

PERSEVERANCE

NEWSLETTER OF THE CPA SPORT & EXERCISE PSYCHOLOGY SECTION



INAUGURAL ISSUE, MAY 2016

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Opening Comments from the Sport & Exercise Psychology Section's Executive Board

Dear Members (past, present and future),

We are very proud to present our first newsletter entitled Perseverance. Sport Psychology is about getting athletes to perform at their best, even as they face hardship and defeat. It is about helping them push their own personal limits at times when they feel they have nothing left to give, thereby unlocking uncharted potential. In particular, it is about teaching them to keep pushing themselves in the absence of praise.

In a similar light, the recent history of our Section has been a story of perseverance. Our investment is our own personal Rubicon: our spirit can't be broken, we have come too far. And despite running dangerously low on resources sometimes, we can still see the reasons why we opened our eyes to this scene in the first place. Every single achievement, including this one, is a gain in momentum making our convictions grow stronger every day. We will be there tomorrow, the Sport and Exercise Psychology Section will be there next year; we are here to stay.

Whilst most executive efforts usually revolve around the Sport and Exercise track at the annual convention, we have spent the past few months working on satellite activities, such as a new communication infrastructure, the content of this newsletter, and a call for submissions for a Special Issue of Canadian Journal of Behavioural Sciences to put Sport and Exercise Psychology back at center stage in Canada. Besides news and the convention program, each new issue will proudly showcase our members by showcasing their recent activities, with a balanced focus on practice and research. Our first spotlight includes one of our own graduate student member's practice opportunities in sport and exercise psychology. The issue then introduces our first research spotlight and present three new papers, two of which discuss complementary measurement strategies within the highly popular Self-Determination Theory framework for motivation research and practice. The issue ends with sport psychology-related resources, announcements and opportunities, as well.

We sincerely hope this newsletter kickstarts a new endeavour for sport and exercise psychology in Canada. Please join us at the convention or online (sport.exercise.cpa@gmail.com), so we can work on developing the field together.

Cordially,
Pier-Eric Chamberland, on behalf of the Executive Board



Director / Newsletter Editor

Pier-Eric

Chamberland, Ph.D.(c)

Université du Québec

à Trois-Rivières



Interim Chair / Past Chair

Dr Tricia Orzeck, R.Psych

Adjunct Faculty &

Dissertation Advisor

Director- Sport Performance

Consulting & Psychological

Services



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Leslie-Toogood, R.Psych

Adjunct Faculty,

University of Manitoba

Director of Sport Psychology,

Canadian Sport Centre -

Manitoba



Student Representative

Jessie Wall, M.A., Ph.D.(c)

Counselling Psychology,

University of British Columbia

Registered Clinical Counsellor

and Performance Consultant

News and Communications

We are excited to outline the following items recently developed and upcoming events.

Communication Systems

The CPA recently introduced a new membership and communication system [<https://secure.cpa.ca/apps/Membership>] giving access to a bulletin board for each section called “Section Spaces”. While regular members do not have posting privileges yet, we will be utilizing this tool when possible to get information to you via online updates and emails, as well as on our designated page on the CPA website. Not a member of the sports section yet? You can easily join using the [following form](#).

Executive positions available

Recent years have been full of transition to rebuild and reorganize the Section and provide a foundation for future exciting activities, advocacies, and leadership in psychology of sport and exercise for years to come. Responses to surveys to over 700 old and new members have consistently reported the need and desire for a sport and exercise psychology section with CPA. The positions available for 2016-2017 are Chairperson, Secretary-Treasurer and Student Representative. Terms for each position is of one year up until the June AGM, and are eligible for extension to a second year. There are typically 2 to 3 executive meetings a year, usually by conference call and/or supplemented by email. More information about the specific roles can be found online on the Sport and Exercise Section Business page on www.cpa.ca

In the event of vacancies for a position, a Director/Member-at-Large position will become available. Students may also be able to apply to other positions in

the event of vacancies. If you are interested in being considered for alternate positions, please indicate this on your statement of interest. Nominations should be sent to the present Secretary, Dr. Adrienne Leslie-Too-good, adrienne@cscm.ca with your name, a brief statement of interest, and the position or positions applied for by May 30, 2016. Elections, if necessary, will be conducted in the following week using an electronic ballot provided by the CPA. Positions will be announced at the June 10th AGM.

Upcoming “Psychology Works” fact sheet on physical activity

An updated version of the Psychology Works Fact Sheet on physical activity has been in the works. We would like to thank our members who responded to the recent call for revisions and provided their input. The call for revisions for a new Fact Sheet on concussions is still open. Fact Sheets and information on how to contribute is available at www.cpa.ca/psychologyfactsheets

CJBS : call for submissions

Promoting and stimulating research in sports & exercise psychology is a core aspect of our mission. To pay homage to the variety within the sports psychology literature, we hope to update and extend our 2012 initiative by welcoming submissions for a special issue in the Canadian Journal of Behavioural Science. Please see end page for details.

CPA Convention Section Program Highlights



For the 2016 CPA National Convention at the Fairmont Empress Hotel, British Columbia, the Sport & Exercise Psychology Section will be hosting a number of exciting professional development, research presentations, and networking activities, including a presentation by Dr. Robert Vallerand, one of the Section's forefathers (Balmoral room). Our Annual General Meeting will immediately follow at 17:00. Don't miss the Sport & Exercise Psychology poster session (E) on June 10th (Kensington Room) and the closing roundtable discussion (Crystal Ballroom) on performance-enhancing drugs and athletic identity on June 11th!

Pre-convention workshop: From Youth Sport Participants to Olympians: Tools, Tips, and Strategies for Professionals Interested in Direct or Related Practice in Sport & Exercise Psychology June 8th, 9:00-17:00

Sport and Exercise Psychology Section of the CPA has partnered with the Canadian Sport Psychology Association (CSPA-ACPS) to host a full day of pre-conference workshop on the practice of sport psychology on June 8th, prior to the Convention. The workshop will explore three topical issues faced by sport participants and will be led by expert speakers. Participants are eligible to receive 5.5 Continuing Education (CE) Credits. What a great way to meet some of your requirements for licensure and certification by learning hands-on tools for practice in the sport and exercise psychology area!

The Role of Mental Health Professionals in the Evaluation and Management of Sport-Related Concussions

Dr Natasha Kutlesa, RPsych

This presentation will focus on psychological management of sport-related concussions in adolescent and adult athletes based on the Sport Concussion Assessment Tool 3 (SCAT3). Mental health professionals are frequently involved in the care of athletes with sport concussions from the acute injury to return-to-play decisions. Pre-injury mood or anxiety disorders, learning difficulties, ADD/ADHD, migraine headaches, or other

pre-existing conditions often complicate the diagnosis and management of concussions. Athletes also have a higher probability of experiencing a second or subsequent concussion. Examples of collaboration between psychologists and other health professionals will be provided to highlight treatment and ethical issues such as informed consent, athlete desire to return to play, and the influence of third parties (e.g., coaches, teams, fans, or parents). Specific recommendations for mental health professionals working with individual athletes and sports teams will be provided with the focus on prevention, evaluation, and management of sport-related concussions.

Parent as performer: Exploring the role of the Mental Performance Consultant in supporting the sport parent within youth sport.

Dr Laura Farres, Ch.PC.

In youth sport, the athlete experience is grounded in a larger system involving parents, coaches and peers. Parents within that system have a strong influence, communicating values and beliefs, modeling appropriate and inappropriate behaviour, and providing various types of support. Parents are also subject to stressors in the sport environment and to ex-

pectations around being an effective sport parent. In order to optimize the athlete experience within youth sport, more attention needs to be directed to helping the sport parent maximize their performance and develop their expertise. The Mental Performance Consultant (MPC) and Sport Psychologist is well positioned to provide this type of support. This session will explore the concept of the sport parent as performer, the role of practitioners in this area, and practical approaches and strategies for developing parent effectiveness.

Bio- and neurofeedback for optimal performance: A theoretical and applied presentation of work with Olympic athletes and coaches

Dr Penny Werthner & Sommer Christie, PhD(c)

Bio- and neurofeedback training has been shown to reduce anxiety, improve attention, and enhance performance in the competitive environment (Galloway, 2011; Gevirtz, 2007). This workshop will provide (a) an overview of the theories and recent research in the area of bio- and neurofeedback and optimal performance, (b) a demonstration of the training protocols, and (c) several case studies to illustrate how to integrate bio- and neurofeedback into an existing practice.

Each presenter is a member of the CSPA-ACPS, an applied sport psychology organization aiming to facilitate the development of mental and emotional skills, attitudes, perspectives, strategies, and processes that lead to optimal performance, well-being, and personal growth. Stay informed of the CSPA-ACPS activities, such as regular webinars, at www.cspa-acps.com

CPA Co-Sponsored Invited Talk

Robert Vallerand

Passion in Sport & Exercise: Theory & Research

June 10th, Balmoral room, 16:00-17:00



What is passion? How does it affect our lives? Vallerand and his colleagues (2003; Vallerand, 2015) have proposed a recent conceptualization of passion, namely the Dualistic Model of Passion. Passion is defined as a strong inclination or desire for a self-defining activity that we love, value, and spend a considerable amount of time on. Two types of passion are proposed: a harmonious and an obsessive passion. Obsessive passion is involved when people feel that they can't help themselves and have to surrender to their desire to engage in the passionate activity. It is as if the activity controlled the person. Obsessive passion results from a controlled internalization (Deci & Ryan, 2000) of the activity in the person's identity. On the other hand, harmonious passion refers to a strong inclination for the activity that nevertheless remains under the person's control. The person can choose when to and when not to engage in the activity, thus preventing conflict from arising between activity engagement in the passionate activity and other life activities. Harmonious passion results from an autonomous internalization of the activity in identity. In this address, I review research that reveals that harmonious passion toward sport and physical activity is typically associated with adaptive outcomes while obsessive passion is related to less adaptive and at times maladaptive outcomes. These findings have been obtained with respect to a number of affective,

cognitive, mental and physical health, relationships, and performance variables with diverse populations. I also address the role of personality and social psychological variables in the development of passion. Finally, some new directions for future research are proposed.

Professor Robert J. Vallerand is Full Professor of Social Psychology and Director of the Laboratoire de Recherche sur le Comportement Social at the Université du Québec à Montréal where he holds a Canada Research Chair in Motivational Processes and Optimal Functioning. He is also a Fellow at the Institute for Positive Psychology and Education at the Australian Catholic University. Bob has published 7 books and well over 300 scientific articles and book chapters, mainly on motivational processes. Over 20 of his former students are university professors. He has served as President of the Quebec Society for Research in Psychology, the Canadian Psychological Association, and the International Positive Psychology Association (IPPA). Bob has been elected a Fellow of the APA, APS, SPSP, and the Royal Society of Canada. He has also received the Donald O. Hebb Career Award from the CPA, as well as the Sport Science Award from the International Olympic Committee. On the sport side, Bob is a former member of the Quebec Basketball Team and was an all-star university player for UQTR and McGill. Look for Dr Vallerand's new book on Passion on Oxford University Press, and on Self-Determination Theory on De Boeck.

Sport & Exercise Psychology Posters

Session "E", June 10th

- Aerobic fitness gains are associated with improved self-esteem and life skills following a full-year adventure-based learning (ABL) program.
Tyler Hamilton, Cynthia Thomson, Jamie Burr
- Are Males Really Superior Athletes? The Role of Expectations in Shaping Reality
Evanya Musolino, Jan Cioe
- Athletic Career Transitions: Facilitative and Hindering Influences
Lauren McCoy
- Effects of Active Start PEI Resources and Educator Training on Children's Gross Motor Skill Development
R. Blake Jelley, Jamie Whynacht, Dany MacDonald
- Examining the Climate of Competitive Sport: The Impact of Performance-Enhancing Drugs and Athletic Identity on Athlete Mental Health (Roundtable, June 11th)
Zarina Giannone, Evanya Musolino
- How The Structure of Learning Environments Impacts A Learners Mental Focus
Anthony Pluta, Olave Krigolson
- Measures of child attitudes towards physical activity: A scoping review
Trista Friedrich, Thomas Qiao, Kelsi Toews, Paulette Hunter
- Post-Failure Attributional Feedback From an Ingroup Expert Improves Sport Performance
Nancy Higgins, Maxime Charrier, Olivier Rasclé, Pete Coffee, Tim Rees, David Le Foll
- The Impact of Exercise Outcome Goals on Well-Being
Samuel van Ginkel, Evanya Musolino, Jan Cioe

We would like to thank the following people who generously reviewed this year's Sport and Exercise Psychology submissions: Alexandre Castonguay, Pier-Eric Chamberland (also review coordinator), Kate Hays, Adrienne Leslie-Toogood, Evanya Musolino, Tricia Orzeck, Eva Pila, Sally Powis-Campbell, Troy Rieck and Jessie Wall.

Practice Spotlight :

Graduate Training Pathways in Sport Psychology

Jessie Wall, M.A., Ph.D.(c),
University of British Columbia

A number of graduate training pathways are available for pursuing research and practice interests in sport psychology, but how do you choose the one that will be a good fit for you? A lot can be learned from the experiences and career choices of fellow students. In this interview Zarina Giannone shares her experience pursuing education and training in sport psychology through a counselling psychology program at the University of British Columbia. Thank you to Zarina for making her experiences available for our learning.



Zarina Giannone

Thank you for joining us to talk about your experiences pursuing sport and exercise psychology in counselling psychology. Could you begin by telling us a little bit about yourself?

I am masters student at the University of British Columbia will be graduating from the Counselling Psychology program in May 2016. My competitive athletic history playing on the Canadian National Soccer Team (youth) and the UBC Women's Soccer Team, has inspired my research and clinical work with athletes. My Master's thesis titled, Life after sport: The relationship between athletic identity and mental health outcomes after sport retirement, received SSHRC funding and is currently under peer-review. I am eager to start my PhD in September, 2016 (UBC) to continue building my program of study in this area.

I also identify as an avid student leader in Canada. I serve as the Chair for the Section for Students in Psychology (CPA) and as a Board Member on the CPA Board of Directors. Recently, I participated in a lobby day with the CPA Board and the Federal Government in our nation's capital, Ottawa, which involved advocating for increased access to psycholo-

gical services and scientific funding in Canada. The Board is composed of representatives from different areas within psychology in Canada, some of who primarily subscribe to practice, others who subscribe to science, and some to both. During our meetings with the Members of Parliament and Ministers, some of the more common areas in psychology (i.e., clinical, health, industrial-organizational) were leveraged to advance our lobbying platform. On more than one occasion, I gave voice to the need for sport psychology research and its applications in our society. I was proud to represent the unique intersection of counselling and sport psychology in this capacity.

In what ways have you integrated formal and informal training in sport psychology alongside your program requirements in counselling psychology?

Graduate Level Coursework & Research. Coming from a pure psychology background, I feel like I have had to get creative in honing skills and opportunities within realm of sport psychology. One of the obvious solutions was to pursue graduate level coursework in sport psychology (UBC) with Dr. Pe-

ter Crocker, who graciously agreed to serve on my thesis committee and who ended up contributing an expert perspective on athlete transition and well-being.

Professional Associations and Networking. Another experience which I pursued involved participating in a number of professional associations (e.g., Canadian Sport Psychology Association (CSPA), Association for Applied Sport Psychology (AASP), The Society for Sport, Exercise, and Performance Psychology (APA, Division 47), which allowed for the opportunity to network with other professionals and learn more deeply about the thriving field of sport psychology.

Clinical Placements and Independent Work. I was fortunate enough to earn a clinical placement at a local college where I worked closely with student-athletes in both individual and group counselling settings. The primary focus of the placement was to work with the wider college student population in a counselling capacity and as an instructor for an introductory psychology course. However, it turned out to be so much more than that. I was very fortunate to collaborate with the Athletic Department and Dr. Laura Farres, who holds a PhD in Sport Psychology (University of Ottawa), to develop a stronger support system for student-athletes at the college. This included developing programming for varsity athletes as well as a referral system to work with me (the athletics counsellor) on an individual basis and/or our network of mental skills trainers. Additionally, my independent work with individual athletes and teams in the community were also rewarding opportunities to learn, grow, and affect change.

What have you enjoyed the most about your training experiences?

Looking back, I believe the most memorable experience from my training thus far was the athlete career transition groups that I designed and

facilitated with varsity athletes at the college. As a Master's student, I felt honoured to be in a position where I was trusted to deliver helpful and effective sessions to student-athletes. It was particularly meaningful for me because I was able to apply many of the theories and research findings which I had come across throughout my thesis.

What recommendations do you have for fellow students interested in pursuing a similar educational experience?

In my experience, I developed a solid foundational knowledge of psychology and counselling and I worked hard to acquire diverse experiences within the field. I realized at a very early age that the career path which I wanted to pursue required me to obtain doctoral level training in professional psychology. After all, I aspired to become a practicing "sport¹" psychologist. I utilized the transferable skills that I gained from my competitive soccer days to pursue an academically challenging program. For me, it was all about finding a good balance between research and clinical opportunities in both sport and counselling psychology settings. Something that I found to be incredibly helpful was connecting with other individuals who also found themselves at the same crossroads between counselling/clinical psychology and sport psychology. Another resource that was truly valuable were my athlete friends and former teammates, who notified me of their real-world needs and experiences, which helped guide and inform my decision-making process.

Zarina will be co-presenting some of her research at Saturday's roundtable session on June 11th (Fairmont Empress).

¹ The term sport is in quotations because one cannot register as a psychologist in an area of specialization in Canada (e.g., clinical psychologist, sport psychologist); rather, the correct terminology and credential for psychologists in Canada is "Registered or Certified Psychologist".

Research Spotlight

Physical Activity, Mental Health and Alternative Operationalisations of Motivation

Coordinated by Pier-Eric Chamberland

Reviewed by Dr Tricia Orzeck and Dr Adrienne Leslie-Toogood

Having one's research published in peer-reviewed journals is a major accomplishment, but reaching out to the professional audience while it is still fresh can be a whole different challenge. We find that it is our duty and privilege as a CPA Section to promote the research of our members and relay it to the clinicians who will apply it. We hope to showcase in every issue of Perseverance at least two new articles authored or co-authored by Section members in peer-reviewed journals. Clinical cases studies are also welcome and may be featured in our Clinical Spotlight Column. Active members are invited to present a 1-2 pages synthesis of their research with the opportunity to discuss additional concepts¹.

The first paper reiterates the central role of physical activity in mental health. Gunnell and colleagues studied the bidirectional relationships of physical activity with television screen time and symptoms of anxiety and depression based on changes over an 11-period. The last two papers present alternative methods to operationalize behavioral regulations in Self-Determination research applied to physical activity. As a way to reconcile potentially additive or conflicting effects of autonomous and controlled regulations, Brunet and Gaudreau introduce polynomial regression with response surface methods, while Chamberland and Castonguay discuss the use of cluster analysis.

Are there reciprocal relationships between physical activity and screen time and symptoms of depression and anxiety in adolescents?

Katie Gunnell,

Children's Hospital of Eastern Ontario Research Institute

Gunnell, K. E., Flament, M. F., Buchholz, A., Henderson, K. A., Obeid, N., Schubert, N., & Goldfield, G. S. (2016). Examining the bidirectional relationship between physical activity, screen time, and symptoms of anxiety and depression over time during adolescence. *Preventive Medicine*, 88, 147-152. doi: 10.1016/j.ypmed.2016.04.002, Accessible at: <http://dx.doi.org/10.1016/j.ypmed.2016.04.002>

Although researchers have found that greater physical activity (PA) and less screen time (ST) are

associated with better mental health indicators in adolescents, findings have been limited by the use of cross-sectional (Maras et al., 2015) or short-term longitudinal designs (Hume et al., 2011). Using these designs makes it difficult to account for the possibility that there is a bidirectional relationship such that greater PA and less ST can alleviate or prevent symptoms of anxiety and depression and conversely, symptoms of depression and anxiety can lead to less PA and increased ST. Another limitation of previous research is that often, only one behaviour (i.e., PA or ST) is examined in relation to symptoms of depression and anxiety (Motl et al., 2004; Primack

¹ The texts in this columns are meant to promote and disseminate the original papers, accessible at the provided DOI URL. Copyrights to these papers are held by their respective publishers and (co)authors. Readers must cite the original paper when referring to the actual research.

et al., 2009). Given that PA and ST have been independently linked to mental health outcomes, the psychological benefits of focusing on one lifestyle behavior (i.e., PA) may be offset by ignoring the other (i.e., ST).

To address these limitations, we used a longitudinal design and included both PA and ST to examine: (a) if and how PA, ST, symptoms of depression, and symptoms of anxiety changed over four assessments spanning 11 years, and (b) if there was a bidirectional relationship between initial PA, ST, symptoms of depression and symptoms of anxiety as predictors of change in each other, respectively. Participants from Ottawa Canada in the Research on Eating and Adolescent Lifestyles (REAL) study (Time1; N = 1160, Mage = 13.54 years) answered questionnaires four times spanning the ages of 10-21 years old. Analyses were performed using latent growth modeling with individually varying times of observation in Mplus. We found that over time, PA decreased whereas ST, symptoms of depression, and symptoms of anxiety increased. Next, controlling for sex, ethnicity, school location, zBMI, birth year, and parents' education, we found that initially higher symptoms of anxiety at age 13.54 was associated with initially higher ST (covariance = .88, $p < .05$) and initially lower PA (covariance = -6.84, $p = .07$). Higher initial symptoms of depression was associated with higher initial ST (covariance = 2.55, $p < .05$). When considering how the variables 'moved in time together', we found that increases in symptoms of anxiety were associated with increases in ST (covariance = .07, $p = .06$) and increases in symptoms of depression (covariance = .41, $p < .05$). When examining the bidirectional relationships, we found that initially higher symptoms of depression at the age of 13.54 was associated with more rapid decreases in PA over time ($b = -.28$, $p < .05$), irrespective of their ST and symptoms of anxiety. No other bidirectional relationships were statistically significant suggesting that initial levels of PA, ST, and symptoms of anxiety do not set adolescents on certain trajectories of change.

Overall, our findings suggest that parents, caregivers, and practitioners should attempt to reduce ST and increase PA given their initial independent and concurrent associations with symptoms of depression and symptoms of anxiety. In addition, interventions should be developed to treat symptoms of depression around the age of 13 because if effective, they may be able to prevent further declines in PA as adolescents develop into young adults.

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Uncovering the value of polynomial regression analysis with response surface methods when analyzing autonomous and controlled motivation

Jennifer Brunet, School of Human Kinetics,
Patrick Gaudreau, School of Psychology,
University of Ottawa

- Brunet, J., Gunnell, K.E., Gaudreau, P., & Sabiston, C.M. (2015). An integrative analytical framework for understanding the effects of autonomous and controlled motivation. *Personality and Individual Differences*, 84, 2-15. doi:10.1016/j.paid.2015.02.034, Accessible at: <http://dx.doi.org/10.1016/j.paid.2015.02.034>

Organismic integration theory (OIT), developed by Deci and Ryan in the 1980s, has been one of the most influential frameworks used by researchers to investigate human motivation. Within OIT, Deci and Ryan (1985) offer a model in which the numerous reasons for pursuing activities can be categorized into six core motivations that are proposed to lie on

a continuum ranging from no self-determination to high self-determination. Since then, different scoring approaches have been created that fit within the OIT framework and extensively used to study the antecedents, processes, and outcomes of these core motivations. For instance, one approach has been to create individual scores representing the six core motivations (i.e., amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, intrinsic motivation). A second approach has been to group the motivations into two dimensions of motivation, namely autonomous motivation (AM) and controlled motivation (CM). A third scoring approach has been to create a single score called the relative autonomy index (Ryan & Connell, 1989) representing level of self-determination. However, theoretical and empirical support favouring one scoring approach over others is lacking, and researchers have noted respective advantages and drawbacks for each scoring approach (e.g., Chemolli & Gagné, 2014; Wilson, Sabiston, Mack, & Blanchard, 2012). The drawbacks of each scoring approach should not be taken as evidence for theoretical misconceptions or lack of suitability of Deci and Ryan's (1985) proposed model. Rather, each scoring approach has provided a distinct, yet complementary perspective that was much needed to gain insight into the antecedents, processes, and outcomes of motivation across different domains. Nevertheless, an important next step is to identify an alternative method that can be used to retain and integrate the desirable features of the different scoring methods.

We identified polynomial regression analysis with response surface methods (Edwards & Parry, 1993; Shanock, Baran, Gentry, Pattison, & Heffestad, 2010) as one such method. It is a statistical technique that allows researchers to tackle important questions such as “Is level of self-determination or amount of AM and CM more important in predicting outcomes?” and “What is more important: degree or direction of the differentiation between AM and CM?” To spur interest in this technique and show researchers how it could be used to address these

questions, we published an empirical example in *Personality and Individual Differences* (Brunet, Gunnell, Gaudreau, & Sabiston, 2015). For this, we analyzed data from three separate samples using polynomial regression analysis with response surface methods to examine how AM and CM as separate constructs, as well as how the degree of agreement/differentiation and the direction of differentiation among them, could predict a range of outcomes in academic and health contexts. Our findings based on the polynomial regression analysis lent support to a large body of research indicating that AM and CM predict a range of relevant outcomes by showing that AM generally predicted positively adaptive academic and health outcomes (i.e., goal progress, objective physical activity, GPA, planning, engagement, positive affect, joy, and hope), whereas CM generally predicted maladaptive outcomes (i.e., burnout, negative affect, anxiety, depressive symptoms, boredom, and cancer worry) in university students and in breast cancer survivors. Furthermore, our findings based on the response surface methods clearly offered additional insight by showing that adaptive outcomes were generally higher whereas maladaptive outcomes were generally lower when AM was greater than CM and when agreement between AM and CM increased. As such, considering the degree of agreement and the direction of differentiation between AM and CM added to the interpretation of the associations between motivation and outcomes that would not have been captured by simply analyzing AM and CM scores or a combined AM-CM score.

Taken together, our results help to highlight the importance of considering the degree of agreement/differentiation between AM and CM, while also confirming the importance of analyzing them individually. Thus, while the choice of the statistical technique is ultimately dependent on the research question, we hope researchers see the value in using polynomial regression analysis with surface value methods in future research to improve our understanding of the implications of having varying levels of AM and CM for human functioning and wellbeing.

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How integrated regulation shows motivational profiles toward physical activity in a different light

Pier-Eric Chamberland & Alexandre Castonguay,
Université du Québec à Trois-Rivières

- Miquelon, P., Chamberland, P. É., & Castonguay, A. (2016). The contribution of integrated regulation to adults' motivational profiles for physical activity: A self-determination theory perspective. *International Journal of Sport and Exercise Psychology, 1*-20. doi: 10.1080/1612197X.2016.1155637, Accessible at: <http://dx.doi.org/10.1080/1612197X.2016.1155637>

Organismic Integration Theory (Deci & Ryan, 1985) postulates that initially extrinsic motives toward a behaviour through repeated engagement may be progressively internalized to become an expression of the true Self. A recent systematic review in the field of physical activity indeed suggests that autonomous motives (i.e. intrinsic motivation, integrated and identified regulations) tend to increase in both the short and long term, while controlled motives decrease, except for introjected regulation which increases in the mid-term (Wasserkampf & Kleinert, 2016). In turn, autonomous motives, typical of be-

havioural maintenance, foster adaptive outcomes, contrary to controlled motives, although introjected regulation is associated with both (Thøgersen-Ntoumani & Ntoumanis, 2006). In this aspect, a defining feature of prolonged repeated behaviours, such as regular exercise, is their integration into the concept of Self (Chargn, Piliavin & Callero, 1988), making any lapse in behavioural consistency cause cognitive dissonance in the ego (Strachan, Perras, Forneris & Stadig, 2015).

Nevertheless, a maintaining individual may still hold motives or regulations from across the autonomy continuum (Rattelle, Guay, Vallerand, Larose & Sénécal, 2007). This opens the possibility of qualitative regulation profiles that differentially influence the pursuit of physical activity goals. The potential increase in introjection during the dynamic internalization process (Wasserkampf & Keinert, 2016) suggests that the process may take different directions. More precisely, that residual controlled regulations may tint the resulting locus of causality, which influences how intentional behaviour is performed through attitudes and perceived control (Chatzisarantis, Hagger, Biddle & Karageorghis, 2002). Such an idea was initially proposed by McClelland (1965, in Feather, 1982) about the acquisition of motives, namely that "clusters of expectancies or associations grow up around affective experiences [to form a hierarchic network] within a given individual". Somewhat analogously to seminal research by Atkinson (1953) and Vroom (1962) on performance under different conditions of ego-involvement, equivalent levels of autonomous motivation could differentially affect behavioural performance and persistence of physical activity (frequency, duration, intensity) under high concomitant levels of integrated (i.e. exercise reached identity-status) and introjected (i.e. self-worth is contingent on regular exercise) regulations (see also Ryan, Koestner & Deci, 1991). On a related note, shared neurological components of reward and threat processing prevent the full activation of one system if the other is also present (Berridge, 2016). Regular physical activity, even if internalized, may

not be optimally performed when also motivated by avoidance-based regulations.

The existence of an array of motivational profiles has already been explored in physical activity research (Matsumoto & Takenaka, 2004, Gillet, Berjot, Vallerand, Amoura & Rosnet, 2012; Gourlan, Trouilloud & Boiché, 2015). However, few studies have included integrated regulation in the clustering process or provided evidence for the existence of more than three clusters, which is considerably lower than the amount of possible combinations from the five or six measured regulations. Therefore, our study (Miquelon, Chamberland & Castonguay, 2016) set out to evaluate how integrated regulation contributes to the identification of motivational profiles, as well as their influence on behavioural performance (PA frequency, duration and intensity) and intention toward regular engagement.

To test the hypothesis that four motivational profiles could be discerned through integrated regulation, we recruited a sample of over 1,400 adults with the gracious collaboration of the Énergie Cardio provincial network of training centres and Sports Experts franchised stores in Québec city and Trois-Rivières. Participants were invited to complete the Behavioural Regulations in Exercise Questionnaire (BREQ-2, Markland & Tobin, 2004), including an integrated regulation subscale by McLachlan, Spray and Hagger (2012), a measure of intention to engage in regular exercise, as well as frequency, duration and intensity measures of weekly physical activity in an adapted version of the Godin Leisure-Time Questionnaire (2011). One thousand ninety-two participants met the inclusion criterion and were included in the analyses (83.3% women, mean age = 34.62, SD = 11.24). The sample was predominantly active (mean energy expenditure score above the 24 metabolic units criterion, average moderate to vigorous PA frequency = 4.67, SD = 2.99) given the greater number of active people at the maintenance stage, although people from all stages of adoption (excluding non-contemplation) were represented.

Once multivariate hierarchical regressions confirmed that integrated regulation explained significant additional variance in all outcomes, two-step cluster analyses using the k-means method were conducted on behavioural regulations, including and excluding integrated regulation. Examination of agglomeration schedules supported a 4-cluster solution when integrated regulation was included, and a parsimonious 3-cluster solution of similar composition when it was excluded. In auxiliary analyses (not shown), a majority of decision-aid indices also supported the 4-cluster solution that included integrated regulation (Charrad, Ghazzali, Boiteau & Niknafs, 2014). Cross-classification of those solutions suggested that the 4-cluster solution with integrated regulation better discriminated individuals who genuinely belonged in a Self-Determined cluster (high scores on autonomous regulations only), rather than the High Combined cluster (high scores on autonomous regulation to a lesser extent, high introjection and moderate extrinsic motivation), or a Moderate cluster (moderate to low scores on all regulations, with controlled regulations at mean level) specific to the 4-cluster solution. Integrated regulation clearly contributed to defining the Moderate cluster, as 47.4% was initially considered Non-Self-Determined or Controlled (low levels of autonomous regulations, average introjection and high extrinsic motivation and amotivation), and 40.5% was considered Self-Determined in the 3-cluster solution. A multivariate MANOVA with post hoc comparison found that the Self-Determined cluster displayed the highest performance on all outcomes, followed by the High-Combined, Moderate and Controlled clusters. However, intention levels were statistically similar between the High-Combined and Moderate clusters, and between the Moderate and Controlled clusters, the latter of which did not differ also on exercise duration.

In sum, the results suggest that a simultaneous account of all behavioural regulations within an individual, especially including integrated regulation, provides useful information to understand motiva-

tion and the resulting behavioural persistence in the form of a categorical variable. An interesting finding is the weaker performance of the High-Combined profile compared to the Self-Determined profile, although their motivation could be considered stronger from a strictly additive perspective. On the other hand, the Moderate profile showed a stronger performance than the Controlled profile, which may be considered in favour of the additive hypothesis. The results also raise questions about factors that may explain ego-involvement in the internalization process, and that may explain the weaker behavioral persistence in both direction (frequency) and intensity (duration, moderate to vigorous intensity) of the High Combined profile. Namely, the performance may be the result of weaker effort or energization, or of hindering byproducts of controlled regulations. For example, research by Gillet et al. (2012) found significant differences in exhaustion between the stronger-performing "High" cluster and the "Moderate" cluster from a 3-cluster solution. However, Van den Berghe et al. (2014) observed non-significant differences between the "High-Quantity" and "Good Quality" clusters from a 4-cluster solution on three burnout subscales, which might be an issue of statistical power. More research is required to evaluate performance and exhaustion levels of individuals with different motivational profiles, especially introjected or ego-involved ones, on a longitudinal level.

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Members of the Sport and Exercise Psychology section are welcome to submit their newly accepted papers for consideration in this column by sending the manuscript to sport.exercise.cpa@gmail.com. Applications will be reviewed by the editor and designated reviewers.

Resources and Opportunities

Members are welcome to submit mini-articles on useful resources and announcements in this section.

Getting the most of psychological science using RSS feeds

Pier-Eric Chamberland, Université du Québec à Trois-Rivières

Paquito Bernard, Université Laval

Adrienne Leslie-Toogood, University of Manitoba

Many psychologists, including experienced faculty members, find hard to keep up with the rapidly expanding literature in their fields. Gaining access to the most recent journal issues or in-press papers often make a difference in offering cutting-edge services and competitive research. Monthly visits on your favourite journal webpages or email alerts are fine but can quickly become burdensome (accessing links, sorting and deleting emails, etc.). For this reason, we suggest harnessing the power of Rich Site Summary (RSS) feeds typically found on websites with frequent updates. RSS feeds contain summarized text versions of new content with metadata like publishing date, journal and author's name.

[Netvibes.com](http://netvibes.com) is a popular RSS feed aggregator that offers user-friendly subscription and sorting features. With customizable widgets to automatize your feed-related tasks, it is sure to fit nicely in your workflow. Centralizing the feeds from all your favourite journals in your Netvibes.com dashboard is easy once you have opened your account. Using the British Journal of Sport Psychology website (bjsm.bmj.com/content/early/recent) as an example, just locate the orange RSS button (top right), click the feed you prefer and select Netvibes to subscribe to the feed. The procedure is similar for APA's Sport, Exercise and Performance Psychology (www.apa.org/pubs/journals/spy). Afterwards, you can rapidly browse through your customized Netvibes dashboard and bookmark publications of interest for later reference management using free open-source software like Zotero (www.zotero.org) and JabRef (www.jabref.org). Staying up to date has never been so easy!

Toronto Marathon Psyching Team.

Dr Kate Hays, The Performing Edge

Over 40 volunteer psychologists, led by Dr. Peter Papadogiannis and Dr. Kate Hays, offered participants of the GoodLife Fitness Toronto Marathon mental strategies to increase or assess their performance to the race. Supported by the Ontario Psychological Association, members of the Psyching Team work with over 1,000 runners in small groups to learn methods of appropriate goal setting, tension reduction, positive self-talk and affirmation, each of which are tailored to the particular person. The Toronto Marathon Psyching Team is always looking for individuals wanting to help out. If you're a sport psychologist, mental health professional, or graduate student and want to develop your psyching team skills, or link up with others interested in developing psyching teams, visit www.psychingteams.com and <http://www.torontomarathon.com/wellness/psyching-team/>

Sport Psychologist Job Posting at Athletic Edge Sport Medicine

Dr Grant Lum MD, Athletic Edge Sports Medicine

Athletic Edge Sport Medicine is a large, multidisciplinary practice of 25 practitioners and administrative staff, situated in the financial district of Toronto. Their patients range from children to seniors, from recreational to professional athletes, actors, musicians and performers.

The ideal candidate is registered (or registration eligible) as a psychologist in Ontario as well as having experience in sport psychology. Although initially part-time, there are opportunities for expanded practice, including our executive health program, Metropolis Medical, and other innovative, multidisciplinary services. Please submit your CV in confidence to Sandy Prescott, office manager, at sandy@aesm.ca, or fax to 416-800-0802.

Perseverance
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Canadian Journal of Behavioural Science: Special Issue on Sport and Exercise Psychology

Editor: William Roberts, Thompson Rivers University

Guest Editors: Pier-Eric Chamberland, Université du Québec à Trois-Rivières

Tricia Orzeck, University of Liverpool

Sports play an important, often-underestimated role in human development at many different levels. For the individual they can be a leisure activity that sharpens the mind and body, an opportunity for self-discovery and accomplishment, an escape from daily hassles, or even an art. For communities they can be bonding experiences resulting from a team challenge or simply events that bring people together. They are a means for each nation to fraternize by displaying the pinnacle of its ambassadors' physical prowess, who then become a source of national pride and identity. Each of these gains for the individual, communities and societies represents investigation and intervention opportunities for sport and exercise psychology researchers and clinicians to maximize human potential. However, within sports psychology literature these distinct areas are too seldom showcased together to pay homage to their variety. **To do just that, the Sport and Exercise Psychology section of the CPA calls for submissions in all areas of sport and exercise psychology for a special issue of CJBS, including but not limited to:**

Evidence-based practice in coaching, group cohesion in team sports, athlete well-being and burnout prevention, mental performance consultancy, in-game dynamics in competitive sports (i.e. flow, momentum), complex motor skills acquisition and performance, physical education, disability and social inclusion in sports, exercise promotion, motivation, goal pursuit and self-regulation in physical activity and sports, passion for sports, the role of sport and active leisure in well-being and performance in other life areas, etc.

We hope to update and extend the 2012 Special Issue of Canadian Psychology on Sport and Exercise by welcoming submissions presenting:

- Original, theory-driven empirical research showcasing rigorous quantitative or qualitative methodology;
- Critical reviews of theoretical models and concepts in sport and exercise psychology (definitional issues, meta-analysis, knowledge synthesis, systematic reviews);
- Knowledge syntheses of emerging and evidence-based practices;
- Application of innovative methodologies to sport and exercise psychology.

All submissions will undergo peer-review. We welcome submissions in both English and French. Regular submissions should not exceed 35 pages, double-spaced, in size 12 font (including all Tables, Figures, and References). *Brief reports* should be no more than 14 pages in length, including references and tables. Submissions must comply with the CJBS submission guidelines and instructions available at: www.apa.org/pubs/journals/cbs.

Manuscripts are to be submitted by December 20, although earlier submissions are recommended. Authors must clearly indicate in their cover letter that their submission should be considered for this special issue. If you have any questions or require any further information please contact the Guest Editor, Pier-Eric Chamberland at pier-eric.chamberland@uqtr.ca.