

## Western Society for Kinesiology and Wellness

### 2018 Conference Abstracts

#### Oral Presentations, Wednesday October 10, 2018

***Effects of an intervention program of exercise and dietary supplements on the body composition in middle aged women.*** Soojin Yoo, University of Texas, Rio Grande Valley; Jeoghun Shin & Jan Jin Park, Songwon University Gwangju, South Korea.

The purpose of this study was to investigate the effects of dietary supplements and exercise on body composition and body shape in middle aged women. The subjects were divided into three different groups; exercise group (n=14; 44.66 ±5.23yrs old), exercise & dietary supplements group (n=15; 45.02±5.23yrs old), and dietary supplements group (n=15; 44.98 ± 5.90yrs old). Average BMI for participants was 29.24 kg/m<sup>2</sup>. Data were analyzed by ANCOVA using the SPSS/PC (Scheffe,  $\alpha$ ±=.05). The changes of body weight and BMI were significantly different between groups (Ex+ Dietary supplements); Dietary supplements group > Exercise group. Girths of chest, waist and hip were significantly different between groups (Ex+ Dietary supplements) > Dietary supplements > Exercise group. In conclusion, this study documented improvements in body composition and shape that occurred as a result of participating in a combined exercise and dietary supplement intervention in middle aged women.

***Collegiate athletes' sport experiences.*** Bethany Shifflett & Katelynn Thompson, San José State University.

With the publication of a tool to measure development among university athletes engaged in sport (Rathwell & Young, 2016), the opportunities to examine various aspects of development along positive and negative dimensions have expanded. This is of particular importance since efforts to empirically examine collegiate sport experience outcomes have been uncommon. Through Division I collegiate coaches, identified through public resources (e.g., NCAA web site), athletes were invited by email to complete a 7-point Likert-scaled survey comprised of 46 items representing nine factors: initiative, basic skills, interpersonal relationships, teamwork and social skills, adult network and social capital, stress, negative peer interactions, social exclusion, and inappropriate adult behavior. In addition to the reporting of descriptive statistics in each area comprising the survey, inferential tests were conducted to examine differences as a function of sport type (team sport, individual sport) and gender. Internal consistency across the items that comprised each factor was excellent (.80 to .92) except for the factor on negative peer interactions (alpha=.64). Based on data from 107 athletes, results suggested that overall, the most positive experiences were connected to teamwork and social skills (median = 6.13) and initiative (median = 6). The most negative experiences were connected to stress (median = 5.25). There were no statistically significant differences observed as a function of sport type or gender though an interesting pattern of slightly higher scores for women on positive factors was observed.

***A study of the characteristics of recreational tennis players in Albuquerque, New Mexico, from sport marketing perspectives.*** Yongseek Kim, New Mexico Highlands University; Kyongmin Lee Jeonju University; Woojeong Cho, Korea Maritime & Ocean University; & Jay Lee, New Mexico Highlands University.

While there have been numerous studies on sport consumer behavior in power and performance sports including professional sports and college sports (especially in NCAA Div. I), little research has been conducted to investigate the characteristics of sport consumers who mainly pursue pleasure and health through playing sports directly. Tennis, one of the most popular participant sports, not only provides pleasurable and enjoyable experiences but serves great overall health benefits. However, it could cause serious injuries which can cause participants to stop playing. This study investigated the characteristics, tennis activities, injuries causing players to cease playing, purchase behavior and purchase channels (through Offline, Online, or Omni (both)) of recreational tennis players. Comparisons were made between price perceptions of tennis equipment at offline and online stores, purchase channel and ranking based on the USTA's National Tennis Rating Program (NTRP), and average monthly spending on tennis related items and average household income. The self-administered questionnaires were administered with recreational tennis players in person at public and private tennis courts and Tennis Ace, a local tennis retail store in Albuquerque, using the convenience sampling method after obtaining the approval from IRB of New Mexico Highlands University. A total of 148 surveys were collected, and 142 completed surveys were used in the analysis. Descriptive statistics, independent sample *t*-tests, ANOVAs, and a chi-square tests for independence were conducted using IBM SPSS V22.0. About 73 % of the recreational tennis players are ages of 55 and over, 75% are "white", 50% have post bachelor's degree, 79% have above median household income (about 42 % have the income between \$100,000 to \$200,000). About 59% have been playing tennis more than 20 years, more than 85% play tennis at least once a week (avid tennis players), and more than 90% spend 1 to 3 hours when playing tennis. More than 50% have attended ATP tournaments and subscribe to "Tennis Channel." Over 66% had experienced injuries causing them to stop playing tennis temporarily, and tennis elbow was the most popular type of injury (about 34%). There was no significant relationship between tennis play frequency and injury, or between workout patterns and injury. Most players think the price of tennis equipment is more reasonable at online stores compared to physical stores ( $M \leq 3$ ), but no significant differences were found between purchase channels and ranking. Finally, there was a statistically significant difference between tennis related average spending and average household income ( $\chi^2 (9, N = 142) = 20.91, p < .05$ ).

***Social determinants of healthy behavior and well-being of young people in Medellín.*** Elkin Arias, Albeiro Larrea & Cristina Rivera, Universidad de Antioquia.

In Colombia, 19.6% of the population is made up of adolescents. The social situation in this country with difficult access to education, early start of sexual life, intense urban migration and lack of job training, confronts this sector of the population with issues such as juvenile delinquency and violence, the consumption of toxic substances and unwanted pregnancy. Of particular seriousness are the problems associated with mental health disorders. The present study is aimed to obtain knowledge about the health and wellbeing behaviors and perceptions of youth in the city of Medellín.  $\chi^2$  tests were used to compare differences in physical activity and food habits by gender. The results indicate that 20% of participants were physically active  $\geq$  five days a week, 29% watch TV  $\geq$  4 hours a day and 18% do homework 4 hours a day. Boys were more physically active than girls ( $p < 0.01$ ), whereas girls reported doing more homework and watching more TV ( $p < 0.001$ ). Girls reported more daily consumption of fruit and vegetables than boys ( $p < 0.001$ ), and less consumption of soft drinks and sweets ( $p < 0.01$ ). We conclude that young peoples' behavior in Medellín in relation to physical activity and eating needs to be improved. Parents play a direct role in children's physical activity and eating patterns. The results indicate that policies need to be developed, implemented and evaluated to safeguard physical activity and healthy eating habits.

## **Oral Presentations, Thursday October 11, 2018**

### ***Anthropometric and kinematic parameters during running among young adults.*** Amber Perez & Teresa Coronado, La Sierra University.

This research study correlated the variables between anthropometric measurements of body fat percentage with steps and speed of running a 400 meter lap. The correlation of kinematic variables consisting of leg limb length with speed and speed of running a 400 meter lap was also compared. The goal was to find the differences between the anthropometric and kinematic variables to test the effect of a runner's performance and speed. Participants consisted of 37 (F = 25, M = 12) apparently healthy young adults from 18-29 years old ( $x = 22$ ,  $SD = 2.79$ ). Subjects participated on a volunteer basis for the sole purpose of analyzing physical measurements to running performance. The results based on our correlation showed that there is a stronger relationship between body fat percent to running time ( $r = .339$ ). Cadence and time are also correlated moderately ( $r = .480$ ); however, limb length is not a determining factor of stride rate during the 400 meter run.

### ***Binge TV watching (round table discussion).*** Julie Son, University of Idaho; & Elizabeth Weybright Washington State University.

Television viewing has long been associated with poorer health outcomes (Grontved & Hu, 2011). A relatively recent phenomenon is television on demand - which provides viewers access to all of the episodes in a season or multiple seasons of many popular television shows (Walton-Pattison, Dombrowski, & Presseau, 2018). Results from a recent two-part study on college students' perceptions of healthy and unhealthy leisure conducted by the authors is used as the basis for a roundtable discussion of "on demand" television viewing and binge watching. The study consisted of a) a free listing activity with 150 students, and b) four focus groups with a sub-sample of 29 students from the first phase. Study findings indicate that students believe binge watching television may be helpful for relaxation and recuperation purposes but that there is a critical threshold whereby it is unhealthy and adversely affects health. The issue of addiction, and reliance on others to keep one's viewing within a healthy range, were mentioned by students. The idea of moderation and balance were mentioned as well. Positive and negative themes were associated with "binge watching" television on demand. The positive themes included, "down time / unwind", "relax", "rejuvenate", "enjoyable", and "de-stress". Examples of the negative themes included, "escaping / forgetting problems / denial", "avoiding obligations / freedom from expectations", "procrastinating", "not engaging", and "couch potato / sit on couch for hours / sit at home". Students identified five positive themes whereas there were 20 negative themes related to television on demand. The aim of this roundtable discussion is to share preliminary findings from the study, prompt ideas about both the positive and negative aspects of this recent phenomenon, and brainstorm ideas about future research investigations.

### ***A Multidisciplinary Team Approach Medical Simulation in Healthcare Programs in an Urban University Setting.*** Guillermo Escalante, Dawn Blue, Geraldine Fike, Jose Munoz & Yeon Kim, California State University, San Bernardino.

Patients are cared for by a nurse and multidisciplinary teams which may include physical therapists, social workers, and public health workers; however, students in health care programs usually will not experience necessary scenarios developing needed skills to work in a collaborative environment. Although needed skills are learned within the walls of the university they remain in a silo. Combining classes and replacing certain curriculum activities with patient simulation projects that include several departments may enhance student access across the institution and improve their educational experience and success. Examining the effects of innovative simulations provides enhanced training for students' use of technology in support of active learning while remaining positively engaged in their education. Simulation is technology used to enhance instruction resources for all students. Studies show industries with known hazards experienced small failure rates when simulations were implemented. Simulation is proven to be the best experience to keep students actively involved in learning by offering the opportunity to apply knowledge learned to the clinical setting, thus making it real. Simulation can increase completion rates of healthcare education programs by providing hands-on exercise, illustration, and reinforcement concepts of skills promoting student development, success in courses, graduation, and career preparedness. This investigation assessed the student's perceived value of participating in multidisciplinary medical simulations via a Qualtrics questionnaire completed immediately after the simulation where students were asked about the impact of simulation in increasing their competency in the workforce while decreasing error rate and impacting the quality of care. The results of the survey illustrate that the students value the multidisciplinary medical simulation experience.

***Using the ecological model to address physical inactivity in older adults.*** Kimberly Feiler, La Sierra University.

Physical activity has been shown to have a big impact on health. Lack of adequate physical activity contributes to multiple preventable chronic diseases. The ecological model has shown to be a useful approach in addressing various health problems, including physical inactivity. Descriptions are provided for the factors in the ecological model (physical environment, social environment, biological factors, psychological factors, and socioeconomic status) as related to physical activity, and proposed levels of intervention are provided for each factor.

***Promoting moral growth in an athletic department.*** Mark Sowa & D.K. Stoll, University of Idaho.

We are living in an age where collegiate athletic departments are riddled with continual Title IX infractions, sexual misconduct, academic improprieties, misappropriation of funds and an overall lack of a clearly defined purpose outside of wins and losses. The moral deficit of college athletics is the only thing rivaling fiscal deficits created by a football arms race - we appear to be in a moral quandary. This presentation will review current collegiate athletic ethical examples (i.e. Michigan State) and dilemmas by offering practical guidelines to examine the mission of an athletic program. Participants will leave with strategies and concepts to develop both a moral mission and moral leadership culture. Three series of questions will guide the discussion: 1) What is a moral mission statement? What factors and values should be embedded in that mission? How can the mission be accepted and valued in the department? How can one infuse the mission into the culture of the department? How does the mission statement affect hiring practices?; 2) What is a servant leader? How should the servant leader "lead"? How does the servant leader emulate and follow the mission statement? What are moral strategies on hiring servant leader athletic directors?; and 3) What strategies should be used to hire coaches of character who follow the moral mission statement? Ultimately

we will show that athletic departments with a moral mission should become winning athletic departments - in both an objective and subjective sense.

***Effect of music on elementary age students step counts in physical education class.*** Keith Woessner & David Daum, San José State University.

Due to rising childhood obesity rates, there is an increasing importance to deliver quality physical education content to students. With advancements in technology creating a variety of non-exercise activities for students, it becomes increasingly more important to make exercise enjoyable and discover ways to intrinsically motivate students to exercise. Considering the importance of motivating students in the physical education setting, the purpose of this project was to examine the motivational effects of music on elementary aged children in physical education. Participants (N= 35) were 18 girls and 17 boys. For this study, students wore pedometers under two conditions (with and without music). Data were collected twice a week for 4 weeks, for a total of 8 physical education classes. Class length was 50 minutes. Following data collection, a *t*-test was used to analyze the data. Results indicated that lessons with music produced significantly ( $p < .05$ ) higher average step counts than lessons without music for all groups. This includes all participants (N=35), just boys (n=17), just girls (n=18), 4th grade boys (n=8), 4th grade girls (n=9), 5th grade boys (n=9) and 5th grade girls (n=9). It can be inferred that in lessons where music is played, students have an increased motivation to increase movement. Implications for teachers is that playing music during activities will help to increase student activity levels. This has the potential to create more productive physical education classrooms as well as help students obtain the benefits of increased physical activity.

***Undergraduate research: An excellent tool to enhance applied learning experience (round table discussion).*** Clay Robinson, Lewis-Clark State College.

The purpose of this round table session is twofold: first, to explore the differences in perception of the purpose of undergraduate research between the student and professor, and, second, to determine the benefits for the student and the institution providing the undergraduate research opportunity. Information will be shared from a survey concerning undergraduate research that was administered to both students and faculty involved in undergraduate research, and an open discussion will be encouraged throughout the session. Lewis-Clark State College students from the Movement and Sports Sciences Division who have completed their research and those currently doing research will be participating in the presentation. Results: There was no statistical differences by gender in value rankings of research as a tool for learning. There, however, was a statistical difference by educational level ( $p = .001035$ ) where participants at higher levels of education associated greater positive value for research as a teaching tool. The three benefits undergraduate participants associated with research as a teaching tool were that it provided students the ability to work with peers; to develop skills necessary for the work field; and work with equipment used in the field. The purpose of this roundtable discussion is to determine the benefits for both the institution and the student participating in undergraduate research. We hope that session participants will gain positive insight into the mutual benefits associated with participating in undergraduate research.

***Metarobic Effects of Mindful Exercise: Implications for Hypoxia and Chronic Conditions – A Hands on Presentation.*** Tony Gryffin, California State University, Sacramento.

Presentation of findings on unique physiological effects of mindful exercises such as tai chi, significance for maximizing health benefits related to hypoxia (oxygen deficiency in the tissues), and a hands-on experience of user-friendly formats. Mechanisms of benefits for tai chi and related exercises are poorly understood,

often attributed to “qi,” defined as “vital energy.” Research suggests that enhanced oxygen metabolism, blood oxygen saturation, and diffusion may underlie benefits. Prior findings demonstrated significant increase ( $p < .05$ ) in blood oxygen saturation (SpO<sub>2</sub>) in a tai chi group ( $n = 31$ ; +1.29%), compared to significant decrease ( $p < .05$ ) in a triathlete group during cycling and running ( $n = 8$ ; - 2.9%; - 4.9%). To examine differences between running and tai chi in a single individual, the current study measured SpO<sub>2</sub> before, during, and after each exercise ( $n = 50$ ). SpO<sub>2</sub> during tai chi showed a significant increase ( $p < .001$ ; +1.97), compared to no significant change during running. A significant brief drop in SpO<sub>2</sub> ( $p < .001$ ; -5.12%) following tai chi, compared to a return to resting values following running, supports potential significant effects on oxygen metabolism. Heart rate during tai chi ( $m = 82.86$ ) did not hit the 50% level for low impact aerobics (85-119 beats per minute), suggesting non aerobic effects. Metarobics is suggested as a new category of exercise for breath-focused relaxation exercises, due to potential effects on oxygen metabolism. A brief overview of documented benefits of tai chi for chronic conditions complicated by hypoxia, including cancer, heart, lung and kidney disease, arthritis, and poor immunity will also be presented, in addition to a hands-on experience.

**Mindset and motivation: Growth mindset and exercise motives of college students.** Lindsey Greviskes, Wesley Kephart & Andrea Ednie, University of Wisconsin-Whitewater.

Despite the clear benefits of exercise for college students, lack of exercise during college is still a major health issue. One unexplored factor that may impact college students' exercise motives may be an individual's mindset towards his or her physical condition. Since a growth mindset is indicative of an individual's belief that they can positively change themselves, we hypothesized that individuals with a growth mindset would more likely be motivated to exercise for health reasons related to making positive physical and psychological changes, rather than social reasons or health reasons to avoid negative changes. A sample of 543 college students were surveyed about their exercise motives using the Exercise Motivation Inventory 2 and their mindset using a modified version of the Growth Mindset Scale. Correlation and regression analyses revealed that there were positive relationships between the following motives and growth mindset: stress, revitalization, enjoyment, challenge, competition, positive health, appearance, strength and endurance, and nimbleness. There was a negative relationship between growth mindset and health pressures and no significant relationships between growth mindset and social recognition, affiliation, ill-health avoidance, and weight management. Based on the findings of the current study, campus health and wellness professionals should tailor motivating efforts based on an individual's mindset. Those with a growth mindset, who believe they can change, are more likely to exercise if they are doing it for reasons that involve making a positive change to their mind or body.

**Ice slurry ingestion effect on cardiovascular drift and  $\dot{V}O_{2max}$  during heat stress.** Jason Ng, California State University, San Bernardino; Ward Dobbs, California State University, San Bernardino; & Jonathan Wingo, University of Alabama.

**Introduction:** External body cooling mitigates maximal oxygen uptake ( $\dot{V}O_{2max}$ ) decrease associated with cardiovascular drift (CV drift) during cycling in hot conditions. It remains unknown whether internal body cooling via ice slurry ingestion elicits a similar response. The purpose of this study was to test the hypothesis that ice slurry ingestion attenuates CV drift magnitude and accompanying decrement in  $\dot{V}O_{2max}$  during heat stress. **Methods:** Eight men completed a graded exercise test on a cycle ergometer in 22 °C to measure  $\dot{V}O_{2max}$ . Then on 3 separate counterbalanced occasions, they cycled at 60%  $\dot{V}O_{2max}$  in hot conditions (35 °C, 40% RH) for either 15 min, 45 min with tepid (23 °C) fluid ingestion (45FL), or 45 min with

ice (-1° C) slurry ingestion (45ICE), followed immediately by measurement of  $\dot{V}O_{2max}$ . The purpose of the separate 15- and 45-min trials was to measure CV drift and  $\dot{V}O_{2max}$  over the same time interval. **Results:** The increase in HR between 15 and 45 min was twice as large in 45FL (8.6%) compared to 45ICE (4.6%;  $P=0.02$ ). SV declined by 6.2% in 45FL but was maintained with 45ICE ( $P=0.02$ ).  $\dot{V}O_{2peak}$  decreased from 15 to 45 min by 8.6% and 9.0% in 45FL and 45ICE, respectively, but was not different between conditions ( $P=0.79$ ). **Conclusion:** While ice slurry ingestion attenuated CV drift more than fluid ingestion, it did not mitigate the decline in  $\dot{V}O_{2max}$ . Contrary to previous findings, when ice slurry is ingested, changes in HR may not reflect changes in relative metabolic intensity during prolonged exercise in the heat.

***The error in reasoning when using Disability Policy: “Go to Legal - they will tell us what to do”.*** Aubrey Shaw & Sharon Stoll, University of Idaho.

According to Thomas Jefferson, law is moral conscience, unfortunately abiding by the strict letter of the law, without a moral view, often limits moral action. Historically, this is found from Mosaic Law through Roman law to modern US practice. For example, Hebraic Pharisees ruled enforcing Mosaic Law with no attention to individual rights. Roman law served the Republic, without concern for the individual. Today, the US Americans with Disabilities Act of 1990 states, people with disabilities will not be discriminated against in transportation, while working, and even while playing. However, perhaps we have become so immersed by the umbrella of the law and its interpretation that we have forgotten our moral duty to the individual. Individuals with physical disabilities are still not given the opportunity to physically play. For example, a child with cerebral palsy is often pushed in a wheelchair around a gymnasium by an aide while the able-bodied students play a game (meeting the letter of the law but not the moral duty of the law). The purpose of this ethical presentation is to examine the social injustices that are created when we as a society permit “legal” to determine opportunity and the concomitant resultant limitations on individuals with physical disabilities to play and recreate. Examples and solutions will be offered in both pre-professional education and professional practice. Participants will leave with: 1) a social justice moral perspective about the limits of “legal” to morally serve individuals with disability, and (2) actual examples of better inclusionary practices.

***Cerebral hemodynamic responses to acute aerobic exercise in individuals with and without Down Syndrome.*** Sang Ouk Wee, California State University, San Bernardino; Thessa Hilgenkamp, University of Illinois at Chicago; Tracy Baynard, University of Illinois at Chicago; & Bo Fernhall, University of Illinois at Chicago.

Individuals with Down Syndrome (DS) commonly experience a low to moderate level of cognitive impairment and at a high risk of developing dementia and Alzheimer’s diseases (AD). Reduced cerebral blood flow (CBF) and altered CBF characteristics have been observed in the aging population without DS, which has been recognized to have detrimental effects on cerebral microvasculature. However, differences in CBF and its characteristics between individuals with and without DS and its response to exercise have not been studied. **Purpose:** To examine the differences in CBF and its characteristics following a 20-minute moderate intensity walking in individuals with and without DS. **Methods:** 38 young (DS=19, mean age=25 yrs for both groups) individuals with and without DS participated in this study. Changes in mean middle cerebral artery velocity (mMCAv), mMCAv characteristics (pulsatility index (PI), resistance index (RI)) and hemodynamic variables were measured before, immediate post and 30-minute post the 20-minute treadmill walking. **Results:** Baseline hemodynamics and mMCAv were not different between DS group and control group ( $p>0.05$  for all). Neither group showed changes in mMCAv after the moderate intensity

treadmill walking exercise ( $p>0.05$ ). However, the DS group exhibited significantly higher PI and RI at all times when compared to controls ( $p<0.05$  for both). **Conclusions:** Our results demonstrate that CBF was not altered in individuals with DS at rest and following moderate intensity exercise and was not different from that of controls. However, higher PI and RI in DS group may be associated with reduced distal cerebral perfusion and microvascular damage in individuals with DS.

***Who are you and why do you exercise? Associations with personality and exercise motivations.*** Madison Wargowsky, Wesley Kephart, Andrea Ednie & Lindsey Greviskes, University of Wisconsin-Whitewater.

There is extensive evidence that personality traits are associated with health-related behaviors, but the underlying mechanisms have not been sufficiently elucidated. In this study, we examined the relationships between personality traits under the Big Five Model (BFM) and exercise motives using the Exercise Motivation Inventory-2 (EMI-2). A cohort of undergraduates ( $N=533$ ) completed an abbreviated BFM inventory and the EMI-2. Due to the exploratory nature of this investigation, partial correlation analysis was used to examine the relationships between each personality scale and exercise motives, while controlling for each of the other personality scales. Extraversion was positively associated with all the exercise motives except for nimbleness. Agreeableness was negatively associated with social recognition, while positively associated with positive health. Conscientiousness was positively associated with all motives except for social recognition, affiliation, competition, health pressure, ill health avoidance, or weight management. Neuroticism was positively associated with stress management and weight management, while being negatively associated with enjoyment, competition and strength/endurance. Openness to experience was negatively associated with weight management yet positively associated with nimbleness. Based on the findings of the current study, campus health and wellness professionals should tailor motivating efforts toward an individual's personality type.

***Alterations in musculoskeletal architecture and strength, and their relation to functional mobility in adults with Cerebral Palsy.*** Areum Jensen, San José State University.

Cerebral palsy (CP) is a neurodevelopmental disorder and is the most common childhood disability. Due to diminished musculoskeletal function, individuals with CP experience senile sarcopenia and osteoporosis at an earlier age compared to healthy individuals. Additional medical complications arise from falls and fractures that stem from limited mobility experienced by individuals with CP. Thus, the purpose of this study was to investigate alterations in the musculoskeletal system and its relation to functional mobility in adults with CP. Skeletal architecture, bone mineral density (BMD), muscular strength, and balance were assessed using various techniques (e.g., Dual energy X-ray Absorptiometry, Humac Norm Isokinematic Dynamometry, Biodex Balance System) in twenty adults with and without CP. There was an inverse relationship between femoral neck length and t-score in the CP group ( $p<0.05$ ). There was a strong direct relationship between BMD in the femoral neck and knee extension peak torque in the control group with no relationship in the CP group. On the other hand, individuals with CP who had greater peak torque took less time to complete the balance test ( $p<0.05$ ). However, there was no observed relationship between BMD of the lumbar spine and the total time required to complete the balance test in adults with CP. In conclusion, leg muscular strength appears to influence balance in individuals with CP even though bone strength in the lumbar region was not significantly different compared to the control group. In addition, femoral skeletal architecture has an influence on BMD and muscular strength in adults who have CP.

***Relationship between physical activity and eating behaviors by college students.*** Hosung So, California State University, San Bernardino; Minjo Kim, Cheongju National University of Education; Minhyun Kim, Sam Houston State University; Younglee Kim and Yeonsook Kim, California State University, San Bernardino.

The understanding of the effect of physical activity (PA) on food consumption is imperative for considering PA as an additional tool for prevention and treatment of many diseases. Prolonged strenuous PA performed on a regular basis causes an increase in overall energy turnover, and leads either to loss of body weight, or to an increased food intake. Physical activity is closely interrelated with energy intake (Reynolds, 2012). Several health risks are known to be lower in individuals who exercise, yet only 35% of college students exercise on a regular basis (Silliman, Rodas-Fortier & Neyman, 2004). Despite the evidence suggesting healthy eating and exercise habits to reduce chronic disease, college students typically do not meet their own stated goals for exercise and nutrition, or goals set forth by national guidelines. This study examined the relationship between physical activity and food consumption by college student majors (440 kinesiology, 81 health-related, 629 non-health-related) and comprised a total of 1,150 college students (594 females and 556 males). Physical activity and food intake were assessed using self-reported questionnaire, including patterns of physical activity, so called FIT (i.e., frequency, intensity, and time) and average food intake per day. ANOVAs were used to compare the food intake and patterns of PA. The analysis revealed that Kinesiology majors reported healthier exercise behaviors with regard to the frequency [ $F(2, 1146) = 46.76, p < .001$ ], intensity [ $F(2, 1146) = 42.35, p < .001$ ], and time of physical activity [ $F(2, 1144) = 32.04, p < .001$ ]. There were no differences found between health-related and non-health-related majors in the patterns of PA and food intake. This study supports previous research by exercise-induced changes in the reward value of food and increased wanting for food (Finlaywon, Caudwell, Gibbons, Hopkins, & Blundell, 2011).

***Social cognitive aspects of healthy leisure in college students.*** Julie Son, University of Idaho.

Social cognitive models of leisure and health have focused on leisure-time physical activity as the primary mechanism for health. However, recent research suggests that a diverse array of leisure activities can contribute to health and wellness, including reading, socializing, non-sport play activities, and many others (Payne, Ainsworth, & Godbey, 2010). The purpose of the current study was two-fold: 1) to examine healthy leisure activities and their importance as identified by college students, and 2) to examine whether social cognitive factors of healthy leisure were related to subjective health status in this sample. Findings indicated that, in this sample, social, physical, and cognitive leisure activities were deemed important to health. Of note, an even higher percentage of respondents identified social leisure (90%) as important to health in comparison to physical activity (85%). A social cognitive model was tested, controlling for several demographic factors. The reduced regression model of significant factors indicated that healthy leisure identity was the most important predictor of health status, followed by constraints, accounting for 18% of the variance in health status. These factors have opposing effects: identity was positively associated with health status whereas constraints were negatively associated with health. These findings taken together suggest that programs should focus on developing healthy leisure identity in youth and young adults and try to mitigate constraints to participation.

**Oral Presentations, Friday October 12, 2018**

***Is it better to exercise in the Great Outdoors? College students' perceptions of, and commitment to outdoor physical activity.*** Andrea Ednie, Lindsey Greviskes & Wesley Kephart, University of Wisconsin-Whitewater.

Previous research has documented the psychological and health benefits associated with outdoor exercise. However, questions still exist about the perceived benefits of year-round outdoor exercise in northern climates, and little is known about the outdoor exercise patterns of college students. An online survey was conducted with undergraduate students (N=543) in order to assess year-round patterns and perceived benefits of outdoor exercise, and overall physical activity patterns. K-means cluster analysis was used to group participants based on the proportion of their exercise done outdoors, and one-way ANOVA tests with post-hoc Tukey HSD comparisons were used to identify differences in perceived benefits of outdoor exercise and overall physical activity patterns between the cluster groups. The three identified indoor/outdoor exercise groups (year-round outdoor, seasonal outdoor, and indoor) differed in perceived benefits of outdoor exercise ( $p < .05$ ) where the year-round group more strongly agreed that outdoor exercise is stress relieving and that they enjoy trying new outdoor exercise activities, and the indoor group more strongly agreed that outdoor exercise is harder than indoor exercise. With respect to self-reported physical activity patterns, no significant differences ( $p > .05$ ) were found in strenuous exercise, however, the indoor group reported less moderate exercise than the year-round outdoor exercise group, less mild exercise than the seasonal group, and more strength training than the year-round outdoor exercise group. Considering these results, areas for further research were identified, as were suggestions for college fitness programs and facilities geared toward integrating outdoor exercise into a campus culture.

***Moving the profession forward: The case for promoting undergraduate exercise science accreditation and certification.*** Ben Thompson, Metropolitan State University of Denver.

As the consequences of physical inactivity continue to increase and impact the health of the nation, the importance of having prepared certified exercise professionals is paramount. The accreditation of academic programs that prepare students to become exercise professionals is vital to moving the profession forward. This session is two-fold. First, participants will learn about the benefits of students obtaining appropriately credentialed professional certifications (National Commission for Certifying Agencies, NCCA). Secondly, participants will learn more about the value of exercise science programmatic accreditation through the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

***Brain breaks go to college.*** Kimberly Feiler, La Sierra University.

As health educators, we know the importance of practicing what we promote to our students. Physical activity levels of American adults are low, with too much time spent being sedentary (Centers for Disease Control and Prevention, 2018). New physical activity habits can be developed early in adult life, even in the college or university setting. Faculty and students spend most of their time being sedentary in this environment; this norm needs to change. Brain breaks have worked well in K-12 learning environments to re-engage and increase academic achievement of students (HOPSports, 2018; Martin & Murtagh, 2017; Mullender-Wijnsma, Hartman, de Greeff, Doolaard, Bosker, & Visscher, 2016; Watson, Timperio, Brown, Best, & Hesketh, 2017). Brain breaks also have the potential to work the same way in higher education. Our college-level health and health-related courses can serve as model platforms to reintroduce brain breaks and active learning strategies where there has usually been little to none.

***A study on self-defense strategies and skills in real life attacks.*** Gong Chen, San José State University.

The purpose of this research was to investigate self-defense strategies and skills that victims used in real life attacks. Mental self-defense strategies and physical self-defense skills have been taught in classes and martial arts studios, and many people used their instinct to deal with attacks. It is important to understand the effectiveness of these strategies and skills in real life self-defense, and to apply the new knowledge in teaching and learning self-defense in schools, universities, and communities. This research analyzed real life cases reported in newspapers and on the internet during the last two decades. The results were discussed in two categories. The first category included mental self-defense strategies dealing with attempted murders, rapes, robberies, aggravated assaults, burglaries, bullies, and kidnaps. The second category focused on physical self-defense skills countering different attacks by barehanded, blunt objects, knives, and guns. Defenders were classified into several groups and comparisons were conducted between males and females, and between youth and adults.

***Understanding Autism Spectrum Disorder and the effect of exercise.*** Areum Jensen & Tracey Bullock, San José State University.

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder identified in early childhood, and is characterized by impaired social interaction and compulsive repetitive behaviors. The Centers for Disease Control and Prevention (CDC) reported that the estimated prevalence of ASD was one in 68 children in 2016. While the ASD population grows, general health complications (e.g., obesity, hypertension, and dyslipidemia) are present more in children with ASD than their typically developing peers. Also, children with ASD tend to be less physically active and less engaged in exercise programs. Thus, we consider children with ASD may be at higher risk for developing chronic diseases earlier, and their poorer health outcome may be due to physical inactivity and the pathophysiological alterations that exist in the ASD population. For this talk, A. Jensen will present preliminary data on autonomic (via parasympathetic and sympathetic nervous system activity) control of the cardiovascular system, and its relation to health related physical fitness in children with ASD. Compared to typical children, individuals with ASD tend to have lower vagal tone and higher blood pressure variability. In addition, autonomic control of blood pressure seem to be impaired in children with ASD. T. Bullock will discuss the positive effect of exercise and physical activity on behavioral and occupational changes in children with ASD.

***Collaborate and listen! Using social media to engage students in a PETE course.*** Daniel Balderson, University of Lethbridge.

Meaningful collaboration and engagement that enhances student learning is a challenge for college instructors (McCormick, Gonyea & Kinzie, 2013). Increasing class sizes, changing modes of content delivery, and students with diverse needs, all contribute to this ever-present challenge. Kinesiology and physical education instructors who, despite teaching some classes in an active setting, may struggle to engage students and connect activities with intended learning outcomes. Social media is quickly becoming a valuable tool for college instructors to help collaborate with their students both inside and outside of the classroom (Junco, 2014). It has also been found to assist in connecting students and developing professional learning communities that extend beyond their college experience. This presentation will highlight how one instructor used social media applications (Twitter and Group Me) to build a collaborative learning community to enhance student engagement, assessment, and reflection.

***Caring climate, adherence, and quality of life among individuals with Parkinson's disease: a mediation analysis.*** Lindsey Greviskes, University of Wisconsin-Whitewater; & Leslie Podlog, University of Utah.

With no cure, rising healthcare costs, and the average life expectancy increasing, finding cost effective methods to improve the quality of life for patients with Parkinson's disease is imperative. One form of treatment aimed at improving quality of life for individuals with Parkinson's Disease is the use of physical therapy or secondary prevention programs (exercise programs aimed at preventing disability and complications from disease). Framed in Social Cognitive Theory, the current study was aimed at examining a caring rehabilitation climate (an environmental factor) and its relationship with quality of life for those with Parkinson's Disease (personal factors) and whether or not that relationship was mediated by adherence to physical therapy and secondary prevention programs (behaviors). A sample of 76 individuals diagnosed with Parkinson's disease were surveyed. Correlation analyses revealed no significant relationships between any of the variables of interest. Potential methodological issues, such as scale ceiling effects and the multidimensional nature of quality of life for those with Parkinson's disease may be at the root of the non-significant findings. Future research should focus on gathering data from multiple sources rather than self-report alone, as well as targeting those who dropped out or discontinued physical therapy or a secondary prevention programming for recruitment.

**Faculty Poster Presentations**

***Student perceptions of high school physical education.*** Devin Beasley, Fresno Pacific University.

Recent research calls into question the quality of high school physical education instruction and the level in which it adheres to Appropriate Instructional Guidelines (SHAPE America, 2009), which influences adult engagement in physical activity. Current research indicates high school students are displeased with their physical education experience and suggests that instruction insufficiently addresses appropriate guidelines, and therefore does not advance the goals of physical education. The purpose of this study was to examine student perceptions of high school physical education instruction and based on their experience, its adherence to the SHAPE America guidelines for appropriate instructional practices. Nine instructors at six colleges and universities were contacted via email and asked to participate in the study, using their freshman classes to disseminate a survey. The survey, a modified version of the Likert-Type instrument validated by Stapleton and Bulger (2015), was used to obtain the perceptions of 306 (162 females and 144 males) freshman college students on their high school physical education experience. The survey was designed to solicit opinions in learning environment, instructional strategies, assessment practices, and curriculum of physical education and 150 high schools throughout 108 cites, were represented in the study. Results were consistent with current literature, in which respondents rated their physical education experience low in almost all areas of instructional guidelines. Based on survey results, students indicate that their physical education instruction rarely adhered to Appropriate Instruction Guidelines. High school physical education instruction does not consistently adhere to instructional guidelines and reform efforts should be investigated to improve the quality of high school physical education instruction. Further research is needed to investigate the extent to which poor high school physical education instruction influences adult physical activity behavior.

***A content knowledge and knowledge packet for teaching fundamental motor skills.*** Seung Ho Chang & Jihyun Lee, San José State University.

Fundamental motor skills (FMS) are basic skills that serve as a prerequisite to help children become independent movers (Gallahue, Ozmun, & Goodway, 2012). Furthermore, it represents the building blocks that lead to specialized movement sequences required for adequate participation in many physical activities and sports (Gallahue et al., 2012). Since FMS do not automatically develop with age, children must learn proficiency in FMS through participation in physical education (PE) and sports. However, FMS have not been effectively taught by physical education educators. To improve the teachers' content knowledge, a knowledge packet (content knowledge packet) can be used as a pedagogical tool. The knowledge packet is defined as material that is constantly developed and modified over time through teaching (Ward, Ayvazo, & Lehwald, 2014). The importance of the knowledge packet has been emphasized by several studies and knowledge packets for teaching badminton and soccer have been developed. However, the knowledge packet for teaching FMS has not been developed yet. Therefore, the purpose of this study was to review different types of content knowledge in physical education for developing knowledge packet to effectively teach FMS for children. Literature searches were conducted using predefined keywords including content knowledge, children, fundamental motor skills, knowledge packet, young children, preschoolers, early childhood and their combinations in five databases (i.e., SportsDiscus, PsycINFO, MEDLINE, ERIC, and PUBMED). A total of 21 studies met the inclusion criteria. In conclusion, the current review revealed content knowledge that helps improve FMS such as common content knowledge (CCK) and specialized content knowledge (SCK) and knowledge packet should include proper techniques, teaching methods, strategies, assessments, and resources of content knowledge for students at different skill levels.

***The effects of aerobic fitness on cognitive performance while dual-task walking in older adults.*** Gioella Chaparro, California State University, Dominguez Hills; & Manuel Hernandez, University of Illinois at Urbana Champaign.

Older adults (OA) experience cognitive performance impairments (Scherder et al., 2007) which is related to a risk of falls while dual-tasking (e.g., walking and talking) (Beauchet et al., 2008). With falls and fall-related injuries causing decreases in quality of life and increasing morbidity in OA (Scheffer et al., 2008), it is essential to examine how to improve cognitive performance while dual-task walking in OA. Fortuitously, having greater levels of aerobic fitness leads to greater cognitive performance in OA (Predovan et al., 2012). Although benefits of aerobic fitness on the cognitive function are well-known, the role of aerobic fitness on cognitive performance while dual-task walking is not. The objective of this study was to examine the aerobic fitness effects on cognitive performance under varying dual-task demands in OA. Thirty-four participants ( $M \pm SD$  age: 68.6  $\pm$  10.1 years, 24 females) participated in this study.  $VO_{2max}$  was assessed with the Rockport 1-mile walk test (range= 6.68-45.57). Participants engaged in the Modified Stroop Color Word Test on a treadmill while simultaneously standing and walking. Stroop performance was measured as interference of the accuracy score. While dual-task walking, more fit participants exhibited significantly lower interference (i.e., had better cognitive performance) than less fit individuals ( $p = .04$ ) when compared to dual-task standing. Additionally, interference and age were positively correlated in both dual-tasks ( $r = .6, p < .001$ ). Results provide evidence that aerobic fitness positively impact cognitive performance as dual-task demands increase, suggesting that dual-task interference may provide a sensitive indicator of effects of an aerobic intervention program on the cognitive performance among OA.

**Examining the relationship between football fans' learning types of sport rules and future sport-related consumption.** Wanyong Choi, University of North Florida; Tae Ho Kim, Washington State University; Wonyoung Kim, Wichita State University; & Jinwook Chung, Winthrop University.

Learning sport rules has been considered a minor aspect of knowledge and little attention has been paid to it as a factor of fan development. The present study explored the relationship between learning sport rules and future consumption behavior of football fans. To achieve this purpose, a proposed model tested the direct relationship between types of sport rules learning and future sport-related consumption behaviors. Four types of sport rules learning included: 1) playing organized sport; 2) attending sport at a stadium; 3) watching on TV; and 4) playing video game. Four types of sport-related consumption behaviors considered purchasing of: 1) sporting goods to play; 2) attending games; 3) video game; and 4) spending time to watch football on TV. The current study had 117 respondents, 18 years or older who were interested in sport-related consumption activities in the United States. This study employed an external on-line panel survey from an external online survey provider. Structural Equation Modelling (SEM) was used to test the model. Results showed a good fit based on the result of Confirmatory Factor Analysis (CFA) and SEM which indicated that learning types of sport rules influenced future sport-related consumptions. Sport marketers of football industry can utilize the findings of this study to design specific marketing strategies in order to attract various types of individuals to the sport marketplace.

**A team approach to strong physical education programs.** Chris Gentry, California State University, San Bernardino; & Amelia Mays Woods, University of Illinois at Urbana-Champaign.

Although all physical education programs should strive for departmental success and cohesion, many fall short for various reasons. As a result, an examination of programs that take a collaborative approach to success and personal growth may be beneficial to physical educators at all career stages. Three state awarded physical education programs were observed to provide multiple examples as to how teachers, department chairs, and administrators can not only coexist but thrive within and around the physical education setting. Multiple week observations at each school and multiple interviews with each teacher, department chair, and principal revealed themes which include a high value for communication within and around the department, a team atmosphere, and a desire for distributed leadership. Each program was marked with a shared philosophy and a desire to put the needs of the students first. Ideas will be shared that may help your program to increase the cohesiveness and overall quality of physical education within your school.

**Exploring mid-career Taekwondo masters' occupational socialization process and professional development through the internship program.** Boungh Jin Kang, Elizabeth City State University; & Min Hyun Kim, Sam Houston State University.

The internship program is a crucial stage where core competencies of Taekwondo (TKD) masters' future instruction are developed. There is a need to improve the quality of internship programs so that they will be developmentally and instructionally appropriate in order to provide quality TKD instruction to students. The purpose of this study was to explore the mid-career TKD masters' socialization process, experiences and professional development, and how instructional beliefs were changed from participation in an international internship program. Through 7-month international internship program, eight mid-career TKD masters (2 female and 6 male) participated in a socialization process and professional development that focused on experiential learning (Ferrari, 2006) and implementing practical instructions. Qualitative data

were collected through field observations, journals, and interviews to assess TKD masters' receptivity and perceptions of the internship as well as their socialization process and professional development toward practical instruction. Both female and male TKD masters stated that they were open to change, excited about the international internship program, and expected it to improve their instruction and professional development. Overall, the internship program seems to be a practicable and motivating curriculum option for TKD masters (i.e. the increased levels of confidences, improved social behavior and leadership, and enjoyment of the internship program). Continuing professional development (CPD) is a good thing – masters, as other professionals, should be lifelong learners, but the CPD process has to be collaborative and collegial and it has to be intensive and sustained over time. This was not always the case in this project and probably impacted its success. Nonetheless, all of the TKD masters did see the greater experiences of the international internship program for leadership improvement and decision-making opportunities- the shift from passive attitude to active/positive attitude of instruction as TKD masters took on various stages of the socializations during the international internship program.

***High school students' intrinsic motivation and expectancy value toward racquet sports.*** Minhyun Kim, Sam Houston State University; & Boungh Jin Kang, Elizabeth City State University.

The study of motivation has a long history. In an educational context, many researchers strive to explore the relationship between students, motivation and achievement, behavior and success. The main purpose of this study was to explore differences on high school students' perceptions regarding expectancy-value and intrinsic motivation toward racquet sports according to their grade, gender, and ethnicity. Racquet sports such as badminton and tennis were examined because they are popular sports in high school physical education lessons. One-hundred and fifty-six high school student-participants from two high schools located in Virginia effectively completed the study questionnaires. The results were analyzed by descriptive, exploratory factor analysis, t-test, and ANOVAs. The study results showed that generally 12th grade students ( $M=4.18$ ,  $SD=0.57$ ) perceived higher expectancy-value than 9th grade students ( $M=3.77$ ,  $SD=0.69$ ). The study also found that 12<sup>th</sup> grade students ( $M=4.65$ ,  $SD=0.51$ ) perceived higher intrinsic motivation than 9<sup>th</sup> grad students ( $M=4.55$ ,  $SD=0.47$ ). According to t-test, male students ( $M=4.44$ ,  $SD=0.68$ ) had higher expectancy-value value than female students ( $M=3.45$ ,  $SD=0.44$ ). However, there was no statistically significant difference among ethnic groups. The results of this study pointed out that 12<sup>th</sup> grade and male students perceived higher expectancy value and intrinsic motivation in racquet sports in physical education. Studies have found that one way to increase the level of students' participation in physical education is to focus on students' intrinsic motivation as it has a significant impact on their success, interest, and participation. It is recommended that providing various class content and physical activities may help increase the level of intrinsic motivation for higher grade and female student.

***Gender differences in the relationship between consumer engagement and extra-role behavior: Spectating sport industry.*** Tae Ho Kim, Washington State University; Wanyong Choi, University of North Florida; Yong Chae Rhee, Washington State University; & Min Kil Kim, Troy University.

Currently, numerous scholars have highlighted the importance of engagement from scholars in a variety of academic fields. Although numerous scholars had stressed the role of engagement, little empirical research has been conducted to understand the relationship between consumer engagement and extra-role behavior (i.e., recommendations, suggestions, & cooperative behavior), particularly in the sport industry. Furthermore, little attention has been given to the influence of gender in consumer engagement in the sports context. Accordingly, the purpose of the current research was to examine the role spectator

engagement plays in predicting future extra-role behavior by focusing on gender differences. Data were collected from the football fans at a large Northwestern university (n=175). Reliability tests and a confirmatory factor analysis were performed to establish the reliability and validity of the measurement items. The results indicated that the items were highly reliable in measuring the constructs. In the spectator sport context, consumer engagement factors significantly explained consumer engagement for both males and females. In addition, engagement significantly influenced engagement behaviors in both male and female consumers (male: recommendation:  $\text{CE} \leq .87$ , suggestion:  $\text{CE} \leq .80$ , cooperative behavior:  $\text{CE} \leq .64$ . Female: recommendation:  $\text{CE} \leq .91$ , suggestion:  $\text{CE} \leq .73$ , cooperative behavior:  $\text{CE} \leq .70$ ). According to the results, male and female fans showed different extra-role behavior. For example, engaged male fans were more likely to provide suggestions for organization to improve service, while engaged female fans tend to communicate with other customers (e.g., recommendation).

***Effects of service learning on student attitudes toward academic engagement.*** Wonyoung Kim, Wichita State University; Yongchae Rhee, Washington State University; Minkil Kim, Troy University; & Jinwook Chung, Winthrop University.

College students in the sport management discipline are expected to spend numerous hours in the classroom taking notes, completing tests and working on class projects. While this can be an effective way to prepare students for the work force in the sport industry, there have been various instruction methods (e.g., problem-solving method, service-learning project) used to facilitate the learning engagements and improve learning outcomes. Service learning is defined as, "a process of integrating volunteer community service combined with active guided reflection into the curriculum to enhance and enrich student learning of course material" (Bennett et al., 2003, p. 62). The service-learning teaching method can be used as an added tool in the classroom to promote engagement and further mastery of course materials. The purpose of this study is to explore the effectiveness of service learning on students' learning outcomes and engagements. Students in the Sport Tournament and Event Management courses in a large size university in the Midwest engaged in service-learning projects involving volunteering at sporting events. Post participation, in-depth interviews were conducted to capture the student attitude toward the service-learning activities in the sport management courses. Results indicated that "hands-on experiences," "building leadership," "fun," and "being challenged positively" were major positive outcomes. On the other hand, "excessive workload," "time conflicts," and "stress to work with strangers" were major drawbacks from the service-learning experiences. Additional analyses on the data, implications, and recommendations for the instructors in the higher education will be discussed.

***Development of fourth industry-based new technologies in sports industry through patent analysis: Utilization of text mining and social network analysis.*** Jea Woog Lee, Chung-Ang University.

Since the emergence of the 4<sup>th</sup> industrial revolution, convergence with key technologies of the 4<sup>th</sup> industry has been recognized as essential for sustainable development of the sports industry, which necessitates an analytical approach with intuition and insight to preempt creative ideas and new technologies. Against this backdrop, this study aims to apply the "patent analysis" method frequently used in engineering to the sports industry and to verify its effectiveness. Patent analysis is a technique to identify, collect, and visualize keywords derived from specific technical patents through a social network analysis. The resultant patent map allows one to interpret technological changes, current trends, and future prospects. For this, the patent analysis method has been applied to create a sports VR patent map for Korea and the U.S. for the last five years (2013 ~ 2017), followed by analysis by country and comparison between countries. The

analysis has found that the core technologies in the U.S. and Korea are an integration between vital signs, gestures and the VR technology, and connection with VR images, respectively. Promising technologies in the future are expected to be the interaction between brainwave signals and VR for the U.S., and hologram technology for Korea. However, the majority of Korea's key promising technologies are already patented by the U.S. with a 2.4 year technology gap according to the report of Korea Science Technology Evaluation Management Institute. This is a meaningful result that demonstrates a need for actions to reduce the technology gap, and specific technology development strategies that lead to verification of the effectiveness of the patent analysis method.

***Nature engagement and stress reduction.*** Erik Luvaas, Sacramento State University; & Sharon Stoll, University of Idaho.

Guided by the literature on wellbeing benefits of nature interactions, this pilot study examined the effects of natural v. urban environments and mindful v. passive engagement with nature. Fifty-five (55) undergraduate students participated in a non-crossover quasi-experimentally designed study to examine the effects of two types of engagement: (1) a passive walk through an environment (i.e., a typical walk for transportation); or (2) a sensory engagement walk where participants are directed to actively seek out sensory stimulation from nature (e.g., touching plants and trees). Each group was further sub-divided into two groups (natural vs. urban environment) for four groups total: natural-sensory engagement, natural-control, urban-sensory engagement, and urban-control. Pre- and post-test measures of current perceived stress and nature connection were collected along with post-test measures of perceived environmental restorativeness and focus of attention. Each of the four walks were approximately the same distance, pace, and duration. For preliminary results, the effect of treatment condition on perceived stress was not significant ( $F(3,51)=.79, p=.506$ ). However, paired sample t-tests conducted to compare perceived stress before and after the treatment condition show that each treatment condition reduced stress. Separate ANOVA tests showed that treatment condition had a nonsignificant effect on nature connection ( $F(3,51)=1.45, p=.239$ ); and perceived environmental restorativeness ( $F(3,51)=1.96, p=.132$ ). Separate simple linear regression analyses were utilized to predict pre-post changes in perceived stress, and significant regression equations were found for the following variables: perceived environmental restorativeness ( $R^2=.17, F(1,53)=10.954, p=.002$ ); nature connection ( $R^2=.28, F(1,53)=20.177, p<.000$ ); and focus of attention on the environment ( $R^2=.11, F(1,51)=6.013, p=.018$ ). The results support previous research on the benefits of nature interaction. The quality of the experience (nature connection, restorativeness, and attention) appears to predict reduction in stress, even in an urban environment. Future research should focus on alternative urban nature experiences to reduce stress in mostly built urban environments.

***Online yoga versus face-to-face: Which is best?*** Robyn Miller, Bowling Green State University.

It has been discovered that yoga can help reduce anxiety and increase flexibility, which are two very important areas in overall wellness. It is also very obvious that technology is playing a larger role in our everyday lives, and the ability to practice yoga online is a new phenomenon that should be explored. Unfortunately, our society has become so busy that yoga or any other type of exercise is difficult to participate in; reasons range from cost to time constraints, leaving many Americans stressed out and out of shape. Can online yoga make up for these health discrepancies with the same results as face to face yoga in the areas of anxiety and flexibility? It has already been proven that face to face Yoga does decrease anxiety and increase flexibility. This particular study was a qualitative study with  $n=30$  students in an online yoga

class that lasted six weeks with students practicing yoga about one hour per week. The students were asked open ended questions both before and after the six-week class concerning their anxiety levels as well as their flexibility levels. It was discovered that approximately 85% (n=25) of the students in the online yoga class reported that their flexibility had increased and their anxiety levels had decreased over the six-week period. While this is a small sample and a short period of time, it would appear that online yoga has the potential to help individuals with anxiety and flexibility just as much as a face to face yoga class does.

***Strength training motivations, practices, and sources of information among undergraduate college students.*** Jason Shurley & Andrea Ednie, University of Wisconsin-Whitewater.

The American College of Sports Medicine and U.S. Department of Health and Human Services, both recommend strength training two or more days per week to develop and maintain musculoskeletal fitness (Garber et al., 2011; DSHS, 2008). Among all adults, 28.7% of men and 20.6% of women report meeting these guidelines (Centers for Disease Control, 2014). A survey of college students reported that 55% of men and 35% of women meet those recommendations (Racette, Deusinger, S., Strube, Highstein, & Deusinger, R., 2005). Research on college students has shown that men are more regularly active than women, and also more frequently engage in strength training (Fontaine, Liguori, Mozumdar, & Schuna, 2011; Buckworth & Nigg, 2004). This poster analyzed surveys completed by 675 students enrolled in a general education "personal health" course at a Midwestern university, 93% of whom were first or second year students; 50.4% were male, 49.6% were female. Nearly half of students, 46.6%, reported engaging in regular strength training, with a greater proportion of males than females, 59% to 34%, respectively, reporting regular strength training. Males trained more frequently, with 81% reporting 3 or more sessions per week compared to 63% of females. There was no significant difference between males and females on the types of strength training equipment used. Previous experience training as a high school athlete was the primary source of information about program design, used by 30.7% of trainers, followed by programs from current coaches (9.7%), information from friends or family (5.5%), and personal trainers (5.2%).

***Who am I? One strategy for teaching about power and privilege in a kinesiology class.*** Heather Van Mullem, Lewis-Clark State College.

Creating a classroom environment that facilitates and supports discussions about sensitive topics can be challenging. For example, encouraging students to explore the topics of power and privilege resulting from social classifications and their impact on the thoughts and actions of themselves and others is an important step toward encouraging social justice as well as active and engaged learning. Using sport as the context, this poster will introduce a teaching strategy that attempts to encourage self-reflection and dialogue about the impact of social classifications on power and privilege in American society. The goal for this poster is to provide tools and materials for Kinesiology practitioners to use in their classrooms.

***"The best of the best": Creating undergraduate degree opportunities through cross-disciplinary collaboration.*** Heather Van Mullem, Heather Henson-Ramsey, Martin Gibbs & Delta Heath-Simpson, Lewis-Clark State College.

Kinesiology degree programs appear poised for growth in enrollment. Professions in fitness, wellness, and movement and sport sciences appear to be of increasing interest to students. These enrollment trends are occurring during challenging funding times at public colleges and universities across the nation. As state

financial support continues to decline, public institutions of higher education are challenged to continue to provide rigorous, innovative, and exciting academic opportunities for students while minimizing the impact of the cost of a college education on the students themselves. One strategy to create new academic degree opportunities (or revise currently existing ones) while maximizing institutional resources is through interdisciplinary collaboration. Therefore, this poster will share the efforts of one small public college to explore and realize the areas for interdisciplinary collaboration and growth in the area of Kinesiology. This poster will: 1) describe challenges and successes experienced during faculty collaboration across divisions to craft curricula; 2) describe strategies utilized to support student success in shared programs; and 3) discuss cross-divisional efforts in the areas of program recruitment and student retention.

***Community engaged service-learning: The effect on university students.*** Susan Steele, Lewis-Clark State College.

The notion that an ethic of service can be fostered through participation in an academic community engaged service-learning program was the underlying premise for this program evaluation study. The purpose of this study was to examine the effect of a community engaged service-learning program on university student participants. Encompassing a global perspective, the design of the study incorporated both quantitative and qualitative research design elements. The quantitative findings were corroborated and more thickly described by the qualitative data. Results indicated that female university students scored significantly higher than males pre- to post-test for moral orientation “ethic of care” and service-learning awareness/empathy ( $p < .05$ ). Furthermore, service-learning students as a group had statistically significant differences in means for seriousness/intention to serve as well as altruistic service attitude (empathy) ( $p < .05$ ). Adding a qualitative component, university students’ leadership identity underscored the impact of such an experience. Analysis of the data strongly suggests that the global impact of the service-learning program was positive and effective in providing a solid community engaged educational experience for all concerned.

### **Student Poster Presentations- Research Critiques**

***The influence of instructional climates on physical activity in physical education.*** Cassondra Delgado, Chris Gentry & Hosung So, California State University, San Bernardino.

The purpose of this study was to determine how PE instructional climates (mastery and performance) impacted the time 2<sup>nd</sup>-grade students spent participating in MVPA compared to management tasks. Data collection consisted of three phases which included baseline, acclimation, and intervention. The method used to report the instructional climates during physical education was the System for Observing Fitness Instruction Time (SOFIT). Percent of MVPA was highest in the mastery climate (68%), followed by performance (67%), and typical PE (49.7%). Time spent in management tasks for the mastery and performance climates were at 9.9% and 23.5 %, respectively, compared to typical PE at 36.9%.

***The effects of physical activity on primary aged students cognitive abilities and motor skills.*** Paul Figueira & Hosung So, California State University, San Bernardino.

The purpose of this study was to test how various types of physical activities affect the cognitive abilities of adolescent children. These abilities include inhibition, working memory, planning skills and cognitive flexibility. A small negative correlation was found between sedentary behavior and the Stroop test. A higher total volume of physical activity was associated with better planning ability, as reflected by both a higher score on the Tower of London test.

***The positive effects of dance in underserved adults.*** Alyssa Gallegos, Chris Gentry & Hosung So, California State University, San Bernardino.

The purpose of this study was to examine the effects of a twelve-week, moderate-intensity dance intervention in older, underserved adults experiencing depression, declines in physical functions, and disabilities. Forty residents that met inclusion criteria were involved in a moderate-intensity dance intervention that occurred two times per week. Each class lasted forty-five minutes for a duration of twelve weeks. The Center for Epidemiological Studies Depression Scale (CES-D) measured depression, The Late Life Function and Disability Instrument (LLFDI) measured physical function and disability, and Charlson Scale measured comorbidity. After the twelve weeks of completion, CES-D scores went from 20.0 to 10.9 indicating significantly decreased depression ( $p < .001$ ). In addition, LLFDI results revealed a significant increase in physical function from 56.6 to 62.2 ( $p = .013$ ) and 65.7 to 74.9 ( $p = .014$ ).

***Cognitive behavioral based physical therapy (CBPT).*** Ro-Anne Khrystel Galleta, San José State University..

Psychological factors such as fear of movement, avoidance coping and depression are associated with decreased physical function after lumbar spine surgery. A cognitive behavioral-based physical therapy program (CBPT) was developed to focus on decreasing an individual's fear of movement and increasing self-efficacy. The purpose of the reviewed study was to analyze CBPT as an alternative approach to postoperative spine rehabilitation. Both a CBPT group and educational group were compared by examining each participant's changes in gait speed, functional mobility, lower extremity strength, low back disability, general health and mental health. Results indicated of high adherence to the treatment from both groups. The CBPT group displayed both significant and clinically meaningful improvement in pain, disability, general health and physical performance. CBPT may benefit in enhancing recovery during post-surgery stages. Strengths of the study included a set Tampa Scale for Kinesiophobia score used as a factor in the recruitment of participants. Further research is needed to compare the effect of having CBPT in traditional physical therapy settings.

***Physical activity intervention in children with ADHD.*** Yu-Hsuan (Eric) Liu, Lizeth Ortega & Guillermo Escalante, California State University, San Bernardino.

The study was investigating the relationship between motor skill deficits, sedentary lifestyle and ADHD in children. It was the very first study to test the physical performance of children with ADHD in Taiwan. It was exploring the effects of physical training programs with a simulated developmental horse riding program. Participants included 24 typically developing boys, 12 boys with ADHD which did not have the training, and 12 boys with ADHD received the 12-week training program. Muscular endurance, aerobic endurance, flexibility, gross motor skills, and fine motor skills were evaluated for pre and post treatment differences. Results found that there were significant improvements in motor proficiency, aerobic endurance, and flexibility on the ADHD training group. However, the study only included male participants, and there could be variation in the results if female participants were included. Also, the study only collected the physical

performance improvements, and it could be interesting to add specific cognitive tests for ADHD kids to see if the tests would help the participants both cognitively and physically.

***Student perceptions of physical education across grade levels.*** Luis Marin, Chris Gentry & Hosung So, California State University, San Bernardino.

The purpose of the reviewed study was to examine changes in attitude toward physical education as students progressed from upper elementary school (Grade 4) through middle school (Grade 8). A total of 240 students from an eastern United States school district were surveyed regarding their attitudes during physical education classes. Three groups of participants were surveyed over a three-year span. Group 1 was surveyed from grades 4-6, Group 2 was surveyed from grades 5-7, and Group 3 was surveyed from grades 6-8. The results demonstrated that attitudes fell in a similar fashion for each grade no matter what group one looks at. This research is similar to other studies that show students' attitudes tend to go downward once they reach middle school and beyond.

***Positive youth development in recreational sports.*** Cristian Morales, Chris Gentry & Hosung So, California State University, San Bernardino.

The purpose of this study was to observe athletes' behaviors during sport competitions and compare them to positive youth development (PYD) outcomes which are competence, confidence, connection, and character. A total of 67 youth basketball athletes were observed playing at two time points at the end of their season. Participants were measured using the 4 Cs toolkit immediately after their game which helped them measure the competence, confidence, connection and character (4 Cs) of the athletes. The results show that the athletes that scored high in the 4 Cs engaged in more communication with their coaches than those who scored low in the 4 Cs. In addition, there was a strong correlation with years of experience and confidence.

***The effects of instructional & motivational self-talk on students' motor task performance in physical education.*** Erick Nabeshima, California State University, San Bernardino.

The purpose of the study was to examine if verbal cues in instructional self-talk (i.e., "fingers target") and motivational self-talk (i.e., cue words, "can" and, "strongly") were beneficial to students as it related to performance in a specific motor task. The results showed that there were statistically significant differences among three groups.

***High-intensity interval training and physical education.*** Victoria Sandmark, Chris Gentry & Hosung So, California State University, San Bernardino.

The purpose of the reviewed study was to explore the relationship between high-intensity interval training (HIIT) during physical education (PE) and anthropometric values, cardiorespiratory capacity, and blood pressure of overweight and obese children. A total of 197 school children participated in HIIT during normal PE classes over the course of 28 weeks. Statistically significant anthropometric and cardiovascular differences ( $p < 0.05$ ) were found between control and experimental groups after the training intervention. EGs showed a reduction of BMI ( $p < 0.001$ ), body fat for girls in each group and boys in EG2 ( $p < 0.05$ ), hypertension ( $p = 0.001$ ), and markedly reduced the number of obese schoolchildren.

***Physiological activity in relation to high protein diet.*** Danna Grace Sarte, Lena Longueira, David Howard, Ovi Hoq & Guillermo Escalante, California State University, San Bernardino.

The article, "Metabolic Responses to High Protein Diet in Korean Elite Bodybuilders with High-Intensity Resistance Exercise," written by Kim et.al., investigated the physiological responses caused by high protein intake among eight elite bodybuilders. Anthropometry, as well as blood and urine biochemistry values were analyzed to develop analyses of the metabolic responses of the participants. High levels of blood and urine biochemistry were revealed in conclusion to the high protein diet leading to metabolic acidosis.

***Robot-assisted gait therapy for people with Parkinson's Disease.*** Aurelyn Ancheta, San José State University.

Each year, about 60,000 Americans, mostly older adults, are diagnosed with Parkinson's disease (PD). It is a movement disorder that results from loss of dopaminergic neurons. Several studies reported the effectiveness of combined pharmacological and non-pharmacological treatments (physiotherapy) to slow the progression or reduce the symptoms. The purpose of the reviewed study was to examine outcomes when using a robotic device compared to a treadmill in gait therapy. Twenty participants with mild PD and gait disturbance were randomly assigned to an experimental group or control group. The intervention lasted for 4 weeks; each session was 40 minutes, 5 times per week. Assessments were taken at the beginning and at the end of treatment. The results showed the experimental group having statistically significant gains in mean velocity, step length and stride length. The research suggests that robotic therapy is a safe and effective treatment for those who have gait disturbance. This information is helpful for future studies regarding gait therapy with robotic device.

***Concussions and common mental disorders in former male professional athletes.*** Brigitte Borjon, Hosung So, & Chris Gentry, California State University, San Bernardino.

The study was to explore the relationship between career-related concussions and the occurrence of symptoms of common mental disorders in athletes. The number of actual participants was 576, who were asked to complete a questionnaires. One questionnaire was to report how many concussions the subject has received in their professional career. The second was to assess the symptoms of distress, anxiety and depression, sleep disturbances and adverse alcohol use. Former professional athletes who reported having four or five concussions were 1.5 times more likely to report symptoms of common mental disorders. The study was based on self-report which could skew the results. A longitudinal design could be used in future research.

***Undergraduate sleep quality analysis.*** Makayla Christopher, La Sierra University.

It is believed that college students are one of the most sleep deprived populations. With balancing school workload, a social life, etc. how could they not be? The critiqued article looks at a variety of variables related to overall quality of sleep as evaluated by responses to the 19-item Pittsburgh Sleep Quality Index. This topic was selected because as stated by the authors sleep not only is important to overall health and well-being but is an essential factor in academic performance.

**Concerns of physical education teachers in public schools.** Kaitlyn Cooper, Hyunkyung Oh & Hosung So, California State University, San Bernardino.

The purpose of the reviewed study was to identify if APE teachers had concerns related to teaching students with disabilities in an urban public school district. The findings of the reviewed study indicated that all six of the teachers had concerns involving lack of gym space, time available for class instruction, size of space, lack of available equipment, and the number of students they provided services to. Five of the six teachers expressed concerns involving lack of professional development opportunities. Four out of the six teachers had concerns about the disrespect shown toward APE in general.

**Exercises that target the gluteal muscles and minimize tensor fascia latae activation.** Elizabeth Corella, Jenna Campbell, Steven Deverell, Johnathan Ramirez & Guillermo Escalante, California State University, San Bernardino.

Compared to healthy individuals, those with patellofemoral pain have significant glute weakness. The purpose of the reviewed study was to determine which hip exercises would best elicit muscle activation in the gluteal muscles while decreasing tensor fascia latae activity using fine wire electromyography (EMG). Twenty healthy volunteers (10 men and 10 women) performed 11 lower extremity exercises in a random order. Fine-wire electrodes were inserted into the superior gluteus maximus, gluteus medius, and tensor fascia latae muscles. The placement of electrodes was controlled and consistent for all subjects. The exercises were paced using a metronome and the rest time between each exercise was controlled. The gluteus medius and gluteus maximus were significantly ( $p < 0.05$ ) more active than the tensor fascia latae (TFL) in the single leg bridge, double leg bridge, quadruped hip extension (with knee flexed and extended), the clam, sidestepping, and squatting. The gluteal to TFL ratio was highest with the clam. The use of fine-wire electrodes to assess muscle activity rather than surface EMGs is beneficial to the accuracy of measures and limitation of cross-talk. A limitation is that the exercises with the highest glute activation index used an elastic band that was not quantified in terms of resistance; without this external resistance this glute activation index might be lower. Furthermore, since the population tested were healthy individuals, it is difficult to generalize these findings to patients with ailments. Also, a larger sample size would help minimize the likelihood of a type 2 error.

**Enforcing moderate to vigorous activity in physical education.** Cheyenne Dampier, Hosung So & Hyun-Kyoung Oh, California State University, San Bernardino.

The purpose of the study was to compare the amount physical activity in PE from schools using traditional versus block schedules. Modified block schools had 7% more time spent in moderate activity than the traditional schools (47% compared to 40%). However, traditional schools spent more time in vigorous physical activity compared to modified block schools (20% compared to 14%).

### **Student Poster Presentations- Literature Reviews**

**A general look into stress cardiomyopathy.** Amelia Dombrowski, La Sierra University.

Tako-subo cardiomyopathy, a type of stress related cardiomyopathy, is not a syndrome that is frequently heard of. Many times, it is mistaken as another illness, such as myocardial infarctions, or other angina

related illnesses. A substantial amount of folklore surrounds the illness as well, along with its sudden onset after a patients' stressful or traumatic life experiences. This may give credit to some professionals labeling the illness as "Broken Heart Syndrome." Through research, information has been compiled revealing cases where there are links, also known as "triggers," that have happened prior to symptom onset. The main focus of this review is to investigate the validity of the illness, along with its possible triggers.

***Effects of the COPE Healthy Lifestyles TEEN Program on young adolescents.*** Abraham Elizarraras, Chris Gentry Hosung So, California State University, San Bernardino.

Obesity and mental health problems remain prevalent among young adolescents with many never acquiring treatment due to limited resources. School-based interventions, like the Creating Opportunities for Personal Empowerment Healthy Lifestyles Thinking, Emotions, Exercise, and Nutrition (COPE TEEN) program, can be an easy and effective way to help reduce obesity rates, depression, anxiety, and stress levels among students. Three studies utilizing the COPE TEEN program within school settings were reviewed. Significant decreases in stress, depression, and anxiety levels were found in all participants after program completion (Hoying, Melnyk & Arcoleo, 2015; Melnyk et al., 2015; Ardic & Erdogan, 2016). Participants also had a lower Body Mass Index (BMI) after 6-month and 12-month follow-ups implying that they used the techniques from the program to live healthier lifestyles and lose weight (Melnyk et al., 2015; Ardic & Erdogan, 2016). Some students reported that the COPE TEEN program helped them motivate their families to eat healthier and increase their physical activity levels as well (Hoying, Melnyk & Arcoleo, 2015; Melnyk et al., 2015).

***Use of electrical stimulation in prosthetic rehabilitation.*** Ro-Anne Khrystel Galleta, San José State University.

Technological advances in prosthesis devices are intended to improve the quality of life among people with amputations. However, due to the complications associated with the loss of a limb, complementary modalities are needed for a smoother adaption in using a prosthetic device. This review will examine the use of electrical stimulation, both Neuromuscular Electrical Stimulation (NMES) and Transcutaneous Electrical Nerve Stimulation (TENS), in helping people living with limb loss better adapt during the rehabilitation process. Based on the research examined, TENS may be a potential aid in both pain management and facilitating perceptual embodiment of prosthesis. TENS provides an advantage as a non-invasive aid in providing sensory feedback through generating touch and proprioceptive sensations between prosthetic devices and humans compared from invasive surgical neural interfaces. Suggested use of NMES is recommended within the early stages of post amputation rehabilitation and the period prior to obtaining prosthesis to reduce the risk of muscle atrophy and strength loss. Future studies are needed to continue examining the neural mechanisms of the use of TENS in sensory feedback. Further research in the use NMES should direct to amputee populations outside of the military to examine potential improvement differences between populations.

***Animal models in motor learning.*** Rosendo Munoz III & Lin Wang, University of Texas Rio Grande Valley.

Animals have been studied to gain knowledge in different fields. Their involvement provides valuable information for enhancement in medicine, medical procedures, food industry, and other products that could and will benefit human kind. Although motor learning developed as a field associated with human

behavior, animal model was adopted to explore different learning effects especially on brain functioning (Coker, 2017). This paper reviews results of animal model studies as how they pertain to motor learning as similar approach has been limited. Results showed that learning conditions incorporated for animal model of motor learning varied, however, required the animals to be put under stress or anxiety with food as rewards. Enhancement of learning as the results are positive with one exception due to the physiological circumstance of age. Testing consisted of a physical activity followed by an assessment of cognitive learning through gage. Testing procedures included either natural or surgical implant. Different species of animals, for example, rodents, fish, or dolphins were included in the different studies. With the evolving nature of motor learning, the studies conducted provide evidence of learning in animals and demonstrate how such results may be able to translate to facilitate human behavior modification.

***Implications of pay to play parks.*** Trevor Punnea & Julie S. Son, University of Idaho.

Park and recreation budgets have steadily decreased for several decades causing municipal organizations to seek creative methods of generating the revenue required for standard operation. One such method has been to require participants to submit to user-fee based recreation within city operated park settings. These fees have the potential to displace users which may have negative health implications for various populations. Recreation professionals should work to create equitable solutions to ensure all populations have access to public resources. Potential solutions include partnerships, educational approaches for recreationists, and scholarships or local use initiatives to allow equitable access to park and recreation sites.

***Nonmedical use of ADHD stimulants in college students.*** Jena Arnot, Rebecca Sanchez & Dr. William Andress, La Sierra University.

These studies analyzed the use of nonmedical ADHD stimulants in college students, in addition to other illegal opioids. Individuals participating in stimulant use showed preceded patterns of drug-abuse. The purpose of this study is to observe the prevalence of nonmedical usage of ADHD stimulants among college students.

### **Student Poster Presentations- Original Research**

***The perceptions of managerial staff on their leadership style at campus recreation facilities.*** Mohammed Alshammari & Jeongwon Choi, University of New Mexico.

In this study, the investigation of the leadership styles of the managerial staff at campus recreation service centers follows a qualitative approach. A case study was used to develop themes related to the characteristics and knowledge of leadership at the campus recreation center from the managers' perspectives and how these managers perceive their leadership styles. The participants of this study were managers from all hierarchical levels and with different positions who have experienced a managerial position for at least one year at UNM Recreation Center. Interviews and observations were used as the main data collecting methods. Primarily results of this study revealed that two managers who were interviewed perceived their leadership style as situational. Their understanding of leadership differed, which might be an effect of their differing managerial positions. Also, managers viewed different

characteristics as representative of a leader. Even though they used the same communication methods with their staff, their relationships with their staff were different.

***Physical education teaching assistants' perception on the relationship between their organizational culture and job satisfaction: A qualitative examination.*** Jeongwon Choi, Mohammed Alshammari & Fredrick Williams, University of New Mexico.

Teaching Assistants (TAs) serve important roles in supporting professors and teaching students in higher education. They are responsible for a significant part of instruction for both undergraduates and graduates (Bomotti, 1994). Bomotti (1994) estimated that freshmen and sophomores spend approximately 30 to 50 percent of their class hours in contact with TAs in college. Despite the important role of TAs, however, research about organizational culture on TAs is relatively few. There are many factors that can affect the organization's effectiveness and employees' job satisfaction. Among the factors, organizational culture is widely considered as one of the most significant in reforming and modernizing public administration and service delivery for organizations (Jung et al., 2009). A potential reason research conducted about organization culture in TAs is lacking is that colleges and universities do not have an organization or department for TAs. Thus, the purpose of this study is to investigate how a physical education program's organizational culture influence TAs' job satisfaction and performance. The researchers utilized a qualitative research design through semi-structured in-depth interviews with eight physical education teaching assistants. The participants were selected using purposeful sampling techniques. All the interviews were recorded, transcribed and manually coded for analysis. Each interview lasted approximately 45 to 60 minutes in length. The study was analyzed using qualitative thematic analysis. The results may be beneficial and informative for current and future physical education TAs and program managers.

***The effects of learner personality on contextual interference.*** Dianna Church, Anna Vanderweyst & Brian Jackson, Pacific University.

Studies have shown that practicing new motor skills under a high level of interference (i.e., random practice schedule) will result in a stronger retention of those skills, termed the "contextual interference effect". Although a popular explanation of this effect suggests that random practice produces enhanced cognitive processing/engagement in the learner, it is not known whether this added engagement results in additional practice time, and whether this engagement is beneficial for various personality types. This study's purpose was to examine the interaction of personality type and practice schedule on the learning processing time and performance of three badminton tasks. Participants were categorized as introverts/extroverts, and practiced three badminton serves in either a random or blocked practice schedule. Performance and practice time were measured throughout acquisition and retention. Repeated measures ANOVAs were performed to determine differences in performance and practice time of introverts and extroverts practicing in a random or blocked practice schedule. Random practice was found to be more beneficial than blocked practice in early learning across all skills. Extroverts were found to use more cognitive processing time in acquisition and benefit more from a random practice schedule than introverts on the short backhand. Although a traditional contextual interference effect was not found, random practice was shown to be the superior practice schedule for motor skill acquisition, especially for extroverts. Future research should explore the interaction of personality and practice schedule in a more controlled environment and with more challenging skills in order to further generalize these effects.

***Physical activity and situational stress in collegiate students.*** Kayla Harry, Ryan Moore & Antonious Awad, La Sierra University.

This study aimed to understand the influence of exercise frequency on an individual's response to acute, situation-specific stressors. After researching closely related studies, our research team predicted that there would be no significant difference between perceived stress levels in frequent and infrequent exercisers. This study involved 64 participants, 35 women and 29 men. Participants completed a nine-dot critical-thinking puzzle, took a modified "perceived stress" survey, and recorded their resting heart rate. The stress scores of individuals who exercise frequently were compared against those of less active participants. The results yielded no significant difference between the two groups in relation to physical activity levels and situational stress ( $t=1.74$ ,  $p=.0864$ ).

***The relationship between physical activity, nutritional intake and dietary choices with an analysis of motivation.*** Shawna Roderick & Hannah Yaghoubian, La Sierra University.

This original research project aimed to assess the relationship between physical activity (PA), dietary choices, and motivation among university students between the ages of 18 and 25. Studies have been conducted to understand health behaviors as they relate to PA among the general population (Pate, 1996; Ready, 2005). However all the studies encountered during the literature review were observational studies. The null hypothesis of this study was there would be no significant correlations between PA, dietary choices, and motivation. A sample population of 74 undergraduate university students were used. These students came from a selection of three Lifetime Fitness (LTF) classes and one Nutrition class. Over the course of a ten-week quarter, the students were consecutively administered three questionnaires. A pre and post survey required the students to report PA, dietary choices and nutritional intake. Incorporated into the pre and post surveys was the Brief Physical Activity Assessment Tool (BPAAT). To assess motivation, the students were also administered an abbreviated version of the Exercise Motivation Inventory 2 (EMI-2). Statistical data analysis incorporated a Pearson's correlation test, several dependent correlation tests, paired t-tests, and an ANOVA with post hoc. No statistically significant correlations or t-scores were found between PA, nutritional intake, dietary choices, and motivation. Therefore, the null hypothesis for this study should be accepted. Despite this, three interventions were found to be statistically significant according to the ANOVA with post hoc. The significant findings of this study show that nutrition is an effective course for health behavior change. For the specific nutrition course studied, the health behaviors that improved were increased water consumption, decreased sweetened beverage consumption, and increased vigorous PA.

***Technique of defense radius in baseball using perspective grid.*** Joon-Seok Yang & Sung-Je Park, Chung-Ang University.

The purpose of this study is to understand the batting speeds by defense position and the defense success rates based on distance in college baseball games using the perspective grid technique. This study has utilized aerial work platforms to capture a wide coverage of defense in camera angle and two cameras of SONY HDR 520 and SONY FX-1. A SRA3000 radar gun and Dartfish 9 and Illustrator CS6 have been used to measure ball speeds and to analyze images, respectively. Excel 2016 and Power BI program have been used to process and visualize data. The study findings are as follows. First, the batting speeds by infielder and the defense success rates by distance were obtained. A total of 7 factors, including four speed ranges of 100km or less, 101-110km, 111-120km, 120km or more, and 3 distances of 3m or less, 3-6m and 6m or more have been used to obtain the defense success rates. Second, the defense success rates based on the distance for each outfielder position have been calculated using 5 distance ranges, including 10m or less, 11-15m, 16-

20m, 21-25m, 31m or more. Third, the data on the success/failure of defense by infielder/ outfield position have been visualized. This method has proven to be a meaningful way to calculate the defense coverage of baseball players using the 2D images and the perspective grid only without expensive tracking equipment, and the technique used in this study is expected to be easily applied to other sports in the future.

***Implementation of a classification system model of K-Pop dance movement.*** Ji-Mi Yu & Sung-Je Park, Chung-Ang University.

This study has classified K-Pop dance movements in in three tiers based on motion, body, and rhythm with the use of the K-Pop dance video clips and implemented the classification system model of dance movements accordingly. The study has been conducted on 10 K-Pop dance video clips uploaded in You Tube during the period between 2007 and 2017. As a research tool, 'You tube Downloader HD' has been adopted to capture the images of K-Pop dance with the 'Tagging' function in 'Dartfish 9' adopted to analyze them. For data processing, the symbol of each identified movement has been sorted and coded by number, year, singer and title and categorized using 'Microsoft Office Exel 2016'. The data categorized this way have been visualized using the open source provided by D3.js (Data-Driven Documents). The findings are as follows. First, dance movements based on physical body have been classified into 2 main categories of upper body and lower body, 14 subcategories, including head, shoulders, chest, trunk, waist, pelvis, arms, elbows, wrists, hands, fingers, legs, knees, and feet in second tier, and into 143 sub-subcategories of movements. Second, the movements that do not belong to the physical body movement have been classified into 4 categories, including turn, pause, domino dance, and freestyle along with 14 specific point choreographic movements based on rhythm. Third, a total of 684 pieces of movement data have been identified from the video clips. These findings are expected to subject to further, more detailed classifications of K-Pop dance movements in follow-up studies.