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2020 Conference Abstracts

ORAL PRESENTATIONS, THURSDAY OCTOBER 8, 20

Keynote Presentation

Wisdom, Experience, and Humility: Some Thoughts on the Profession I Love

Robert Pangrazi (Arizona State University)

This presentation will be a personal collection of my thoughts about the profession. Included will be why I chose a career of motivating others to move, what and who we are as professionals, what is the future of PE in schools, and a portrait of our graduates . Since the pandemic has moved teachers into virtual teaching, I will briefly discuss how online instruction can be a way to improve our ability to touch the social and emotional side of students. Learning to be comfortable with the uncomfortable will bring the session to a close. Bring your questions as I will leave time for us to interact.

Young Scholar Award Presentation

To Make Exercise Promotion More Effective, Be Affective: The Early Promise of Dual-Process Frameworks and Future Research Directions

Zachary Zenko and Catherine Berman (California State University, Bakersfield)

Although the benefits of a physically active lifestyle are well-known by researchers and the public, only a small percentage of the population is sufficiently active and meets the physical activity recommendations for public health. The purposes of this white paper are to (a) introduce dual-process theoretical frameworks that can be used to explain and promote exercise behavior, (b) summarize strategies for making the experience of exercise more pleasant, which is theorized to promote exercise behavior in a dual-process framework, and (c) identify gaps and present necessary future directions for researchers. These aims are achieved by first briefly describing the current pandemic of physical inactivity in the United States; second, by highlighting the limitations of traditional theoretical frameworks that emerged from the same general movement in psychology, namely cognitivism; and, finally, by describing assumptions of dual-process theoretical frameworks adopted by the lead author and early evidence for support. In achieving these aims, the lead author's body of work is continually referenced to emphasize the evolving research agenda and the lead author's own role in advancing dual-process theories in the context of exercise and affective responses to exercise. Current and future research directions pursued by the lead author are discussed.

Young Scholar Award Presentation

Effects of Partial Body Weight Support on Dual-Task Walking in Older Adults with Multiple Sclerosis

Gioella N. Chaparro (University of Illinois at Urbana-Champaign), Robert W. Motl (University of Alabama at Birmingham) and Manuel E. Hernandez (University of Illinois at Urbana-Champaign)

Individuals with multiple sclerosis (MS) experience gait impairments, particularly while dual-tasking, that contribute to an increased risk of falls. Because falls negatively impact participation and quality of life, it is essential to examine how to improve dual-tasking gait. However, no studies, to date, have examined how gait variability is affected by partial body weight support (PBWS) while dual-tasking in older adults with MS. This study examined how PBWS can affect dual-tasking gait variability in older adults with MS and age-matched healthy older adults (HOA). Twenty individuals from each group underwent a dual-tasking paradigm under PBWS and no body weight support (NBWS) while recording gait variability measures.

Under PBWS, older adults with MS exhibited significantly greater decreases in gait variability measurements (i.e. smaller coefficient of variation for step width and stride time) when compared with HOA and NBWS. These study findings suggest that PBWS can assist with dual-tasking gait variability and may serve as a therapeutic tool for clinicians and rehabilitation specialists for improving dual-task ability and potentially decreasing fall risk. This study was the first to investigate the effects of dual-tasking under PBWS on gait variability measures in older adults with MS and age-matched controls.

Instructional Physical Activity Programs, Student Wellness, and Student Retention

Heather Van Mullem (Lewis-Clark State College)

Colleges and Universities aspire to provide a safe, equitable, accessible, and comprehensive education to their students. Students learn best when they feel safe and supported and are healthy and well (Casebolt, Chiang, Melton & Russell, 2017). Creating learning spaces that meet students' needs and expectations positively impact retention. In turn, high retention rates may positively influence recruitment (Elliott & Healy, 2001). High retention rates and continued growth through effective recruitment are essential to viability of programs across campus. Central to these efforts are Kinesiology and Health Education professionals. Their work to design and deliver coursework, like instructional physical activity programming, promotes and enhances student and community health and wellness (Sweeney, 2011).

While the value of physical activity courses to student learning, health, and wellness is well documented (Casebolt, Chiang, Melton & Russell, 2017), minimal research has explored if a relationship exists between instructional physical activity course completion and retention. Therefore, a case study examined retention rates of students at one college who completed instructional physical activity classes. Data collected over five academic years (AY14-15 through AY18-19) indicate 79.15% of students who completed a minimum of one activity course during the fall and/or spring semester were retained and enrolled in courses the following fall semester. This interactive presentation will: 1) share the findings from this case study and 2) identify and explore rationale and tangible strategies kinesiology administrators can use to advocate for and enhance college/university instructional activity programs on campuses.

Instructional Applications of Pecha Kucha Presentations

James Ave (Fresno-Pacific University)

The purpose of this presentation is to explain the instructional applications of PechaKucha presentations (PKs). Topics include 1) what are PKs, 2) summary of the scholarly literature, 3) traditional and distance learning higher education teaching applications, 4) advantages and challenges of utilizing it, and 5) how to develop a PK presentation. PechaKucha (pronounced pe-cha-ku-cha) means "chitchat" in Japanese and are fast-paced presentations using images rather than text. It was developed in Japan by Astrid Klein and Mark Dytham of Klein Dytham architecture to help presenters tell a story rather than describing slides. Typical PKs are limited to 20 slides at a rate of 20 seconds per slide for a total presentation time of 6 minutes and 40 seconds. Research has found this style of presentations are more interesting and engaging as compared to typical presentations. It has been shown to improve student learning and engagement, supports critical thinking skills, and builds confidence. This presentation style provide an option for students to experience learning in a new way. PKs can be used as a substitution for instructor's lectures and can assist students to effectively and concisely communicate concepts and theories. Some of the challenges with this presentation method includes: requiring more practice time, difficulty in finding images that represent the material or topic, and limits content due to time constraints.

Student Engagement and Opinions After Changing to Virtual Instruction in Response to a Pandemic: Suggestions for Effective Teaching

Zachary Zenko (California State University, Bakersfield)

At a comprehensive regional university, the Spring 2020 semester forced faculty to rapidly transition their courses from primarily face-to-face instruction to virtual instruction, held exclusively online. This study was designed to assess changes in Kinesiology student-engagement level, as well as opinions about alternative instruction strategies. In the present study, 51 students completed the survey online. The survey focused on time dedicated to coursework, contact time with instructors, engagement, and preference for class format. Students were also asked open-ended questions about strategies that made alternative instruction more effective, and barriers that made the transition more challenging. Students did not report differences in time dedicated to coursework before and after the transition to alternative instruction (mean difference: 0.75 ± 7.38 hours/week, $t(43) = 0.78$, $p = .440$, $d = 0.12$). Students reported less contact

time with instructors after the transition to alternative instruction (mean difference 4.67 ± 6.05 hours/week, t(42) 5.06, p ≤ .001, d = .77). Students reported lower engagement after making the transition to alternative instruction (mean difference: 3.52 ± 2.47, t(43) = 9.45, p ≤ .001, d = 1.42). Students also preferred face-to- face instruction (95.5%) over alternative instruction (4.5%). Open-ended responses focused on use of technology and elements of course design that allowed alternative instruction to be more effective, but also presented barriers. Effective online teaching practices and recommendations for navigating sudden shifts to alternative instruction are discussed.

Distinguished Student Presentation: Relationship of Lower Limb Power and Handgrip Strength to Cognitive Function

Patricia Ruiz Mena, Ivan Garza, Maria Gonzalez, Hyun Un von Euw, Roshetta Vauvei (California State University, East Bay)

Rationale: Muscular strength and power are key to independence and successful aging. Muscular strength declines with age, however muscular power is associated with daily activities, functional independence, and critical to preventing falls. Additionally, muscle power declines at a greater rate than muscle strength. Handgrip measures are commonly used to assess muscle strength because of their ease of use, standards are available, and measures are associated with cognitive decline. In women, power training improved cognition (Yoon et al., 2017) yet association of lower limb power, assessed with a validated chair stand test (CST) (Sherwood et al., 2019), to cognitive function has yet to be established.

Purpose: To assess the association of handgrip strength and lower limb power to cognitive performance. Methods: 18 participants (9 females, 9 males 70.3 ± 9.41 years) were recruited from campus and community centers. Lower limb power was assessed during a CST using a linear position transducer.

Cognitive assessments included Mini-Mental State (3MS), Trail making A & B, and Animal Naming. Summed peak handgrip strength was measured using a Jamar dynamometer. Pearson correlational analyses were used to assess relationships between variables. Results: Peak handgrip strength to all cognitive measures were weak, as were peak lower limb power to 3MS and Trailmaking A & B, r = 0.01,

-0.4, and -0.35 respectively. Conclusions: Data collection is ongoing. Associations to 3MS were particularly weak with a suspected ceiling effect contributing. Upon completion of data collection, a multiple regression analysis may be necessary to ascertain confounding variables.

POGIL: An Introduction to Process Oriented Guided Inquiry Learning for Those Who Wish to Empower Learners

Shawn Simonson (Boise State University)

Process Oriented Guided Inquiry Learning (POGIL) is a learner-centered pedagogy that results in improved student content and process skill (“soft skills”) outcomes across academic disciplines. This workshop actively introduces POGIL and the benefits of this active learning approach. Participants experience a POGIL-based environment, analyze activities to understand how guided-inquiry is structured, and consider classroom facilitation and other implementation issues.

POGIL is a social constructivist pedagogy that uses carefully constructed guided-inquiry activities and students working in managed teams to simultaneously teach content and process skills. It is perfect for this conference as it is a “dynamic instructional strategy” that works in harmony with brain science and how students learn.

In POGIL, students work in small teams on specially designed guided inquiry materials that supply students with data or information followed by leading questions to guide them toward construction of their own valid conclusions. The instructor serves as facilitator, observing and periodically addressing individual and classroom-wide needs.

POGIL is evidence-based: a) teaching by telling does not work for most, b) students in interactive communities are more likely to be successful, and c) knowledge is personal. Students enjoy themselves and develop ownership over the material when they construct their own understanding.

The POGIL environment energizes students and provides instructors with feedback about what students understand and misunderstand. Students learn that logical thinking and teamwork are prized above getting “the correct answer.” This emphasizes that learning is not a solitary task of memorizing information, but an interactive process of refining understanding and developing skills.

Aesthetic, Social, and Moral Meaning of Sport Uniforms

Elaine Foster and Sharon Stoll (University of Idaho)

Sport uniforms serve very practical purposes, but also may contribute to subjective experiences.

However, empirical research on an athlete’s relationship with the uniform appears to be limited. The purpose of this

study was to investigate the aesthetic, social, and moral meaning athletes develop or attribute to their uniforms. Methods. University students enrolled in courses about sport in society were asked to complete two open-ended quizzes and one paper about their experiences with their sport uniforms. Responses were coded for patterns then synthesized into themes, then further qualified under the following questions: (a) how did it feel to be in uniform, (b) what was it like to be selected through the sport uniform, (c) how did the uniform influence moral behavior, and (d) how does loyalty influence behavior when moral issues arise? Results. 56 students participated in the study. Four themes emerged for question A: appearance to others, belonged to others, personal experience, and aesthetic fit/feel of the uniform. Two themes were discovered for question B: belonging and accomplishment. For question C, responses were divided into no (15 responses) and yes (33 responses). Finally, three themes evolved for the final question D: not loyal (1 response), always loyal (23 responses), loyal but not immoral (10 responses). Conclusion. Wearing a sports uniform appears to signify belonging and contributes to important personal experiences. Further, the social belonging inherent to wearing a uniform may elicit strong loyalty which may have implications into the moral or immoral behaviors displayed in sports.

Practices to Maximize Benefits of Strength & Conditioning Internships

Eric Martin (California State University, Monterey Bay)

Introduction: The Association of American Colleges and Universities considers internships a high- impact educational practice that allow students to apply academic knowledge in a real world setting.

However, almost no research exists on the perceived benefits of participating in a strength and conditioning (S&C) internship. Methods: Six kinesiology undergraduate students participated in a semester long S&C internship. They wrote resistance training programs for and coached athletes two nights per week; additionally, interns met once per week as a group with the supervisor to review assigned readings and develop exercise programs. At pre- and post-internship, participants completed a self-assessment of key knowledge, skills, and abilities. At post-internship, participants wrote a self-reflection paper. All data were analyzed qualitatively using semantic level thematic identification following an essentialist epistemology.

Results: Key themes emerging from the analysis focused on improvements in ability to coach others, especially coaching groups of athletes; aspects that facilitated learning during the internship; and an enhanced self-awareness among the interns about how much more professional development they needed. Discussion: Several key practices were identified, such as providing and enforcing regular and various opportunities for self-reflection, giving full trust and responsibility to interns to carry out the work, and providing supplemental academic readings. Conclusion: Interns should be granted autonomy, authority, and the opportunity to make mistakes to maximize learning during a S&C internship. This talk will also present suggestions and materials regarding self-reflection and assessment for other internship coordinators to strengthen their programs for students.

The P-Value in Quantitative Research

Bethany Shifflett, Seung Ho Chang (San José State University), Andrea Ednie (University of Wisconsin, Whitewater), and Jeff Bernard (California State University, Stanislaus)

In the recent past a wide array of concerns have been expressed related to use of the p-value in the context of hypothesis testing with some calling for a stop to its use in research. One of the more in-depth explorations can be found in a special issue of the 'American Statistician' journal published in 2019. Should we be moving beyond use of 'p < .05' completely? Should we acknowledge and address the pitfalls as well as misuses while continuing to employ traditional hypothesis testing? The panel, which includes faculty at different stages in their academic lives, will reflect on their own education and training with regard to research methods, summarize salient issues, provide their perspective on the use of p-values in hypothesis testing, and also consider the issues from the point of view of journal reviewers and editors.

Laws do not Change Attitudes of Inclusion: Why Perspective Taking is Needed

Aubrey Shaw (Idaho State University) and Sharon Stoll (University of Idaho)

US laws for fifty years have structured policy and curriculum on how to teach pre-professionals inclusive protocols for individuals with physical disabilities. Unfortunately, the laws sadly do not positively affect pre-professionals' attitudes on their ability to teach this population (Hodge, Elliot, 2013). The purpose of this presentation is to discuss the findings of a six-week intervention with pre-professionals to improve perspective taking. Perspective taking is the ability to see others as a part of self, rather than an

"other" (Lickona, 1993; Levinas, 2001). Moral development literature is clear that without perspective taking, growth in

how one views another will not improve (Kohlberg, 1969; Gibbs, 2014). Forty-four pre- professionals after six weeks of online instruction were better able to vocalize their perspective taking about individuals with physical disability and how they changed in perspective. Participant forty said, "It was very insightful. I never realized that even I discriminate against para abled people. I will work on being better for them, because I want them to feel like everyone else. It was a good study. Participant forty-one said, "The lessons helped open my eyes to how much of a problem this is and how hard it is to make everything equal for all. The lessons showed me that the disabled population is discriminated against way more than the able-bodied. This presentation will share lesson and response examples, limitations and implications for future studies. Participants will engage in perspective taking, discuss the experience, and develop skills and tools to improve perspective taking.

Non-Failure Kinesiology Education: Moving from Failing to Not-Yet-Mastered

Eric Martin (California State University, Monterey Bay)

A recurring theme in the national conversation, recently highlighted in the Democratic Party Presidential Candidate debates, has been that university education is not affordable. Many people claim that student loan debt is crushing our future. A lot of the debt burdens those who never graduate college, but who fail out. Why do we, as Academia, allow them to fail at all? We have the option to not fail people. With learning management systems and a host of other online tools, it is easier than ever for us to create content and educational systems that would never allow our students to fail. In this round table discussion, I will present my vision for a non-failure kinesiology education, tools and policies that could make that happen, and then facilitate a discussion amongst colleagues about 1) what other strategies they see that could contribute to this vision; 2) what barriers we face to make this vision a reality, and 3) what steps we could take as individuals, departments, universities, and a nation to break down those barriers and make that vision a reality.

Intentional Coaching: A Phenomenological Intervention to Alleviate Trait Anxiety Among Collegiate Swimmers

Mark Sowa and Sharon Stoll (University of Idaho)

The purpose of this presentation is to discuss the development and proposed implementation of a twelve-week coaching program designed to alleviate trait anxiety in female swimmers while elevating athletic coping skills. Each of the twelve educational modules are based on an existential approach to sport focusing on the subjective and authentic experience of each individual athlete. We believe escalated levels of trait anxiety directly impacts the coping skills and confidence that in return decidedly impacts athletic performance and overall enjoyment of the activity (Creswell & Hodge, 2004). Furthermore, we feel that this mental health phenomenon is deeply rooted in the philosophical approach to coaching. Our goal is to develop a coaching education that will affect athletes at an ontological level. Therefore, the purpose of this quasi experimental study (using a randomized Solomon four design) is to examine the effect of a twelve-week systematic, intentional, existential coaching education intervention with college aged women swimmers on trait anxiety and coping skills. The Sports Anxiety Scale-2 (SAS-2) (Smith, Cumming, & Smoll, 2006) and the Athletic Coping Skills Inventory-28 (ACSI-28) (Smith, Schultz, Smoll, & Ptack, 1995), employed as a pretest and posttest, will obtain quantitative data to prove process oriented coaching focusing on the subjective lived experience could have a significant benefit to an athlete's levels of anxiety and ability to cope in a sporting situation. The weekly reflection topics will bring the athlete back to her own subjective love for her sport. Additional qualitative data will be collected from the treatment group and compared to two additional control groups.

ORAL PRESENTATIONS, FRIDAY OCTOBER 9, 2020

Dance Science: The Rejoining of the Disciplines of Dance and Kinesiology in American Academe

Melonie Murray (University of Utah), Steven R. Murray (University of California, Berkeley)

This presentation traces the development of dance as an academic discipline from its infancy in physical education programs to its present state, noting the significance of the burgeoning field of dance science. The academic discipline of dance originated in the early twentieth century in American academe, particularly in women's physical education programs. By the 1920s, dance emerged as a discrete discipline with Margaret H'Doubler's founding of the first baccalaureate degree in dance at the University of Wisconsin. By the 1960s, the academic discipline of dance had shifted from its original mission of movement education for everyone to focus more on professional dance training for highly skilled performers. This philosophical shift saw many dance programs move from homes in physical education to the fine arts. During this time, dance also saw an increasing disciplinary emphasis on choreographic and performance projects, a

trend still evident today. Dance science began to develop as an academic field in the early 1980s. The professional association, the International Association of Dance Medicine and Science was founded in 1990, and publications and conferences were born. With dance science's emergence, dance and physical education began to realign, albeit often in departments of kinesiology. Today, with the development of dance science as a burgeoning field, dance and kinesiology are coming full circle, rejoining through their historical roots.

Acknowledging Student Stress: Mindfulness and Physical Stress Reduction Activities for Health and Wellness Classes

John Stewart (Stephen F. Austin University)

Students are stressed. The ongoing COVID-19 crisis, lockdowns, police brutality, racism, wealth inequality, widespread unemployment, and worldwide political upheaval all magnify such "standard" students concerns as tuition and housing costs, loans, homework, and exams. Research shows chronic stress can increase the risk of anxiety, depression, sleep disorders, obesity, high blood pressure, heart disease, and gastrointestinal disease. Chronic stress also can impair concentration, memory and learning. Ignoring student stress will not make it go away, nor will it lessen potentially harmful effects of sustained stress on student health and school performance.

Mindfulness is a non-judgmental awareness of our thoughts, feelings, physical sensations, and surroundings in the present moment. Increasingly, mindfulness practices are being employed to help children and adults better manage stress in uncertain times. Based on previous classroom application, this presentation provides a conceptual overview of mindfulness; presents scientific evidence for the effectiveness of mindfulness in stress management; and describes in detail two simple mindfulness techniques: one involving the attentive, present-moment experience of the five senses (sight, sound, touch, taste, and smell), and another aimed at identifying and releasing tension in the body. Easy stretching and deep breathing activities for stress reduction also are described. These methods can be used singly or in combination as a class "warmup" or to segue into broader class discussions about life stressors, stress health effects, and stress resilience. Ultimately, the practices presented can help health and wellness students (and instructors) more effectively identify, reduce, and manage stress through the life course.

Inclusion of Individuated and Integrated Activities Improves Group Skills and Interest in Motor Learning

Whitney Ogle, (Humboldt State University)

With increasingly diverse classrooms, it is important to consider the cultural strengths our students bring with them into the classroom. Some students have integrated cultural frameworks where they "consider everything within an interdependent whole" and some have individuated cultural frameworks and "interact with the world in a more compartmentalized manner" (Chaves & Longerbeam, 2016). Therefore, a combination of group and individual assignments may address the cultural strengths of both integrated and individuated learners.

The purpose of this study was to integrate a diversity of cultural strengths by promoting both integrated and individuated assignments to accommodate more students from different perspectives and strengths into the learning process. In an upper-division motor learning class, students applied course content into practice of a new skill over four weeks of class through an individual quiz, group quiz, group demonstration, and individual reflection each week. Students were organized into groups of four based on a shared interest in learning the same skill. 33 students completed the Groupwork Skills Questionnaire (GSQ) before starting and 20 completed the GSQ and follow-up questions at the end of the four weeks. There were increases in average and mode in all 8 measures on the GSQ, with the largest improvements in "providing emotional support" and "showing that I care." The students reported that a combination of both in-class group practice and out-of-class independent practice was most helpful in learning the new motor skill. The individual quizzes were ranked as the best assignment, while the individual reflections were ranked as the worst assignment. 95% of the sample reported that they are going to continue to practice their skill and 100% were likely to try to learn something new. It is recommended that students are placed in groups with people who are all learning the same skill and the skill is something they really want to learn. With increased classroom diversity, it is important to create assignments that accommodate integrated and individuated learning frameworks.

Affordable, Easy-to-Use Technology for Teaching Biomechanics Labs

Donald Diboll (Fresno-Pacific University)

Access and use of equipment by students in kinesiology labs can be hindered for a variety of reasons, each of which interferes with achieving student learning outcomes. Equipment is often expensive, limiting its acquisition and therefore access by students. In addition, certain lab hardware and software may be complex, thereby requiring significant training to overcome operational difficulties, again hampering learning outcomes in labs. This presentation will introduce an inexpensive, easy-to-use, and compact wireless sensor which can be used to collect kinematic data for biomechanics lab activities. A downloadable app allows students to easily receive, save, and transfer kinematic data to a spreadsheet program for detailed analysis. This portable device's technology allows instructors and students to conduct lab experiments and activities outside the confines of a lab facility. Examples of biomechanics lab activities which are easily implemented with the device will be presented, including the collection and analysis of data. The relevant biomechanics concepts and other potential learning opportunities from these examples will also be presented.

Circulating MicroRNAs in Postmenopausal Women Based on Bone and Muscle Status

Zhaojing Chen (California State University, San Bernardino)

MicroRNAs (miRNAs) are short, non-coding RNA molecules that fine tune posttranscriptional protein expression. Aging is accompanied by progressive declines in muscle mass and strength, and in bone mineral density (BMD). Although miRNAs in pathology have been extensively studied, the role of circulating miRNAs (c-miRNAs) in osteoporosis and sarcopenia has to date not been well understood. Purpose: To examine the difference in bone and muscle specific c-miRNAs in postmenopausal women based on their bone and muscle status, and to determine the associations between these specific c- miRNAs and muscle and bone variables. Methods: Seventy-five postmenopausal women participated in this study. Body composition and BMD, functional performance tests (grip strength, gait speed, and countermovement jumps) were assessed. Levels of c-miRNAs (miR-21-5p, -23a-3p, -24-3p, -100-5p,-125b-5p) were analyzed. Results: Statistically, there were no significant differences in specific c-miRNAs based on sarcopenia and osteoporosis status. However, fold changes of miR-21-5p (FC = 2.59) and-23a-3p (FC = 2.09) indicated upregulation and miR-125b-5p (FC = 0.46) indicated downregulation in the osteoporotic group compared to the non-osteoporotic group. The relative expression level of miR-125b-5p was significantly positively correlated with age ($p < 0.05$). The relative expression level of miR-21-5p was significantly negatively correlated with trochanter BMC ($p < 0.05$). Conclusion: Although no statistical differences were found in target c-miRNAs based on muscle and bone status, our results indicate that there are biological differential expressions in some c-miRNAs between osteoporotic and non-osteoporotic individuals. Other circulating miRNAs need to be studied in the future.

Effects of Increasing Footwear Insole Stiffness on Foot and Ankle Mechanics in Gait

Li Jin (San Jose State University)

The biomechanical function such as energetic patterns of the foot-ankle system is critical in human walking gait. While some of the energy was dissipated due to foot segment deformation in walking stance phase. Increasing footwear insole bending stiffness was reported to restrict foot segment bending behavior and this was reported to reduce foot energy dissipation. Little is known whether increasing footwear insole bending stiffness would alter foot-ankle system energetic patterns. Two healthy subjects (one female, one male; age 26.5 ± 6.4 years, height 168.5 ± 2.1 cm, weight 64.9 ± 5.4 kg) participated in this pilot study and they were asked to walk at self-selected normal speed in two different insole stiffness conditions: (1) normal shoe insole (SSN-NSI); (2) carbon fiber insole (SSN-CFI). Paired sample t-test was conducted between SSN-NSI and SSN-CFI for all outcome measures. No significant difference of the outcome variables was found between the two insole conditions. While foot segment positive work and mechanical work ratio were 45.54% and 68.43% higher in SSN-CFI than in SSN-NSI condition, respectively; foot negative work was 25.02% lower in SSN-CFI than in SSN-NSI condition. Foot-ankle system positive work and mechanical work ratio were very close between SSN-NSI and SSN-CFI condition, respectively. The findings indicate increasing footwear insole bending stiffness will influence foot segment and ankle joint energetic patterns in walking stance phase. And the compensatory mechanism of mechanical energy generation may exist between foot segment and ankle joint to maintain a relatively stable foot-ankle system overall energy generation and work ratio.

Creating a Space Where Learning is Fun!

Karen Hostetter, Norther Arizona University

The purpose of this presentation is to introduce and demonstrate multiple teaching tools that can be used across a variety of disciplines to actively engage students in the learning process. This will be an energetic presentation where participants take part in brief learning activities to learn three to four instructional strategies. The objectives of the presentation are to provide examples of how to engage students through A) technology; and B) active learning & assessment strategies.

Exercise is Medicine on Campus: Utilizing ACSM's Global Initiative to Provide Experiential Learning for Kinesiology Students

Lisa J. Leininger (California State University, Monterey Bay)

Exercise is Medicine® On Campus (EIM-OC) was established by the American College of Sports Medicine (ACSM) in 2009 to help universities integrate PA into the campus culture. Universities have the unique opportunity to promote PA to both students and employees. Students are forming lifetime health habits, while extending the programming to employees encourages healthy behaviors while at work. California State University, Monterey Bay (CSUMB) launched EIM-OC in fall 2019, with student peer mentoring, employee exercise classes, a "Run, Walk, and Roll Club" and "EIM-OC Week". The initiative is led by professors in the Kinesiology (KIN) department with partnerships across campus. KIN students are involved in all facets of the program, including leadership and planning roles, facilitation of exercise classes, and peer mentoring. This case study presentation reviews how CSUMB incorporates students into the planning and implementation of successful EIM-OC programming. Program participants benefit from these programs through increased physical activity and improved health behaviors. However, the experiential learning that Kinesiology students gain has been invaluable to both the students and the development of a healthy campus culture. Due to its many successes, the KIN department views the continuation of the EIM-OC program as vital to the development of our students as future exercise professionals and health care providers.

Teaching During a Pandemic: Using Virtual Fitness Programming Principles to Create Community in Online Classes

Heather Van Mullem (Lewis-Clark State College)

The COVID-19 pandemic forced faculty to move classes designed for face-to-face delivery to remote delivery almost overnight. Remote learning required students to approach their education using different strategies. Additionally, during this transition, many students faced difficulties with a multitude of financial, emotional, and psychological issues related to the pandemic. In short, navigating this situation was difficult.

In addition to being tested to adapt content delivery on a very short timeline, faculty were also challenged to support students during this difficult transition and to create and foster community in a remote learning scenario. A sense of community is critically important to creating a safe and effective learning space. This became even more important during the pandemic. We don't yet know how COVID-19 will change how we live and learn, but we anticipate we will experience a new normal. How do we best prepare to ensure student success?

This interactive presentation will draw from the Theory of the Sense of Community (McMillan & Chavis, 1986) and community building principles utilized by virtual fitness programs, Daily Burn, MyFitnessPal, and Kayla Itsines' BBG, to identify strategies which facilitate building community in online learning. Session participants will: 1) Learn the four elements of the Theory of the Sense of Community and how they can be used to improve community in online courses (McMillan & Chavis, 1986), 2) Identify community building strategies utilized in various virtual fitness programs and explore how they can be leveraged by faculty to create and enhance community within online courses, and 3) Identify teaching strategies to incorporate into online course design and delivery to create and foster community between students and faculty.

Preregistration as a Teaching Tool for Undergraduate and Graduate Students in Kinesiology

Jennifer Sherwood, Ivan *Garza, Maria Gonzalez, Patricia Ruiz Mena, Hyun Un von Euw, Roshetta Vatuvei, and Cathy Inouye (California State University, East Bay)*

Rationale: Preregistration is a process of sharing your hypothesis and research plan, including methods and statistical analyses, before beginning data collection. Accumulating evidence suggests that preregistration reduces publication bias, the practice of publishing positive study results more frequently than negative results; exposes reporting bias, the omission of study outcomes/treatments from the published work; and makes it easier to detect questionable statistical

practices (compare-trials.org/). The Center for Open Science recommends preregistration to improve openness, transparency, and rigor in science, and preregistration opportunities are available in a number of fields, including kinesiology. Methods: During the 2020 shelter-in-place, we worked with graduate and undergraduate students enrolled in independent study research activities to complete a standard preregistration template (osf.io/ zab/wiki/home/) on our project studying cognition and muscle function in older adults. We present reflections from faculty and student experiences of the preregistration process, as well as, recommendations for using preregistration as a teaching tool.
Conclusions: Our results suggest that study preregistration offers an interesting and practical teaching framework for students to apply their course knowledge, and develop their skills with research design, methods, and analysis.

Practical Experiential Learning in Undergraduate Biomechanics

Leia Bagesteiro (San Francisco State University)

Biomechanics is the field of study which involves different physical characteristics of the human body combined with the principles of Newtonian mechanics. This is a particular challenging course for many students because it requires competency in math and physics. This paper presents my experience of developing and implementing a biomechanics course suitable for kinesiology undergraduate students having active-experimental learning sections. It focuses on hands-on experiences, which are offered as five lab activities and a final project. Students work in groups to complete these activities, which integrates acquired knowledge and applied real life examples. Lab activities are designed to match concepts in the lectures as well as advance students' skills in data collection, processing, and analysis. These active and experimental learning approaches offer students the opportunity to gain occupational experience by collecting data and estimating kinematic and kinetic parameters. Students also critically interpret data and gain a better understanding of methods used to improve the performer's movements. Throughout the semester, students demonstrate improvements in their critical thinking abilities and proficiency in using biomechanical oriented software and hardware. They also apply the learned skills in their final project, where they choose and analyze a unique movement for injury prevention or performance improvement.
Data from survey assessments of students' perceptions of the teaching effectiveness and course final grades shows better results for active learning approach as compared to traditional lecture-based teaching method. In conclusion, the progressive arrangement of KIN485 activities are successful in guiding students to practice their data collection and analytical skills.

Mechanisms Underlying Improved Insulin Sensitivity after Exercise

Sean A. Newsom, Harrison D. Stierwalt, Sarah E. Ehrlicher, Matthew M. Robinson (Oregon State University)

Even a single session of moderate-intensity exercise can improve insulin sensitivity; however, the mechanisms are incompletely understood. Both insulin and muscle contraction activate Ras-related C3 botulinum toxin substrate 1 (Rac1), which reorganizes actin filaments and facilitates skeletal muscle glucose uptake. We sought to determine if enhanced insulin-stimulated activation of Rac1 contributes to the insulin sensitizing effects of exercise. Sedentary adults (n=14 [4M/10F], BMI 22.2±2.1 kg/m2, VO2max 32.2±4.5 ml/kg/min) completed two metabolic study visits involving 1-hour of moderate-intensity cycling exercise (65% VO2max) or rest in a randomized, crossover design. Insulin sensitivity was determined using a 3-hour hyperinsulinemic-euglycemic clamp, 120 min post-exercise or rest. Vastus lateralis muscle biopsies were obtained 15 min post-exercise/rest, 120 min post-exercise/rest, and 1 h into a hyperinsulinemic-euglycemic clamp (180 min post-exercise/rest) to determine Rac1-GTP binding and insulin signaling. Rac1-GTP binding and activation of downstream p21-activated kinase (PAK) were increased 15 min post-exercise ($p<0.05$ vs. rest). Exercise increased insulin sensitivity (+12±16.5%, $p=0.03$ vs. rest) compared with rest. Nevertheless, exercise did not enhance insulin-stimulated phosphorylation of Akt ($p=0.40$), Rac1-GTP binding ($p=0.36$) or phosphorylation of PAK ($p=0.71$) compared with rest. In contrast, AMPK-induced activation of TBC1D1 (another critical insulin signaling protein) remained increased 180-min post-exercise ($p=0.04$ vs. 915 Rest) and was greater compared with the rest trial ($p=0.01$ for EX vs. Rest). We interpret these findings to indicate mechanisms independent of Rac1 signaling, such as AMPK-induced activation of TBC1D1, contribute to the insulin sensitizing effects of exercise in health adults.

Teaching on the Intersection between Built-environment, Physical Activity, and Wellness: A Case Study on One Applied Learning Assignment and How Integrating Universal Design for Learning Principles Can Enhance Learning

Jafra D. Thomas , Pamela Dougherty (California Polytechnic State University, San Luis Obispo), Alexandra Szarabajko (Oregon State University, Corvallis, Oregon)

One best practice in dynamic instruction is use of application activities to assess student learning and to facilitate personal connections with concepts. This can promote a deeper and self-directed learning experience for students. This presentation will model one application activity that can be adapted to reinforce a lesson on the intersection between the built-environment, physical activity, and wellness. This activity is well suited for lesson plans that include an introduction to the social ecological model. As part of our tutorial, we will model how this application activity can be adapted using a proven but neglected approach, which would further support effective teaching and learning. Specifically, we will illustrate steps and methods to better align the lesson with universal design for learning (UDL) principles. Teaching with UDL principles in mind is critical for ensuring equitable learning environments. The merits and utility of this approach have been discussed in concert with physical education and other subject areas, but application in higher education courses pertaining to kinesiology appears limited. This presentation will address this knowledge gap and provide the audience with materials they may use to improve dynamic instruction and course management. It is likely instructors are already using one or more of the UDL principles. Future research in kinesiology focused on student feedback would produce needed insight on ways instructors could be more inclusive of UDL principles in their teaching and course management. We will facilitate discussion on this latter topic and showcase some initial steps we have taken to address it.

Flipped Instruction in Physical Education

Fay Nielsen (Fresno-Pacific University)

As teaching professionals one question that we need to ask ourselves is, What is the best use of our face-to-face time with our students? Taking advantage of Flipped Learning as an instructional method could help you to use some of your time with your students in a more efficient manner and even allow your students to progress at their own pace.

Flipped Instruction . . . what is it? It's more than just exchanging the lecture and the homework activities. It's making significant changes to what you do in Group Space and Individual Space. Flipped Instruction can give you more quality face-to-face time with your students and assist with differentiation. For example, is it the best use of your time to lecture to your students on the rules of a game? Could students learn about the rules online, through a video that you create, perhaps, and come to class prepared to participate with just a quick review? When introducing Line Dance, for example, could students review a demonstration and/or instructional video on the upcoming dance in advance of the class? This would allow students who are hesitant to be more prepared for class and therefore feel more competent, confident and motivated. This session will be an introduction to Flipped Learning/Instruction and a discussion of how it can be used in a physical education or classroom setting.

The Impact of a Sports-Based Youth Development Program on Risk Factors for Gang Joining

Sierra Cordova (California State University, Los Angeles)

It is evident that there is an urgent need for youth gang reduction across the United States. Heavily concentrated amongst youth, the growth of gangs and gang members is associated with several public health issues including increased dispositions to harmful outcomes, adverse trajectories into adulthood, and increased rates of violent victimization in a community (Taylor, Peterson, Esbenson, & Freng, 2007; Krohn, Ward, Thornberry, Lizotte, & Chu, 2011; Brantingham, Sundback, Yan, & Chan, 2017). Considering that research has suggested sport as an effective context for positive youth development, this study examined the impact of an original sports-based youth development program designed to reduce youths' risk factors for gang joining. Using a qualitative methods approach, youth journal writing and clinic planning documents were used to gather information about the impact of the program on participating youths' subsequent attitudes toward risk factors, including antisocial tendencies, impulsive risk-taking, and negative peer influence. The overall findings suggested that the program had some impact on youths' risk factors and that positive youth development through sport may be an effective approach to enhancing life skills that reduce the risk of gang joining. A brief description of implications and recommendations are provided for future gang prevention efforts.

Promoting Physical Activity for College Students with Disabilities
Dal-Hyun Moon (California State University, East Bay)

The benefits of physical activity (PA) participation are well documented, and yet many students with disabilities remain inactive. Approximately 19 percent of U.S. undergraduate students have a disability (2015-2016 National Center for Education Statistics [NCES]), an 8 percent increase since 2011(2011-2012 NCES). Since the number of college students diagnosed with disabilities is consistently increasing, it is important to provide equal opportunities for this population to be physically active. While inactivity raises health concerns for all college students, prior research reveals that college students with disabilities are less physically active than those without disabilities. This suggests that there might not be enough college PA programs available for college students with disabilities, college students with disabilities may not know about college PA opportunities on campus, or any other factors may influence PA participation for this population. This paper will outline the importance of college students with disability PA programs, identify possible challenges to designing/implementing college students with disabilities PA programs, and help to inform practitioner's efforts when developing and implementing college students with disabilities PA programs in their institutes. In addition, we will provide suggestions to better manage those challenges based on a review of existing literature.

A Discussion of the Current Status of Physical Education and Physical Education Teacher Education
Christopher Gentry (California State University, San Bernardino)

COVID-19 has had a major impact on both the delivery of physical education in K-12 schools and university settings. Prompted by the moderator, the audience will be asked to engage in a discussion about current experiences in physical education teacher education and K-12 physical education. Future considerations for the field will also be a topic of discussion. PETE faculty, current and future teachers, and anyone interested in the direction of physical education are welcome as all voices and ideas will be necessary for physical education to adjust and thrive to the challenges ahead.

Coaching in 2020 and Beyond: The X's and O's of Supporting Athlete Activism
Leslie Larsen (California State University, Sacramento)

Since the resurgence of the Black Lives Matter movement in June 2020, a larger percentage of athletes are stepping into activist roles. During this time of social change, coaches must go beyond teaching sport skills and model the skills athletes will need to successfully continue their efforts toward social justice. However, most coach education books and programs do not prepare coaches for this type of work (Gearity et al., 2020). Therefore, the purpose of this paper is to educate coaches on the X's and O's (i.e., strategies) for empowering and supporting athlete activism within their programs. The X's and O's of supporting athlete activism include: (a) learn about own positionality in society, (b) recognize athletes as whole people, (c) celebrate that athletes are thinking about something greater than themselves, (d) call attention to potential roadblocks, and (e) emphasize the importance of self-care.

STUDENT POSTER PRESENTATIONS

Research Critiques

1. **Relationship between Physical Activity, Sleep Quality, and Mental Health**
Ahmilliyon Marin (California State University, Dominguez Hills)

Abstract: While previous research has examined the interrelationships between mental health and physical activity (PA), there is little research on the relationship between PA and sleep quality on mental health.
Thus, the purpose of this study was to investigate the permutations of emotional disorders based on PA and sleep quality (Ghrouz et al., 2019).
Method: Participants completed three questionnaires: 1) Pittsburgh Sleep Quality Index, 2) International Physical Activity Questionnaire Short Form, 3) The Hospital Anxiety and Depression Scale. Binary logistic regression models were used to find the correlation amongst each other, respectively.
Results and Discussion: Six hundred-seventeen students (18-30 years, 303 females) participated in the study. 51% of the participants reported low PA levels and poor sleep quality. The mental and physical section of the model had a minimal association with anxiety (p= .001). Sleep quality had a positive correlation with anxiety and depression (p= .001). Ultimately, this reveals that poor sleep quality has a positive correlation with depression and anxiety.

Critique: While a strength of this study was the statistical analysis that demonstrated the associations between poor sleep quality and anxiety/depression, it is questionable whether or not using a more diverse group of students would yield the same results. Because this study specifically examined young individuals of Indian descent, the results cannot be generalized. Additionally, this study did not examine the correlation between low physical activity and anxiety/depression. Future research should examine these associations in different groups who have issues with poor sleep quality and low physical activity.

Grhouz, A., Noohu, M., Manzar, D., Spence, D., Bahammam, A., Perumal, S.(2019). Physical activity and sleep quality in relation to mental health among college students. Sleep and Breathing, 23:628-632.

2. Impact of Protein Feeding on Metabolism Before Aerobic Exercise

Alexandra Khartabil, Kevon Lee, Abraham Sanchez (California State University, San Bernardino)

BACKGROUND: Fasted aerobic exercise is hypothesized to increase fat oxidation due to lower levels of insulin and glucose. PURPOSE: To determine the effects of pre-exercise consumption of Whey Protein Isolate (WPI) and Casein Protein (CAS) on fat oxidation (FO) and energy expenditure (EE) during and after aerobic exercise in comparison to Maltodextrin (MAL) and a non-caloric control (CON) (Gieske et al., 2018). METHODS: In a randomized cross-over fashion, 11 college-aged males performed four identical tests on separate days. Baseline substrate oxidation and resting energy expenditure (REE) were assessed with a metabolic cart during each visit followed by the consumption of 25 g of either WPI, CAS, MAL, or CON. Participants rested for 25 minutes followed by a 5-minute dynamic warm-up before doing 30 minutes of treadmill exercise. Substrate oxidation and EE were re-assessed during and after exercise. ANOVA's with Tukey post-hoc comparisons were used to identify differences between conditions. RESULTS: Consumption of either protein significantly increased post-exercise REE compared to MAL, and tended to be greater than CON. Post-exercise FO significantly increased following WPI and CAS protein intake as compared to taking MAL or fasting (CON). Throughout exercise, intake of CAS resulted in significantly greater FO than intake of WPI; furthermore, fasting (CON) did not yield more FO than taking MAL, WPI, or CAS. CRITIQUE: Limitations included a small sample size and lack of diversity in the participants. Furthermore, it is difficult to draw definitive conclusions on the impact of feeding protein vs MAL vs CON prior to aerobic exercise on body composition over time from an acute training study because acute effects in fat oxidation do not necessarily transfer to significant changes in fat mass. Future research incorporate an acute training study.

Gieske BT, Stecker RA, Smith CR, et al. Metabolic impact of protein feeding prior to moderate-intensity treadmill exercise in a fasted state: a pilot study. J Int Soc Sports Nutr. 2018;15(1):56.

3. Exercise, Aging and Cognitive Function

Drucilla Lightfoot (California State University, San Bernardino)

Cognitive function declines with aging due to multiple physiological and environmental factors. Recent research shows that there are associations between brain function, cognitive training, and physical activity (Pereira et al., 2019). PURPOSE: To examine the effects of a tailored physical exercise program in the cognitive function of a Portuguese elderly cohort. METHODS: Thirty-three participants were randomly divided into an intervention group (IG, n=17) or control group (CG, n=16). Over the course of three months, the IG underwent the tailored fitness programs consisting of two times a week of outdoor aerobic exercise and three times a week of in-lab sessions. The CG was encouraged to maintain their regular daily activities, with no tailored exercise. Cognitive function of memory, sensory motor skills and learning were evaluated at baseline and after 3-months for all participants. RESULTS: Similar demographic characteristics and cognitive function were observed at baseline between groups. Sensory motor skills, memory and learning tasks were all significantly improved in the IG group after the intervention when compared to the CG group. CRITIQUE: Although no significant variations were observed at baseline in the two groups, a randomized control study is critical to eliminate any potential sampling bias. The participants were recruited voluntarily from an adult day care center in Portugal, which may not be representative of the entire target population. Future studies should include long-term training, larger sample size, more male participants, especially elderly with cognitive impairments.

Pereira, Cipriano, Costa, Saraiva, & Martinson. (2019). Effects of a personalized physical exercise program in the cognitive function of older adults. Physiology & Behavior, 202(1), 8-13.

4. **Effects of Different Recovery Methods on Exercise Performance**
Franklin Somyem (California State University, Dominguez Hills)

In order to maximize strength gains, athletes must train at high levels while also recovering quickly. The purpose of this cross-sectional study was to examine the effects of cryotherapy, active rest and rest on exercise performance (Stacey et al., 2010). Methods: This was a three-week intervention study that incorporated three different recovery methods (cryotherapy, active rest, or rest). Once a week, participants completed 3 trials of cycling (10 minutes of recovery between trials). Exercise performance was measured as the time to complete the cycling.
Statistical analyses were run using SPSS 11.5 with a significance level set at .05. An ANOVA was used to test the interactions between recovery and performance. Results and Discussion: Nine healthy men (29 ± 6 years) participated in this study. Each recovery intervention reported an average increase of 8% and 14% in time for trials 2 and 3 ($p \leqq .05$). While the recovery methods did not result in significant improvements in performance, participants self-reported greater feelings of their lower extremities after using cryotherapy. Critique: The use of cryotherapy in this study is limited by the inability of the water to reach below 0℃. Comparing the short term effects of each recovery intervention on performance was a methodological strength of this study. Because this study examined a small sample size and only male, the results cannot be generalized. To allow for a more accurate representation of the effects of cryotherapy on performance, future research should study the long term effects of cryotherapy.

5. **The Effects of Circuit Training on Elderly Women with Osteopenia**
Holli Rosas (California State University, San Bernardino)

Osteopenia is classified with a bone mineral density (BMD) T-score of -1.0 to -2.5 defined as low bone density. This can progress to osteoporosis, a skeletal disease highly prevalent in postmenopausal women, increasing the risk of fractures and decreasing activities of daily living. Circuit training includes a variety of weight bearing exercises repeated in a short time, reducing osteoporosis risk. Purpose: To examine the effects of a circuit training program on bone turnover markers and BMD in elderly women with osteopenia (Kim & Lee, 2019). Methods: Sedentary women aged 65 or older, diagnosed with osteopenia, participated in the Exercise (n=9) or Control (n=10) groups. The Exercise group involved in an 8-week circuit training, 3 times a week for 50-60 minutes per session. Each session included high-intensity exercises that targeted all major muscle groups. Bone markers and BMD were measured at baseline and after training. Results: Circuit training showed a significant increase in bone formation marker of Osteocalcin and BMD T-score, and a significant decrease in bone resorption marker, Deoxypyridinoline. No significant changes were observed in the control group. Critique: The findings of the study are limited by the unrandomized small sample size and short intervention period. Increasing the training to at least 12-weeks, adding an aerobic weight-bearing group such as walking or jogging, and/or a traditional resistance training group would provide more insights on the effects of training modality on the musculoskeletal system. Lastly, a satisfaction survey would be helpful to evaluate participants' enjoyment and exercise adherence to the program.

Kim, K., & Lee, H. (2019). Effects of circuit training interventions on bone metabolism markers and bone density of old women with osteopenia. Journal of Exercise Rehabilitation, 15(2), 302-307.

6. **Relationship Between Alexithymia, Psychological Distress, and Pain in People With CRPS**
Jasmine Torres (California State University, Dominguez Hills)

Introduction: While complex regional pain syndrome (CRPS) and psychological disorders have been examined, the way to control pain is unknown. Thus, the purpose of this study was to determine if psychological disorders, alexithymia, and pain have a correlation in patients with CRPS (Margalit et al., 2014). Method: Sixty Israeli male adults participated in the study (38.2 ± 13.30 years). Participants had CRPS (50%) and lower back pain (LBP) (50%). Quantitative self-assessments included: Toronto Alexithymia Scale, Visual Analogue Scale (VAS), and Pain Rating Index Scale (PRIS). To examine the difference between the groups, a Pearson Correlation was used with the significance level set at $p < 0.05$. Results and Discussion: The study found significant differences between the CRPS and LPB group in levels of alexithymia and psychological distress; individuals with CRPS reported higher levels ($p= 0.01$). Pain was also significantly associated with alexithymia (VAS, $p=0.05$; PRIS, $p=0.01$) in people with CRPS. These results indicate that people with CRPS develop symptoms of alexithymia. Critique: This study demonstrated that those with CRPS had significantly higher levels of alexithymia, psychological distress, and pain. While this was the first cross-sectional study that compared a CRPS and LBP

group, this study didn't account for CRPS being more prevalent in women. Because the study examined all male participants, it is limited and cannot be generalized to women. Future researchers should focus on developing coping mechanisms to help patients' mental health and strategize a plan to help remove pain in patients with complex regional pain syndrome.

Margalit, D., Har, L. B., Brill, S., & Vatine, J. J. (2014). Complex regional pain syndrome, alexithymia, and psychological distress. Journal of Psychosomatic Research, 77(4), 273–277.

7. **Effects of Two Recovery Postures During HIIT Training**

Jessica Heredia, Christel Abrenio (California State University, San Bernardino)

Background: Athletes strive to improve recovery time and enhance their performance. Purpose: To determine the effects of two different recovery postures, hands on head (HH) and hands on knees (HK), as a form of immediate recovery from high intensity interval training (HIIT). (Michaelson et al., 2019). Methods: Twenty female college soccer players performed two separate randomized, counterbalanced trials (separated by 1 week) of 4 minutes of running (4x4) at 90-95% heart rate (HR) max with 3 minutes recovery between each interval. HH consisted of standing erect, hands together on top of their head. HK consisted of hands on knees, elbows locked, and flexion of their thoracic region of the spine, requiring additional measurements of thoracic flexion using inclinometers to ensure 10 degrees flexion. Volume of carbon dioxide (VCO2) and tidal volume (TV) were recorded every minute during the 3-minute recovery period with a Parvomedics metabolic cart and heart rate recovery (HRR) was collected during the first 60 seconds of each recovery. Results: HK posture led to an improved HRR and increased VCO2 compared to HH; thus the HK posture is superior for recovery compared to the HH posture. Critique: The randomized counterbalanced study design is a strength of this study, but it may be beneficial to test these effects on other athletic populations since various sports would benefit from enhanced recovery during HIIT training. Furthermore, future research could investigate the effects of HK versus HH on repeated maximum sprint performance as this carries over to performance during sport.

Michaelson, Joana V.; Brilla, Lorrie R.; Suprak, David N.; McLaughlin, Wren L.; Dahlquist, Dylan T. Effects of Two Different Recovery Postures during High-Intensity Interval Training, Translational Journal of the ACSM: February 15, 2019 - Volume 4 - Issue 4 - p 23-27.

8. **Effects of a Motor Intervention Program on Motor Skills and Executive Functions in Children with Learning Disabilities**

Leilani Buelna (San José State University)

Motor performance and cognitive development have a positive correlation and children's motor performance is strongly related to higher order cognitive functions. However, studies have shown the significantly lower performances of motor-related tasks requiring balance, visual-motor control, and bilateral coordination in children with learning disabilities (LD). Therefore, this study examined the effect of an ABC- based motor intervention program on motor abilities and executive functions of children with learning disabilities. Forty-five male elementary school students with LD aged 7-9 years participated in this study.

The motor intervention based on the attention, balance, and coordination (ABC) learning approach was provided. All participants went through a series of pretest, posttest, and follow-up test assessments to determine their motor and cognitive development. The results showed a significant increase in motor skills and most executive functions in both experimental groups, with no significant change within the control group. Some of the executive function measures were found to have a slightly better improvement by Group B than Group A. In addition, this study found that Blythe's ABC approach is significantly beneficial to boys ages 7-9 with LD. It is beneficial to create a program that helps the development of children with LD. This study will allow teachers and educators who work with children with LD to understand the important correlation between motor and cognitive interventions. Future research would benefit of a study examining females and a variety of age ranges.

9. **Effects of Physical Activity on Muscular Strength and Fracture Risk in Children**
   William Prince (California State University, San Bernardino)

Research has shown positive adaptations in both bone mass and muscular strength resulting from increased physical activity (PA) in adults, however, the long-term effects of PA in children merit further investigation (Fritz et al., 2016). Purpose: To evaluate the effects of an exercise intervention on the musculoskeletal system in children. Methods: Four Swedish community-based schools, similar in geography, socioeconomics, and ethnicity, were selected for convenience and no randomization. The intervention school (girls=335, boys=408) conducted 200 min/week of PA, whereas the three control schools (girls=756, boys=782) followed the Swedish standard of 60 min/week of PA. A series of measurements were taken at baseline and annual follow-up within 5 years. Bone fractures were obtained regional records, peak muscle strength was evaluated using a Biodex dynamometer, and body composition was measured by Dual X-ray Absorptiometry (DXA). Results: They found that fracture ratio and leg muscle composition were similar in both groups, whereas muscular strength was significantly greater in the intervention group. Critique: This is a large population, longitudinal intervention study, which provides strong evidence that the more physical activity, the stronger the muscular strength in children. However, an adequate cause and effect relationship cannot be determined due to uncontrolled factors, such as family history and eating habits. Bone mineral density, rather than fracture ratio, would be a better parameter to quantify bone strength as fracture ratio is low in children. Future studies should examine the effects of specific PA modality of ball games, running, jumping, and climbing on musculoskeletal development in children.

Fritz, J., Cöster, M. E., Stenevi-Lundgren, S., Nilsson, J.-Å., Decker, M., Rosengren, B. E., & Karlsson, M. K. (2016). A 5-year exercise program in children improves muscle strength without affecting fracture risk. European Journal of Applied Physiology, 116, 707-715. doi: 10.1007/s00421-015-3310-x

Literature Reviews

10. **Adolescent Psychological Well-Being: Screen Time vs. Time at Camp**
    Amanda Palmer (University of Idaho)

Many factors impact the psychological well-being of adolescents today, including screen-based technology use and time away from screens at recreational or educational camp programs. Researchers have found that screen-based media usage is negatively related to most positive social and physical health indicators, and positively related to several negative health indicators (Iannotti, Kogan, Janssen, & Boyce, 2009).

Rates of depression and suicide are dramatically higher than earlier generations of adolescents and a correlation exists between the rise of smartphone use and depressive symptoms in this vulnerable population (Twenge, Joiner, Rogers, & Martin, 2018). Twenge, et al. also found a significant positive relationship between increased in-person social interactions and lack of depressive thoughts or suicidal behaviors (2018). Benefits of summer camp programs have been well researched, such as positive changes in self-esteem, independence, leadership, friendship skills, and adventure and exploration (Thurber, Scanlin, Scheuler, & Henderson, 2007). Less research has been done on outdoor education programs. Uhls, et al. studied sixth grade students at a five-day camp. In comparison to a peer control group who did not attend camp, students improved twice as much in an assessment of recognizing emotions in faces, without verbal cues to guide their perceptions (2014). Young campers value time away from technology while at camp, for mental health and increased in-person social interactions (Povilaitis, 2019). Each of these research studies concluded that screen-based media usage had detrimental effects on adolescent psychological well-being, whereas educational and recreational camp programs had positive psychological benefits.

11. **Evaluating Traditional Sports to Propose a Future Direction for eSports Management**
    Crystal Doan (San José State University)

This literature review compares eSports to traditional sports and proposes a paradigm shift in eSports management. Referenced in this literature review were 12 scholarly articles and 5 popular articles that were in overall agreement over the aspects and effects of performing in a competitive team environment. The populations studied in this literature review consisted of players and consumers involved in both eSports and traditional sports. eSports and traditional sports were found to be similar in regards to generating widespread interest and having significant economic impact (Heere, 2018; Holden et al., 2017; Jenny et al., 2016; Jenny et al., 2018; Lee & Schoenstedt, 2011). Finding that teamwork is vital

for team success in both eSports and traditional sports suggests a need to improve player scouting and talent development in professional eSports (Grund, 2012, Holden et al., 2017; Jenny et al., 2016; Kim et al., 2017; Mora-Cantallops & Sicilia, 2019; Radicchi & Mozzachiodi, 2016). Furthermore, negative and positive psychological effects of being a professional player were shared between eSports and traditional sports players (Bányai et al., 2019; David et al., 2018). In conclusion, the cultural, economic, and social overlaps between eSports and traditional sports are significant enough to warrant including the techniques used in traditional sports management in conversations regarding the future direction of eSports management.
Therefore, regardless of whether eSports and traditional sports fall under the same definition, future management of the eSports industry should focus on adopting and adapting successful traditional sports methodologies.

12. **The Negative Effects of Technological Dependence on the Mental and Physical Health of Youths and Adults**
    Emily Lenh (San José State University)

The objective of this literature review is to evaluate the impacts that technology dependence has on an individuals' mental and physical health, while exploring the beneficial effects of physical activity interventions. A total of 11 scholarly articles were gathered from various databases and analyzed for connections between technology and health. The population of this literature review focused on youth and adult age groups in settings of prevalent technology use, such as schools and the workforce. Results indicated that the extended use of information and communications technology (ICT) puts both populations at risk for developing mental health concerns such as depression and anxiety (Mackey, 2013; Rosen et al., 2013; Imas et al., 2018). Additionally, there is a heightened risk for developing physical complications including diseases and musculoskeletal disorders (MSDs) (Alavi et al., 2016; Woo et al., 2016). However, the articles agreed that physical activity interventions can greatly reduce these health concerns.Interventions can include curriculum modifications or the implementation of more frequent breaks (Chu et al., 2014; Brakenridge et al., 2018; Martin-Smith et al., 2019; Giurgiu et al., 2020). This literature review concludes that while prolonged ICT use can lead to various mental and physical health complications, encouraging physical activity interventions is instrumental in reducing these risks (Riso et al., 2014; Essaw et al., 2019). Additional studies on the direct link between technology and mental health, along with a standardization of the methods used in the experiments can further facilitate research in this field.

Original Projects

13. **Mythbusters: Searching and Evaluating Scholarly Journal Articles for Credible evidence**
    Tabera Jouquin, Stephanie Cromwell, Derek Lee, Rosain Saraburin, CSUEB Kinesiology Research Group (California State University, East Bay)

Purpose: "Myth Busters" is a project for Kinesiology undergraduates at California State East Bay that is developed to expose and strengthen students' research skills by expanding their ability to search, evaluate, synthesize, and disseminate information on a specific "myth" in Kinesiology. There is a plethora of information available on the internet that anyone can access but this information can come from unreliable sources. These unreliable sources can then further spread false information that can become rooted in the "common knowledge" in the fitness and exercise world.
Outcome: The program's goal is to research the credibility of these myths and to develop a creative way to release the information based on evidence from specific areas in the Kinesiology field in an easy and understandable way to the general public.
Process: The steps that will be taken when researching these "myths" are first to search for multiple scholarly articles, second is to use a checklist that determines how strong the article is, next is to compile the results from each article used so that an infograph or video can be made with the final conclusion on the myth, and lastly publish the final product. This process will allow the undergraduate students to establish a Fact Checking Organization infrastructure from the bottom-up while learning how to search and evaluate scholarly journal articles for credible evidence. The literature reviews for "Myth Busters" will be available on the Open Science Frameworks website https://osf.io/c82qv/, therefore making sources accessible for the public to examine.

Original Research

14. Course Design for Quality Online Education: Effective Strategies from the Viewpoint of Undergraduate Teaching Assistants

Cassady E. Healy, Jackson D. Stayner and Jafra D. Thomas (California Polytechnic State University, San Luis Obispo)

Background: In 2020, the COVID-19 pandemic forced colleges and universities to suddenly transition to a mostly-to-fully online teaching format. Given the nature of the transition and general reservations about online instruction, many were concerned educational quality and achievement would be compromised by large margins. Purpose: We sought to determine what course design features, if any, helped support undergraduate educational achievement during a sudden transition to 100% online instruction. Methods: We addressed our research aim using adapted principles for reflexive thematic analysis, the discernment of ways to interpret data using diverse perspectives and the critique of assumptions (RWJ Foundation, 2008). Following instructor request (JDT), two undergraduate teaching assistants (CEH, JDS) independently discerned design feature quality, instructor assumptions, and student response to features (i.e., anonymous feedback, participation patterns). Analysis was applied to one asynchronous upper-division, general education, writing-intensive kinesiology course (38 enrolled students, 2020 Spring Term). A reiterative process was used, with undergraduate teaching assistants making comparisons to their experience completing the course in-person the previous term (Winter 2020). Results: Five design features evidently helped to support educational achievement during the sudden transition to 100% online instruction: discussion boards, summary slides, reminder emails/slides, video lectures, and posted lecture slides. Students valued the "constant stream" of communication and opportunity to self-pace. Discussion boards incentivized content application and promoted appreciation of peers' viewpoints, both of which helped with learning and writing-to-learn. Conclusion: The five design features, in combination, provided high fidelity with in-person instruction. We will discuss our findings, limitations of our study, and potential ways to improve the design of online courses based on our results.

FACULTY POSTER PRESENTATIONS

1. Student-Athlete Academic Success and High Impact Practices

Heather Van Mullem (Lewis-Clark State College)

High-impact educational practices (HIP) may have a positive influence on a student's learning experience. Examples of HIPs include, but are not limited to, first-year seminars and experiences, learning communities, undergraduate research, e-Portfolios, service learning, internships, and capstone courses and projects (Association of American Colleges and Universities, n.d.). "These HIPs [may] lead to greater student engagement and outcomes, while opening pathways to critical thinking, cognition, intercultural effectiveness, and overall student success" (Kilgo et al., 2014 as cited in Ishaq & Bass, 2019, p. 179). The student-athlete experience is unique. Time dedicated to practice, competition, and travel can make balancing academic and athletic demands challenging and engagement in out-of-class activities, like HIPs, difficult, if not impossible. However, the value-added benefit to engagement in HIPs is clear, compelling, and important to all students. The purpose of this study was to examine the perceptions of student-athletes who had participated in HIPs about the effectiveness of HIPs to their learning experience. Semi-structured interviews were conducted with student-athletes (n=5) who were currently enrolled in or had completed an internship and/or a capstone class. Three themes were extracted by one reviewer using axial, open, and selective coding (Strauss & Corbin, 1990): 1) improvement in oral and written communication skills, 2) improvement in ability to identify and utilize strategies to learn and retain information, and 3) improvement in ability to analyze information from a variety of sources. In summary, participants expressed that engaging in HIPs positively influenced their learning experience. This poster will: 1) share the results of this study, and 2) identify strategies to increase engagement of student-athletes in HIPs.

2. **The effect of CXWORXTM Versus TabataTM on Body Mass Index, Body Composition, Predicted Vo2Max And Body Image In Adult Exercisers.**

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No published field research has been found that directly compares the effects of two common approaches to group exercise: CXWORXTM and TabataTM , which employ differing exercise strategies, on common fitness measures and psychological perceptions. The purpose of this study was to determine the effect of TabataTM versus CXWORXTM on body mass index (BMI), body composition, maximal oxygen uptake (VO2max) and Multidimensional Body-Self Relations Questionnaire (MBSRQ) measured self-perceptions in adult exercisers. The mixed gender sample consisted of a sub-set of 10 adult cross fit exercisers and 10 students from a regional comprehensive university class randomized to each exercise program. Analysis of Variance was used to examine program effects. While no significant main effect of the training period on body composition or BMI was found; mean VO2max was significantly increased as a large main effect across the study groups ($F=1.054$, $P < 0.05$, $\eta 2 =0.533$) without significant interaction. In addition, there was a significant large interactive effect of the training program and time to increase MBSRQ scores for appearance evaluation ($F=1.648$, $P <.05$, $\eta 2 = 0.367$), appearance orientation ($F=1.447$, $P < 0.05$, $\eta 2 = 0.377$), fitness evaluation ($F=1.637$, $P <;0.05$, $\eta 2 = 0.557$), and body areas satisfaction ($F=2.744$, $P < 0.05$, $\eta 2 = 0.533$), in the CXWORXTM group in comparison with the TabataTM group. In conclusion, participants who completed a CXWORXTM exercise program increase VO2max similarly to participants who complete a TabataTM exercise program, while also reporting significant improvements in body image scores which the TabataTM participants did not. Neither program had a significant effect on body composition or BMI.