Borresmans et al., 2010; Pan, 2012) and Down syndrome (Pitetti & Fernhall, 2004).

METHODS

This research is based on pre-program assessments for 10 athletes (4 boys, 6 girls) with ID who participated in a weekly physical activity-based program at the University of Regina. These athletes range in age from 8 to 12 years and are diagnosed with autism, Down syndrome, global developmental delay, or fetal alcohol spectrum disorder. Five items from the *Brockport* were used to measure physical fitness: BMI (body composition), 20m PACER (aerobic functioning), and the isometric push-up, modified curl-up, and back-saver sit-and-reach (musculoskeletal functioning).

RESULTS

The pre-program results of the first 10 athletes suggest rates of obesity and levels of physical fitness in line with previous research. Based on BMI percentiles, 1 athlete was underweight, 4 athletes were of healthy weight, and 5 athletes were overweight or obese. When compared to the published standards, 3 athletes achieved the minimal standards for aerobic capacity and the isometric pushup, 1 athlete achieved the minimal standard for the curl-up, and 5 athletes achieved the minimal standard for the sit-and-reach. Data collection is ongoing throughout the summer, but initial post-program results suggest improved levels of physical fitness.

CONCLUSIONS

This research is aimed at providing children with ID opportunities to participate in a structured physical activity program in order to develop and improve health-related physical fitness capacities and overall health and wellness.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT: Special Olympics Canada

PM8

Wheelchair marathon extends vasodilator capacity of forearms of athletes with spinal cord injury.

Toshihiro Fukushima[1], Masafumi Ide[1], Etsuo Horikawa[1], & Kyonosuke Yabe[2]

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[2] Nagoya University

INTRODUCTION

The wheelchair marathon is one of most popular sports for the disabled. The peripheral vascular system, such as the vasodilator capacity, is an important factor to supply blood to active muscles. The purpose of this study was to investigate arm and leg blood flow responses at rest and during reactive hyperemia in wheelchair athletes.

METHODS

Fifteen male athletes with spinal cord injury (SCI) regularly participating in wheelchair sports volunteered, and they were separated into two groups: a wheelchair marathon (WM; 6 marathoners) group, and the others (OT; 5 basketball players, 2 track & field sprinters, and 2 tennis players). The forearm and calf blood flow, such as the resting blood flow (RBF) and peak reactive hyperemic blood flow (RHBF), were measured by strain-gauge occlusion plethysmography in a supine position. The RHBF, which estimates the vasodilator capacity, was obtained from the responses following release from 5-min arterial occlusion.

RESULTS

The RBF of the forearm and calf and RHBF of the calf showed no difference between WM and OT. However, the RHBF of the forearm was significantly greater in WM (58.96 +/- 8.74 mL/min/100 mL of tissue) than in OT (43.73 +/- 6.74 mL/min/100 mL of tissue, $p<0.01$). In addition, with regard to the relative increase in blood flow (ΔBF) between the RBF and RHBF, that of the forearm of WM (1,518.4 +/- 490.8%) was significantly greater than that of OT (1,140.4 +/- 245.9%, $p<0.05$).

CONCLUSIONS

This study clarified that the RHBF and ΔBF of the forearm in WM were greater than those of OT. Findings show that regular endurance training for the wheelchair marathon enhances the vasodilator capacity of the arms of athletes with SCI. Furthermore, it was suggested that the vasodilator capacity of the arms may be an indicator of the endurance capacity for wheelchair sports.

PM9

An Analysis of Trends in Adapted Physical Activity Quarterly Research

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INTRODUCTION

Directions for future adapted physical activity (APA) research, such as theoretical alignment (Porretta & Sherrill, 2005) and diversity in research designs (Zhang et al., 2006), have been addressed. However, it is unknown if these recommendations have influenced current research practices. Therefore, the purpose of this documentary analysis was to examine the past 10 years of APA research in order to identify trends and make suggestions for future research.

METHOD

A total of 204 articles published in *Adapted Physical Activity Quarterly* (*APAQ*) from 2004 to 2013 were coded and analyzed. The following variables were used: (a) country of affiliation of the first author; (b) theoretical framework; (c) intervention; (d) research methods; (e) disability of participants; (f) data-based; and (f) topic of study. Interrater and intrarater reliabilities were calculated at 90.6% and 96.4%, respectively.

RESULTS

Data were reported descriptively. While most articles were published by scholars affiliated with universities in North America (43% in USA, 24% in Canada), trends indicate a rise in articles contributed from authors affiliated with universities in Europe. Less than 50% of the published data-based articles considered a theoretical framework. Further, consistent trends of non-intervention studies and a high reliance on group-design studies were present. Other research designs, such as qualitative, mixed-methods, and single-subject were consistently absent. Disability categories and topic of study categories were highly variable over the 10-year period.

CONCLUSIONS

Results provide an overall picture of research in APAQ with several features. While scholars have predicted changes in APA research (Zhang et al., 2006), most targeted variables have gone unchanged over the past 10 years. This study calls to attention the gap between current research trends and directions for research suggested by APA scholars.

PM10

Children with Attention-Deficit Hyperactivity Disorder and Obesity: A Pilot Study

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INTRODUCTION

Attention-deficit hyperactivity disorder (ADHD) is one of the most prevalent childhood psychiatric disorders in North America. The importance of the relationship between ADHD and obesity can no longer be overlooked because long-term health outcomes for adults with ADHD-combined (C) type are not promising. Specifically, in comparison to adult community controls, adults with ADHD- C type had significantly lower high density lipoprotein results and significantly higher BMI, Total/HDL results. Currently, it is not known if these health outcomes are similar for children with ADHD. The findings from cross-sectional studies, identified in a current systematic review, were mixed in clinical and population-based investigations across children, adolescents and adult populations. Few studies distinguished body fat percentages from BMI as an indication of obesity. This is an alarming fact, given that BMI is an imprecise measure of obesity. The purpose of this pilot study was to compare direct body fat percentages between children with the ADHD-C and –inattentive subtypes and explore relationships between body composition and executive functioning (EF) test scores.

METHODS

Sixteen children with ADHD, 7 -12 years of age were tested on height, weight, dual-energy x-ray absorptiometry (DXA) scans and six EF tests. All children were under the effects of stimulant medication at the time of testing. T-tests and correlational analyses were performed.

RESULTS

There were no significant differences between the groups on most body composition scores. This finding was expected due to the effects of prescribed stimulant medications. However, a substantial difference was found for the children with the ADHD-C subtype to have greater amounts of visceral body fat. Correlational analysis revealed significant relationship between obesity and response inhibition.

CONCLUSIONS

The health of children with ADHD-C subtype may be at risk due to increased visceral body fat. Future research should explore relationships between EF and obesity to investigate health-related decisions.

PM11

Benefits of Using Target Activities to Assist in Improvement of Striking in Striking and Fielding Games for Individuals with Autism: A Comparative Case Study

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INTRODUCTION

The purpose of this study was to increase understanding about the potential benefits of combining target activities with striking-fielding games for individuals with high functioning autism spectrum disorder. A comparative case study was conducted to understand if target activities can assist in improving the skills of striking and throwing, aid the learning of tactics, and add to current understanding of how certain teaching skills might be linked to the transfer between target and striking-fielding games.

METHODS

Data was collected through observations, student journals, and interviews and then analyzed using both inductive and deductive methods.

RESULTS

Results showed signs of improvement in throwing, striking, bowling and badminton for overall skill levels. Cross-analysis determined that both stance and fluidity of motion were the most prevalent themes. Understanding that stance is a vital part of striking and that it is not just about the lower body (foot position) but also about the upper body. Through the understanding of how certain teaching skills might be linked to the transfer between target and striking-fielding games, four overall themes became evident; appropriate and effective teaching techniques (type of activity chosen, visual and verbal instruction), effective equipment (using agility dots), dynamic of participants and student-instructors (level of ability), and consistency of attendance appear to be vital for such developments

CONCLUSIONS

Overall, this study reinforces how participation in certain well-designed target activities might foster improvements in skills necessary to participate actively in striking-fielding games. As well this research study can give teachers working with individuals with autism spectrum disorder some ideas for creating more meaningful movement opportunities through effective learning tasks by applying certain useful teaching techniques. Future research should further look at the transferability to outdoor settings and interview the participants.

PM12

Symptom Variability, Affect and Physical Function in Ambulatory Persons with Multiple Sclerosis: Understanding Patterns and Time-Bound Relationships

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INTRODUCTION

Individuals with multiple sclerosis (MS) experience a clinical course that is often unpredictable, with day-to-day fluctuations in symptoms profoundly affecting daily functioning and psychological health. Yet, rarely have symptom variability and its association with affect and function been empirically examined. The purpose of this study was to explore the variability structure and time-bound relationships across MS symptoms, balance, affect and physical activity in individuals with MS.

METHODS

A multivariate, replicated, single-subject repeated-measures design was employed. Over 28 consecutive days, four participants with MS completed the same series of questionnaires assessing levels of fatigue (MFIS), pain (PES), mood (POMS), balance confidence (ABC), and losses of balance. Physical activity assessed via accelerometry was also measured daily. Patterns of variability and time-bound relationships were examined using Dynamic Factor Analysis.

RESULTS

Balance impairment was observed across three participants. While physical activity levels varied over the study period, no correlations existed between daily activity counts and any other measure. Statistical analyses revealed distinct co-variation patterns in balance, symptoms and mood with different time-bound relationships across participants. One participant demonstrated no identifiable variability structure. Two subjects exhibited tightly coupled co-variation patterns between balance and mood as well as MS symptoms, with no lagged relationships. For one subject, balance, pain and fatigue co-varied without associated mood fluctuations, and ratings of pain and fatigue were determined by both current and previous day's levels.

CONCLUSIONS

Findings of this exploratory study suggest that participants with greater functional disability experience clearer co-variation patterns involving balance and affect than those with more mild disability. There was also some evidence of lagged relationships across symptoms, especially with greater functional disability. Future research employing a more homogenous group, additional symptom assessment, and greater frequency of measurement may offer a more distinct and robust model of symptom variability and its impact in this population.

PM13

Examining Longitudinal Trajectories of Physical Activity Among People With Physical Disabilities in South Korea Using a Growth Mixture Modeling

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INTRODUCTION

A large body of literature cited significant health benefits of physical activity (PA); however, few studies have examined the longitudinal epidemiology of PA, particularly for people with physical disabilities (PWPD). This study aimed 1) to examine a 5-year trajectory of PA; and 2) to identify latent subgroups with different PA trajectories among PWPD in South Korea.

METHODS

Data from the Panel Survey of Employment for the Disabled (PSED) 2008-2012, a prospective longitudinal survey among a representative sample (*N*=5,092) of people with disabilities (≥15 yrs) in South Korea, were analyzed. Adults (≥20 yrs) PWPD who completed ≥3 annual surveys and did not report multiple disabilities were included in main analysis (*n*=2,280; female=790). PA was defined as a structured PA (i.e., exercise) performed in episodes of ≥10-min and was subjectively measured by weekly frequency and duration of PA. Participants were dichotomized into as either Sufficient (S-PA) or Insufficient (I-PA) using current PA guidelines (≥30 min for ≥5 days/wk). A latent growth model was specified to examine overall longitudinal trajectory of log-odds of meeting PA guidelines across 5 years. A growth mixture model was fitted to identify latent subgroups with varying trajectories after controlling for categorical covariates (age, gender, education, occupation, assistive device use, smoking, and drinking).

RESULTS

Overall, the likelihood of being in S-PA was significantly increased across years (OR_{slope}=2.67; 95% CI=1.99–3.35); however, the estimated probability of being in S-PA at each year was relatively low over time (0.18 through 0.21). Three latent subgroups with different growth trajectories were identified: Steep-Incliner (11.23%; OR_{slope}=6.13; 95% CI=3.77-9.97), Modest-Incliner (20.33%; OR_{slope}=1.21; 95% CI=1.06-1.37), and General-Decliner (68.43%; OR_{slope}=0.22; 95% CI=0.13-0.38).

CONCLUSIONS

Public health efforts should be made to promote PA among PWPD in South Korea. Future study is warranted to identify the characteristics of latent subgroups which should be targeted for future intervention.

PM14

The effects of dancesport activity on age-related hormones in older adults with intellectual disability

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INTRODUCTION

Over the last few years, the older adult population is rapidly increasing around the world as a result of the development of medical service and social development. In particular, people with intellectual disabilities (ID) live longer than they did in the past. Older adults with ID have significantly lower rates of physical activity than non-disabled counterparts, because individuals with disabilities haves a variety of barriers such as limit physical activity opportunity of participation, social prejudices, absence program of suitable education and inappropriate environmental of education.

Therefore, the purpose of this study was to investigate the effects of a modified 12 weeks dancesport program on age-related hormones (Human growth hormone (HGH), Dehydroepiandrosterone sulphate (DHEA-S), Insulin-like growth factor-1 (IGF-1)) in older adults with ID.

METHODS

Forty older adults with ID (age: 45 years≤) participated for this study. The exercise group (n=20) and control group (n=20) recruited from the welfare institutions for the disabled which is located in C-si and S-si respectively (Exercise group - mean age: 53.5 (1.86), mean body mass index (BMI):22.92 (0.91)).

Exercise group were performed dancesports activity. The dancesport activity was performed for 90 minutes, 2 days per week, during 12 weeks. Also, we measured the levels of age related hormone (HGH, DHEA-S, IGF-1).

RESULTS

A total of 26 participants (experimental group: 14 and control group: 12) were retained for the analysis because 14 participants dropped from the program. There was a significant interaction effect for HGH (<.05) and DHEA-S (<.01), yet there was not one for IGF-1(p=.05) after 12 weeks dancesport intervention program.

CONCLUSIONS

In conclusion, this study provides meaningful insights into understanding the effects of a dancesport program for older adults with ID, as the study showed the positive effects of a dancesport program on HGH and DHEA-S except for IGF-1 among three age-related hormones which were assessed.

PM15

An Investigation of the Post-Exercise Hypotensive Response Following an Acute Bout of Aquatic and Overground Treadmill Walking in People Post-Stroke

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BACKGROUND:
While exercise is a universal recommendation for long term prevention and/or maintenance of hypertension, less is understood about the immediate effects of blood pressure (BP) following a single bout of exercise, otherwise known as post-exercise hypotension. The purpose of this study is to investigate the effects of a single-bout of aquatic treadmill walking (ATW) and overground treadmill walking (OTW) on the magnitude and duration of post-exercise ambulatory BP in people post-stroke.

METHODS:
7 people post-stroke participated in a cross-sectional comparative study. BP was monitored for up to nine hours after a 15-minute bout of ATW and OTW at approximately 70% of maximal oxygen consumption ($VO2_{max}$), performed on separate days. Mean systolic and diastolic BP values were compared between both exercise conditions and a day when no exercise was performed (control).

RESULTS:
Overall post-exercise systolic BP following ATW was 3% lower than that of OTW ($t = 4.06$, $p < 0.05$) and 5% to that of the control day ($t = 5.11$, $p < 0.01$). Mean overall post-exercise diastolic BP following both OTW and ATW were lower than that of the control day by 6% ($t = 4.01$, $p < 0.01$) and 7% ($t = 4.33$, $p < 0.01$), respectively. When comparing the aquatic pre-exercise baseline (115.0 ± 12.69) to the ninth hour after aquatic exercise, our data demonstrated a reduction of 6% in mean systolic BP ($F_{(1,5)} = 12.78$, $p < 0.05$). No other significant differences were found within test conditions.

CONCLUSION:
Our results indicate people post-stroke can sustain sufficient walking intensities necessary to reduce BP following cardiovascular exercise. Also, this data suggests ATW can elicit a clinically meaningful nighttime reduction in BP. Thus, it is recommend for clinicians to consider using ATW as a non-pharmaceutical means to regulate BP in people post-stroke.

PM16

Lived experiences of therapeutic horseback riders: A self-determination perspective

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INTRODUCTION

Studies have explored the physical and psychological benefits of therapeutic horseback riding (THR) including balance, gait, and self-esteem for youth with physical disabilities. However, studies have yet to explore participant experiences of THR within the context of self-determination. Self-determination is essential for quality of life outcomes for youth with disabilities and it may also help individuals acquire greater choice and control over personal physical activity needs. The purpose of this study was to understand how youth with physical disabilities experience self-determination in THR.

METHODS

Semi-structured one-on-one interviews were conducted with individuals with physical disabilities (3 males and 1 female between the ages of 11 and 37 years, mean age = 27) who participated in horseback riding in their youth. Interpretative phenomenological analysis was used to uncover and articulate the meaning in youth's lived experiences of participation in THR. Wehmeyer's (2007) theory of self-determination guided interpretation of participant experiences. This theory focuses on essential characteristics that lead people to act in a self-determined manner: autonomy, psychological empowerment, self-realization, and self-regulation.

RESULTS

Thematic analysis resulted in three main themes: (a) horseback riding is not a sport, (b) relationships with others, and (c) the meaning of independence.

CONCLUSIONS

The experience of THR may facilitate or limit self-determination. THR was at times perceived to limit opportunities for goal-setting and choice-making. A positive connection with the instructors and horse was important for autonomy, as well as comfort and enjoyment. Developing a sense of independence was possible when participants felt safe riding and were able to hold the reins but was limited when they received too much help from instructors or felt a lack of control. Applying the construct of self-determination to instruction and program development may enhance THR experiences.

ACKOWLEDGEMENT OF RESEARCH SUPPORT

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PM 17

Finding and Implementing Relevant Resources in Adapted Physical Activity (APA): It's easier said than done…

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INTRODUCTION

There are two purposes of this research. The first is to explore challenges to operationalizing and implementing relevant resources for Adapted Physical Activity (APA). The second is to develop a framework on how resources should be developed and implemented to foster appropriate APA. A hermeneutic phenomenological methodology was used to examine the following: existing resources in APA, training and learning opportunities for practitioners teaching APA, and the challenges practitioners experience when attempting to use resources to support their teaching.

METHOD

Data were collected via unobtrusive methods: documents, records, literature and feedback forms. Several levels of analysis involving recursive and constant comparative approaches were conducted and summarized findings were established. Findings were provided to experts for a consultation using a modified Delphi-technique. Experts were asked to confirm or disconfirm the findings based on their knowledge and experience in the field of APA; summarized findings were unanimously confirmed.

RESULTS

The results indicate there are limited APA resources and teaching/learning opportunities for practitioners. There is a need for practitioner facilitation through professional development using a step-by-step process on finding and implementing resources to assist application and knowledge transfer. An "ideal" resource model for practitioners was developed from the results to foster finding, selecting, implementing, and operationalizing resources in APA. Resources should be accessible for practitioners, terminology relatable to the teaching profession, consistent with accepted best practice, and should help the practitioner's immediate practice.

CONCLUSION

Future research should a) develop, implement, and evaluate the developed model, b) strive to improve the connection and consistency of resources in APA, and c) explore the dynamic and politically thick concept of "resource." It is "easier said than done" to find, select, operationalize, and implement resources in APA…BUT there is no excuse for not trying.

PM18

Contributing Factors for Successful Inclusive Physical Education

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INTRODUCTION

The purpose of this study was to use an Analytical Hierarchy Process (AHP) to systematically survey professionals (college professors, adapted physical educators, and general physical educators) in order to identify and prioritize factors believed to contribute to an effective inclusive physical education program.

METHODS

A Delphi approach and Analytical Hierarchy Process (AHP) was used to systematically survey twenty four professionals (college professors, adapted physical educators, and general physical educators) to identify and prioritize factors believed to contribute to an effective inclusive physical education program for students with disabilities. Analytical Hierarchy Process (AHP) is a method employed to place hierarchy in certain decision making and determine relative importance of each factor in each hierarchy. This process determines the relative priority after comprehending the hierarchical structure of certain decision-making.

RESULTS

Results of the first Delphi investigation revealed the following five higher level factors deemed most critical for successful inclusion: (1) positive attitude, (2) support, (3) modification, (4) peer tutoring and (5) additional in-service training. A subsequent Delphi investigation and AHP analysis revealed twenty-five weighted sub-factors which were rank order from most to least important. These sub-factors were discussed with a focus on implications for physical educators and administrators.

CONCLUSIONS

Additional in-service training was identified as the highest weighted higher level factor in the Delphi technique, and the highest weighted sub-factor was specific training in practical skills to facilitate inclusive physical education. Positive attitude toward disability was identified as the second weighted higher factor, and the highest weighted sub-factor was early participation in the IEP process. Support was identified as the third weighted higher factor, and the highest weighted sub-factor was reduction in class size. Modification was identified as the fourth weighted higher level factor, and the highest weighted sub-factor was programming for the different levels and stages. The fifth weighted higher level factor was peer-tutoring, and the highest weighted sub-factor was training of mentors and mentees.

PM19

Rate of force development in persons with Intellectual Disabilities following a six week powerlifting program

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INTRODUCTION

Strength and conditioning training is a potential avenue to improve independent functioning as well as positively impact health and wellness for adults (Uher, Svedova, Brtkova, & Junger, 2010). The purpose of this study was to utilize Ariel Computerized Exercise Systems (ACES) to examine strength in persons with intellectual disabilities following a six week progressive overload powerlifting program (SOI, 2011).

METHODS

Participants with intellectual disabilities ($n = 8$) were studied along with a comparison group of typically developing peers ($n = 8$). The intervention lasted six weeks and included one day of progressive powerlifting using three sets of six to eight repetitions as outlined by the Special Olympics Powerlifting Coaches Guide (Special Olympics, 2011).

RESULTS

Posttest strength findings resulted in the comparison group significantly outscoring the experimental group on maximum squat rate of force development (ROFD), average squat ROFD, and squat maximum force, $F(1, 15) = 5.19$, $p < .05$, $F(1, 15) = 21.99$, $p < .05$, $F(1, 15) = 28.02$, $p < .05$ respectively. With respect to strength changes over the intervention, the experimental group did not improve in strength over the six week intervention ($p > .05$).

CONCLUSION

In summary, the intervention length was targeted as too short to achieve the desired strength changes. Participants were able to complete the lifts successfully at the end of the training. However, no strength changes in ROF were found following intervention using the ACES machine in the target population. However, use of the ACES as an intervention and measure for persons with intellectual disabilities were supported.

PM20

Physical Education Teacher Candidates' Perspectives about Instructing Children with Disabilities in Adapted Aquatics

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INTRODUCTION

According to the Centers for Disease Control and Prevention (2013), individuals with moderate to severe disabilities tend to experience lower rates of social activity and leisure-time physical activity than individuals with mild disabilities and they may show feelings of isolation or depression. It is well-established that learning how to swim increases water safety; enhances physiological fitness; promotes social, emotional, and psychological wellness; provides a sense of accomplishment and gratification and increases opportunities for social interaction (Berukoff & Hill, 2010; Norris, 2012).

Teacher candidates' practicum experiences can influence their beliefs and competencies (Hodge et al., 2002; Hodge et al., 2003). Adapted aquatics practicum experiences provide a *training ground* in preparing students with disabilities to perform and compete in more formal adapted aquatics environments (Wilson et al., 2002). The purpose of this study was to determine and explain teacher candidates' views about instructing students with severe disabilities in adapted aquatics as a requirement of their PETE program.

METHOD

The participants were twelve PETE teacher candidates (6 males and 6 females) (9 from USA and 3 from Puerto Rico) enrolled in adapted physical education courses coupled with an adapted aquatics practicum. Candidates from Puerto Rico were also enrolled in Adapted Aquatics class. This explanatory case study was situated in activity theory. The data sources were face-to-face interviews, adapted aquatic reflection papers, and follow–up interviews. Data were analyzed using constant comparative analysis.

RESULTS

In our analysis, we uncovered the following themes: (a) *difficulty meeting expectations,* (b) *limiting activities,* (c) *experiential learning & (d) instruction in adapted aquatics makes a difference.* The teacher candidates' interpreted their adapted aquatic trainee experiences as difficult and challenging. Much of their struggle had to do with a lack of awareness of disability types and severity, lack of knowledge of rehabilitation and adapted aquatics pedagogy.

CONCLUSIONS

This study suggests that APE courses must be mindful to implement special education and therapeutic recreation course contents that will accommodate the needs of students with disabilities in adapted aquatics.

PM21

Creating standardized delivery of Functional Electrical Stimulation (FES) exercise programs for people living with paralysis: A provincial framework

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INTRODUCTION

Since 1993, The Steadward Centre (TSC)has facilitated and implemented functional electrical stimulation (FES) exercise programs for individuals living with paralysis through the use of three exercise modalities: cycling (RT300), rowing and elliptical (RT200) training. We understand that FES can mitigate the nature and extent of secondary health risks, including the prevention of muscle atrophy, bone density loss and improvements in strength, endurance and cardiovascular fitness (Creasey et al., 2004;Peng et al., 2010).

RATIONALE

During the period from 1993 to 2011, TSC provided FES cycling and rowing programs through a structured specialized physical activity program delivery model. Scheduled, individualized time slots were assigned to eligible participants and programs were prescribed, overseen and administered by trained adapted physical activity (APA) consultants. The Centre served as the only facility within the region providing long-term FES exercise programs. Embedded within The Steadward Centre's Community Exercise Transition Model, a pilot Community FES Exercise program was initiated and delivered in 2011-2013. Two pieces of FES equipment (RT200 elliptical and RT300 cycle) and an inclusive space at a community recreation facility for the equipment to be utilized was secured.

IMPACT

Four key outcomes were achieved: improved access (29 new FES users; training for individuals and support person); enhanced program sustainability (reduced fee schedule at community site, electrode purchasing program), shared learnings (resource sharing with allied health professionals) and applied learning experiences for undergraduate students.

CONCLUSION

Pilot project work has led to the development and implementation of TSC FES delivery sites across the province of Alberta. Program framework, site eligibility and outcome measures were defined. Designated sites receive access to a secure online portal, training and form a community of practice. The framework is intended to deliver standardized services provincially. Empirical data collected will inform future FES program design and participant training protocols.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT

We would like to acknowledge the financial contribution of the Spinal Cord Injury Treatment Centre Society (SCITCS) for the pilot project.

PM22

The Effects of 12 Months of Therapeutic Exercise and Horse Back Riding on Strength, Endurance, Postural Control, and Cognitive Function in One Veteran with Anoxic Brain Injury

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INTRODUCTION

For some individuals with brain injury, a common pathway after physical and occupation therapy discharge is community based exercise and adapted recreation. Yet, the functional effects of these services are largely unknown. OBJECTIVES. To examine the effects of twelve months of therapeutic exercise and horseback riding on the muscular strength, endurance, postural control, and cognitive function in one veteran with anoxic brain injury.

METHODS

One male participant, aged 29, three years post injury, enrolled in a therapeutic exercise program. In addition, the participant had been and continued to participate in weekly therapeutic horseback riding. Muscular strength, endurance and postural control were measured on the horse via level of support and total time; and unsupported sitting time on a mat table. Lastly, cognitive function was measured using the Mini Mental State Exam (Copeland, Abou-Saleh, & Blazer, 2002). Therapeutic exercise was twice per week for 60 to 90 minutes. Exercises included: shoulder abduction, flexion, extension, mini-squats, chair raises, reverse crunches, and hip flexion. Horseback riding occurred weekly for about one hour.

RESULTS

In October of 2012, the participant rode 40-45 minutes with moderate support on both sides**.** After six months of exercise and horseback riding, the participant was able to sit up straight on the horse and ride for over 60 minutes. Most importantly, the participant needed only minimal support on one side. At the beginning, the participant could sit unsupported on a mat table for 2 minutes; after 12 months, sitting lasted over 16 minutes. Three quarterly examinations of the Mini Mental State Exam remained at 14.0.

CONCLUSIONS

Therapeutic exercise and horseback riding substantially increased the muscular strength, endurance and postural control of a veteran with anoxic brain injury. Long-term community based adapted physical activity programs were able to increase function three years post anoxic brain injury.

PM23

Promoting physical activity for adults with Intellectual Disabilities: A SWOT Analysis

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INTRODUCTION

Individuals with intellectual disabilities (ID) are considered a high risk population for obesity (CDC, 2012), and tend to have low occurrence of participation in voluntary or prescribed physical activity (Emerson, 2005; Frey et al., 2005, 2008). The highest rates obesity tend to occur among those who reside in group homes and family households as compared to those living in more restricted institutionalized settings (Rimmer & Yamaki, 2006), as these settings provide greater access to unhealthy food options and decreased physical activity (Doody & Doody, 2012). The purpose of this study was to assess the internal and external factors enabling and preventing increased physical activity (PA) participation for adults with ID residing in family household settings.

METHODS

A mixed method approach was conducted consisting of surveys and focus group interviews. Participants included caregivers (n=6) and adults with ID (n=6) from two different regions of the same state.

RESULTS

Themes identified from the data were inductively analyzed and interpreted within a SWOT (strengths, weaknesses, opportunities and threats) matrix. Strengths included family support and resources. Weaknesses included health conditions, lack of confidence, lack of motivation, reliance on others, and limited time. Opportunities included existing programs, and knowledgeable and proactive caregivers. Threats to increasing PA participation included factors such as age limits, rural settings, communication, distance, need for support, timing of programs, a lack of available programs of interest, funding, and program organization.

CONCLUSIONS

A SWOT analysis was a useful framework to help identify the resources, skills, considerations, and partnerships necessary to improve PA participation for adults with ID. Follow up research should be conducted to develop effective strategies to counter the weaknesses and threats while capitalizing on strengths and opportunities.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT

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PM24

IFiT: Into Fitness Together A Peer-Mentoring Physical Activity Program for College Students with ASD

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INTRODUCTION

A growing number of students with Autism Spectrum Disorder (ASD) are attending college and university, for the most part these students do not engage in regular physical activity (PA), are often overweight, and experience elevated levels of anxiety. Researchers have found that lack of peer exercise partners was a major interpersonal barrier for adults with ASD. IFiT is a peer-mentoring PA program in which a fitness coach (Kinesiology major) is paired with a university student on the spectrum. The goal is for each IFiT participant to meet the national PA guidelines. We hypothesize that participants will reap both physical and mental health benefits.

METHODS

A pilot project was initiated. Five Kinesiology majors trained to be fitness coaches. University students on the spectrum were recruited and paired with a fitness coach. Pre/post intervention measures included three 7-day PA recall questionnaires, Beck's Anxiety Inventory, and anthropometric measures. Each dyad met for 2.5 hours per week for 8 weeks. Minutes in moderate/vigorous PA, activity, and mood were monitored throughout the program.

RESULTS

Two CSUN students on the spectrum volunteered and completed the program to date. Recruitment continues and the program is on going. Visual analysis of the data showed that average minutes per week spent in moderate to vigorous PA increased from 20 to 150. Strength-training activities increased from 0 to 2, and the variety of PAs increased from 1 to 4 on average. Self-reported mood increased after engaging in PA and improved over the last 4 weeks of the program. IFiT participants reported enjoyment of the program, learned proper technique, and liked participating in activities with a partner. There was no significant change in anxiety or anthropometric measures.

CONCLUSION

Peer mentoring PA programs are beneficial but fear of stigmatization is a barrier for college/university students on the spectrum and administrators.

PM25

Time Motion Analysis of Men's Sitting Volleyball

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INTRODUCTION

Sitting volleyball has become a popular Paralympic sport and as a result, it has become important to establish a better understanding about the physical demands of the game. This can be done using time motion analysis (TMA) which identifies the number and duration of various game movements players perform in a game. Therefore, the purpose of this study was to determine frequency and time players spend performing various game movements during an international sitting volleyball match at the Para-Pan American Games.

METHODS

A convenient sample of eleven (n=11) members of a men's national sitting volleyball team consented to participate in this study. Participant age, seated height and body mass (without prosthetic) ranged from 22 - 44 years old, 94.3 – 99.8 cm and 64.8 – 123.5 kg, respectively. A digital video camera was placed above the volleyball court to record the volleyball match and subsequently downloaded and analyzed using Dartfish software. Fifteen movements were identified and agreed upon by a panel of sitting volleyball experts.

RESULTS

Regardless of position, players spent similar time performing game movements: backward movement with 1 hand = 0.73 ± 0.09 s; backward movement with 2 hands = 0.77 ± 0.36 s; forward movement with 1 hand = 0.92 ± 0.17 s; forward movement with 2 hands= 0.56 ± 0.28 s, lateral movement with 1 hand = 0.66 ± 0.14 s; and, lateral movement with 2 hands = 0.57 ± 0.29 s. Those players who were subbed off court for the labero spent an average of 39.74 ± 58.58 s sitting continuously, while those who remained on court spent an average of 3.08 ± 0.41 s sitting continuously. Setters set the ball an average of 25 ± 4 times per game in comparison to the other team members. The labero had an average of 17 digs whereas the team average was 8 ± 7.

CONCLUSION

Time motion analysis of men's sitting volleyball revealed that many movements involved brief, high force movements with one or both hands in different directions that were similar regardless of player position.

ACKNOWLEDGEMENT

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PM26

Motor Skill Regression Characteristics of a Boy with Childhood Disintegrative Disorder: A Case Study

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INTRODUCTION

Childhood disintegrative disorder (CDD) is an autism-like condition with which Children show a period of the normal development with a late onset of the severe regression of acquired skills. The purpose of this study was to investigate the motor skill regression characteristics of a boy with CDD over a period of 18 years.

METHOD

An 18-year-old boy diagnosed with CDD was recruited as the participant. The data were collected in four ways: (a) school evaluations by psychologists, (b) school documents by teachers, (c) medical diagnosis by doctors, and (d) interview inputs from parents. The data collected were coded in nine categories: (a) intelligence, (b) attention, (c) interesting, (d) language, (e) socialization, (f) academic performances, (g) emotion, (h) behaviors, (i) adaptive skills, and (j) motor skills. Each category was coded at five points: (a) at the kindergarten with 5 years old, (b) at the third grade with 8 years old, (c) at the sixth grade with 12 years old, (d) at the ninth grade at 15 years old, (e) at the twelfth grade with 18 years old. In coding the data, a 5-point scale (1 = substantially below normal, 2 = moderately below normal, 3 = mildly below normal, 4 = low normal, and 5 = normal) was used to give a score to each category in each point.

RESULTS

The results indicated that the average scores across all nine categories were 4.7 at the kindergarten, 4.4 at the third grade, 4.1 at the sixth grade, 2.2 at the ninth grade, and 1.9 at the twelfth grade. However, the average scores in the motor skill category were 5.0 at the kindergarten, 5.0 at the third grade, 5.0 at the sixth grade, 4.0 at the ninth grade, and 5.0 at the twelfth grade.

CONCLUSION

These results clearly depict a general regressive trend demonstrated by this participant over 18 years but without a significant regression trend on motor skill performance.

R39

Fit For Action: A comparative case study of the implementation of an adapted fitness and conditioning program for teens and Transition Age Youth with moderate functioning Autism Spectrum Disorder

Andra Lenius

Brock University

INTRODUCTION

Physical activity and fitness continue to be consistent factors in human existence. They are used to prevent and alleviate disorders and illness, promote wellness, and construct “beautiful bodies”. Personal trainers are in high demand as fitness newcomers seek out expertise however, trainers have become accustom to working with an explicit population of clients; trainers are trained to work with able-bodied individuals, and are provided little information in regards to training individuals with disabilities. Autism Spectrum Disorder (ASD) is a behavioural, social, motor and cognitive disorder. ASD is extremely heterogeneous, and manifests in individuals in unique ways. Traditionally, the focus of treatment for ASD has been behavioural, but recent approaches have turned towards physical activity to improve quality of life.

METHODS

The purpose of this comparative case study is two fold: to better understand the importance of fitness and conditioning for teens and Transition Age Youth (TAY) with moderate functioning ASD and develop pedagogic approaches and establish fitness baselines to better accommodate teens and TAYs with ASD. Two teens with moderate functioning ASD and two Certified Personal Trainers participated in the seven-week study. The trainers implemented a progressive individualized fitness and conditioning program for their teen. Pre-study and post study interviews with the trainers were conducted, and semi-structured observations during sessions were recorded. Data analysis began with in-case analysis, and then moved to cross case analysis, inductive and deductively.

RESULTS

Fundamental movement concepts must be used as fitness baselines to help develop individualized, functional, and meaningful fitness programs. A change in discourse of the trainers was noted, and traditional pedagogic strategies were adapted; the trainers had to be actively involved the entire session, demonstrating and performing the exercises with their “client”.

CONCLUSIONS

Personal trainers must adapt their training style and learn to modify exercises to make this service accessible.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT

Dr. Maureen Connolly (Brock University)

R40

Effects of Taekwondo training on postural control in youth with autism spectrum disorder

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INTRODUCTION

Children with autism spectrum disorder (ASD) have underdeveloped postural control compared to typically developing children (Minshew et al., 2004). Poor postural control may inhibit children with ASD from acquiring more advanced motor skills or even sport-specific skills, possibly limiting opportunities for engaging in physical activity. Taekwondo, a form of Korean martial arts, has been shown to improve balance in typically developing children and children with other forms of neurological disability. This study aimed to investigate the effects of Taekwondo (TKD) training on postural control in youth with ASD.

METHODS

Nine children and adolescents with ASD (ages 8 to 14) participated in this study. Seven youth with ASD completed TKD training 2 times per week for 8 weeks (50min per session). Two children with ASD received no intervention as controls. Balance was evaluated using the NeuroCom Balance Master modified sensory interaction and unilateral stance tests with eyes open and closed condition. A repeated t-test will be used for statistical analysis.

RESULTS

Three out of seven youth with ASD (33% of participants) in the experimental group completed their post-balance test at this time. Average of individuals' data demonstrated improvements in the duration of single leg standing (range: 0.1 to 5.2 sec). After 8 weeks of TKD training, participants tend to stand longer with eyes open condition and dominant leg (EO: 2.6 sec; EC: 1.3 sec). The mean COG sway velocity decreased (range: -2.5 to -10.9 deg/sec) with vision and dominant legs (EO: -5.6 deg/sec; EC: - 0.006 deg/sec).

CONCLUSIONS

Postural control for children and adolescents with ASD improved following TKD training. TKD may provide a high energy, challenging, and enjoyable therapeutic option. This knowledge will aid clinicians, rehabilitators, and researchers, when prescribing a therapeutic leisure activity for children and adolescent with ASD.

R41

Music as a Strategy to Promote Task-Oriented Behaviors for Children with Autism Spectrum Disorders: Pilot through Replication

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INTRODUCTION

Current figures suggest that Autism Spectrum Disorder (ASD) affects 1 in 68 children (CDC, 2014). For these children motor skill acquisition is delayed and specific behaviors (e.g. social deficits) inhibit engaging in physical activity (Rosser, Sandt, & Frey, 2005; Pan, 2008). One early intervention instructional strategy is music to support and facilitate appropriate behavior in young children. Music education, special education, and music therapy research suggests a positive relationship between music and task-oriented behavior. This presentation will focus on an evolving line of research relative to task-oriented behaviors and will report findings from previous and current studies as well as discuss future research.

METHODS

A behaviorist approach utilizing single subject research designs (e.g., reversal and multiple baseline with multiple conditions design) was used. All participants exhibited ASD and were recruited from local preschool and elementary schools located in two Midwestern cities.

RESULTS

Pilot, initial, and replication studies demonstrate that music has a positive effect on task-oriented behaviors (pilot: increases for two participants of 43% and 10%, respectively in task-oriented behaviors when compared to baseline; initial study: increases for five participants of 30%, 13%, 26%, 55%; and 26% respectively in task-oriented behaviors during music and lyrics coupled with instruction when compared to music with lyrics only; and replication: increases for five participants of 7%, 28%, 29%, 8% and 33% respectively in task-oriented behaviors during music with lyrics coupled with instruction when compared to music with lyrics only). Additionally social validity, maintenance and generalization data were collected and reported for all studies.

CONCLUSIONS

Initial evidence suggests that music has a positive influence on task-oriented behaviors in physical activity settings for children with ASD. Music with lyrics coupled with instruction can be successfully implemented into educational programs to enhance the task-oriented behaviors. Suggestions for incorporating music into future physical activity research will be provided.

R42

Development of an integrated online health promotion program for individuals with disabilities

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INTRODUCTION

Individuals with disabilities (IWD) face increased health and employment disparities when compared to the general population. In response these known disparities, federal initiatives have focused on promoting the health and well-being of people with a disability (i.e., Healthy People 2020; Surgeon General's Report), emphasizing the need for an increase in health promotion efforts for IWD. The purpose of this study is to describe the use of participatory action research approaches in obtaining the feedback of stakeholders (2 IWD, 5 experts in disability) who have reviewed an innovative, integrated online health promotion program, called Be Active, Work Safe (BAWS). The program aims to facilitate physical activity participation and workplace safety for IWD and reduce employment and health disparities, and is being developed and evaluated following guidelines to develop effective health interventions for IWD (Drum et al., 2009).

METHODS

Two in-person health promotion programs were integrated then translated to the 8-week online BAWS program. Stakeholders reviewed the BAWS content and provided feedback on accessibility, usability, language, assessment and content through a series of quantitative forms embedded in the online program as well as through a program evaluation interview with research staff.

RESULTS

Based on the feedback, changes to the organization, layout, and content were made to better meet the needs of IWD. This included making a stronger connection between the physical activity and workplace safety pieces of the program, broadening the target audience to include individuals in various different vocational fields (e.g., administrative, service, and manual labor occupations), and narrowing the measurement tools.

CONCLUSIONS

Using stakeholders in the development of health promotion programs is an important step to ensure the unique issues of IWD are addressed and to create buy-in from the target community. The feedback provided by both experts in the field and IWD helped to strengthen the BAWS program by making it more relevant and accessible for users.

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R43

Transition to an Active Lifestyle: Exercising in a Group Context

Donna Goodwin, Bobbi Jo Atchison, Kathleen Edwards, Keith Johnston, & Kyoung June Yi

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INTRODUCTION

Transition to community fitness facilities following rehabilitation can be a time of optimism as well as uncertainty. Person can feel ill-prepared to cope with community life and social isolation can impact the ability to identify and access services. Peer mentoring programs have been used as a tool for behavioural change in educational settings. Only recently have the benefits and ethical considerations of peer mentoring as a means for sustaining fitness behaviour received attention. In much of the disability literature, professionals assume the role of mentors. Equal status mentoring may be a promising strategy for behavioral change. The purpose of the study was to explore the role of equal status peer mentorship in sustaining exercise behaviour in a community fitness facility.

METHODS

An interpretive phenomenological research approach was employed to examine the experiences of a purposeful sample of 10 participants (5 female, 5 male) with physical impairments (30-72 years, $\bar{x}$=52). Data were collected by a means of focus groups and one-on-one semi-structured audio recorded interviews. An inductive line-by-line thematic analysis was completed. Schlossberg's theory of transition facilitated the interpretation of the findings.

RESULTS

Three themes emerged from the line by line thematic analysis (a) common ground and understanding, (b) friendship and peer support, and (c) extended community for individuals with impairments.

CONCLUSIONS

The *othering* that occurred when perceptions of inability, difference, or tragedy were portrayed through prolonged gazing, excessive help, or invisibility were meditated through the presence of peers with impairments. The mutual respect, shared embodied experiences of the space, and the relationships that emerged created a psychological sense of community. The transition of *outsider* to *insider* was important to their ongoing engagement in exercise. The transferability of the findings to children and youth is not clear and worthy of further study.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT

We would like to acknowledge the support of The Steadward Centre for Personal & Physical Achievement in the completion of this study.

R44

HIDING IN PLAIN SIGHT- Sustainable Physical Activity Program Development and Evaluation for Youth with Special Needs: An Evaluative Case Study

Elyse Lappano

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INTRODUCTION

The Special Needs Activity Program (S.N.A.P) is a community service learning initiative that includes movement education based, embedded curriculum offered to children and youth with disabilities. It provides a developmentally appropriate physical education experience in a Least Restrictive environment that allows participants to utilize and expand their physical repertoires. This program also allows university students to engage in 1:1 activity facilitation with individuals from a population who are under resourced.

METHODS

I conducted an evaluative case study of the S.N.A.P outreach in order to determine the following: what is a quality adapted physical activity program?, why is S.N.A.P considered a quality adapted physical activity program?, what institutional policies and practices exist to support the program?. Data was collected via semi-structured interviews, qualitative questionnaires, and unobtrusive observations. Participants included: coordinators of the program, youth who participate, parents of youth who participate, Educational Assistants that accompany youth to the program, volunteers, a service learning expert, a Faculty Senior Administrator, and a University Senior Administrator of the institution that houses the program. Data analysis involved inductive and deductive methods including within case and cross case investigation, as well as a SWOTAR evaluation (Strengths, Weaknesses, Opportunities, Threats, Aspirations, and Results).

RESULTS

Results indicate that factors that contribute to a quality adapted physical activity program included: ‘people’, ‘environment’, and ‘expectations’; there are pedagogical, professional, and personal benefits of experiential learning; activity stations that promote creativity and imagination at S.N.A.P are valuable; several stakeholders do not know the details about the program but recognize its value; the institution values what S.N.A.P provides, yet, there is nothing being done to sustain it.

CONCLUSION

Future research should investigate the feasibility of implementing the S.N.A.P at the elementary and high school levels.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT

Dr. Maureen Connolly (Brock University)

G14 Graduate Student “Work-in-Preparation” Proposal

Comparison of Balance Between Hearing-Impaired and Normal-Hearing Young Adults

Alexis Knudtson

Advisor: Dr. Todd

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INTRODUCTION / BACKGROUND

In the United States, about 1 to 6 per 1,000 newborns are diagnosed with a hearing impairment (Kemper & Downs, 2000). Children who are hearing impaired have been found to possess deficits in motor skills and balance compared to the general population. Reports state that damaged vestibular structures are the main cause of motor skill and balance deficits. In addition, hearing impaired children may have deficits in sensory organization (Rine, et al., 2004). Evidence has shown that better balance scores are related to greater engagement in physical activity (Hartman, et al., 2011). Although some literature has found that balance skills in hearing impaired children improve with increasing age until adolescence (Schwab & Kontorinis, 2011), these studies had a relatively low sample size. There is lack of information on balance in young adults with hearing impairment. Consequently, the purpose of this study is to compare balance between young adults with hearing-impairment and young adults with normal hearing.

PROPOSED METHODS

A total of 70 participants (35 with hearing impairment and 35 control) will be recruited for this study. The hearing-impaired group diagnosed with 40-120 dB hearing loss will be included in the study. The control group will consist of age-matched peers with no history of hearing or balance problems. All data collection will be held at the Center of Achievement, CSUN and all participants will come for one visit. Data collection includes anthropometric data (weight, height, and body mass index), a Modified Physical Activity Questionnaire (PAQ), and balance tests using the Balance Master EquiTest and Long Forceplate. Results of the hearing impaired and control group will be compared.

G15 Graduate Student “Work-in-Preparation” Proposal

Changes in Gait and Balance Change through Pregnancy

Natalie Fleming

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California State University Northridge

INTRODUCTION / BACKGROUND

Physiological changes during pregnancy may alter gait and balance. In particular, abdominal weight gain during pregnancy can shift the center of gravity and increase the base of support during walking. The postural instability and increased fall risk have been previously documented in pregnant women. Limited studies investigated changes of gait patterns and balance during pregnancy. However, most of them focused on the second and third trimesters. Few research used advanced biomechanical methods to analyze gait patterns and balance throughout all three trimesters. Thus, the purpose of this study is to describe how gait patterns and balance change throughout pregnancy.

PROPOSED METHODS

This investigation is a descriptive study with a progressive cohort design. A total of five women (age 18-35 years) who are pregnant and in their first trimester will be recruited. Gait patterns will be measured using a three-dimensional motion analysis system (Vicon Bonita System, VICON,Oxnard, UK, 2010). This will analyze gait patterns with eight high speed infrared cameras as each participant walks on a 10- meter walkway three times at a fast speed. Spatiotemporal and lower limb joint kinematic variables will be assessed to investigate any alterations in gait. Balance will be examined using a computerized posturographic instrument (BalanceMaster,Neurocom International, Clackamas, OR, 2010). A dynamic forceplate will be used to perform the sensory organization test for static and dynamic balance. A long forceplate will be utilized to test functional balance skills, such as sit to stand and single leg stance. Each participant will be tested once each trimester, yielding a total of three data points. The research protocol will be approved by a human subject review committee, and a medical clearance and a signed consent form will be collected prior to data collection.

G16 Graduate Student "Work in Preparation" Proposal

Exercise Treatment for Women with Breast Cancer. Not Just Surviving, Thriving!

Victoria Sutherland

Advisor: Dr. Kerri L. Staples

University of Regina

BACKGROUND

Breast cancer is the most frequently diagnosed cancer among women. The role of physical activity (PA) in the prevention of cancer is clear. Furthermore, breast cancer survivors who engage in regular moderate to vigorous intensity PA (MVPA) are less likely to have cancer recurrence and live longer than those who are not physically active. Despite resounding evidence, the promotion of PA as a routine part of cancer treatment has been overlooked -- current estimates suggest that 50 to 80% of breast cancer survivors are not meeting the recommended 150 minutes of MVPA per week. Approximately 50 to 90% of cancer survivors experience fatigue and pain both of which are associated with lower quality of life (QOL). Given the number of women living with breast cancer, the benefits of PA need to be better understood and steps towards improved outcomes need to be taken.

PROPOSED METHODS

Women with breast cancer between the ages of 25 and 50 years and who are not currently involved in structured exercise programming will be recruited for participation. There will be two main components in this 8-week research-based program: exercise and education. The exercise program will meet 3 times per week and each session will include a variety of resistance, cardiovascular, and stretching exercises. The education program will be delivered online 3 times per week and will include specific exercises and information about the importance of participating in daily PA. Participants will participate in both exercise and education or in education only. Health-related QOL will be measured before and after the program using the *European Organization for Research and Treatment of Cancer Quality of Life Questionnaire*. This questionnaire provides an indicator of overall QOL as well as scores specific to 5 functional areas (physical, role, cognitive, emotional, social) and 3 symptom areas (fatigue, pain, nausea).

B6

Say what you mean: Rethinking disability language in *Adapted Physical Activity Quarterly*

Danielle Peers, Nancy Spencer-Cavaliere, & Lindsay Eales

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Adapted Physical Activity Quarterly (APAQ) currently mandates that authors use person-first language in their publications. In this presentation, we argue that although this policy is well intentioned, it betrays a very particular cultural and disciplinary approach to disability: one that is inappropriate given the international and multidisciplinary mandate of the journal. Further, we contend that APAQ's current language policy may serve to delimit the range of high quality articles submitted, and to encourage both theoretical inconsistency and the erasure of the ways in which research participants self-identify. We provide historical and theoretical contexts for person-first language, as well as various other widely circulated alternative English-language disability terminology. Finally, we close with four suggested revisions to APAQ's language policy. The title, abstract and content of this presentation reflect a manuscript of the same name accepted in 2014 for publication in APAQ.

B7

Creating Superior APA Science: Possibility – Probability?

Geoffrey D. Broadhead

Kent State University

Improving APA science should be about quality and not quantity. In this presentation the case will be made that changes are needed in how we educate our future university faculty, and how we must encourage changed senior faculty behaviors. One such change for senior faculty could be to reward those who seek to investigate themes for multiple studies rather than develop numbers of publications. Such changes should markedly alter how we conduct our research activities, resulting in improved quality APA scholarship.

Thus basic questions will be posed about identifying problems with the status quo, and suggesting solutions. A working definition of quality is proposed, which includes the idea that publishing in a high-caliber journal is a marker of quality work. But it is often difficult to identify reviewers who can be relied on to consistently provide detailed, helpful reviews. It is suggested that the journal review process is fraught with problems which require several simultaneous actions.

The journal review process will be examined in order to gauge how we treat the evaluation of scholarly activity. The case will be made that the training of new faculty could be improved through specific training about reviewing, as part of university coursework, and with senior faculty playing a direct mentoring role during a new faculty member's first year/s.

So much more is known now, than 40 years ago, when federal APA funding was first made available. But whether quality has improved is a question to be posed and debated.

R45

Undergraduate Education in Adapted Physical Activity

Janice Causgrove Dunn & Donna Goodwin

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INTRODUCTION

Adapted physical activity (APA) has witnessed several paradigm shifts that have been influenced by, and have had influence on, beliefs, attitudes, and behaviours toward individuals with impairments. New models of disability have emerged (e.g., King et al., 2003; Silva & Howe, 2012; Withers, 2012) and APA services have evolved from 'corrective therapy' in segregated settings to facilitating choice, agency, and empowerment in inclusive settings (Reid, 2003; Polloway, Smith, Patton, & Smith, 1996). The roles demanded of APA professionals have simultaneously evolved from that of 'expert' to advocate, collaborator, and social justice activist. How well undergraduate education in APA has kept pace with these developments is unknown. Therefore, as part of a larger study, the purpose of this paper was to identify key attributes desired of undergraduate students in APA.

METHOD

Purposeful sampling of APA instructors was undertaken. Eleven PhDs or PhD Candidate instructors in APA from five countries completed one semi-structured audio-recorded interview, in accordance with an interpretative phenomenological research approach. An ideographic inductive line-by-line thematic analysis was completed. The data were interpreted using models of disability.

RESULTS

Three themes emerged: (a) confident and knowledgeable experts, (b) abilities focused specialists, and (c) inspired and compassionate professionals. There was general agreement that APA students should acquire confidence, competence, problem solving skills, and knowledge of how to adapt activities. Heard less often was the desire for students to be self-reflexive, ethically sensitive, and respectful of personal dignity.

CONCLUSIONS

Tensions existed between what is desirable in students and how APA education was framed. Some instructors adhered to a categorical disability framework, reflecting a medical model based pedagogy. Others held to the social construction of disability imposed by oppressive structures. Still others integrated biomedical, socio-cultural, and phenomenological perspectives in their teaching. Reflections of concepts from emerging models of disability were absent (e.g., biopower, social justice, personal coherence).

R46

Classroom-Based Service Learning Program of Teaching Students with Disabilities

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INTRODUCTION

A practicum experience is a common instructional method in teacher education program (Ayers & Housner, 2008; Piletic & Davis, 2010). Literatures have shown that hands-on learning helped teachers gained positive attitudes toward students with disabilities (SWD) and increased self-efficacy (Block, Taliaferro, Harris, & Krause, 2010). However, little studies discussed the creation and development of practicum program in relation to teacher candidates' (TC) learning. Therefore, this study explored TCs' experiences and learning from classroom-based service-learning (CBSL) for teaching SWD. Specifically, this study focused on (a) structured CBSL program, (b) roles of teacher and teacher assistant, (c) understanding of disability, and (d) teaching competency.

METHODS

This study employed a qualitative intrinsic case study grounded from situated learning theory (Lave & Wenger, 1991). The CBSL program – a self-contained school classroom (n=22, 6-8th) – was implemented to the course of an introductory adapted physical education. Fifteen TCs provided adapted aquatics instructions for ten weeks as either an instructor or a teaching assistant in turn. Multiple data sources were gathered: interviews, participant observation, TCs' reflections, photos and videos, and field notes. An inductive thematic analysis was used to capture TCs' experiences and learning from the CBSL program (Creswell, 2013). Research rigor was established through thick description, prolonged engagement, triangulation, and multiple code takers (Patton, 2002).

RESULTS

Four themes were revealed: *(a) learned life lessons, (b) challenging, but rewarding experience, (b) boosting my confidence, (d) they are like us: do not judge a book by its cover (label).* All TCs perceived CBSL program as beneficial and highlighted a structured environment of instruction enhanced their understanding of disability and teaching competency.

CONCLUSION

It is recommended that practicum experiences in authentic settings (i.e. APE or inclusive PE) should be provided for TCs to develop their knowledge and skills in teaching PE for students with disabilities.

ACKNOWLEDGEMENT OF RESEARCH SUPPORT

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R47

Effectiveness of Inclusion Training for Afterschool Program Staff

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INTRODUCTION

Inclusive afterschool programs could be of particular importance to youth with disabilities who often have fewer opportunities to participate in physical activity (PA) in the community. Considering the significance of staffs' role in afterschool programs, training staff on how to meet the needs of youth with disabilities should play an important role to create a more inclusive afterschool program. The most common form of training in afterschool programs has been providing in-service trainings/workshops. However, there is little information on the efficiency of intensive in-service/training. The purpose of this study was to examine the effectiveness of a 3 hour in-service training on afterschool staffs knowledge, intention, and behavior of including youth with disabilities in physical activity during afterschool programs.

METHODS

Eighty two individuals participated in this study. Participants were stratified by site and randomly assigned into training or control groups. The training group participated in a 3 hour in-service inclusion training focusing on attitudes and expectations of inclusion. Staff's attitude, normative believes, perceived control, intention to inclusion, inclusive behavior and knowledge were measure pre- and post-test.

RESULTS

Two separate 2 x 2 (group by test) repeated measures MANOVAs examined the effect of in-service training. The results indicate a significant interaction between group and test on intention to inclusion, inclusive behavior and knowledge, $\lambda = .78$, $F(1,80) = 7.33$, $p < .05$. Follow up univariate analysis indicated that significant interaction between group by time on knowledge, $F(1,80) = 21.43$, $p < .05$, partial $\eta 2 = .21$. However, there were no positive in-service training effects on all other variables.

CONCLUSIONS

A 3 hour intensive in-service trainings can be an effective approach to increasing knowledge in afterschool staff. This knowledge may in turn impact staffs' beliefs and perceptions about including youth with disabilities but further research is needed to evaluate how to changes intention and behavior of staff.

R48

Game of Life: Preliminary results of a motor-social intervention through soccer

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INTRODUCTION: *'The Game of Life'* is a program developed since a decade ago by Mifalot, a non-governmental organization affiliated with the upper league soccer club "Hapoel Tel Aviv" with the support of the Fund for Demonstration Projects, The National Insurance Institute of Israel. The program fosters the use of soccer as a medium to facilitate educational outcomes, particularly developing social skills and behavioral norms in children, youth and adults with social disadvantages or disabilities. The program serves over a hundred teams throughout the country. The purpose of the current study was to assess in a sample of teams with selected disabilities the physical and psycho-social outcomes of the program.

METHODS: Ten teams were sampled out of the program database based on Disability and Geographical distribution. 100 participants entered the program (59 with Intellectual Disability [ID], 21 with psychiatric disorders [PS], and 20 with Autism [AT]). Ages distributed between 15 and 55 (mean age= 30.84 $\pm$ 9.30). Upon admission and three months later participants underwent a battery of physical (soccer skills, Sit and Reach, Squats, Curl Up, Standing Long Jump and Timed up and Go) and psycho-social tests (soccer self-efficacy, independence and social affiliation). One way analysis of variance established between-group differences in pre and post-tests. Dependent t-test and Cohen's d effect sizes (ES) were used to assess within-group changes from pre to post-test. Pearson correlations were used to evaluate associations between the psycho-social and physical parameters as well as between change score (post-test-pre-test) and the initial score.

RESULTS: PS demonstrated best and AT most inferior performance in the physical tests.
During pre and post-tests the PS group performed better than the other groups in soccer skills, Timed Up and Go, Standing Long Jump and Squats Test. During pre-test the AT group showed inferior performance in Sit and Reach Test, whereas in post-test this group showed inferior abilities in most of the physical tests. From pre-to post-test all groups demonstrated improvements in numerous physical parameters. The greatest improvements in the ID, PS and AT groups were observed in soccer skills (ES= 0.43), Squats Test (ES= 0.73) and Sit and Reach Test (ES= 0.61), respectively. No improvements were observed in the psycho-social variables. Significant correlations in pre and post-tests between the psycho-social and physical parameters were observed. The significant correlations ranged from 0.295 (post-test ID group, between independence and Curl Up Test) to 0.65 (pre-test ID group, between soccer self-efficacy and skill). Numerous negative correlations were found between the change score and the initial score, indicating that the highest the initial ability was the smallest the extent of improvement observed.

CONCLUSIONS: Within a three months period the program appears to be effective in changing physical performance. This change appears to be greater in the most de-conditioned participants.

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R49

Applying the Neurological Side of Functional Exercises in Adapted Physical Activity

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The definition, implementation, and practical application of "functional exercises" so that the adapted physical activity professional can be effective in applying current research to provide programs for maximum neurological benefit for their participants with neurological/orthopedic injury or chronic disease. We must be careful as a profession to base our activities and exercises on sound research so that we are utilizing the same evidence based practices to benefit function and independence by utilizing a variety of sensorimotor control and coordination activities for individuals with disabilities involved in programs.

Research has shown the importance of functional exercises to increase independence in individuals with disabilities. For the professional in adapted physical education or activity, it is important to understand the definition of the term "functional exercises" as well as the goal of the exercises and how they impact the body neurologically. Research shows after a neurological or orthopedic injury, or when someone is born with a chronic disease, the body incurs many neurological changes. Research has also shown that we must take into consideration sensorimotor coordination activities to further challenge individuals neurologically. This allows for additional motor unit recruitment so that an increase in function and independence can be a result. It is imperative the adapted physical activity professional understand how to design an inclusive and comprehensive program that includes task related practice of functional exercises that challenges each participant neurologically optimizing sensorimotor recovery.

The goal of this session is to:

- Review the research literature and discuss how functional exercises augment the neurological benefit and are imperative in programming for those with chronic disease or disability.
- Explain practical ways on how to design these programs as well as give examples from 15 years of experience in implementing these types of functional exercises.
- Generate discussion and create practical application of these concepts to impact the adapted physical activity professional for utilization in their programs.
- Provide examples for implementation of exercises that include balance, postural training, spatial awareness, neurodevelopmental training, corrective exercises, isometric training, agility, speed, power, hand-eye coordination, and functional strength. Equipment examples for these types of exercises that include using bodyweight, medicine balls, thera-bands, kettlebells, suspension training, battle ropes, and other portable inexpensive types of equipment will be given.

R50

An Analysis of Images Depicting Stressed Embodiment in an Adolescent Male with Autism Spectrum Disorder (ASD): A Sensitized Approach Combining Laban Movement Analysis and Phenomenological Attunement

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INTRODUCTION

The purpose of this project was coding and analyzing a series of photos taken to document movement patterns associated with stressed embodiment and self-injury in a teen-aged male with autism. If we understand more about these embodied expressions, we may uncover valuable information on how to read patterns and discover what may contribute to initiating these events thus providing strategies to help people observe and make meaning of the behaviour. Laban's movement analysis and phenomenology's attention to the lived, intentional body help provide a sensitized discourse appropriate to the embodied expressions depicted in the photos.

METHOD

During the summer of August 2013, we participated in a University's summer movement camp for participants with autism. We chose to focus on a teen- aged male who we will name "Aaron" throughout the two weeks of camp and gained valuable insight into his idiosyncratic habits of body. Photography is a regular feature at the 18 year old camp. The photographs we analyzed were taken by one of the co-authors who has been instrumental in documenting the activities and participants since 2005. We analyzed 200 photographs using a template designed by the authors which included manifest and latent content analysis informed by LMA and phenomenological strategies.

RESULTS

We discerned 10 distinctive, idiosyncratic body shapes, positions and actions as well as patterns supporting their functional and expressive uses in forecasting SIB's, communicating emotional or intentional states, and negotiating personal and general space.

CONCLUSION

Prolonged, attuned observation and analysis yield salience and pattern easily missed in more performance or behavior oriented approaches. Poses and positions are functional forms of expression and operative intentionality. Parents, teachers, and others involved in APA can be taught observation and description techniques that can support anticipation and re-directing of distressing events and more individualized, relevant and meaningful movement programming.

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G17 Graduate Student "Work-in-Preparation" Proposal

Is Measuring Best? Evaluating Reported Body Mass Index in Persons with Intellectual Disabilities

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INTRODUCTION

Overweight and obesity prevalence is a serious problem in the general population and increases the risk for cardiovascular disease, diabetes, and premature mortality. The prevalence is even higher among persons with intellectual disabilities (ID), and thus implications may be more severe. To determine obesity prevalence, many studies save time and money by relying on self or proxy reported height and weight for the calculation of body mass index (BMI). BMI is an index of height and weight (represented in kg/m2), to classify underweight, normal weight, overweight, and obesity in the general population and persons with ID. The World Health Organization (WHO) also suggests the waist circumference (WC) measurement for assessing obesity because it takes into consideration abdominal obesity.

BACKGROUND

Self and proxy reported BMI have been found to under-report the prevalence of overweight and obesity in the general population. However, no studies have reported the accuracy of self and proxy reported BMI in persons with ID and the literature on WC of persons with ID is also minimal.

OBJECTIVE

The principal objective is to determine the validity of self and proxy reported height and weight for the calculation of BMI in individuals with ID. The secondary objectives are to identify factors associated with differences in results obtained from reported versus measured BMI, and contrast BMI with WC measurements.

PROPOSED METHOD

This study will implement a cross-sectional study design. Persons with ID and their caregivers will report height and weight and then height, weight, and waist circumference will be immediately measured for comparison.

SIGNIFICANCE

The validity of reported BMI in individuals with ID needs to be examined to determine if these approaches underestimate or overestimate levels of overweight and obesity in this population. Ultimately, this information and the collection of WC will fill a gap in the literature.

G18 Graduate Student “Work-in-Preparation” Proposal

Comparison of cardiorespiratory responses between pool floor and overground walking in people post-stroke

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INTRODUCTION/BACKGROUND: Hemiparetic gait is often associated with stroke, limiting functional mobility and contributing to excessive energy expenditure. Elevated energy demand is an indicator of compromised aerobic capacity and may hinder people post-stroke from participating in physical activity. Previous studies have shown that aquatic treadmill walking requires lower energy expenditure than overground treadmill walking. It may provide an optimal environment for gait training to accommodate compromised gait impairment. However, an aquatic treadmill is not readily available or cost-effective for most rehabilitation settings. Pool floor walking in a conventional aquatic facility can offer a more feasible and cost-effective method of training to increase cardiovascular fitness and walking ability of individuals with gait impairment. No studies have examined the energy expenditure of pool floor walking in people post-stroke. Therefore, the purpose of this study is to compare cardiorespiratory responses between pool floor and overground walking in people post-stroke.

PROPOSED METHODS: 15 people post-stroke and 15 healthy adult controls will be recruited to participate in this study. During orientation, participants will perform a six-minute walk test both on land and in water. The average of their self-selected walking speeds from both conditions will be used as a matched speed at which participants will walk to compare energy expenditure. Data collection will consist of six minutes of pool floor and overground walking in random order on separate days. To measure cardiorespiratory responses including oxygen consumption, energy expenditure, minute ventilation and heart rate, participants will wear a telemetric metabolic system ($K4b^2$, COSMED Inc., Rome, Italy) during rest and walking sessions. Participants will be instructed to rest in a seated position for ten minutes and walk for six minutes at a matched speed paced by a metronome. Distance walked, lap times and step rate will also be recorded. Mixed model ANOVA will be used for statistical analysis.

G19 Graduate Student "Work-in-Preparation" Proposal

The effects of telecommunication exercise training program on self-efficacy and exercise adherence in people with Parkinson's disease.

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INTRODUCTION / BACKGROUND

Today, technology allows us to communicate with someone halfway around the world from the comfort of own home. Recently, research has suggested that mobile health technologies should be investigated to increase active lifestyles. One population that may benefit from this technology is people with Parkinson's disease (PD) who are 20-30% less active compared to healthy peers. Ellis and colleagues found that low self-efficacy and poor outcome expectations and not the severity of disease are what keep people with PD from engaging in regular exercise (2011). A recent intervention involving tablet computers in which people with PD interacted with an avatar to increase physical activity resulted in increased physical activity, adherence and user satisfaction. The purpose of this research is to examine the effects of a telecommunication exercise training program on self-efficacy and exercise program adherence in people with PD.

PROPOSED METHODS

Twenty people with Idiopathic PD will be recruited for this study. Participants will be divided into two groups: experimental (internet exercise) and control (paper based exercise). This 12 week exercise intervention will take place at the participants' home. Participants in the experimental group will log in for exercise sessions three times a week for 40 minutes and follow exercise led by an instructor in a remote location. The control group will be provided a similar exercise program written out in a booklet and asked to complete the program three times a week. Exercise sessions will consist of warm up, balance and strength exercises, and a cool down. Self-efficacy will be measured by three different questionnaires at pre, mid (6 weeks) and post (12 weeks) intervention. Exercise adherence will be measured through number of exercise sessions attended. Statistical analysis will be completed by SPSS.