



UNIVERSITY OF ALBERTA  
FACULTY OF PHYSICAL  
EDUCATION AND RECREATION

**ReCon V: *Global Connections***  
Sept 4-6, 2015  
Canmore ,AB



**Conference Program**

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# INTRODUCTION

## Message from the ReCon V Co-Committee Chair

It is with great pleasure that I welcome you to ReCon V. The theme of the conference is Global Connections. Over the next few days you will have the opportunity to connect with students from around the globe. My wish is for you to foster and grow these connections in the years to come. We are pleased to welcome delegates from Yonsei University, Seoul Korea. We have a long and expanding relationship with Yonsei University. Dr. Justin Jeon completed his PhD in the Faculty of Physical Education and Recreation under the supervision of Dr. Robert Steadward. He has fostered many global connections over his academic career and we are delighted to have him with us for ReCon V.



ReCon, which was first held in 2011, brings together a unique combination of retreat and conference formats. It is a time to be curious, to think, to challenge our views of the world, and learn from one another. The idea for an annual graduate student event was proposed by Dean Kerry Mummery and brought to fruition under the guidance of the Physical Education and Recreation Graduate Student Society (PERGSS) and then Associate Dean Graduate, Dr. Stewart Petersen. I am pleased to continue to support this annual event.

I invite you to take full advantage of the graduate student research, leadership, professional development, and social networking opportunities found in the program. We are returning to the beautiful community of Canmore. Our program has been designed to include physical activity breaks. Please explore the wonders of the town of Canmore and surrounding area.

I extend a sincere thank you to the hard working, creative, and committed organizing committee members. Their astounding leadership has made the coming days possible.

Welcome all.

Donna Goodwin

Associate Dean Graduate

## Message from the ReCon V Co-Committee Chair & PERGSS VP ReCon

On behalf of the organizing committee, I welcome you to ReCon V, the Faculty of Physical Education and Recreation's annual graduate student retreat and conference! I am delighted to be back in Canmore, a charming mountain town and the place where ReCon began. This year's theme *Global Connections* aims to celebrate international experiences and partnerships, as well as our diverse research areas and origins. This theme will be embodied throughout the professional development, recreation and social activities over the next three days. During this time I hope that you make new companions, appreciate the diverse backgrounds and research within our faculty, partake in fun activities, and leave feeling rejuvenated and excited to take on the semester ahead of you.



ReCon has become an important forum for graduate student development, leadership, and socialization. An event of this magnitude would not be possible without the support and dedication of many individuals. Please join me in acknowledging and thanking all of the faculty, staff, and students who contribute to the ongoing success of ReCon, including the Dean Kerry Mummery, Donna Goodwin (Associate Dean Graduate), John Spence (former Associate Dean Research, & Interim Vice Dean), Dana Dragon-Smith (Graduate Program Administrator), and the student organizing committee members – Jen Crawford, Rachel Skow, Katelin Hladky, CJ Blye, Corey Kuzik, Chen Chen & James Vallerand. I'd also like to thank PERGSS and the USEED campaign team for their fundraising efforts, which have gone towards funding the bus, the rafting adventure, and reducing students' hotel costs.

Each year ReCon grows and evolves to better meet the needs of graduate students. If you'd like to have an impact on graduate student experiences and be a part of the ReCon organizing committee, please connect with myself, or Donna Goodwin.

Enjoy the weekend!

Annie Selzler  
PERGSS Vice President (ReCon)

## PRACTICAL INFORMATION

### Bus Information

We will be boarding the bus on Friday, September 4<sup>th</sup> at 7:45am *in front of the Jubilee Auditorium* (11455 87 Ave NW, Edmonton, AB T6G 2T2). We will be leaving at **8:00 am SHARP!** There will be a 30 minute break in Red Deer however, we suggest that you bring water and snacks for yourself as it will be at least a four hour bus trip to Canmore. The Canmore drop-off location is at the Coast Hotel and Conference Center.

The bus will return back to Edmonton on Sunday, September 6<sup>th</sup> from the Coast Hotel and Conference Center. It will load at **3:00pm**, and will leave at **3:15pm SHARP**. Again, there will be a 30 minute break in Red Deer and the drop-off location will be behind the Clare Drake Ice Hockey Arena.

For any changes to your transportation needs please contact [PERGSSReCon@gmail.com](mailto:PERGSSReCon@gmail.com) or phone Kataline 1-780-999-3995 or Rachel 1-403-561-9369

### Conference Hotel and Venue

Both the conference and hotel accommodation are situated within the Coast Hotel and Conference Center. The hotel is located along the main street in Canmore and is a short walk from an array of restaurants and shops.

*Coast Hotel contact information:*                      511 Bow Valley Trail  
Canmore AB, T1W 1N7  
Phone: 403.678.3625

<http://www.coasthotels.com/hotels/ab/canmore/coast-canmore-hotel-and-conference-centre/>

### Registration

Delegates can register between 12:00pm and 2:00pm on Friday, September 4<sup>th</sup>.

The registration fee includes:

- Conference registration for all 3 days
- Snacks
- 2 breakfasts (Saturday and Sunday)
- 2 lunches (Saturday and Sunday)
- Conference dinner at the Coast Hotel
- Transportation to group activities in the Canmore area including white water rafting

Please ensure that you pick up your lunch option tickets, breakfast tickets and conference dinner tickets. These will be required to obtain meals throughout the weekend and ensure that you receive your choice of lunch on Saturday and Sunday. You can also sign up for dinner on Friday night at the Iron Goat, for the bus to white water rafting or for the hike on Saturday afternoon. Those who arrive late can pick up their conference bags from Nicholas (Corey) Kuzik.

## Luggage Storage

Please be aware that your room may not be ready when you arrive at the hotel as their check in time is 4:00pm. There will be a storage room where you can leave your luggage until your room becomes available. Similarly on Sunday, the check-out time is 11:00am. You will need to store your luggage on this day as well.

## What to Bring?

This conference is a business-casual event. That being said, there is no specific dress code. We do recommend comfortable footwear and a light sweater as it can be cool inside air conditioned conference rooms. The hotel has a pool and you may want to bring your swim suit to use this, if you are going white water rafting you will also need to bring your own towel!

**White water rafting:** Please plan to bring a water bottle, footwear that is waterproof but that won't fall off in the river, and a warm layer (fleece sweater/windproof/rain shell). Wet suits will be provided by *Canadian Rockies Rafting*. Remember to dress appropriately for the weather so that you will be comfortable!

**Hiking:** Weather in the mountains can be very unpredictable. Please plan to bring a water bottle, good hiking shoes or boots, a warm layer, and a wind/rain shell if you plan to participate in the hike.

**Outdoor Field Games:** Please plan to bring a water bottle, running shoes, and a sweater to participate in the field games. This activity will take place outdoors and in the morning and it may be cooler outside.

Please also bring sun screen and bug repellent as none will be provided for any activity!

## Questions

If you have a question before or during the conference please email [pergssrecon@gmail.com](mailto:pergssrecon@gmail.com)

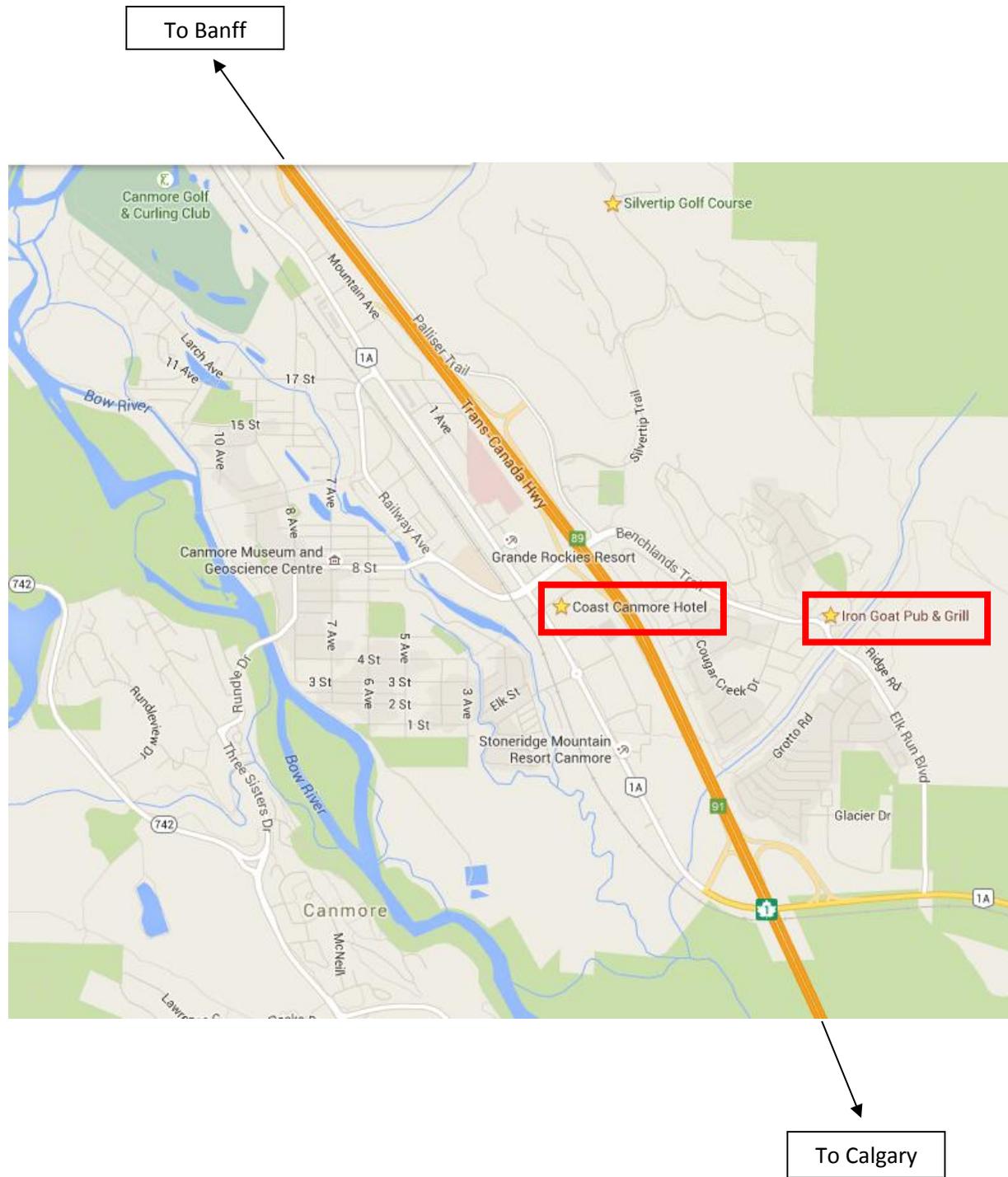
*Emergency Contact Phone Numbers (Phone or text):*

Kateline Hladky 1-780-999-3995

Rachel Skow 1-403-561-9369

For any changes to your transportation (if you decide you need or do not need the bus) please contact us immediately!

# Map of Canmore



## PROGRAM INFORMATION

### **ReCon IV Organizing Committee**

Donna Goodwin (Co- Chair)  
Annie Selzler (Co-Chair)  
John Spence  
CJ Blye  
Chen Chen  
Jennifer Crawford  
Kateline Hladky  
Nicholas (Corey) Kuzik  
Rachel Skow  
Dana Dragon-Smith  
James Vallerand

### **Rod Murray Address Adjudication Committee**

Donna Goodwin (chair)  
Jennifer Crawford  
Judy Davidson  
Robert Priebe

### **Photographers**

Rachel Skow

### **Official Tweeters**

Kateline Hladky  
Rachel Skow

### **Acknowledgements**

Dean Kerry Mummery  
PERGSS

### *PD Panel Members:*

Dr. Tanya Berry  
Dr. Tara-Leigh McHugh  
Dr. John Spence  
Dr. Craig Steinback  
Dr. Stewart Petersen

Dr. Tom Hinch  
Dr. Justin Jeon  
Torstein Daehlin

### *PD facilitators:*

Chen Chen  
Rachel Skow  
Annie Selzler  
Robert Priebe

### *Research Presentation Moderators*

James Vallerand  
Kim Mc Fadden  
Kim Curtin

## **Presentation Guidelines**

### *Poster Presentations*

Posters can be NO LARGER THAN 42 inches (width) x 42 inches (height). For poster template options, visit the AICT website: <https://ifp.srv.ualberta.ca/printing/>. Poster set up time will be Friday September 4 any time between 12:00pm-2:00pm in the Amica Ballroom. Poster numbers are located beside your title in the program.

### *Oral Presentations*

Oral presenters will have 12 minutes to give their research talks and 3 additional minutes for questions. We ask that all oral presenters adhere to these guidelines as closely as possible so that everyone has equal opportunity to present their research. When creating your presentations, please keep in mind that the audience will be diverse in discipline and experience. The ReCon Committee recommends that you explain complex terms and concepts, and avoid technical jargon. Nicholas (Corey) Kuzik and James Vallerand will assist presenters in uploading their presentations at the conference registration desk on Friday September 4th from 12:00-2:00pm. If you are unable to make this time, please arrange an alternative with one of them at [nkuzik@ualberta.ca](mailto:nkuzik@ualberta.ca) or [james.vallerand@ualberta.ca](mailto:james.vallerand@ualberta.ca)

## **Best Oral and Poster Presentations**

A prize will be awarded for the best oral and poster presentations. ReCon delegates will vote at each research presentation session and award winners will be decided based on the majority vote. The awards are based on the following criteria: engagement with the audience, effective communication of ideas, and inclusion of thought provoking discussion. Keep these criteria in mind when developing your presentations.

## **Previous Winners**

### **2014**

Short Oral Presentation winner – Étienne Myette-Coté  
Long Oral Presentation winner – Matheus Wiest  
Poster Presentation Winner – Agnes Eek (NSSS Student)

### **2013**

Oral presentation winner- Vince Tedjasaputra  
Poster presentation winner- Annie Selzler

### **2012**

Oral presentation winner- Michael Chizewski  
Poster presentation winner- Liam Boyd  
Special Mention- Danielle Peers & Lindsay Eales

### **2011**

Oral presentation winner- Lindsay Eales  
Poster presentation winner- Angela Coppola

## PROGRAM IN DETAIL

**Friday, September 4, 2015**

**8:00am – 12:00pm      Boarding & Bus Travel from Edmonton to Canmore**

The bus will load at **7:45 am** *in front of the Northern Alberta Jubilee*.

The bus leaves at **8:00 am SHARP**.

The bus will stop in Red Deer for 30 minutes for a break.

**12:00pm – 2:00pm      Registration**

Register and pick up conference bag outside the conference rooms of the Coast Hotel and Conference Center

**2:00pm - 2:15pm      Welcoming Comments – Crocus Ballroom**

Annie Selzler, PERGSS Vice President, ReCon

Dean Kerry Mummery

**2:15pm – 3:00pm      Icebreaker Activity – Crocus Ballroom**

**Facilitator:** CJ Blye

**3:00pm- 4:00pm      Rod Murray Memorial Address – Crocus Ballroom**

**Title:** Make decisions, shape your life

**Speaker:** Saeed Reza Toghi Eshghi

**Introduction:** Rachel Skow

**Description:** In this presentation, Saeed will talk about his journey of learning decision making skills and how these decisions have affected his life. He will share stories and experiences of living as an international student. Last but not least, the talk will explore how trying different extracurricular activities could help to find better solutions for future life challenges and make it easier to confront them.

**4:00pm – 4:30pm      Break**

*Delegates may use this time to check into their hotel rooms*

**1. A. A longitudinal examination of the influence of pubertal timing on screen-time among Korean adolescents**

Eun-Young Lee, John C. Spence

**1. B. Training hard leads to better performance but what impact does it have on lung health?**

Rachelle Davies

**1. C. Physical activity and psychological well-being among Korean adolescents**

Jihee Min, Eun-Young Lee, Dong-Il Kim, Junga Lee, John C. Spence, Justin Y. Jeon

**2. A. Relationship between non-alcoholic fatty liver disease, metabolic syndrome and insulin resistance in Korean adults**

Ji Young Kim, Choae Lee, Minsuk Oh, Jee-Aee Im, Ji-Won Lee, Sang Hui Chu, Hyangkyu Lee and Justin Y. Jeon

**2. B. Blogging and Transformative Learning in Adapted Physical Activity**

Rebecca Marsh, Kelsie Acton & Donna Goodwin

**2. C. A comparison of constrained and unconstrained reaching movements by people with and without Autism**

Ran Zheng, Steven R. Passmore, Cheryl M. Glazebrook

**3. A. Exploring elite sport development programs in Korea**

Heejun Lim, Eun-Young Lee, Kyoung June Yi

**3. B. A Review of Trends in Youth Sport Psychology Research**

Shannon R. Pynn, Kacey C. Neely, Nicholas L. Holt

**3. C. Injury Types and Rates in Mixed Martial Arts and Boxing**

Maegan Ciesielski

**4. A. The Influence of Altered Arterial Gases on Chemoreceptor Mediated Sympathetic Activity During Breath Holding**

Stephen A Busch, Uday Chauhan, Christina D Bruce, Rachel J Skow, Maria Abrosimova, Jamie R Pfoh, Trevor A Day, Margie H Davenport, Craig D Steinback

**4. B. Neurovascular control and blood flow redistribution in response to exercise during pregnancy. A proposal.**

Rachel J Skow, Craig D Steinback, Margie H Davenport.

**4. C. Effects of Exercise on Insulin, Insulin like Growth Factor Axis and Adipocytokines in Breast Cancer Survivors: A Meta-Analysis of Randomized Controlled Trials**

Dong-Woo Kang, Junga Lee, Sang-Hoon Suh, Jennifer Ligibel, Kerry S. Courneya, Justin Y. Jeon

**“Health Break”** snack provided during the poster session includes:

- Handmade granola bars
- Mini smoothies
- Yogurts
- Dried fruit and nuts
- Fresh fruit
- Water and juices.

*Alcoholic beverages will be available for purchase during the poster session. Alcoholic beverages are approximately \$7.00 each.*

**7:00pm**

**Dinner in Canmore**

Reservations have been made at the Iron Goat in Canmore. A sign-up sheet will be available at registration so we know how many people to expect and do not overwhelm the restaurant.

*Delegates are responsible for paying for their own dinner. Please note, an 18% gratuity will be automatically added to the bill.*

***Iron Goat Pub & Grill***

*703 Benchlands Trail*

*Canmore, AB T1W 3G9*

We will be leaving from the hotel lobby to walk to the restaurant at 6:30pm. The restaurant is approximately a 20 minute walk from the Coast Hotel and is fully accessible.

## Saturday, September 5, 2015

**8:00am – 9:00am**      **Breakfast – Amica Ballroom**

**“Wrap-Up” hot breakfast** *(included with registration)*.

Please remember to bring your breakfast voucher with you.

Breakfast includes:

- Hot wraps
- Scrambled eggs
- Shredded cheeses
- Toppings: peppers, onions, bacons bits, sour cream salsa
- Fried potatoes
- Muffin and pastry assortment
- Coffee, Tea, Juices

**9:00am – 10:30am**      **Research Presentations - Crocus Ballroom**

**Moderator:** James Vallerand

### **Neurovascular Responses Following Acute Hypoxia**

Rachel J Skow, Christina M MacKay, Margie H Davenport, and Craig D Steinback

### **The Effects of Pulmonary Rehabilitation on Cardiovascular Risk in Patients Recovering From an Acute Exacerbation of COPD**

Bradley W. Byers

### **The Association of Resting Heart Rate with Type 2 Diabetes, Hypertension, and Metabolic Syndrome in the Korean adult population: the fifth Korea National Health and Nutrition Examination Survey**

Hyuk-In Yang, Hyeon Chang Kim, Justin Y Jeon

### **The effect of dopamine on pulmonary capillary blood volume, diffusing capacity, and exercise tolerance**

Wade Michaelchuk, Vincent Tedjasaputra, and Michael Stickland

### **The relationship between movement behaviors and weight status in different settings among toddlers and preschoolers**

Nicholas Kuzik, Valerie Carson

### **Pulmonary capillary blood volume response to exercise in mild COPD**

Vincent Tedjasaputra, Michael Stickland

**10:30am- 10:45am**      **Break**

**10:45am-11:45am**

**Research Presentations - Crocus Ballroom**

**Moderator:** Kim Curtin

**Effects of implement and distance variation on performance of a novel discrete motor task**

Kateline Hladky, Brian Maraj

**Combined plyometric and strength training is superior to strength training alone on improving skating sprint performance.**

Torstein E Daehlin, Ole Christian Haugen, Simen Haugerud, Ivana Hollan, Truls Raastad, Bent R Roennestad

**Using eye tracking and 3D motion capture to establish normative data sets for functional tasks.**

Ewen B. Lavoie, Elizabeth A. Crockett, Jacqueline S. Hebert, Craig S. Chapman

**Effective Coaching: Ways of Knowing**

Timothy Konoval and Dr. Jim Denison

**11:45am-12:30pm**

**Lunch – Amica Ballroom**

**“Grab and Go” lunch** (*included with registration*).

Please remember to bring your sandwich voucher with you.

Lunch includes:

- Ham & Cheese, Turkey, or Veggie Sandwich- chosen ahead of time
  - o If you did not make a selection you will receive a ham & cheese sandwich.
- Muffins
- Fresh Fruit
- Potato Salad
- House made granola bars
- Coffee, Tea, Juices

**12:30am – 1:45pm**

**Professional Development Session– Crocus Ballroom**

### **Scholarship and Grant Writing Session**

**Facilitator:** Chen Chen

**Description:** This session is planned to provide our graduate students with the answers to questions including but not limited to:

- What are the critical things to include in a scholarship application?
- What are the deal breakers when a scholarship application is being reviewed?
- What are other tips and strategies when applying for the scholarships/grants?

#### **Panel Members:**

- Dr. Tanya Berry
- Dr. Tara-Leigh McHugh
- Dr. John Spence
- Dr. Craig Steinback
- Dr. Stewart Petersen

**1:45pm – 6:00pm**

**Outdoor Activities**

#### **Outdoor Activity 1: White Water Rafting**



**Leaders:** CJ Blye, Kateline Hladky, Rachel Skow

#### **Transportation:**

The bus will leave the Coast hotel at **2:00pm SHARP**, and will head back at **5:00pm SHARP**. *Priority will be given to those who took the bus to Canmore.*

Please sign up for transportation during registration.

**Please bring:** a pair of waterproof footwear, water bottle, warm layer, a towel and a bag to place dry items into. Wet suits will be provided for this activity by *Canadian Rockies Rafting*.

## Outdoor Activity 2: Hike – Cougar Ridge



**Leaders:** *Chen Chen*

In the summer, this dry creek bed makes a great hiking trail. Starting by the creek, the well-marked trail quickly changes into walking on rocks on the dry creek bed and occasionally making creek crossings over small streams.

**Transportation:** We will be leaving from the hotel and walking for this hike.

**7:00pm**

**Conference Dinner and Alumni Talk – Amica Ballroom**

***Mount Lawrence Grassi Buffet*** includes:

- House made 3-cheese lasagna
- Organic greens with goats cheese, candied nuts and honey balsamic
- Classic Caesar salad
- House baked garlic bread
- Crudit  platter with house dip
- Assorted deli platter
- Includes Coffee & Tea
- Chef’s Choice of Dessert & Fresh Fruit Presentation

Vegetarian and other dietary options will be provided based on your requests submitted ahead of time.

*The dinner is included with registration. However, delegates will be responsible for alcoholic beverages and these will be pay-as-you-go*

## Alumni Talk

**Title:** Ten Step Evidence Based Exercise Model

**Introduction:** Dr. John Spence

**Speaker:** Dr. Justin Jeon

**Description:** Obesity and lack of physical activity increase the risk of chronic diseases such as type 2 diabetes, cardiovascular disease and cancer. Furthermore, obesity and lack of physical activity are associated with poor prognosis of these diseases. Promotion of physical activity and exercise among patients with these diseases is one of the best ways to reduce risk and improve prognosis. Meta-analyses clearly demonstrated that physical activity is associated with 15 % to 25 % reduction in the risk of type 2 diabetes, hypertension and various cancers and also associated with about 30-50% reduction in the risk of cancer-specific and all-cause mortality. Regardless of the benefits of physical activity and exercise, a large number of people (varies between gender, country, disease etc.) still do not participate in enough physical activity and exercise. To maximize the benefits of exercise on different diseases and also to increase the participation in exercise, the intensity and type of exercise applied to patients should be varied according to their diseases, disease trajectories, comorbidities, exercise preferences and physical condition (personalization). Therefore, we have developed a 10 step model for developing an evidence-based exercise program for people with different diseases and physical functions. In this presentation, the process of developing an exercise program, and testing the efficacy of exercise programs on patients with diseases such as cancer, diabetes, hypertension, Parkinson's disease and spinal cord injury will be reported. The first question I asked during research assistantship defined the research topic of my life time and luckily I am still asking questions.

## Sunday, September 6, 2015

### 8:00am – 9:00am Breakfast-Amica Ballroom

**“Health Kick” hot breakfast** (*included with registration*).

Please remember to bring your breakfast voucher with you

- Steel cut oats with brown sugar & berries
- Mini assorted smoothies
- Assorted house baked muffins
- Individual yogurts with granola
- Assorted dried fruits & nuts
- Assorted bagels & cream cheese
- Fresh carved fruit display
- Coffee, Tea, Juices

### 9:00am- 10:30am Outdoor Activity

**Leaders:** CJ Blye

**Description:** Field Games

**Transportation:** We will be walking a short distance to nearby Centennial Field.

**Please bring:** a good pair of shoes footwear, water bottle, and a warm layer.

### 10:30am- 10:45am Break

### 10:45am – 12:15pm Research Presentations- Crocus Ballroom

**Moderator:** Kim Mc Fadden

**Pole Fitness and Positive Body Image: An Interpretative Phenomenological Analysis**

Ariel Dimler

**Mercenaries or Patriots? Media Framing of Naturalized Hockey Players in Canada**

Chen Chen

**Promoting Physical Activity: A Reversal Theory Perspective**

Sarah Evans

**Associations between participation in physical education class, psychological well-being and internet addiction in a representative sample of Korean adolescents**

Yoonkyung Song, Eun-Young Lee, Justin Y. Jeon

**Communicating with women about gestational weight gain: A qualitative study on the perspectives of midwives in Sudbury, Ontario**

Maxine Myre & Chantal Barriault

**Motivation for movement in a three-month walking program**

Heather K. Larson, Kimberly McFadden, Laura Watson, Tara-Leigh F. McHugh, Tanya R. Berry, Wendy M. Rodgers

**12:15pm - 12:30pm**      **Break**

**12:30pm – 1:30pm**      **Professional Development Session - Crocus Ballroom**

**Title:** "Exploring the World One Degree at a Time" (International Exchange Studies Session)

**Facilitator:** Chen Chen

**Description:**

This session will provide an overview of our current (graduate level) partnerships with the universities listed (The University of Otago, Yonsei University and The Norwegian School of Sport Science) and will involve round-table discussion to figure out what the barriers, facilitators, and goals are in participating in an international exchange program at graduate level.

**Panel Members:**

- Dr. Tom Hinch
- Dr. Justin Jeon
- Torstein Daehlin

**Group Leaders:**

- Robert Priebe
- Annie Selzler
- Rachel Skow

**1:30pm- 3:00pm**      **Lunch and Closing Comments/ Awards- Amica Ballroom**

**"Grotto Mountain" lunch** (*included with registration*).

Please remember to bring your entrée voucher with you.

Lunch includes:

- Beef, chicken or elk burgers- chosen ahead of time
  - o If you did not make a selection- you will receive a beef burger.
- Sliced cheese, lettuce, tomato, onions & pickles and assorted baked buns
- Chef's soup of the day
- Roasted vegetable & pesto pasta salad
- Organic greens with goats cheese, candied nuts and honey balsamic
- Chef choice desert & fresh fruit presentation
- Coffee and tea

### ***Closing Comments and Awards***

- Oral and poster presentation awards will be presented by James Vallerand
- Awards will be given out for best oral and poster presentations as voted by the students!
- Closing comments from Dean Kerry Mummery and Annie Selzler, PERGSS VP ReCon.

### **3:00pm – 7:30pm      Boarding & Bus Travel from Canmore to Edmonton**

The bus will load at **3:00pm**.

The bus leaves at **3:15pm SHARP**.

The bus will make a short stop in Red Deer on the way home.

The bus will drop off at the Jubilee Auditorium parking lot.

## KEYNOTE SPEAKERS

### Rod Murray Address: Friday September 4, 2015

**Recipient:** Saeed Reza Toghi Eshghi

**Nominated By:** Dr. Normand Boulé

**Title of Presentation:** Make decisions, shape your life

**Biography:** Saeed Reza Toghi is a PhD student working with Dr. Normand Boulé in the Physical Activity and Diabetes Lab (PADL). Pursuing education and research, Saeed has traveled around the world doing his undergraduate and Master's Degrees in Iran and Belgium, respectively. Saeed's clinical background in physiotherapy and rehabilitation of internal disorders has led him to focus his research on exploring the effectiveness of exercise, as a frontline, for treatment of people with type 2 diabetes. Beside his research, Saeed has been acting as a rehabilitation counselor of charitable organizations, to establish the largest specialized center for renal disorders in his home country, Iran. He has also received University of Alberta Graduate Teaching Award for his contributions to PEDS 400 (Gross Anatomy). In his free time, Saeed is also a photographer and entrepreneur.



## Alumni Speaker: Saturday September 5, 2015

**Speaker: Dr. Justin Jeon**

*Yonsei University, Seoul Korea*

**Biography:** Someone once said “Our life is defined by the questions we ask.” I know this statement is true from my personal experience. My first research experience started with my research assistantship to help people with spinal cord injury (SCI) with their exercise. As I worked with people with SCI, I noticed that they had abdominal obesity. Then, I asked the first important question which guided my research for next 20 years. Do people with SCI have a higher risk of developing diabetes? I remembered what I had learned in the class, Exercise and Diabetes, Graduate directed study; that people who are obese have a higher risk of developing type 2 diabetes. Then, I searched through articles and discovered that people with SCI have a three to five times higher risk of developing type 2 diabetes. I also learned in the class that exercise reduces the risk of type 2 diabetes and also improves glucose control. However, there was no study at that time which investigated the effect of exercise on type 2 diabetes on people with SCI. Therefore, I decided to study the effect of exercise on type 2 diabetes in people with SCI for my master’s thesis. After I earned my master’s degree, I asked the second question: Why do people with SCI have higher risk of developing type 2 diabetes? That is when I first read an article about leptin. Leptin is an adipocytokine released from fat cells, which regulates food intake and energy expenditure. From my reading, I realized that leptin regulate energy expenditure via sympathetic nervous system. However, people with SCI have impaired sympathetic nervous system. This became the theme of my PhD thesis. Then, exercise, obesity, and diabetes (insulin resistance) in people with and without disabilities became my lifetime research topic.



## RESEARCH PRESENTATION ABSTRACTS

### Poster Session: Friday September 4, 2015

#### A longitudinal examination of the influence of pubertal timing on screen-time among Korean adolescents

Eun-Young Lee, John C. Spence

**Purpose.** To test links between pubertal timing and screen-time among Korean adolescent boys and girls.

**Method.** Secondary analysis was conducted on data from the Korean Children and Youth Panel Study (KCYPS) involving 2,071 Korean adolescents. Body mass index (BMI) at Grade 8, self-esteem and depression at Grade 9 were examined as mediators of the relationship between pubertal timing and screen-time after controlling for household income and academic performance. Structural equation modeling was used to assess direct and indirect pathways between pubertal timing at Grade 8 and screen-time at Grade 9.

**Results.** No direct effect of pubertal timing on screen-time was found. An indirect effect of pubertal timing on screen-time through BMI existed among boys. Earlier pubertal timing predicted higher BMI, and in turn, higher BMI predicted more time spent in screen-time. Among girls, pubertal timing negatively predicted BMI; however, no mediation effect of BMI between pubertal timing and screen-time was observed. No mediation effect of self-esteem or depression was found among boys and girls.

**Conclusion.** Pubertal timing appears to have an indirect influence on screen-time through BMI for Korean boys. More studies examining potential pathways between pubertal timing and sedentary behaviour are needed to build on these findings.

## **Training hard leads to better performance but what impact does it have on lung health?**

Rachelle Davies

Athlete health is a valuable research area due to the prevalence of overtraining and burnout, which impacts performance and short/long-term athlete health. Although elite athletes are proficient in their sport and have superior fitness, their training increases their susceptibility to illness symptoms more than average healthy persons who exercise regularly.

Rigorous training is associated with increased likelihood of infection in endurance athletes. Inadequate recovery – independent of training – results in consistently poor performances, fatigue, and mood changes, all suggestive of “overtraining syndrome”. Athletes and coaches often increase intensity of training sessions after poor performances, heightening the probability of burnout and dropout.

Varsity level swimmers are especially vulnerable to illness, overtraining, and burnout. They undergo high volume/intensity training sometimes accompanied by inadequate sleep, poor nutrition, and other life stressors. Additionally, their pool training is unfavourable to lung health, resulting in poor lung function and associated exercise-induced asthma (EIA). Swimmers also acquire airway inflammation more easily than normal, likely from chlorine exposure.

Last season, all Golden Bears/Pandas swimmers reported respiratory symptoms. Symptoms typically lasted about 2 weeks and included multiple symptoms from other categories simultaneously. However, the relationship between training volume, respiratory symptoms, and airway inflammation in elite swimmers is unknown.

This year, I will study the influence of training volume on lung health of swimmers over a competitive season. To test for EIA in swimmers, they will undergo eucapnic voluntary hyperventilation (EVH) tests. I will also determine the following: airway inflammation using fractional exhaled nitric oxide (FeNO); training volume, which requires analysis of daily training logs using calculations for training volume, stress, and strain; and respiratory symptoms, using the Alberta Swim Fatigue Questionnaire (V5).

I hypothesize that high volume training will be associated with decreased lung health, and I believe my research will illuminate how this occurs in swimmers. Ideally, my contributions will enhance scientific discussion of health risks associated with heavy training in sport and alleviate some of the health problems swimmers are left with at the end of their athletic careers.

## **Physical activity and psychological well-being among Korean adolescents**

Jihee Min, Eun-Young Lee, Dong-Il Kim, Junga Lee, John C. Spence, Justin Y. Jeon

**Purpose:** To examine cross-sectional associations between physical activity, weight status, and psychological well-being among Korean adolescents.

**Methods:** A total of 370,568 adolescents (aged 12 – 19 years) who participated in the Korea Youth Risk Behavior Web-based Survey between 2009 and 2013 were included in the analysis. Physical activity, happiness, and stress level were self-reported and body mass index was calculated. Logistic regression analyses were performed to measure multivariate adjusted odds ratios (ORs) and 95% confidence intervals (CIs) after controlling for age, sex, economic status, and sexual maturity.

**Results:** Physically active youth were more likely to be happy (OR=1.33, 95% CI= 1.30-1.37), and less stressed (OR=1.17, 95% CI= 1.12-1.21) even after controlling for covariates and weight status. The relative odds of reporting positive scores on psychological well-being indicators were higher with increasing frequency of physical activity engagement among adolescents after multivariate adjustment. Associations between physical activity and psychological well-being remain significant regardless of weight status.

**Conclusion:** The observed patterns of physical activity and psychological well-being, independent of body mass index, suggest the importance of regular participation in physical activity to prevent possible exposure to mental health risks among adolescents.

**Keywords:** Happiness; perceived stress; BMI; exercise; KYRBS.

## **Relationship between non-alcoholic fatty liver disease, metabolic syndrome and insulin resistance in Korean adults**

Ji Young Kim, Choae Lee, Minsuk Oh, Jee-Aee Im, Ji-Won Lee, Sang Hui Chu, Hyangkyu Lee and Justin Y. Jeon

**Background:** The purpose of study was to investigate independent and combined impact of obesity and non-alcoholic fatty liver disease (NAFLD) on components and prevalence of metabolic syndrome in Korean adults.

**Methods:** This study included 1,695 adults (500 males and 1,195 females), part of a regular health check-up at the community-based health promotion center. Participants were divided according to obesity and the presence of NAFLD. The components and prevalence of metabolic syndrome were compared.

**Results:** In non-obese participants, participants with NAFLD have higher levels in components of metabolic syndrome even after controlling for BMI and age ( $p < .05$ ). Logistic regression analysis revealed that the presence of NAFLD was associated with 4.07 times increased prevalence of metabolic syndrome (95% CI: 1.37-12.02) while obesity without NAFLD was associated with 4.25 times increased prevalence of metabolic syndrome (95% CI: 1.75-10.29) in male. In female, the presence of NAFLD was associated with 8.83 times higher prevalence of metabolic syndrome (95% CI: 4.16-18.75) while obese without NAFLD had 4.8 times increased prevalence of metabolic syndrome (95% CI: 2.34-9.85).

**Conclusions:** Independent of adiposity, NAFLD is associated with the prevalence of metabolic syndrome. In female, NAFLD may be more important factor than obesity for the development of metabolic syndrome.

## **Blogging and Transformative Learning in Adapted Physical Activity**

Rebecca Marsh, Kelsie Acton & Donna Goodwin

Practicum placements are a common taken-for-granted strategy to enhance student learning in Adapted Physical Activity (APA) (Standal & Rugseth, 2014). Journaling about practicum placements is a long-established method encouraging reflection and assisting in creating ethical practitioners (Connolly, 1994; Hodge, Tannehill & Kluge, 2003; Standal, 2008). Recently, blogging has become a popular pedagogical tool because of its ability to create community and enhance self-reflection (Wolf, 2010; Robertson, 2011). Transformative learning, which occurs when one critically examines one's beliefs, values and assumptions, is essential in the APA classroom as it often seeks a more ethical relation to individuals involved by challenging assumptions about disability (Goodwin & Rossow-Kimball, 2012; Mezirow, 1991). In this study we examine the experiences of self-reflection and transformative learning in a senior-level APA class through an online, interactive blogging medium. Students were required to participate in a disability-related practicum placement and write at least six blog entries, inter-act with each other's blogs and create a final journal synthesizing and analyzing their experience. Blogs and journals were collected and analyzed using an interpretative phenomenological analysis (IPA) research approach. IPA provides a systematic framework to describing and interpreting day-to-day interactions within the practicum experiences (Smith, Flowers & Larkin, 2009). Through the analysis, we hope to uncover the experiences of the students and examine evidence of reflection on content (what happened), process (how it happened) and premise (why it happened) of the practicum, indicating transformative learning (Mezirow, 1991). Relational ethics will also be used to assist in interpreting the findings of the study (Bergum & Dossetor, 2005). The preliminary data identifies common themes amongst the students, as well as evidence of self-reflection and transformative learning in some of the experiences. This poster will present the rationale, theory, method and preliminary results of this study in progress.

## **A comparison of constrained and unconstrained reaching movements by people with and without Autism**

Ran Zheng, Steven R. Passmore, Cheryl M. Glazebrook

Autism spectrum disorders (ASD) are defined by impairments in communication, social interaction, and repetitive behaviors. Differences in motor performance are reported, with the most consistent finding being that individuals with ASD spend more time preparing to move. There is, however, a debate existed in whether people with ASD spend more time to execute goal-directed reaching movements. To solve the debate, present study asked typically developing (TD) people and people with ASD to perform constrained and unconstrained reaching movements. 11 ASD participants (8 male, 3 left-handed (2 male), M=29 years old, SD=5.1) and 13 TD participants (11 male, 3 left-handed (2 male), M=26 years old, SD=3.5) were recruited. All participants were asked to perform three different blocks of aiming movements: sliding along a track on a piece of Plexiglas (1D, constrained), sliding along a smooth piece of Plexiglas (2D, constrained), and aiming movements (3D, unconstrained). Movements were recorded using an Optotrak 3D motion analysis system and muscle activity was recorded using surface electromyography (CED 1902 dual system amplifier). All dependent variables were submitted to a 2 Group (ASD, TD) by 3 Movement type (1D, 2D and 3D) mixed analysis of variance. Results revealed a significant Group by Movement Type interaction where the ASD group only took longer to execute 3D (unconstrained) movements compared to the TD group. The current finding is consistent with previously reported behavioral and brain imaging research that has reported different brain connections in ASD participants that indicate they may prefer proprioceptive over visual feedback for movement control.

## **Exploring elite sport development programs in Korea**

Heejun Lim, Eun-Young Lee, Kyoung June Yi

Government level efforts discovering and nurturing young athletes for elite sport success in Korea have resulted in increased participation in recreational sports and remarkable achievement at international competitions such as Olympics. However, it is uncertain whether well-being of young athletes or post career support were taken into consideration in such efforts. This study aimed to (1) review the elite sport development program in Korea, and (2) suggest effective strategies for elite sport development program in Korea by adopting a well-known theoretical framework, the Developmental Model of Sport Participation (DMSP; Côté, Baker, & Abernethy, 2007). The review of current elite sport development program indicated that early talent identification and development are heavily focused on early specialization. Elite sport participation through early specialization may increase the likelihood of early drop out, chronic injuries, or psychological/social difficulties. Given the several advantages associated with elite sport participation through sampling in the DMSP model, The Korean government can apply the DMSP model as long-term developmental strategy, when they revise or reform the current elite sport development program. Specific recommendations are as follows: (1) Select elite athletes through sampling, and (2) collaborate with schools, recreational facilities, and community partners to increase the opportunities to sport participation. The future development of elite sport in Korea will benefit from evaluating the feasibility of the DMSP in the context of Korea.

## **A Review of Trends in Youth Sport Psychology Research**

Shannon R. Pynn, Kacey C. Neely, Nicholas L. Holt

The purpose of this study was to review trends in youth sport psychology research. Four major sport psychology journals (The Sport Psychologist, the Journal of Sport and Exercise Psychology, the Journal of Applied Sport Psychology and Psychology of Sport and Exercise) were reviewed to identify studies of youth sport. Articles were included based on the age of the sport participants (age range= 5-18 years) and their involvement in organized youth sport. The title, abstract, and contents of each article were analyzed to derive the main themes, which were then organized by journal and decade of publication. A total of 3079 articles containing original data were published in the journals over a span of 35 years with 470 articles meeting the inclusion criteria. Articles on motivation (n=91), social influences (n=84), anxiety/stress (n=47) and self-perceptions (n=43) appeared most frequently across all four journals. We assumed the number of articles published on a particular topic reflected interest in that topic within the discipline of sport psychology. Hence, a decrease in the number of articles about motivation and an increase in the number of social influence articles published in the last decade would indicate that motivation is a topic that has been exhausted by youth sport researchers while research on social influences is an emerging trend. The findings generate a discussion on why such trends occur and what impact they have on future research.

## **Injury Types and Rates in Mixed Martial Arts and Boxing**

Maegan Ciesielski

The controversial sport of Mixed Martial Arts (MMA) has gained popularity since its inception in the early 1990s. While there are many arguments against the sport due to safety reasons, there is a lack of empirical research on injury rates in the sport. We set out to determine the injury rates of MMA in Edmonton, Alberta, Canada in matches held in 2013 and 2014, and compared these rates to data collected from boxing during the same time period, and to the results of the few other studies on this topic. Data was analyzed from 35 boxing matches and 93 MMA matches. Injuries were classified as contusions, lacerations, concussions, fractures, eye injuries, dislocations, and other. 51 (73.9%) boxers and 126 (67.7%) MMA fighters received at least one injury per match. We found an injury rate of 95.6 injuries per 100 fight participations for boxing and 101.6 injuries per 100 fight participations for MMA. This rate was significantly higher than found in other studies; however, when our results were adjusted to better match injury evaluations found in other studies, our rates dropped to 29.0 (boxing) and 36.0 (MMA) injuries per 100 fight participations, which is highly consistent with other data. We recommend more research in this area, as well as standardization of the post-fight medical evaluation process.

## **The Influence of Altered Arterial Gases on Chemoreceptor Mediated Sympathetic Activity During Breath Holding**

Stephen A Busch, Uday Chauhan, Christina D Bruce, Rachel J Skow, Maria Abrosimova, Jamie R Pfoh, Trevor A Day, Margie H Davenport, Craig D Steinback

**INTRODUCTION:** The sympathetic nervous system (the body's "fight or flight" response) controls cardiovascular function under stress through several afferent modulators. Voluntary breath holding is a strong sympathetic stressor, where cumulative interactions between chemical (chemoreceptors) and mechanical (baroreceptors and pulmonary stretch receptors) stimuli contribute to an involuntary breath (apneic breakpoint). Duration of breath hold to breakpoint is highly variable and can be increased or decreased through different initial breathing patterns to alter arterial blood oxygen (PaO<sub>2</sub>) and carbon dioxide (PaCO<sub>2</sub>) levels. Changes in arterial blood gas affect excitation of central and peripheral chemoreceptors, which alter overall rate of sympathetic activation. What remains less well understood is whether differences in baseline blood gas change the specific patterns of sympathetic nerve activity (MSNA) during breath hold. Within the current study, we hypothesized that altered arterial gases will influence MSNA pattern formation during voluntary breath holding.

**METHODS:** Thirteen subjects (female=8; male=5; 24±3 years mean±SD) were recruited and instrumented to measure heart rate, blood pressure, cardiac output (Finometer), oxygen saturation (pulse oximetry), and spirometry for end tidal partial pressure gases (PETO<sub>2</sub>; PETCO<sub>2</sub>). MSNA was assessed through microneurography via tungsten microelectrode inserted into the peroneal nerve posterior to the fibular head. Subjects performed six different breathing maneuvers designed to alter blood gas (hypocapnia, hypoxia, hypercapnia, and hyperoxia) and chemoreflex drive prior to initiation of breath hold. Subjects were instructed to voluntarily hold their breath until involuntary breakpoint was reached. Following breakpoint and return to normal breathing patterns, adequate time was allowed for washout of PETO<sub>2</sub> and PETCO<sub>2</sub> to baseline values before recommencement of remaining ventilatory maneuvers. Burst amplitude (mV), frequency (burst/min), and incidence (burst/100 heart beats) were analyzed based on MSNA bursts that exhibited pulse synchronicity with the cardiac cycle and characteristic slopes that rose and fell. MSNA averages were taken during baseline (60 seconds) and prior to breakpoint (15 seconds) for each ventilatory maneuver.

**IMPLICATIONS OF STUDY:** By examining the integrative physiology of breath holding tolerance, further insight will be provided on how peripheral and central chemoreflex drive individually contribute to overall sympathetic activity patterns. As well, we can gain a better understanding of different initial ventilatory patterns with regards to breath holding performance.

## **Neurovascular control and blood flow redistribution in response to exercise during pregnancy. A proposal.**

Rachel J Skow, Craig D Steinback, Margie H Davenport.

According to current guidelines, all pregnant women are encouraged to exercise (in the absence of other contraindications). Exercise in non-pregnant individuals is associated with increases in sympathetic nervous system activity and a concomitant blunting of neurovascular control in the exercising muscle (sympatholysis) to appropriately redistribute blood flow. How blood flow distribution during exercise occurs during pregnancy has not been explored. Recent work from our lab has shown that the neurovascular system is more reactive in healthy pregnant women compared to non-pregnant women, but that the vascular outcomes for a given change in sympathetic activity are blunted. Therefore we hypothesize that neurovascular control during exercise may also be altered during pregnancy. We propose to test the neurovascular responses to hand grip exercise in pregnant and non-pregnant women.

We will test pregnant women in the third trimester and matched control women during their early follicular phase of their menstrual cycle (i.e. during menstruation). Women will come into the lab for neurovascular assessment involving measuring heart rate, blood pressure, sympathetic nervous system activity, bilateral brachial artery blood flow, and upper limb arterial stiffness (pulse-wave velocity) during each of the following protocols:

1) two minutes of isometric hand-grip at 30% of maximum followed by two minutes of blood flow occlusion, 2) four minutes of rhythmic (2s on/ 2s off) hand-grip at 30% of maximum followed by two minutes of blood flow occlusion, 3) flow mediated dilation at the brachial artery, 4) voluntary breath hold. The hand-grip protocols will be compared to evaluate the influence of intermittent shear stress on the blood flow response in the exercising limb; flow mediated dilation will be used to quantify the contribution of shear mediated dilation to the blood flow response and a breath-hold will be used to assess the effects of a non-exercise related stress on the nervous system and blood flow responses.

Changes in sympathetic nerve activity and vascular responses during each protocol and differences between groups will be assessed using 2-way mixed model ANOVAs to establish changes in neurovascular regulation associated with pregnancy. We believe these data will be important for understanding exercise responses during pregnancy.

## **Effects of Exercise on Insulin, Insulin like Growth Factor Axis and Adipocytokines in Breast Cancer Survivors: A Meta-Analysis of Randomized Controlled Trials**

Dong-Woo Kang, Junga Lee, Sang-Hoon Suh, Jennifer Ligibel, Kerry S. Courneya, Justin Y. Jeon.

**Background:** Physical activity is associated with improved prognosis in breast cancer survivors, however, possible mechanisms for such an effect are not fully understood. This study aimed to examine the effects of exercise on cancer-related biomarkers in breast cancer survivors using a meta-analysis of randomized controlled trials (RCTs).

**Methods:** PubMed, EMBASE, CENTRAL, CINAHL, and Sport Discus were searched up to November 2014 to identify RCTs that investigated the effect of exercise on biomarkers in breast cancer survivors. Study design, participant characteristics, exercise intervention parameters, and outcome measures were extracted. Standardized mean difference (SMD) was calculated using fixed- or random-effects models based on the heterogeneity.

**Results:** A total of 16 studies involving 713 breast cancer survivors were included, although these numbers were substantially reduced for individual biomarker analyses. Exercise significantly reduced fasting insulin levels (SMD: -0.94, 95% confidence interval [CI]: -1.73 to -0.14,  $p=.02$ ). Furthermore, potentially meaningful, but statistically non-significant changes were observed in insulin-like growth factor binding protein-3 (SMD: -0.73, 95% CI: -2.29 to 0.83,  $p=.36$ ), adiponectin (SMD: 0.75, 95% CI: -0.50 to 1.99,  $p=.24$ ), and C-reactive protein (SMD: -0.51, 95% CI: -1.24 to 0.22,  $p=.17$ ). Subgroup analyses showed that fasting insulin levels were significantly more impacted in studies in which intervention participants experienced a weight reduction of at least 0.5 kg as compared to controls (SMD: -1.43, 95% CI: -2.82 to -0.04,  $p=.04$ ).

**Conclusions:** Exercise reduces fasting insulin levels in breast cancer survivors, with exercise-induced reductions in fasting insulin more evident when body weight is reduced.

## Oral Presentation Session 1: Saturday September 5, 2015

### 9:00 am – 10:30 am

#### Neurovascular Responses Following Acute Hypoxia

Rachel J Skow, Christina M MacKay, Margie H Davenport, and Craig D Steinback.

**Introduction:** The sympathetic nervous system is the primary regulator of the "fight or flight" response, with muscle sympathetic nerve activity (MSNA) increasing in response to various stressors, including low oxygen (hypoxia). MSNA is an important regulator of cardiovascular function, whereby an acute increase in MSNA constricts blood vessels and increases blood pressure. Previous work from our lab and others has shown that MSNA increases during hypoxia and remains elevated following hypoxic exposure for a period beyond the original exposure. However, it is unknown if and how the elevation in MSNA affects vascular function following acute hypoxia.

**Hypothesis:** We hypothesize that the increase in MSNA that persists following an acute hypoxia exposure will be associated with acute changes in vascular function measured as increases in arterial stiffness and vascular resistance.

**Methodology:** We recruited 18 healthy volunteers (8 female) who were  $24 \pm 3$  years old and instrumented them to continuously measure blood pressure, heart rate, arterial stiffness (pulse wave velocity), vascular resistance and MSNA. Participants breathed through a mask that allowed for changes in inspired gases (room air vs. hypoxia). Following ten minutes of rest, participants underwent a ten minute hypoxia exposure (~80% oxygen saturation), followed by a twenty min recovery period

**Results:** Blood pressure was not increased during hypoxia, but systolic blood pressure was increased at 15 minutes of recovery. Cardiac output was increased during, but not following hypoxia and, similarly, total peripheral resistance was decreased during, but not following hypoxia. Additionally, femoral vascular resistance was decreased during hypoxia and remained decreased up to ten minutes following hypoxia. Neither central (aortic) nor peripheral (upper or lower limb) arterial stiffness (pulse wave velocity) were changed during or following hypoxia. Lastly, MSNA burst frequency (burst per minute) and burst amplitude were increased following hypoxia.

**Discussion:** This study adds to the current knowledge in that it is the first to comprehensively evaluate the responses of vascular resistance, arterial stiffness and MSNA burst amplitude during and following hypoxia. We believe these data are important for understanding the physiological consequences of environments, activities and clinical disorders associated with hypoxia (i.e. travel to altitude).

## **The Effects of Pulmonary Rehabilitation on Cardiovascular Risk in Patients Recovering From an Acute Exacerbation of COPD**

Bradley W. Byers

Chronic Obstructive Pulmonary Disease (COPD) is a respiratory disease characterized by progressive, partially-reversible airway obstruction. While considered a disease of the lung, COPD is associated with increased cardiovascular risk. However, the mechanism(s) responsible for this increased cardiovascular risk are not currently understood. Systemic inflammation is elevated in COPD (indicated by serum concentrations of TNF- $\alpha$ , CRP, and IL-6) and is believed to be a major contributor to the increased cardiovascular risk compared to healthy individuals. Physical inactivity is associated with heightened systemic inflammation, and COPD patients are less physically active than healthy individuals.

An acute exacerbation of COPD (AECOPD) is a flare-up of COPD, commonly resulting in hospitalization and bed-rest, greatly reducing physical activity. Increases in pulse wave velocity (an indicator of arterial stiffness, associated with increased cardiovascular risk) have been observed during an AECOPD. Further, flow-mediated dilation (a measure of endothelial function) improves upon exacerbation recovery, suggesting an improvement in cardiovascular risk. Disease management strategies should therefore be implemented early to reduce the negative impact on cardiovascular risk associated with prolonged exposure to heightened systemic inflammation during an AECOPD.

Exercise training reduces cardiovascular risk in multiple disease states, as noted by improvements in pulse wave velocity and flow-mediated dilation. Pulmonary rehabilitation (PR) is an exercise-based intervention commonly prescribed to COPD patients. In stable COPD, improvements in cardiovascular risk have been observed with PR, however there are few studies examining PR in unstable COPD.

The proposed study will examine the effects of PR on cardiovascular risk in patients recovering from an AECOPD. Subjects consenting to PR will be randomized into early or late PR. AECOPD patients not undergoing PR will serve as time-controls. All subjects will have indicators of cardiovascular risk assessed before and after PR (experimental group) or equivalent time-delay (control group). The variables of interest are: pulse wave velocity; flow mediated dilation; and serum concentrations of TNF- $\alpha$ , CRP, and IL-6. This study will provide insight on management of cardiovascular risk in unstable COPD patients, and may lead to improvements in therapeutic interventions. Presently, data has been collected on 36 subjects and analysis is ongoing.

## **The Association of Resting Heart Rate with Type 2 Diabetes, Hypertension, and Metabolic Syndrome in the Korean adult population: the fifth Korea National Health and Nutrition Examination Survey**

Hyuk-In Yang, Hyeon Chang Kim, Justin Y Jeon

**Objective:** Investigate the association of resting heart rate (RHR) with type 2 diabetes, hypertension and metabolic syndrome in a data set that represents the whole Korean adult population.

**Methods:** The data of 18,640 Korean adults from the fifth Korea National Health and Nutrition Examination Survey, was used to examine the association of RHR with anthropometric and blood related variables, and the odds ratio for type 2 diabetes, hypertension and metabolic syndrome. Further analysis was conducted to examine the combined association of RHR [ $<80$  beats per minute (bpm),  $\geq 80$ bpm] and body mass index [(BMI)  $< 23\text{kg/m}^2$ ,  $\geq 23\text{kg/m}^2$ ] with type 2 diabetes, hypertension and metabolic syndrome.

**Results:** Compared to participants with a RHR of  $<60$ bpm, participants with a RHR of  $>89$ bpm had 4.52 [95% confidence interval (CI) 2.21-9.23] and 5.78 (95% CI 2.66-12.59) higher odds of type 2 diabetes, 2.64 (95% CI 1.59-4.39) and 1.61 (95% CI 1.08-2.39) higher odds of hypertension, and 3.57 (95% CI 2.23-5.73) and 2.14 (95% CI 1.34-3.42) higher odds of metabolic syndrome, for men and women, respectively. Analysis combining the association of BMI and RHR showed that compared with the participants with normal BMI low RHR ( $<80$  bpm), participants with high BMI high RHR had 2.30 (95%CI 1.67-3.23) and 4.80 (95%CI 3.55-6.49) higher odds of type 2 diabetes, 3.94 (95% CI 3.09-5.03) and 3.00 (95%CI 2.41-3.75) higher odds of hypertension, and 9.70 (95% CI 7.39-12.73) and 13.12 (95% CI 10.28-16.74) higher odds of metabolic syndrome, for men and women, respectively.

**Conclusion:** RHR shows a significant positive dose dependent relationship with the prevalence of type 2 diabetes, hypertension and especially with metabolic syndrome. The combined association of RHR with BMI suggests that RHR may have an important role to play as a potential clinical measurement and prognostic marker.

## **The effect of dopamine on pulmonary capillary blood volume, diffusing capacity, and exercise tolerance**

Wade Michaelchuk, Vincent Tedjasaputra, and Michael K Stickland.

**Background:** As cardiac output (Q) and pulmonary diffusing capacity rise during exercise, recruitment and distention of the pulmonary capillaries results in decreased pulmonary vascular resistance, enhancing pulmonary blood flow while limiting the rise in pulmonary artery systolic pressure (PASP). A heightened PASP response to exercise could impact Q, oxygen consumption, and exercise tolerance.

**Rationale:** Endogenous dopamine levels increase in a curvilinear fashion during incremental exercise. Dopamine appears to be important for a normal cardiovascular response to exercise, as dopamine-2-receptor blockade decreases maximal Q and exercise tolerance. Dopamine may modulate pulmonary capillary blood volume ( $V_c$ ) by assisting in the recruitment and distention of the pulmonary capillaries during exercise. This may result in improved exercise tolerance.

**Hypothesis:** The purpose of this study is to examine the effect of a dopamine agonist and a dopamine-2-receptor antagonist on  $V_c$ , the diffusing capacity for carbon monoxide (DLCO), PASP, Q, and exercise tolerance. It is hypothesized that dopamine will increase  $V_c$ , DLCO and Q and decrease PASP, improving exercise tolerance. Conversely, metoclopramide (a dopamine-2-receptor antagonist) will decrease  $V_c$ , DLCO and Q and increase PASP, hindering exercise tolerance.

**Method:** On day one, subjects will undergo a graded exercise test to characterize aerobic fitness ( $VO_{2peak}$ ). Participants will be randomized to each of the following conditions: dopamine (2  $\mu\text{g}/\text{kg}/\text{min}$  intravenous) and a placebo pill, metoclopramide (20 mg oral) and intravenous saline, or intravenous saline and a placebo pill. DLCO,  $V_c$ , PASP, and Q responses will be determined at rest, 30%, 50%, 75%, and 90% of  $VO_{2peak}$  on a cycle ergometer. Additional testing days will be used to evaluate exercise tolerance, where time to exhaustion at 90% of  $VO_{2peak}$  will be recorded in all conditions. DLCO and  $V_c$  will be evaluated using Roughton and Forster's multiple-FIO<sub>2</sub> method, PASP will be evaluated by Doppler ultrasound, and Q will be determined with transthoracic impedance cardiography.

**Significance:** This study will investigate the effect of dopamine the pulmonary vasculature and how it influences exercise tolerance in young healthy subjects. If dopamine effectively increases  $V_c$  in health, it may have merit as an intervention to acutely improve exercise tolerance in clinical populations.

## **The relationship between movement behaviors and weight status in different settings among toddlers and preschoolers**

Nicholas Kuzik, Valerie Carson

**Purpose:** The purpose of this study was to examine the relationship between movement behaviors (physical activity, sedentary behaviour and sleep) inside/outside child care, with body mass index (BMI) z-scores among a sample of toddlers and preschoolers; while also exploring potential moderating effects.

**Methods:** Children aged 19-60 months (n=84) from eight participating child care centers throughout Alberta, Canada participated. Movement behaviors inside child care were accelerometer-derived (i.e., sedentary time, light physical activity, moderate to vigorous physical activity (MVPA), and frequency of 1-4, 5-9, 10-14, and  $\geq 15$  minute sedentary bouts) and questionnaire-derived (i.e., daytime sleep). Movement behaviors outside of child care were questionnaire-derived (i.e., screen and non-screen sedentary behavior, MVPA, and nighttime sleep). Age- and sex-specific BMI z-scores were calculated. Multilevel linear regression models were conducted.

**Results:** Frequency of 1-4 minute sedentary bouts were associated with BMI z-scores ( $\beta = -0.04$ , 95% confidence interval: -0.06 to -0.02) after adjusting demographics. No other movement behaviors inside/outside of child care were associated with BMI z-scores.

**Conclusions:** Creating healthy movement behavior habits in the early years may be important for primary prevention of overweight/obesity. Frequent short sedentary bouts during child care seem particularly important. Future research is needed using large representative samples to confirm these findings.

## **Pulmonary capillary blood volume response to exercise in mild COPD**

Vincent Tedjasaputra, Michael Stickland

**Background:** Chronic Obstructive Pulmonary Disease (COPD) is a respiratory disorder characterized by progressive, partially reversible airway obstruction and pulmonary capillary destruction. Mild COPD patients have a relatively preserved lung function, but recent work demonstrates a decreased resting diffusing capacity (DLCO), as well as greater dyspnea and exercise intolerance than previously appreciated. During exercise, both components of DLCO: membrane diffusing capacity (Dm) and pulmonary capillary blood volume (Vc) must increase in order to maintain arterial blood gases. An increasing Vc reflects the recruitment and distention of pulmonary capillaries, which improves gas exchange, reduces pulmonary vascular resistance, and prevents large increases in pulmonary arterial pressure (PAP) with increasing cardiac output (Q).

**Rationale:** Our recent work in healthy subjects demonstrates that individuals with a greater Vc have a higher VO<sub>2</sub>max, suggesting that the ability to recruit pulmonary capillaries is an important determinant of exercise capacity. However, the DLCO, Dm, and Vc response to exercise is currently unknown in mild COPD. The purpose of this study is to examine the DLCO, Dm, and Vc response to exercise in mild COPD and controls. It is hypothesized that DLCO, Vc, and Dm will be blunted in mild COPD compared to healthy controls.

**Methods:** DLCO trials will be conducted at rest and during exercise up to 90% of VO<sub>2</sub>peak in mild COPD and healthy, age- and physical activity-matched controls. Dm and Vc will be calculated at each workload using the Roughton and Forster multiple-FIO<sub>2</sub> DLCO breath hold method, Q will be determined with transthoracic impedance cardiography, pulmonary arterial systolic pressure (PASP) estimated with ultrasound, and dyspnea evaluated with the modified Borg scale.

**Expected Results:** If Vc fails to sufficiently increase during exercise due to capillary destruction in mild COPD, a greater PASP is expected for a given Q, contributing to greater ventilation (i.e. VE/VCO<sub>2</sub>), dyspnea, and exercise intolerance, compared to healthy controls. This work would be the first to examine pulmonary capillary recruitment during exercise in COPD, and would provide valuable insight into the relationship between pulmonary diffusion capacity, capillary recruitment, and dyspnea and exercise intolerance in COPD.

## **Oral Presentation Session 2: Saturday September 5, 2015**

**10:45 am- 11:45 am**

### **Effects of implement and distance variation on performance of a novel discrete motor task**

Kateline Hladky, Brian Maraj

Golf putting is an example of a discrete motor skill that needs to be developed to produce success in the game of golf. Golfers attempt to use various putter designs and practice in numerous different ways in order to generate a successful putting technique. The counterbalanced putter design has been developed in order to replace the long putter now banned by PGA rules and there is no conclusive knowledge of its effects on performance. The aim of this study is to identify kinematic variables that change when novices putt from various distances using a conventional and counterbalanced putter. 10 novices (minimal to no experience with golf) performed 75 trials at 3, 5, 7, 9, and 11 feet from a target with both types of putters for a total of 150 shots. Means and standard deviations for backswing timing (BST), downswing timing (DST), backswing amplitude (BSA), downswing amplitude (DSA), putter path (PP), and impact point (IP) were determined using Visualeyex Motion Analysis system and subsequent software as well as Matlab and other processing software. A 2 putter (conventional/counterbalanced) by 5 distance (3, 5, 7, 9, 11 ft) ANOVA with repeated measures at  $p < 0.01$  was completed with Tukey's HSD post-hoc test. A significant difference was identified in mean BST, mean BSA, mean DST and variability, mean DSA and variability, mean PP and variability, and mean IP and variability, with increasing distance. A significant difference was seen in DSA variability when putters were compared. Significant two-way interactions between putter type and distance were identified in BST variability, BSA variability, mean PP and variability, and mean IP. Performance analysis based on radial error scores showed constant error is lower when novices use the counterbalanced putter in comparison to the conventional putter.

## **Combined plyometric and strength training is superior to strength training alone on improving skating sprint performance.**

Torstein E Daehlin, Ole Christian Haugen, Simen Haugerud, Ivana Hollan, Truls Raastad, Bent R Roennestad.

Skating sprint performance is an important performance determinant in ice hockey, and is related to muscular strength and power performances [1]. However, muscular strength and power have been seen to decline during the competitive season [2], potentially affecting skating sprint performance. As a countermeasure, combined plyometric and strength training have been used in the offseason training with success [3]. However, no previous studies have controlled for the effect of strength training alone on skating sprint performance. Therefore, the purpose of the present study was to compare the effects of combined plyometric and strength training on ice hockey players' skating sprint performance with strength training alone. Eighteen subjects were randomly assigned to two groups that completed 5 strength-training sessions per week for 8 weeks. One group preceded three of the sessions with plyometric exercises (PLY+ST), while the other group completed the same sessions with core exercises (ST). Tests of 10- and 35 m skating sprint, horizontal jumping, 1 repetition maximum (1RM) squat, skating multistage aerobic test (SMAT), maximal oxygen consumption, 10 × 35 s cycle sprints and body composition was performed before and after the intervention. Both groups increased their 1RM squat, lean mass and body mass ( $P < 0.05$ ). PLY+ST improved their 10 m skating sprint, 3 × broad jump and 10 × 35 s cycle sprint performance significantly, while ST only improved their SMAT result significantly. PLY+ST achieved a significantly larger improvement in 10 m skating sprint performance than ST. In conclusion, combining plyometric and strength training for 8 weeks is superior to strength training alone on improving 10 m skating sprint performance in high-level ice hockey players.

1. Farlinger, C.M., L.D. Kruisselbrink, and J.R. Fowles, Relationships to skating performance in competitive hockey players. *J Strength Cond Res*, 2007. 21(3): p. 915-922.
2. Green, H.J., et al., Cellular responses in skeletal muscle to a season of ice hockey. *Appl Physiol Nutr Me*, 2010. 35(5): p. 657-670.
3. Lee, C., S. Lee, and J. Yoo, The Effect of a Complex Training Program on Skating Abilities in Ice Hockey Players. *J Phys Ther Sci*, 2014. 26(4): p. 533.

## **Using eye tracking and 3D motion capture to establish normative data sets for functional tasks.**

Ewen B. Lavoie, Elizabeth A. Crockett, Jacqueline S. Hebert, Craig S. Chapman

Recent advances in upper limb prosthetics have given amputees the ability to use residual muscle activity to control multiple degrees of freedom (myoelectric control). Despite these advances, amputees regularly reject these devices (~40% rejection rate) due to limited everyday functionality. The long term objective of this project is to use limb- and eye-tracking technologies to provide a more sensitive measure of prosthetic limb use. Limb-tracking is important because it can capture subtle changes to movement induced by prosthetic use. Eye-tracking is important because it measures visual attention which is known to change when using a prosthesis – amputees look more often and for longer at their prosthetic limb.

My specific project will be to establish normative limb- and eye-tracking data: that is, to record the function of the hand and eyes in generating simple movements in healthy individuals under normal conditions. As a first test of the sensitivity of these new measures, we will assess changes to function when the arm is immobilized at the wrist. The main advancements that this project will lead to are: 1. The creation of a fully integrated eye-hand data collection protocol, uniting head-mounted mobile eye-tracking with full body motion capture; 2. The development of simple tasks that are easy enough to measure data from, but challenging enough to emulate every day actions, like moving a cup across a table, or moving a pasta box from one shelf to another; and 3. The comparison of normative eye-hand data to eye-hand data from participants who have had mobility limited at the wrist.

For limb-tracking, we expect to see slower and less accurate reach and grasp movements to be observed in those that have had their mobility limited at the wrist. For eye-tracking, we expect that the predictive movements seen during normal function (i.e. eye leading the hand) will be severely disrupted and replaced by increased visual fixation on the hand. In addition to the long term objective of outcome metric design, the data from this project will be used to aid in the design and fabrication of innovative upper limb prosthetics that will help persons using these limbs increase their independence.

## **Effective Coaching: Ways of Knowing**

Timothy Konoval and Dr. Jim Denison

Every coach knows about the uncertain, complex nature of competition and sport, where there are no guarantees. Subsequently, at all levels of athlete development, it is no secret that effective coaches are needed to help athletes navigate these uncertainties and reach their full athletic potential. Over the past 30 years, effective coaching researchers have come to know effective coaching in many ways (e.g., technician, athlete-centered, educator, orchestrator , micro-politician). To bring coherence to the effective coaching research, coaching researchers have even attempted to define the term. In light of this surge in effective coaching research, there is still no agreement of what is effective coaching. Consequently, with so many truths about what effective coaching is and what it is not, it can be increasingly difficult for coach developers to navigate through the multiple interpretations to discern what is truly effective coaching. In this paper, we will examine how the multiple ways of knowing effective coaching in the literature have inevitably been underpinned by specific paradigmatic approaches. More specifically, we will argue that past paradigmatic approaches have limited effective coaching research by understanding the meaning of effective coaching in fixed ways. Alternatively, we will highlight the merit of a Foucauldian perspective, which views effective coaching as ongoing problematization of one's use of power by challenging taken for granted assumptions within coaching practices. Moreover, coaching with Foucault can allow possibilities for positive and ethical change by engaging athletes to have a greater understanding their bodies.

## **Oral Presentation Session 3: Sunday September 6, 2015**

**10:45 am – 12:15 am**

### **Pole Fitness and Positive Body Image: An Interpretative Phenomenological Analysis**

Ariel Dimler

The purpose of this interpretative phenomenological analysis was to describe and interpret the positive body image experiences of women actively involved in pole fitness. Seven women between the ages of 20-36 years participated in one-on-one interviews to discuss their experiences surrounding their bodies and pole fitness. Additionally, participant observation was utilized to provide context for data analysis, and follow-up interviews were utilized to engage in member checking with all participants. Interpretative phenomenological analysis was used to identify five superordinate themes representing the words and experiences of the participants: (1) accepting your body as it is, (2) inner confidence, (3) comfort with sexual expression, (4) supportive environment, and (5) appreciating your body's abilities. Findings are consistent with emerging conceptualizations of positive body image (e.g., Wood-Barcalow et al., 2010; Tylka & Wood-Barcalow, 2015), and provide insight into a specific context that may be useful in the promotion of positive body image. In addition, findings suggest that pole fitness provides a unique environment in which women can safely engage in sexual exploration. This research suggests that pole fitness may be an avenue by which women can develop and maintain positive body image.

## **Mercenaries or Patriots? Media Framing of Naturalized Hockey Players in Canada**

Chen Chen

Elite athletes, especially those play for the national team on the international stages, are often regarded as important symbols of national identity. Globalization and commodification of sport in the latter half of 20th century have witnessed the large scale migration of elite athletes. Furthermore, some of these migrated athletes may have the chance to be naturalized to represent the host country. These cases, however, has provoked big controversies, not least because of the political tension among different nation-states or its negative implication for a “pure” national identity.

During the 1980s, a number of Eastern European hockey players fled to North America and to play in the National Hockey League, among which were Peter Stastny and Petr Nedved. Escaping from former Czechoslovakia, both Stastny and Nedved later became Canadian citizens and represented Canada in major international tournaments. The inclusion of the two high-caliber “defectors” in the national team was welcomed by Canadians, who regarded it as necessary reinforcement of their team.

The son of a Canadian hockey legend, Brett Hull (who in fact holds dual-citizenship of both Canada and USA), however, opted to play for the Americans after finding it difficult to secure a place in Canadian national team early in his career. As Hull’s reputation as an elite player grew, his decision to “snub” Canada was vilified by some Canadians.

This article reviews the naturalization and recruitment of the above three hockey players, the conditions relating elite hockey players to national identity, and the reaction the naturalization of the players engendered in mass media coverage. In doing so, how the media frame the issue provides an illustration of how the identity of a famous individual (athlete) would interact with nationalism in the modern-day, globalizing sporting context.

## **Promoting Physical Activity: A Reversal Theory Perspective**

Sarah Evans

Understanding how information in physical activity promotion messages is received is important for developing effective health campaigns. This study aims to investigate whether motivational dominance and state (from reversal theory) influence the processing of messages promoting physical activity. It is hypothesized that information processing will be deepest when the message is tailored to appeal to the telic or paratelic mode of the recipient. 187 university students (152 males, 34 females) were instructed to watch one of two 30-second videos promoting exercise. One video was designed to appeal to the arousal-avoiding and goal oriented behavior of the telic state. The other was designed to appeal to the arousal-seeking and pleasure-oriented behavior of the paratelic state. Post-condition measures recorded message recall, attitude and intent to exercise, and further information seeking behavior. Current location and previous experience with exercise were also measured as potential covariates.

## **Associations between participation in physical education class, psychological well-being and internet addiction in a representative sample of Korean adolescents**

Yoonkyung Song, Eun-Young Lee, Justin Y. Jeon

**Purpose:** The purpose of this study was to investigate whether participation of physical education (PE) class associate with self-rated psychological well-being (PWB), and internet addiction in Korean adolescents.

**Methods:** The data from a total of 74,435 Korean adolescents aged between 12 and 18 years, who participated in the ninth Korea Youth Risk Behavior Web-based Survey (KYRBS) conducted in 2013 was analyzed. Chi-square test was employed for the comparison of proportions between PE class participants vs. nonparticipants. Logistic regression analyses were performed to calculate the odds ratios (ORs) and 95% confidence intervals (95% CIs).

**Results:** The rate of participation in PE class was 81.3% (84.3% among boys vs. 77.9% among girls). Compared to students who did not participated in PE class, those who participated in PE class were more likely to feel healthy (OR: 1.56, 95% CI: 1.43-1.70), happy (OR: 1.16, 95% CI: 1.07-1.25) and not stressed (OR=1.08, 95%CI: 1.03-1.14). Students who participated in PE class were less likely to show internet addiction (OR: 0.73, 95% CI: 0.68-0.79).

**Conclusion:** Participation in PE class was positively associated with PWB, and negatively associated with prevalence of internet addition among Korean adolescents. Physical activity in PE class, regardless of daily physical activity outside of school, may play a critical role in improving PWB and decreasing internet addiction among Korean adolescents.

## **Communicating with women about gestational weight gain: A qualitative study on the perspectives of midwives in Sudbury, Ontario**

Maxine Myre & Chantal Barriault

**Background:** Gestational weight gain (GWG), the weight gained during pregnancy, is a healthy biological process necessary to promote fetal growth. Despite the fact that excess GWG can lead to negative health consequences for both mom and baby, a high proportion of women still exceed the guidelines for GWG put forth by the Institute of Medicine.

Since pregnant women frequently visit health care facilities in the prenatal period, maternity care practitioners (general practitioners, obstetricians, midwives, nurse practitioners) are in a unique position to address the issue of GWG with women. Indeed, pregnant women view practitioners as a valuable and desired source of advice and many studies have emphasized the importance of this communication.

**Objectives:** This qualitative study aimed to gain insight on the perspective of maternity care practitioners in Sudbury, Ontario about communicating with their patients/clients about GWG.

**Methods:** I conducted semi-structured interviews with five midwives representing both midwifery practices in Sudbury. The interviews were transcribed verbatim and analysed using a qualitative, thematic approach.

**Results:** On the topic of usual practices, midwives indicated the importance of building relationships with women and promoting the health of mom and baby rather than focusing on specific numbers outlined by the guidelines. They also noted the use of tools and resources as an aid for communication. On the topic of perceived barriers or limitations, midwives noted a lack of expertise, a lack in nutrition training, time constraints, training from preceptors, interest of women, and pregnancy stereotypes as barriers to communication. Finally, on the topic of strategies for improvement, midwives suggested starting the conversation early, optimizing on women's motivation during pregnancy and time-effective training as effective and realistic strategies. They did not see prompts in Electronic Medical Records as useful. Furthermore, midwives indicated a need for interdisciplinary teams, but did not think this would be realistic.

**Discussion and Conclusion:** Given the high proportion of women that do not meet the Institute of Medicine's recommended guidelines for GWG, this study was a valuable opportunity to explore midwives' perspectives about communicating with women about GWG, since they have relevant first-hand experience in their practice.

## **Motivation for movement in a three-month walking program**

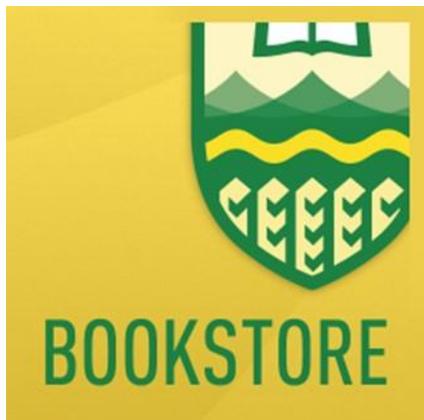
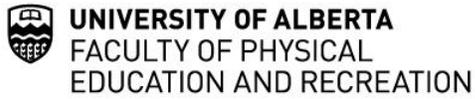
Heather K. Larson, Kimberly McFadden, Laura Watson, Tara-Leigh F. McHugh, Tanya R. Berry, Wendy M. Rodgers

Self-determination theory suggests that the quality of one's motivation will influence adherence to a given behaviour (Deci & Ryan, 1985). In an exercise context, a person who exercises for reasons that are aligned with their personal values will be more likely to persist than someone who exercises out of a sense of obligation. Walking is a simple, cost-effective exercise that does not require special equipment or a trip to the gym. Because there are fewer environmental barriers to walking than there are to other forms of exercise (swimming or weight-lifting, for example), individual motivation may account for a greater proportion of variance in adherence.

The purpose of this study was to explore the sources and types of motivation experienced by participants who had completed a three month walking program, using pedometers to track their daily steps. Semi-structured interviews were conducted with 21 women between the ages of 35 and 65. Initial analysis, using a qualitative description approach, resulted in some emergent themes such as goal pursuit combined with various tracking methods, social aspects including companionship and accountability, and also drawing on the immediate benefits of exercise as components of motivational self-talk. Participants experienced varying levels of guilt on days when they did not complete the prescribed walking or exercise, depending on whether they attributed their inactivity to laziness, or to perceived barriers such as family or work obligations. Overall, this research contributes to our understanding of the dynamic nature of motivation when attempting to increase daily physical activity through walking.

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Physical Education and Recreation Graduate Student Society (PERGSS)



# ReCon V: Program at a Glance

TIME	Friday September 4, 2015	TIME	Saturday September 5, 2015	TIME	Sunday September 6, 2015	
8:00 AM	<b>Bus Leaves Edmonton</b> 8:00 am	8:00 AM	<b>Breakfast</b> 8:00-9:00am	8:00 AM	<b>Breakfast</b> 8:00-9:00am	
8:30 AM		8:30 AM		8:30 AM		
9:00 AM		9:00 AM		9:00 AM		
9:30 AM		<b>Bus Arrives in Canmore</b> 12:00pm	9:30 AM	<b>Research Presentations 1</b> 9:00am - 10:30am	9:30 AM	<b>Outdoor Activity Break</b> 9:00am-10:30am
10:00 AM			10:00 AM		10:00 AM	
10:30 AM			10:30 AM	<i>Break</i>	10:30 AM	
11:00 AM	<b>Registration/Poster Set-up/Lunch on Own</b> 12:00pm - 2:00pm		11:00 AM	<b>Research Presentations 2</b> 10:45am - 11:45pm	11:00 AM	<b>Research Presentations 3</b> 10:45- 12:15am
11:30 AM			11:30 AM		11:30 AM	
12:00 PM			12:00 PM	<b>Lunch</b> 11:45pm - 12:30 pm	12:00 PM	
12:30 PM		<b>Welcoming Comments &amp; Icebreaker</b> 2:00 - 3:00pm	12:30 PM	<b>PD Session 1</b> 12:30pm - 1:45pm	12:30 PM	<b>PD Session 2</b> 12:30-1:30pm
1:00 PM			1:00 PM		1:00 PM	
1:30 PM			1:30 PM	<i>Break</i>	1:30 PM	
2:00 PM	<b>Rod Murray Keynote Speaker</b> 3:00- 4:00pm		2:00 PM	<b>Outdoor Activity Break</b> 2:00-6:00pm	2:00 PM	
2:30 PM			2:30 PM		2:30 PM	
3:00 PM			3:00 PM		3:00 PM	<b>Bus Leave Canmore</b> 3:00pm
3:30 PM		3:30 PM	3:30 PM			
4:00 PM		<i>Break/Check-In</i>	4:00 PM		4:00 PM	
4:30 PM		<b>Poster Session/Snack</b> 4:30-6:30pm (cash bar)	4:30 PM		4:30 PM	
5:00 PM	5:00 PM		5:00 PM	5:00 PM		
5:30 PM	5:30 PM		5:30 PM	5:30 PM	<b>Bus Arrives in Edmonton</b> 7:00pm	
6:00 PM	6:00 PM		<i>Break</i>	6:00 PM		
6:30 PM	6:30 PM			6:30 PM		
7:00 PM	<b>Dinner in Canmore</b> 7:00pm			7:00 PM	<b>Conference Dinner</b> 7:00pm <b>Alumni Presentation</b>	7:00 PM
7:30 PM		7:30 PM	7:30 PM			
8:00 PM		8:00 PM	8:00 PM			
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