UM | Faculty of Kinesiology and Recreation Management

RESEARCH DAY

MAY 10 2023

PROGRAM

A SHOWCASE OF HEALTH, LEISURE, & HUMAN PERFORMANCE RESEARCH

Health, Leisure & Human Performance RESEARCH INSTITUTE

WELCOME

DR. LEISHA STRACHAN

Associate Dean Research and Graduate Studies
Faculty of Kinesiology and Recreation Management

Welcome – Research Day 2023

Last year, we were back in person for Research Day and it was wonderful to see everyone and to re-connect with students, faculty, and the research! This year will be another big step now that the mask mandate has been lifted. We are also so excited to welcome our keynote on campus, Dr. Janelle Joseph from the University of Toronto.

Research Day continues to be a time for all of us to celebrate, in a special and deliberate way, the great work of our graduate students. In addition to the graduate students, we are working to make more connections with our undergraduate students who participate in research in our faculty and so a poster competition for them is a welcome addition. I am really looking forward to seeing their work!

There are many people to thank for working to make Research Day 2023 a reality. Thank you to our Dean, Dr. Douglas Brown, for his support of Research Day. Thank you to Dr. Gordon Giesbrecht and Dr. Tina Chen who accepted our invitation to present so wholeheartedly. Thank you to Laurel Gray, Kyle Sokoloski, Blake Eden, Neil Noonan and the rest of the communications team for all their efforts. Also, thanks to all of our graduate and undergraduate student volunteers for their assistance in running the event. Last, but certainly not least, thanks to Jody Bohonos and Corinne Mizak for all their help in organizing the event.

I am looking forward to sharing this day with my colleagues and with the graduate students. I hope that it is a productive day of scholarship, connection, learning, and sharing.

Welcome and thank you for participating.

Leisha Strachan, PhD
Associate Dean Research and Graduate Studies
Faculty of Kinesiology and Recreation Management

AGENDA

TIME	LOCATION	EVENT
9:00-9:30	Agora	Welcome, Elder Acknowledgment and Annoucements
9:30-10:15	Agora	Session - Dr. Gordon Giesbrecht
10:15-10:30		Break
10:30-11:15	Agora	Session - Dr. Tina Chen
11:15-12:00	Agora	Lunch
11:30-12:00	220 ALC	Mentorship Session for students with Dr. Janelle Joseph
12:00-1:15	Agora	Poster Session/Competition
1:15-1:45		Deliberation and transfer to UC
2:00-3:00	Marshall McLuhan Hall	Keynote Talk/ Seminar Series - Dr. Janelle Joseph
3:00-3:30	Marshall McLuhan Hall	Poster Competition Awards, Ruth Asper, Graduate Student Awards
3:30-4:30	Marshall McLuhan Hall	Reception

USE THE HASHTAG
#UMRESEARCHDAY2023

PRESENTERS

KEYNOTE SPEAKER

2:00-3:00

Marschall Mcluhan Hall

DR. JANELLE JOSEPH

The Politics of Storytelling: Research for Resistance and Re-existence in Sport and Physical Culture

This talk will focus on narrative justice, digital storytelling, and the power relationship between private and public realms that is revealed through storytelling. Individual passions and experiences shared across racial, ethnic, cultural, and gender groups form the basis of Dr. Joseph's analysis. Resistance activism and re-existence practices in sport, leisure, and physical culture enable alternate ways of being. Drawing from Black feminist phiolosphers, griots, artists, activists, academics, and ancestors, this talk puts sport and the moving body at the center and asks what is the critical, therapeutic, and political role of storytelling?

PRESENTERS

SPEAKER

9:30-10:15

AGORA

DR. GORDON GEISBRECHT

What good can come out of Research Days? or Why Research Day?

The start of any research career begins with many questions including, “will my research ever actually accomplish anything?” Meaningful research had two main criteria: 1) is should be academically sound and answer an important question; and 2) it must be conveyed to the research academy and hopefully the general public. This traditionally means some type of publication of the research. The long road to publication in a peer reviewed journal often starts with the first step in telling the world about your work… Research Day! Research Day challenges a student to summarize their work and present it to their peers either in oral or poster form. The work can then be honed to a sharp scientific paper submission. This talk will emphasize the importance of this initial step and then provide examples of studies that have moved beyond Research Day, to publication and even lifesaving knowledge translation initiatives.

PRESENTERS

SPEAKER

10:30-11:15

AGORA

TINA CHEN

Equity, Anti-Opperssion, Empowerment and Community as Research Praxis: Reflections from Figure Skating

This talk is a reflection on the importance of praxis in sport activism and research. Praxis refers to the intertwining of theory and action, so that each continually informs the other, with the goal of transforming institutions, cultures, and individual subjectivity (i.e. who we can be). I will weave together four strands: (1) auto-ethnography of my personal experiences in figure skating; (2) findings from recent quantitative and qualitative research I recently conducted on experiences of equity, diversity, and inclusion in figure skating in Canada; (3)learnings rooted in activist and institutional work in various settings---- including University of Manitoba and with Skate Canada-- to dismantle forms of oppression and to advance equity, diversity, inclusion, accessibility, and empowerment; and (4) vignettes and examples that demonstrate how various important changes in figure skating are rooted in building community through interwining theory and action, and in ways that understand theory and action are generated in multiple ways, and by empowering diverse voices .

POSTER SUBMISSIONS

Cheryl Moser

Advisor: Drs. Kathryn Sibley and Cheryl Glazebrook

A QUALITATIVE DESCRIPTIVE EXPLORATION OF PHYSIOTHERAPISTS' EXPERIENCES WITH INTEGRATED KNOWLEDGE TRANSLATION RESEARCH COLLABORATIONS RELATED TO BALANCE MEASUREMENT PRACTICES IN CANADA

Background: Integrated knowledge translation (IKT) is a healthcare research approach that engages academic researchers and knowledge users (KU) as collaborators. IKT proposes that KU engagement accelerates research evidence use, leading to improved health system functioning and improved public health outcomes. This study investigated how physiotherapists (PTs) described their experience engaging as KUs in IKT research related to the balance measurement practices of PTs in Canadian rehabilitation hospitals.

Methods: Five PTs (n=5) participated in researcher-led, semi-structured, online interviews. PTs described their experience, identified factors that affected their engagement, and discussed how their engagement influenced the research process and evidence use. Qualitative descriptive research methodology, inductive coding, and basic content analysis were used to answer the research questions.

Results: Five PTs who engaged as KUs on three balance measurement studies in two provinces participated. Experiences were described positively and associated with such benefits as increased range of clinical treatment options for patients; increased personal pride and professional recognition; increased organizational capacity for research. Factors conducive to research engagement were devoted time, material resources, and human resources. Participants described their contributions to research as brokering trusting relationships; providing an insider point-of-view, project management and resource coordination; and increasing organizational capacity for future research. Factors influencing long-term evidence use were individual risk perception, organizational culture around risk, career stage, organizational mandates, rewards/reinforcements, and third-party endorsement for change.

Next-steps: Ongoing data analysis may help validate or extend the thinking of existing frameworks for KU engagement in health research.

POSTER SUBMISSIONS

Ima Student

Advisor: Yura Professor

DOES MURPHY CONTROL SWIVEL NAME TAGS? YOUR HEAD SHOULD BE ON A SWIVEL… BUT NOT YOUR NAME TAG

Introduction: One very important question at a research conference is, “Who are you talking to?” This is difficult to know if the person’s name tag is name-facing-inwards. It seems that swivel name tags usually end up with the name-facing inwards. Despite the challenges posed by swivel name tags, most event organizers use them rather than non-swivel name tags.

Hypothesis: We conducted a pilot study to test the hypothesis that Murphy’s Law applies to swivel name tags and are usually name-side-in.

Methods: Researchers were observed at two different conferences to determine the preponderance of name tags that faced the correct way (e.g., name facing out). One conference used swivel name tags while the other used non-swivel name tags. Chi-squared analysis was used to analyze whether swivel name tags are more likely to end up name-facing-in than randomly expected.

Results: At the “swivel-name-tag conference”, 17 name tags were name-facing-out while 25 were name-facing-in. This difference was not significant (chi-squared = 1.52; $p > 0.05$). At the “non-swivel-name-tag-conference”, 100% (n=59) of the tags were name-facing-out.

Conclusions: Murphy’s Law does not apply to swivel name tags, but it’s close! However, swivel name tags are twice as likely to be name-side-in as non-swivel name tags (if they are put on properly). If you are organizing a Research Day, get non-swivel name tags.

POSTER SUBMISSIONS

Fatemeh Mansouri

Advisor: Gordon Giesbrecht

COOLING GARMENT EFFECTS ON PERFORMANCE WHILE WEARING THERMAL PROTECTIVE CLOTHING IN THE HEAT

Firefighters wear protective garments which can reduce the ability to dissipate excess heat while working in a hot environment, leading to thermal discomfort, and decreased performance. There are several methods to control heat stress, and one effective strategy is using personal cooling vests, which absorb excess heat and provide thermal comfort in hot environments. This study aims to compare the efficacy of upper body and whole-body cooling systems in reducing thermoregulatory and physiological stre ss, enhancing cognitive function, and eliciting subjective responses during exercise in hot environments while wearing protective garments.

Eight young individuals aged 18-49 y will participate to evaluate the effectiveness of two different cooling garments (a cooling shirt or a cooling shirt and pants) compared to no cooling (control) while wearing firefighter “turn-out gear” in an environmental chamber with a temperature of 40°C and 40% relative humidity. The participants will step on a 22.5 cm height step at a rate of 20 steps per minute. The exercise protocol will consist of 3 cycles of 15-min exercise followed by 5-min rest, during which subjective measurements and cognitive function will be assessed. Thermoregulatory and physiological measurements will be continuously monitored.

Results will be presented as mean ±SD, and data will be compared using a two-way ANOVA for repeated measures. Post hoc analysis will be conducted using Tukey’s test, and subjective measures will be analyzed using Friedman’s Test with a significance level of $p<0.05$.

POSTER SUBMISSIONS

Faith Olarinde

Advisor: Rodrigo Villar

THE ROLE OF SEX IN THE PHYSIOLOGIC REGULATION DURING ACUTE EXERCISE IN YOUNG HEALTHY ADULTS: A PRELIMINARY STUDY

Sex differences in physiological regulation during stressors like exercise in young adults have been a topic of much debate in the current literature. However, a significant gap remains in our understanding of the interrelation between various body systems and their responses to perturbations in maintaining homeostasis. Analysis of oxygen and carbon dioxide dynamics provides essential information about the underlying mechanisms regulating cardiorespiratory responses during e xercise. This observational cross-sectional study aims to address this gap by examining the differences in oxygen consumption (VO_2) and carbon dioxide output (VCO_2) kinetic responses between females and males during acute exercise. Twenty-four healthy young adult volunteers (12 females and 12 males) reported to the lab twice, performing a submaximal cardiopulmonary incremental exercise test in the first session and a treadmill test in the second session. The protocol for the second session consisted of three trials of a 3-minute baseline phase, a 6-minute walking phase, and a 6-minute recovery phase, with a 20-minute break between trials. Oxygen consumption and carbon dioxide production were measured breath-by-breath using a metabolic cart. At the time of writing this abstract, the data is currently being analyzed. However, we hypothesized that females would show faster VO_2 dynamics than males due to more efficient O_2 delivery and extraction. This study seeks to provide valuable ins ights into the physiological mechanisms underlying stress responses in young adults. This knowledge can help inform future research on young and older adults and may have implications for exercise prescription and training programs.

POSTER SUBMISSIONS

Yoon-Sik Park

Advisor: Rodrigo Villar and Kristine Cowley

AUTONOMIC, CARDIOVASCULAR, RESPIRATORY, AND SKELETAL MUSCLE INTEGRATIVE RESPONSES IN PEOPLE LIVING WITH SPINAL CORD INJURY

Spinal Cord Injury (SCI) is the physical damage of neuronal tissue within the spinal canal, causing various degrees of motor and autonomic, cardiovascular, and metabolic dysfunctions. People with SCI bear their symptoms for the rest of their lives since no treatment has been developed to reverse the damage completely. The most common rehabilitation exercise among people with SCI is the arm crank ergometry (ACerg) exercise because of their limited control of muscles below the lesion level. Previous studies showed that physiological responses improved after ACerg. However, it is challenging for persons living with SCI to exercise at a sufficient intensity and duration as they struggle to achieve the minimal exercise requirements due to their disrupted functions. As a result, the benefits of exercise are not always fully returned to this population, who need them the most. Increasing the work rate while minimizing energy expenditure costs is essential for the SCI community to magnify the exercise health benefits. Thus, finding ways of optimizing SCI exercise capacity is crucial for improving their health and quality of life. A strategy to improve SCI exercise efficiency and capacity will be increasing venous return via muscle pump. We are proposing changing the ACerg below the heart level during exercise to improve muscle pump function, blood return to the heart, and oxygen delivery to the exercising muscles. We will measure cardiovascular, resp iratory and oxygenation status in the working muscles continuously. We hypothesized that physiological response and exercise capacity will improve with exercise below the heart level.

POSTER SUBMISSIONS

Rebecca Franklin

Advisor: Trisha Scribbans

NINETY SECONDS OF PASSIVE PECTORAL STRETCHING DOES NOT ALTER STIFFNESS OF THE PECTORALIS MAJOR OR MINOR: PRELIMINARY RESULTS

Intro: Stretching involves elongating or lengthening muscle and connective tissues of the body and is often performed before or after exercise to improve flexibility, range of motion, and reduce injury risk. Despite its widespread use, recommendations regarding the intensity of stretching remain largely unexplored and rely heavily on practitioner experience. Given that stretching immediately reduces muscle stiffness, it is of interest whether different intensities of stretc hing have differing effects on muscle stiffness. Methods: Ten participants (n=10, 6 female, 4 male; Age: 25 ± 4 years) with asymptomatic shoulders attended two experimental sessions where they received one of two stretches to the pectoral muscles as two intensities in random order: 110% and 120% of baseline stretch. Arms were also randomized based on dominance. Pectoralis major and minor stiffness was measured before (PRE) and after (POST) each stretch intervention using shear wave elastography. Participants' arms were passively horizontally abducted to the predetermined stretch position while lying supine, where the stretch was held for 30s, repeated 3 times with 30s rest between repetitions. A two-way repeated measures ANOVA was conducted on PRE POST values between 110% and 120%. Data were considered statistically significant if $p < .05$.

Results: There was no significant two-way interaction between stretch intensity and time for pectoralis major ($F(1,9)=.264$, $p=.619$, 95% CI -.473 to .637) or pectoralis minor ($F(1,9)=.001$, $p=.974$, 95% CI -.548 to .587).

Conclusion: A single bout of pectoral stretching at 110 and 120% of initial stretching intensity does not alter stiffness of the pectoralis major and minor.

POSTER SUBMISSIONS

Eve Alexiuk

Advisor: Cheryl Glazebrook

THE EFFECT OF AUDITORY STIMULATION AND FOCUS OF ATTENTION INSTRUCTION ON PERFORMANCE OF A DISCRETE TASK

While there have been observed improvements of rhythmic auditory stimuli (RAS) on movement performance for a variety of tasks and populations, the reasons for benefits remain unclear. The present study sought to examine whether benefits of RAS were in part because the RAS promoted an external focus of attention (FoA). Participants (n=26) performed a dart throwing task under four conditions that were designed to assess if benefits of RAS were additive to benefits of external FoA. FoA instruc tions were blocked and counterbalanced such that participants completed internal and external conditions on separate days. Each day was separated into two conditions where one played a three beat RAS before the go signal and the non-RAS condition was single tone go signal. Movement performance was quantified using radial error (shortest distance between the centre of the bullseye and dart) and target points were recorded. Electromyography (EMG) and electrogoniometers were used to collect movement kinematics. Finally, target misses, and an attentional focus questionnaire were collected for insight into overall performance. Mean radial error, variable error, and mean points were analyzed using a 2 Focus of Attention by 2 Auditory Stimulus repeated measures ANOVA. Performance outcomes were not statistically significant. Target point measurement revealed a trend towards a main effect for auditory stimuli where RAS improved accuracy, $F(1,20)=3.22$, $p=0.09$. Next steps include analysis of E MG and goniometer data. Future research should explore whether the lack of significant results can be attributed to the dart throwing task itself or participants' access to knowledge of results.

POSTER SUBMISSIONS

Tanvir Kaur

Advisor: Rodrigo Villar

THE EFFECTS OF POSTURAL TRANSITIONS ON PHYSIOLOGICAL RESPONSES IN YOUNG MALES AND FEMALES

Many everyday activities, such as postural transitions, require regulation from the autonomic nervous, cardiovascular, and respiratory systems. The regulatory adjustments to these systems may be influenced by sex. Therefore, this cross-sectional observational study aims to determine whether sex impacts physiological responses when young adults complete three postural transitions. Twenty-seven healthy young adult volunteers (14 females and 13 males) reported to the laboratory once to perform three active o rthostatic stress challenges: (a) Lie-to-Sit (low orthostatic stress), (b) Sit-to-Stand (moderate orthostatic stress), and (c) Lie-to-Stand (higher orthostatic stress) in a randomized and counterbalanced order by block. The protocol consisted of the initial posture (5 minutes sitting, 5 minutes lying, or 10 minutes lying) before transitioning into a standing or sitting position, which they were instructed to maintain for 7 minutes, with 10-minute breaks between each intervention. Systolic, diastolic, and mean arterial pressure responses were collected using a beat-by-beat finger arterial pressure signal from the Finometer-Finapres machine. Heart rate responses were collected beat-by-beat via an electrocardiogram module. Cardiac output responses were estimated by a model flow algorithm (Finometer-Finapres). Although the data is still under analysis, we hypothesize that females would have a more significant drop in blood pressure and lower cardiac output than males. We also hypothesiz e that females would show higher heart rates to counteract the drop in blood pressure and mitigate the lower cardiac output. This study will provide valuable insight into how sex plays a role in regulating physiological responses in activities that are an essential part of our day.

POSTER SUBMISSIONS

Mikal Thrones

Advisor: Stephen Cornish

POTENTIAL ERGOGENIC EFFECTS OF CREATINE MONOHYDRATE ON BLOOD FLOW RESTRICTED RESISTANCE-EXERCISE

Creatine monohydrate (CM) is one of the most popular supplements used to enhance resistance-exercise performance. However, no study has evaluated the effectiveness of CM in improving acute exercise performance during blood flow restricted resistance-exercise (BFR-RE), a novel method of training to promote skeletal muscle hypertrophy (hereinafter referred to as “hypertrophy”). The mechanisms by which BFR-RE promotes hypertrophy have not been fully elucidated. One potential mechanism through which BFR-RE increa ses hypertrophy is through the release of myokines (signalling peptides and proteins secreted by muscle tissue in response to contractile activity). The proposed study will evaluate the effectiveness of CM as an ergogenic aid during BFR-RE as well as determine if CM in combination with BFR-RE alters the concentrations of the myokines myostatin, interleukin-6, brain-derived neurotrophic factor, apelin, and irisin.

POSTER SUBMISSIONS

Sasha Kullman

Advisor: Shaelyn Strachan

ENGAGING PATIENTS AND COMMUNITY PARTNERS IN DEVELOPING THE CALM HEARTS INTERVENTION

Knowledge-user engagement is the meaningful and active involvement of knowledge-users as co-researchers on a research team. Although engagement can improve research processes and outcomes, inadequate reporting leaves it an under-utilized strategy in the development of behavioural interventions. Here we describe our engagement with knowledge-users (patients and community partners) in the development of a self-compassion intervention for women at-risk for heart disease (The CALM Hearts intervention).

Four CALM Hearts pilot study participants were engaged as patient partners. Three representatives from organizations offering cardiac rehabilitation programs were engaged as community partners. Engagement occurred across four meetings spanning from May 2022 to September 2022. The knowledge-users' input informed the study directions and the decisions made by our interdisciplinary research team. In Meeting 1, the academic researchers and knowledge-users co-developed a terms of reference to guide their work together. In Meetings 2 and 3, priority areas for refining the CALM Hearts intervention were identified. The priorities included delivering the intervention to small groups, increasing the number of sessions, and training community partners' staff to deliver the intervention. These items were written into a draft grant proposal which was approved by the knowledge-users. One patient partner (DP) engaged in a fourth meeting to identify ways patient partners could continue to inform the implementation of a future efficacy trial.

Reporting our engagement with knowledge-users may inspire other researchers to involve patients and community partners in developing behavioural interventions from the grant writing stage and beyond.

POSTER SUBMISSIONS

Craig Hillier

Advisor: Ben Schellenberg

BUILDING CHAMPIONS: A SAVOURING INTERVENTION FEASIBILITY STUDY WITH ELITE ADOLESCENT TENNIS ATHLETES

Adolescent tennis athletes can struggle with mental well-being and emotional regulation during practices and competitions (Lauer & Lauer, 2020). One strategy to control our emotions and boost our levels of happiness is by savouring positive experiences (Hurley & Kwon, 2012). Savouring is a form of adaptive emotion regulation involving the intentional and deliberate upregulation of positive affect (Gregory et al., 2021). Savouring-focused interventions have been shown to enhance savouring behaviours an d promote psychological well-being (Klibert et al., 2022; Smith et al., 2019). This study for the first time examined the feasibility of a novel savouring-focused intervention with elite adolescent tennis athletes. Participants were high performance adolescent tennis athletes (N = 14) recruited from Taylor Tennis Academy and the Manitoba Provincial & Canada Games Teams. Athletes participated in a savouring intervention in which they (a) completed 3 online surveys (pre-intervention, post-intervention, and 30-day post-intervention) (b) attended an in person savouring intervention, and (c) tracked 7-days of savouring. A subset of athletes (n = 5) also participated in a semi-structured interview. Exploratory results showed that the savouring-focused intervention increased savouring scores and positive emotions, while decreasing stress levels and negative emotions. Interviewed athletes reported that savouring was beneficial and planned to continue to use savouring in future. This fea sibility study gives preliminary evidence that a savouring-intervention is feasible and acceptable to elite adolescent tennis athletes.

POSTER SUBMISSIONS

Adam Neiles

Advisor: Stephen Cornish

PREDICTORS OF VERTICAL JUMP PERFORMANCE IN MALE ATHLETES

The countermovement vertical jump (CMVJ) is considered a primary indicator of lower body power producing capability and has strong positive relationships with field and court sport performance. Performance in the CMVJ is influenced by multiple physiologic and anthropometric factors. The aim of this present study is to examine the correlations between CMVJ performance, peak lower body force production (Fmax), resisted sled sprint power output (RSS) and fat free body mass (FFM) among male football and volleyball players age 16-18. This experiment will in clude 70 participants (football n=35, volleyball n=35) with each participant performing a CMVJ test, a lower body Fmax test, an RSS test as well as having their FFM calculated. Correlations between participants' CMVJ performance and the other tests will be calculated and the strength of relationships will be compared. It is hypothesized that lower body Fmax will have the strongest correlation with CMVJ performance among both participant groups, and the football group will have significantly higher levels of FFM compared to the volleyball group

POSTER SUBMISSIONS

Alina Derksen

Advisor: Rodrigo Villar

RELIABILITY AND AGREEMENT OF HEART RATE VARIABILITY BETWEEN GARMIN VIVOSMART®4 AND ELECTROCARDIOGRAM IN PEOPLE LIVING WITH FRAILTY: A PILOT STUDY

Preventing frailty in the aging population has become a critical public health challenge due to the increasing number of older adults and the associated costs and consequences of frailty-related outcomes. Frailty is characterized by decreased physiological reserve and increased vulnerability to stressors. By detecting frailty and implementing preventative measures, it is possible to improve interventions, physical function and quality of life for older adults, an d prevent further decline while reducing the burden on healthcare systems. Heart rate variability (HRV) is an essential indicator of physical and emotional well-being and has been extensively studied in the medical field. In recent years, wrist-worn devices such as fitness trackers and smartwatches have become increasingly popular for monitoring HRV. However, the validity and repeatability of HRV measurement with wrist-worn devices have been researched and debated. This pilot study aimed to determine the repeatability and agreement between an electrocardiogram (ECG) and Garmin Vivosmart 4. Five older female aged 65-79, reported to the lab and underwent a Frailty Phenotype assessment and a 10-minute resting supine. Repeatability and agreement were tested using a student T-test, coefficient of variation (CV), intraclass correlation (ICC), and Bland-Altman plots. The preliminary results showed that there were no statistically significant differences in average RR-interval, low CV, high er ICC, and good agreement between ECG and Garmin. In conclusion, the preliminary results are promising to prove that Garmin can be used to analyze HRV in frail older adults. However, a larger sample is required to confirm these preliminary results.

POSTER SUBMISSIONS

Amanda Slagerman

Advisor: Trisha Scribbans

ALTERATIONS IN MUSCLE EXCITATION, ACCELERATION AND JERK OF THE TRUNK FOLLOWING UNEXPECTED CHANGES IN LOADS DURING

INTRODUCTION: Lifting loads of unknown weight has an increased risk of lower back injury (LBI). False weight assumptions could lead to errors in muscle excitation and trunk kinematics, and the inability to adjust appropriately may be associated with injury. The purpose of this study was to determine if unknown increases and decreases in load magnitude during lifting result in significant differences in muscle excitation and trunk kinematics. METHODS: Twenty-one adul ts (n = 10F) lifted 10 boxes: eight 7.5kg boxes, one 15kg box, and one 2.5kg box. Participants were unaware of the different weights. Bipolar electromyographic and tri-axial accelerometers were used to measure four trunk muscles and trunk acceleration. Muscle excitation outcomes include average RMS, peak RMS, time to onset and time to peak. Trunk kinematic outcomes include average acceleration and jerk at takeoff. Repeated measures ANOVA will be completed for each dependent outcome to determine differences between lifting conditions. RESULTS: Data analysis is on-going. Initial, visual comparisons of means for peak EMG, average RMS, time to peak, and jerk at takeoff show differences between conditions. Further analysis is required to determine if any differences found in the data are statistically significant, as well as to have a better interpretation of the data and its impact. CONCLUSION: LBIs can lead to prolonged pain, reduced quality of life, and significant financial burdens. Understanding the underlying mechanisms of injury and our ability to react to unexpected load changes is an important step for reducing the impact of LBIs on the individual and industry.