

South Dakota State University

Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

Health and Nutritional Sciences Graduate
Students Plan B Capstone Projects

School of Health and Consumer Sciences

2022

School of Health and Consumer Sciences Free Communication Day: Research Abstracts, Spring 2022.

Mary Beth Zwart

Elizabeth Droke

Hungling (Stella) Liu

Follow this and additional works at: https://openprairie.sdstate.edu/hns_plan-b



SOUTH DAKOTA STATE UNIVERSITY

School of Health and Consumer Sciences

**School of Health and Consumer Sciences
Free Communication Day: Research Dissemination
May 3rd, 2022
Student Union, Room 262 Lewis & Clark (A & B)**

Planning Committee: Mary Beth Zwart, Elizabeth Droke, Hung-Ling (Stella) Liu



2022 Free Communication Day Schedule

Group 1: 8:00-9:00		Group 2: 9:00-10:00	
<i>Student</i>	<i>Advisor</i>	<i>Student</i>	<i>Advisor</i>
Holly Hansen	Kattelmann	Jennifer Sip	Kattelmann
Maranna Gunnerson	Zwart	Derik Dillon	Liu
Logan Haak	Liu	Cydney Chamberlain	Jensen
Blair Groeber	Kattelmann	Megan Thompson	Liu
Anna Lux	Zwart	Claudia Botzet	Weidauer

Group 3: 10:00-11:00		Group 4: 11:00-12:00	
<i>Student</i>	<i>Advisor</i>	<i>Student</i>	<i>Advisor</i>
Rose Adamski	Dey	Oscar Chavez-Franco	Romsa
Yusuke Imizu	Roiger	Andrew Haldeman	Roiger
Anne Jonas	Liu	Blake Wooten	Liu
Karleigh Sudenga	Droke	Kirsten Weifenbach	Romsa
Hailey Millner	Droke	Ben Specht	Roiger

Group 5: 12:00-1:00	
<i>Student</i>	<i>Advisor</i>
William Brown	Romsa
Brooke Opdahl	Zwart
Will Glisky	Liu
Brady Braegelmann	Zwart



Section 1: 8:00 AM – 9:00 AM

Facilitator: Mary Beth Zwart

Project title: Development of Balanced Budget Bites and Feasibility Evaluation

Hansen H, Kattelmann K, Jensen B, Morrison K, Millner H, Reimer A, Sip J, Canfield B, Chamberlain C, Spring 2021
Family Resource Management Students: South Dakota State University Brookings, South Dakota Feeding Brookings, Brookings, South Dakota

Presenter: Holly Hansen

Advisor: Kendra Kattelmann

Objective: Balanced Budget Bites created to educate individuals of Feeding Brookings about different cooking techniques, food safety, meal planning, budgeting, and financial resources in the Brookings, SD area while highlighting lower-cost food items. **Participants and Recruitment:** The target audience of Balanced Budget Bites were individuals that participated in Feeding Brookings that was recruited for four weeks via a flier and a posting of the flier on Feeding Brookings' Facebook page. **Method and Implementation:** They completed a pre-survey before taking Balanced Budget Bites to assess their skills, confidence, and knowledge related to nutrition and finance. The online curriculum consisted of three learning modules with nutrition and finance videos, activities, and handouts to go along with each module. Participants completed a post-survey at the end of the course, which consisted of the same questions as the pre-survey, to assess their changes in skills, confidence, and knowledge related to nutrition and finance. **Results:** Statistical analysis of Balanced Budget Bites was not feasible, given only 5 participants completed the online course in its entirety; however, results of Balanced Budget Bites aligned with results of previous studies that used video technology to assess individuals' confidence, skills, and knowledge of nutrition. Participants of Balanced Budget Bites were able to learn about how to add foods to common items that came in their food boxes from Feeding Brookings to increase the nutrients in meals with limited cost. **Conclusion:** Balanced Budget Bites was a positive experience for members of the Feeding Brookings community. It was created as an online learning curriculum and made available during COVID-19, which has caused increased stress on many Americans.

Biography: Holly Hansen is a graduate student of the college of Health and Consumer Sciences majoring in Nutrition and Exercise Science but specializing in nutrition. Holly is also going through her Nutrition and Dietetic Internship through South Dakota State University and will be graduating this May. After graduation, Holly plans to take the exam to become a registered dietitian and become licensed. Holly would like to find a job in a clinical setting, such as a hospital or nursing home

Project title: The Effectiveness of Extracorporeal Shockwave Therapy on Reducing Pain and Improving Functionality in Athletes with Patellar Tendinopathy

Gunnerson M, Zwart MB: South Dakota State University, Brookings, SD

Presenter: Maranna Gunnerson **Advisor:** Mary Beth Zwart

Context: Patellar tendinopathy is a common musculoskeletal disorder, characterized by activity-related anterior knee pain and tenderness just below the patella. New treatment modalities have been developing – including extracorporeal shockwave therapy (ESWT). **Objective:** In 18-25-year-old physically active individuals, who have patellar tendinopathy, is extracorporeal shockwave therapy effective in reducing pain and improving function? **Data Sources:** A search was conducted using PubMed, MEDLINE, ScienceDirect, Google Scholar, and hand searching reference lists. Key terms included patellar tendinopathy, anterior knee pain, shockwave, placebo, strengthening, injection therapy, decreased pain, and enhanced function. **Study Selection:** Studies were included if they were level 3 evidence or higher, investigated shockwave therapy in individuals with patellar tendinopathy, outcome measures of pain and function, published in the last 10 years, and written in the English language. Studies were excluded if they investigated anterior knee pain due to acute injuries and utilized adolescent and/or geriatric populations. **Data Extraction:** 1 systematic review, 3 randomized controlled trials, and 1 prospective cohort study were appraised. **Data Synthesis:** Out of the five studies reviewed, only one study described statistically significant results in reducing pain and improving function in patients with patellar tendinopathy following ESWT; however, no control group was utilized. While the remaining four studies reported ESWT to be effective in reducing pain and improving function in



those with patellar tendinopathy, these scores were not significantly different than those of the placebo interventions. The evidence presented was limited by methodological limitations including variety in treatment parameters and duration of interventions used. **Conclusions:** Due to the lack of statistically significant evidence supporting the use of ESWT for patellar tendinopathy, clinicians should be aware of the vague benefits the addition of ESWT may provide when compared to other conservative interventions. Future research is needed to evaluate the effectiveness of differing ESWT protocols. Strength of Recommendation: Grade B.

Biography: Maranna Gunnerson is a graduate student in the MSAT program. She received a Bachelor of Arts degree in Biology from the College of Saint Benedict in 2018. She then went on to obtain a Master of Science degree in Exercise Science and Wellness, with a specialization in Fitness and Performance from Liberty University in 2020. While at SDSU, Maranna served as the president of the Athletic Training Student Association, the chairperson for the SDATA Student Leadership Council, and the South Dakota delegate for the MAATA Student Leadership Council. Her future goals include becoming a certified athletic trainer for a professional sports organization.

Project title: Community Perception of Small Town Outdoor Aquatic Facility: Case of the Huether Family Aquatic Center.

Logan G. Haak, South Dakota State University, South Dakota

Presenter: Logan Haak **Advisor:** Hung-Ling (Stella) Liu

Objective: The purpose of this study to understand residents' satisfaction of newly constructed aquatics facilities built in small communities and the resident's perception of how the facility impacts their quality of life. The study site that was monitored was the newly constructed Huether Family Aquatics Center (HFAC) in Yankton, South Dakota. **Study Design, Setting, Participants:** A 27 question survey was distributed using QuestionPro to users of the HFAC inquiring of the user's perception of the facility in three parts: user's background with the facility, satisfaction and service quality, and user demographics. The survey was distributed solely to users who were 2021 season pass holders who were over the age of 18. The survey had 253 complete responses. **Results:** Users showed overall positive response to the new facility and attributed the most positive opinion of the facility to feeling safe, their opinions of the staff, and the ability to offer something for the whole family. The results showed the biggest changes users wanted was different pricing options for passes to be made available and more available seating space. 90% of users responded that they felt the facility offered substantial contribution to their wellbeing and community. **Discussion, Conclusion:** Outdoor aquatics facilities in their current practices and future construction of facilities should continue wanting to serve the entire family and not limit themselves to just one group to serve. Similarly, they should look to consider the influx of interest in new facilities and aim to make space available for everyone looking to attend the new facilities. Small town recreation providers have a smaller margin of people they are serving and should look to provide the best quality service for the longevity of their facilities.

Biography: Logan Haak is from Yankton South Dakota and graduated with his undergraduate degree in sports and recreation management in 2020 from SDSU. Logan currently serves as the graduate teaching assistant working with the undergraduate sports and recreation management program as he finishes his graduate degree in sports and recreation administration. Logan intends on finding a career working in community and campus recreation following graduation in May.

Project title: The Gut Microbiome Profile of the American Indian and Alaska Native Population: A Narrative Review

Groebner B, Kattelmann K: South Dakota State University Brookings, South Dakota

Presenter: Blair Groebner **Advisor:** Kendra Kattelmann

Objective: The objective of this literature review was to examine the current research available that included the American Indian and Alaska Native populations in gut microbiome research and determine if a profile could be created. **Methods:** A literature search was conducted on PubMed to gather research related to the gastrointestinal microbiome and the data collected on the American Indian and Alaska Native population. There was no exclusion criteria on study design or date published due to limited available research. Keywords used include:



“Gastrointestinal Microbiome” and “Native American” or “American Indian, north”, “American Indian, north” and “Gut Microbiome”, and “Short Chain Fatty Acids” and “American Indian, north” or “Native American”. **Results:** This review determined that the sample of individuals within the American Indian demographic generally had a metabolic profile consistent with a dietary pattern high in fat, low in fiber, and low in food diversity. This includes relatively high abundances of the phylum Firmicutes, reduced short chain fatty acid presence, increased stool pH, elevated levels of deoxycholic acid, and reduced species richness within the microbiome. This metabolic profile demonstrates parallels with inflammatory conditions such as obesity, colorectal cancer, and inflammatory bowel disorders. **Conclusions:** The data collected from the limited number of studies available further emphasizes the need for more research to include the American Indian demographic in gut microbiome research. A metabolic profile for the American Indian and Alaska Native population is unable to be created until further studies with larger sample sizes generate similar results. This review can conclude, however, diet’s effect on gut microbiome diversity and health.

Biography: Blair Groebner is a Nutrition and Dietetic Intern pursuing her Master’s Degree in Nutrition and Exercise Science with a specialization in nutritional sciences. She plans to take the Commission on Dietetic Registration exam as soon as possible to begin her career at Madonna Rehabilitation as a Registered Dietitian Wellness Developer.

Project title: The Prevalence of Myocarditis in Athletes Ages 14-23 Who Suffered from COVID-19.

Lux A, Zwart MB: South Dakota State University Brookings, SD

Presenter: Anna M Lux **Advisor:** Mary Beth Zwart

Context: COVID-19 originates from a type of coronavirus called SAR-CoV-2. It spreads through infected airborne particles and may cause cardiac complications. Myocarditis is an inflammation of the heart muscle called the myocardium due to viral exposure and is a concern for athletes recovering from COVID-19. **Objective:** In patients, aged 14-23 years old, who are diagnosed with COVID-19 what is the prevalence of myocarditis? **Data Sources:** A search was conducted using JAMA Cardiology, Google Scholar, SAGE Journals, NCBI, CDC, and Springer Link. Search terms included COVID-19 health effects, myocarditis prevalence, cardiac diseases, prevalence, quantity, high school and COVID-19, college athletes and COVID-19, athletes and myocarditis, athletes recovering from COVID-19 infection, and evaluation for myocarditis in student athletes. **Study Selection:** Studies were appraised if they were Level 4 evidence or higher, studied college or high school athletes, presented evidence from 2020 or more recent, utilized cardiovascular testing results that were supported with numerical data, and confirmed a positive COVID-19 test with a polymerase chain reaction (PCR) test. **Data Extraction:** Three inception cohort studies were collected and appraised.

Data Synthesis: Two studies analyzed CMR results to determine the prevalence of myocarditis. One study utilized CMR results to determine safe return to play. **Conclusions:** Evidence concludes that there is a low prevalence of myocarditis in athletes who have suffered from a COVID-19 infection. Rajpal et al., utilized 26 athletes in a study and four athletes showed CMR test results indicative of myocarditis. In Starekova et al., two of 145 athletes were diagnosed with myocarditis based off multiple forms of cardiac testing. 9255 athletes were tested for COVID-19 and 2810 tested positive. Of the 2810 athletes 1597 completed further cardiac testing and 37 were diagnosed with clinical or subclinical myocarditis, resulting in a prevalence of 2.4%. **Strength of Recommendation:** B

Biography: Anna Lux is a graduate student in the MSAT program and is from Sleepy Eye, MN. She received a Bachelor of Science degree in Exercise Science from SDSU in 2021. She began the MSAT program during her final year of her undergraduate career and will be the first student to complete the Accelerated MSAT program at SDSU. Anna would like to thank her professors for their support and guidance throughout her college career. Her future goals include becoming a certified athletic trainer and joining the athletic training staff at Iowa Lake Community College in Spencer, IA.



Section 2: 9:00 AM – 10:00 AM

Facilitator: Lee Weidauer

Project title: Narrative Review of the Relationship between Depression and Low Blood Folate and Vitamin B12 Levels

J Sip J, Kattelmann K: South Dakota State University Brookings, South Dakota

Presenter: Jennifer Sip **Advisor:** Kendra Kattelmann

Objective: The purpose of this narrative review is to look at the current research to evaluate the inconsistent results of the relationship of serum folate and serum vitamin B12 on depression and discover what needs to be implemented to pinpoint the inconsistency. **Methods:** A literature search using PubMed was done with 394 papers identified using the search terms. Thirteen papers met the inclusion criteria and were included in this narrative review. **Results:** Of the thirteen papers reviewed, four reported no difference in the relationship between depression, serum folate and serum vitamin B12. The remaining nine papers reported a relationship between depression, serum folate and serum vitamin B12. All of the articles have several limitations within their results, such as an inconsistent depression diagnostic tool and inconsistent study designs. **Discussion/Conclusion:** The relationship between serum folate, serum vitamin B12 and depression has inconsistent findings due to several limitations in the research. Continued research is needed to address these limitations in order to provide a more conclusive answer. It is important for clinicians and dietitians to stay up to date on continuing research in order to provide care for patients. Educating and helping individuals with depression consume a healthy diet with adequate vitamins and minerals can help avoid deficiencies, which could increase depression symptoms.

Biography: Jennifer Sip is a graduate student of the SDSU Nutrition and Dietetics Program and dietetic intern with the NDI Program. Her major is in Nutrition and Dietetics with an emphasis in Nutritional Sciences. She completed her nutrition and dietetics undergraduate degree here at SDSU. Her future goals include sitting for the RD exam this summer with an end goal of becoming a Registered Dietitian.

Project title: Identifying the Strengths and Weaknesses of SDSU Football Team Camps

Dillon D: South Dakota State University Brookings, South Dakota

Presenter: Derik Dillon **Advisor:** Hung-Ling (Stella) Liu

Objective: The aim of the study was to evaluate SDSU Football Team Camp's and identify what the strengths and weaknesses were for future improvement. **Survey Design and Participants:** A 9 question survey was created using open-ended questions, multiple choice questions, and a ranking scale. The survey was sent out to 50 high school coaches that came to camp and 26 responded. **Camp Information:** The camp was held in Brookings during the whole month of June. We had one camp run from June 13-15, and the second run from June 17-19. We brought in high school football teams from South Dakota, Nebraska, and Minnesota to compete and learn. **Results:** Starting with strengths, we found that many coaches had a great experience at the camp, with 10 of 26 rating it a 9 of 10. We also found that coaches loved the facilities, scrimmages, and having competitions on Sunday instead of Saturday evening. Other coaches mentioned that they liked the structure of camp and how organized it was. When asked how likely they were to return, 80.8% had said they were planning to return, 15.4% were undecided, and 3.8% were not planning to return. When it came to weaknesses, we found that coaches thought that the JV teams did not get much attention, some were unhappy about the field conditions they played on, and a major one was the players destroying the dorms. More responses mentioned that the players and staff working the camp show up with more energy, putting the coaches in better dorms and supervision in the dorms. **Conclusion:** Being able to get feedback on the camp was very important. Future considerations include better supervision in the dorms and making the Jackrabbit Competition more inclusive, so teams are not standing around watching at the end. Another consideration was improving the camp meal we got from HyVee.

Biography: Derik is a student pursuing his Master of Science Degree in Sport and Recreation Administration. He grew up in Watertown, SD and always had a passion for sports. Derik graduated with his bachelor's degree from SDSU in 2020 studying Sport and Recreation Management, with minors in Management and Marketing. Throughout



his time at SDSU, Derik has worked with the football team in a variety of roles. Starting as a student equipment manager, he is currently the Video Coordinator and Special Teams Assistant Coach. Future plans include trying to work in a football recruiting department or being a high school Athletic Director.

Project title: A Practical Guide to Baby-Led Weaning

Cydney Chamberlain, South Dakota State University Brookings, South Dakota

Presenter: Cydney Chamberlain **Advisor:** Becky Jensen

Context: This paper introduces the topic of baby-led weaning. This is a method of weaning an infant off of breastmilk without the use of puréed foods. With this method, parents are able to give their infants food that they would eat, just in modified form. This paper will give some background information on baby-led weaning as well as a brief history of infant weaning. It will then cover some of the literature discussing the topics of choking and safety of baby-led weaning as well as infant nutrition. Lastly, the paper will discuss any research gaps as well as how healthcare professionals can use this method in their practice

Biography: Cydney is a Dietetic Intern and student in the Nutrition and Exercise Sciences master’s program. She has a passion for pediatric and child nutrition and hopes to someday work with this population. Her practice paper discusses what research reports on choking and nutrition for Baby-Led Weaning and how this can be applied for families and practitioners.

Project title: Serving Our Community: Public Parks and Recreation Providers’ Challenges and Responsibilities in South Dakota

Thompson, M: South Dakota State University, Brookings, South Dakota

Presenter: Megan Thompson **Advisor:** Hung-Ling (Stella) Liu

Objective: The purpose of this study is to identify challenges and responsibilities faced by rural municipal recreation providers in South Dakota; uncover the impacts that the COVID-19 pandemic has had on recreation providers in rural communities; and discuss recommendations and strategies that providers can use to overcome these challenges.

Study Design and Participants: This study was a result of preparation for the 2023-2028 South Dakota Statewide Comprehensive Outdoor Recreation Plan (SCORP). A census sampling method was utilized to recruit a representative from each of the 309 incorporated municipalities in South Dakota to complete the SCORP provider survey. The researcher was able to collect responses from 131 municipalities, which served as the sample size for this study.

Instrument and Analysis: The survey consisted of four categories, organization and community information, impacts of COVID-19, benefits and priorities, and challenges, and included a combination of open- and close-ended questions. Statistical analysis of the survey results includes the use of descriptive analysis, exploratory factor analysis, and comparison analysis. **Results:** Results uncovered five categories of responsibilities, including Health and Wellbeing (M = 4.12), Community Growth (M = 4.11), Conservation and Recreation (M = 3.32), Maintenance (M = 4.59), and Property Value (M = 4.43); while three categories of challenges were revealed, including Operation and Budget (M = 3.34), Promotion and Improvement (M = 2.61), and staffing and Public Awareness (M = 2.95). COVID-19 had the biggest impact on community special events and sports leagues, where many municipalities canceled these programs due to the pandemic. **Conclusions:** The staffing and funding structure of rural recreation providers has a significant impact on the types of services that these organizations can offer. Partnerships with other community organizations create additional resources that allow these agencies to offer community programs.

Biography: Megan Thompson is a graduate student in the Sport and Recreation Administration program at SDSU where she will graduate this summer. Megan is extremely passionate about working with youth, specifically in a summer camp setting, which was the predominant motivational factor when choosing recreation as her career path. She will work as an age group director for the YMCA Leif Ericson Day Camp in Sioux Falls this summer and plans to go back to working full-time in municipal recreation after the summer.



Project title: Premature Infant Feeding Strategies: Comparison of Human Milk, Fortified Human Milk, and Formula and Comparison of Oral, Enteral, and Parenteral Feeding

Botzet, C: South Dakota State University Brookings, South Dakota

Presenter: Claudia Botzet **Advisor:** Lee Weidauer

Objective: The aim of this review is to evaluate feeding strategies and sources for premature infants. **Study Design:** **Literature Review. Research:** Premature birth is defined as a baby born three weeks before their estimated due date, or before 37 weeks gestational age. Infants born prematurely have a higher risk of developing a disease or even death. To help reduce the risk of these issues, and improve future health outcomes, nutrition support is provided to aid in growth and development. Each premature infant has different nutrition and energy needs based on their current maturity and development of the body. A premature infants nutrition nutritional needs are provided based on micro and macronutrients, specifically lipids, proteins, and carbohydrates. These nutrients can be provided by human breast milk, fortified human breast milk, formula, and fortified formula. Depending on the maturity of the gastrointestinal tract, and its ability to absorb and digest nutrients, a feeding method is chosen. These feeding methods include oral feeding, enteral feeding, and parenteral feeding. **Conclusion:** An infant born prematurely requires intensive care to regain intrauterine growth and maintain proper development of major organs. Each infant must be given an individual plan of care to ensure the nutrition and attention they need.

Biography: Claudia is a graduate student in the Nutrition and Dietetics Programs where she is also working on her master's in nutrition and exercise science at South Dakota State University. Claudia grew up in Buffalo, Minnesota, but has planted her roots in South Dakota, since starting school at SDSU in 2016. She loves clinical nutrition but hopes to work with community nutrition in her future. She would like to thank her parents, family, friends, and professors for their support during her academic journey.



Section 3: 10:00 AM – 11:00 AM

Facilitator: Hung-Ling (Stella) Liu

Project title: Best Practice Guidelines For Campus-Based Food Pantries as a Food Insecurity Intervention

Adamski R, Dey M: South Dakota State University Brookings, South Dakota

Presenter: Rose Adamski **Advisor:** Moul Dey

Objective: The purpose of this paper is to outline best practice guidelines for campus-based food pantries. **Design:** Literature Review. **Literature Review:** Food insecurity is an issue that can impact any individual ranging from a child, adolescent, adult, or older adult. College students are particularly vulnerable to the negative implications of food insecurity as they face the major financial burden of college tuition along with typical living expenses. Students experiencing food insecurity are also at risk for implications such as poor nutrition, high stress and depression, and possibly even consequences relating to academic performance. Many colleges across the United States have established campus-based food pantries to combat food insecurity in their student population. There are many strengths and limitations of campus-based food pantries. College administration should consider the notion of healthy food pantries. The environment of a food pantry has the potential to improve the diet of its consumers. **Conclusion:** Components of a healthy food pantry can be applied to a campus-based food pantry. Establishing a campus-based food pantry may assist food insecure students, however the effectiveness of this intervention requires more research.

Biography: Rose is a student in the Nutrition and Dietetics Internship program. As part of this coordinated program, Rose is also working towards her master's degree in Nutrition and Exercise Sciences. She has spent the past nine months in her dietetic internship rotations in and around the Brookings region. Rose has recently accepted a job as an Assistant Director of Food and Nutrition Services with a school district in Minnesota. Her future goal is to include pass the RD exam.

Project title: The effect vitamin C supplementation health outcomes in patients diagnosed with achilles tendinopathy.

Imizu, Y. Roiger, T: South Dakota State University Brookings, South Dakota

Presenter: Yusuke Imizu **Advisor:** Trevor Roiger

Context: Tendinopathy ranks as the third most common injury among collegiate athletes and negatively affects patient performance. While therapeutic exercise remains the foundation of treatment for tendinopathy, nutraceuticals can support the physiological turn-over rate within tendons which prevents inflammation and degeneration commonly caused by the pathology. Specifically, ascorbic acid is well known for its antioxidant properties and function in collagen synthesis which plays a major role in tendon health. **Objective:** To determine if nutraceutical supplementation with vitamin C improves health outcomes in patients diagnosed with achilles tendinopathy. Data Sources: Google scholar, PubMed Central, and ScienceDirect Publications were searched for articles. Keywords included adult, achilles tendinopathy, and vitamin C supplementation. **Study Selection:** Studies that were Level 4 or higher, published in the past 10 years, and included patients diagnosed with achilles tendinopathy were included. Studies not available in full-text online, did not involve clinical study, or did not measure functional outcomes for achilles tendinopathy were excluded. **Extraction:** Three studies meeting the inclusion criteria (two Level 2 and one Level 4 studies were identified and evaluated according to the Oxford 2011 Levels of Evidence Scale and Strength of Recommendation Taxonomy (SORT). **Synthesis:** Vitamin C supplementation may represent an effective complementary treatment for patients diagnosed with achilles tendinopathy. While each study reported improvement in health outcomes, the evidence is limited because of inconsistent supplement composition, dosage of supplements, and lack of investigation of patients' nutritional intake during the studies. **Conclusions:** Vitamin C supplementation could be considered as a complementary intervention to improve health outcomes for achilles tendinopathy. Further research should focus on the influence of nutritional intake of subjects and the amount and combination of nutritional composition of the supplement.



Biography: Yusuke Imizu is a second-year student in the Master of Science in Athletic Training at South Dakota State University. He is originally from Gifu, Japan. He received his Bachelor's degree in Sports Health and Science from Doshisha University in Kyoto, Japan. He is interested in working as an athletic trainer in college basketball.

Project title: Strength training and plyometric training in females: What is most beneficial in building strength? A systematic review

Jonas A: South Dakota State University Brookings, South Dakota

Presenter: Anne Jonas **Advisor:** Hung-Ling (Stella) Liu

Objective: The aim of this paper to analyze nine different all female studies who participated in either a strength program, a plyometric program, or a combination of the two to better understand how each form of exercise benefits the body in terms of strength. **Search Methods/Inclusion Criteria:** The search methods for identifying the studies for this paper used the electronic search engine Google Scholar (www.google.com), which was narrowed down to three journals: 'The Journal of Strength and Conditioning Research', 'PLOS ONE', and 'International Journal of Pharmaceutical Science and Health Care'. Inclusion criteria included: Studies published in English between January 2010 and December 2021, presented data that addressed strength training and/or plyometric training in the female population, and were published in peer reviewed journals. **Analysis:** Nine studies were broken down into three tables: strength training, plyometric training, and both. Data was extracted to compare/contrast the studies within the respected section. **Results:** Each section had its own result. Strength training: the use of a structured periodized program while using elastic tubing and weights can increase overall strength. Plyometric training: the use of foot tap counts during exercises such as leg bounds, standing broad jumps, vertical jumps, and hurdles can increase peak power, jumping abilities, balance and speed. Both: the use of both strength and plyometric training, at the same time, better increases strength, speed, and jumping ability than just one program on its own. **Conclusion:** Results are not clear enough to fully state which program is the most beneficial at increasing strength, but can suggest which program is best to follow. While all three sections were assessing different exercise programs that can't be compared equally, the study can conclude that performing a combination of strength and plyometrics in one program is the best way to increase overall strength in females.

Biography: Anne is from Brookings, South Dakota and is a graduate student in the Sports and Recreation Administration program at SDSU. Anne is currently a graduate assistant for personal training and fitness services at the Miller Wellness Center. After graduation, she plans on continuing to live in Brookings and looks forward to finding a career in recreation following her graduation in May.

Project title: Nutrition Education and the Effects on Athletic Performance in Collegiate Athletes with Low Energy Availability

Karleigh Sudenga, South Dakota State University Brookings, South Dakota

Presenter: Karleigh Sudenga **Advisor:** Elizabeth Droke

Abstract: Current research suggests that collegiate athletes lack nutritional knowledge needed for optimal athletic performance. The absence of basic nutritional knowledge in college athletes puts them at an increased risk for RED-S and its sports performance consequences. The objective of this narrative review is to evaluate the literature on low energy availability in collegiate athletes and determine if nutrition education can improve athletic performance. Multiple studies concluded that nutrition education may improve dietary intake in collegiate athletes, while there was one contradicting study that found that athletes improved nutritional knowledge but did not improve dietary intake. 3 studies found that low energy availability results in negative effects on athletic performance. The research is limited on how nutrition education and knowledge influences athletic performance. It can be predicted that increased knowledge may improve low EA thus improving athletic performance in collegiate athletes. Future research should focus on the relationship between having a registered dietitian as part of the athletic team and nutrition knowledge, behaviors, and athletic performance in athletes. Additionally, interventions provided by a registered dietitian may fill the knowledge gap and improve health and performance in athletes.



Biography: Karleigh Sudenga is a nutrition and exercise science masters student. She is also apart of the nutrition and dietetics internship. Upon graduation, she will be taking the RD exam to become a registered dietitian. She is most interested in community nutrition, however, is open to all possibilities that the dietetics profession has to offer.

Project title: The Medicinal Value of Lion’s Mane Mushroom (*Hericium erinaceus*) for Cognitive Function, Mood Disorders, and Cancer: A Systematic Review

Millner, H: South Dakota State University Brookings, South Dakota

Presenter: Hailey Millner **Advisor:** Elizabeth Droke

Objective: The aim of this review is to critically evaluate existing literature and summarize recent findings on the use of *Hericium erinaceus* (HE), commonly known as lion’s mane mushroom, as a functional food to promote cognitive function, treat mood disorders, and prevent cancer. **Study Design:** A systematic review was conducted in two major databases (PubMed and Academic Search Premier) to identify studies from 2000 to 2022 meeting inclusion criteria (human RCT, animal interventions, oral HE administration). Both human randomized control trials and animal intervention trials were considered. Studies were not limited by HE preparation methods or dosage. Eleven articles were analyzed (5=human trials, 6=animal trials). **Results:** In all analyzed studies HE supplementation resulted in positive effects including significantly increased cognitive functioning scores, significantly reduced depression and anxiety symptoms, and a significant decrease in the size of cancerous tumors. **Conclusion:** As the world population ages and neurodegenerative disease, mood disorders, and cancer become more prevalent it is important to investigate treatment methods that could complement current interventions. Current available research supports the use of HE as a promoter of cognitive function and a treatment for mood disorders and cancer without documented toxic effects. Human trials are scarce, and methodologies used limit the generalizability of results. The findings of this review support the need for future research with HE that focus on larger human populations and more consistent HE preparation methodologies.

Biography: Hailey Millner completed her undergraduate degree in Food, Nutrition, and Dietetics at Concordia College in Moorhead, MN in 2020. She is currently a graduate student in South Dakota State University’s Nutrition and Dietetic Internship program. She will graduate with her Masters degree in Nutrition and Exercise Science in May of 2022. After graduation, she plans to take the national exam to gain accreditation as a Registered Dietitian. Working as a Registered Dietitian will enable her to pursue her many related interests including food allergies, women’s health, and nutrition and agriculture.



Section 4: 11:00 AM – 12:00 PM

Facilitator: Trevor Roiger

Project title: Implementation of Referral Program for Season Tickets

Chavez-Franco, O: South Dakota State University Brookings, South Dakota

Presenter: Oscar Chavez-Franco

Advisor: Bryan Romsa

Objective: The implementation of the Referral Program was intended to add an additional revenue stream for the Jackrabbit Ticket Office. As a ticket office with a relatively low marketing budget, Berman (2016) found in a study that referral programs are effective and suitable for firms with limited marketing budgets. A referral program would add another revenue stream that would cost the department little to nothing depending on the incentives. As Lisjak (2021) stated, word of mouth is one of the most trusted sources of information there is. **Study Design, Setting and Participants, and Intervention:** The implementation of the referral program began with research of various ticket office operations around the country. Research was done on the effectiveness of referral programs in ecommerce and athletic department ticket offices. Garnefeld (2013) found that larger rewards with exclusivity garnered more interest in the program. Similar to that, Verlegh (2012) found monetary rewards to be effective than symbolic rewards. Referral program incentives and rewards ranged widely from professional sports to collegiate athletics. **Measurable Outcome/Analysis:** Measurable outcomes were determined to be the total amount of revenue and inquiries regarding referral program. Referrals will be assessed as valid or not. **Results:** There was 10 inquiries and there was no additional revenue during the short launch of the referral program. **Conclusions:** Referral program did not sustain a launch due to lack of awareness and exposure. An important factor of successful launches in referral programs is communication to consumers according to Brandon Schwartz from the University of Oregon Ticket Office. This launch of the referral program can be used to guide future researchers on how to implement a similar program. These results are limited to a lack of exposure and support of the launch of the referral program.

Biography: Oscar Chavez-Franco is in the Sport and Recreation Administration Master's program at South Dakota State University. He completed his graduate internship requirements with the Jackrabbit Ticket Office where he assisted with day-to-day operations and implemented a season ticket referral program. During his time in the ticket office, Oscar fielded incoming calls to handle any inquiries fans may have had. He was crucial in the process of contacting fans to renew their season tickets and Jackrabbit Club donations. Originally from La Vista, NE, he received his undergraduate degree from the University of Nebraska-Lincoln. After graduation he will continue with his current role as a Coordinator of Partnership Services with Jackrabbit Sports Properties.

Project title: The Effectiveness of Ankle Disc/Wobble Board Training to Reduce Ankle Sprain Recurrence in Athletes Suffering from CAI

Haldeman A, Roiger TC: South Dakota State University, Brookings, SD

Presenter: Andrew Haldeman

Advisor: Trevor Roiger

Context: Chronic ankle instability is a condition which affects as many as 25% of high school and collegiate athletes and can result in recurring injuries for athletes both during and after their athletic career. The cause of these recurring injuries often correlates to a permanent stretching of ligamentous structures in the joint. Although the condition of chronic ankle instability and its signs and symptoms have been well defined, treatments aimed at minimizing further injury and damage to the region is limited to general rehabilitation ideas. **Objective:** This study attempted to identify and summarize current research pertaining to the prevention of recurring ankle injuries in athletes with a history of ankle sprains. Specifically, this research focused on the use of ankle disc proprioception training in preventing recurring ankle sprains in athletes. **Data Sources:** ProQuest, PubMed Central, Clarivate Web of Sciences, Academic Search Premier, Google Scholar. **Keywords Included:** Athletes, CAI or Multiple Ankle Sprains, ankle disc, wobble board, balance board training program. **Study Selection:** Studies that were selected were of level 4 evidence or higher. Each study included participants who identified as physically active. Each study included subjects or a subset of subjects who suffered from clinically diagnosed CAI or recurrent ankle sprains. **Extraction:**



Four studies meeting the inclusion criteria were selected for inclusion in this study (three level 1 studies, one level 3 study). **Synthesis:** The data that was identified through a literature search for this study presented contrasting evidence as to whether proprioception training on an ankle disc/wobble board is effective in decreasing the recurrence of ankle sprains in athletes. Some studies found a clinically significant positive effect of including the treatment, while others saw no change in injury incidence when compared to athletes who were not prescribed the training intervention. **Conclusion:** This data is important because it is a first step towards developing a robust treatment plan for athletes with chronic ankle instability. A treatment plan that is effective for this condition is important not only for the continuing functionality of athletes in their sport, but also for the athlete ability to continue to remain active in their post-sport life. **Further Research:** Future research should work to increase the amount of longitudinal data available for the effects of these treatment methods in decreasing the occurrence of future recurrent ankle sprains.

Biography: Andrew Haldeman is a second year MSAT student at South Dakota State University. He has a Bachelors degree in Nutrition and Exercise Science from the College of Saint Benedict and Saint Johns University. Andrew is looking to begin his career in collegiate athletics with a placement as a Certified Athletic Trainer after the completion of his Masters Degree.

Project title: Educating Parents on Risk Factors Associated with Summer Camp Participation for Youth Athletes

Blake Wooten, South Dakota State University, South Dakota

Presenter: Blake Wooten **Advisor:** Hung-Ling (Stella) Liu

Objective: Objective: The objective for this internship was to gain field experience as an athletic trainer working collegiate summer camps for youth athletes in an effort to develop an informational booklet for youth parents. The purpose of developing this booklet was to provide a tool to inform parents of potential risk factors of summer camp participation for their child, information on common injuries and illnesses that may occur, and suggestions for preparation prior to participation. **Internship Design:** Internship was developed to incorporate experience as a certified athletic trainer through coverage of youth baseball, football, and soccer camps sponsored by South Dakota State University in order to gain a better understanding of identifying risk factors for youth athletic participation during the summer months. Duties during coverage included providing basic first-aid, providing and encouraging water for hydration, providing basic injury evaluation and treatments, and serving as an observer for identifying signs of heat-related illness. **Outcome:** As a result of this internship, a booklet was designed which can be given to parents at the time of registration for summer camps which includes information regarding the role of athletic trainers as healthcare professionals, heat illness treatment and prevention strategies, proper hydration techniques, basic nutrition for youth athletes, basic first aid treatment of superficial wounds, basic injury treatment, and concussion recognition and management strategies. The goal is that this tool will be used in future years to educate parents on how to best prepare their child for summer camp participation and the best practices for management of common injuries and illnesses that may be sustained during activity. **Conclusion:** Common injuries and illnesses that occur at athletic camps during the summer months may be minimized with proper education of participants. Utilization of the informational booklet can help with this effort.

Biography: Blake Wooten is a second-year graduate student in the Sports and Recreation Administration program at South Dakota State University. Prior to attending SDSU, Blake earned his undergraduate degree in Athletic Training from Central College in Pella, Iowa. He currently serves as the graduate assistant athletic trainer for the SDSU baseball and equestrian teams. His future goals are to work as an athletic trainer for a professional baseball team.

Project title: Factors Influencing Students' Choice of Sport Management Master's Programs

Romsa, B, Weifenbach, K: South Dakota State University Brookings, South Dakota

Presenter: Kirsten Weifenbach **Advisor:** Bryan Romsa

Objective: The aim of this study is to gain insight on factors influencing students' choice of sport management master's programs. **Study Design, Setting and Participants, and Intervention:** A sample of participants (n=33) engaged in a voluntary survey from 19 universities from across the United States. Participants were asked to respond to prompts using a 5-point Likert scale developed by Talbot, Maier & Rushlau (1996). For the purposed of this study the Likert scale ranged from 5, being the greatest importance to 1, being not important. This instrument



is a modified version of the Doctoral Program Choice Survey and draws from Hossler & Gallagher's (1987) three stage decision-making model. **Measurable Outcome:** The results of the participants responses were analyzed, and descriptive statistics were used for both male and female respondents as well as the overall scores. The focus for this study was comparing the overall mean and standard deviation of the participants and focusing on the top 6 highest mean scores. **Results:** The top 6 influencing factors in this study were assistantship opportunities ($m = 4.62$), flexibility of program study ($m = 4.61$), job placements of the program ($m = 4.61$), reputation of academic program ($m = 4.56$), reputation of institution ($m = 4.55$), and reputation of the faculty in the program ($m = 4.52$). Three of the four lowest rated prompts included social media presence. **Conclusion:** Assistantship opportunities are highly valued in this pool of students and should be valued by universities. Department heads should emphasize the accessibility of faculty and help cultivate relationships between prospective student's current staff. By creating opportunity for relationships to grow between students and staff it will be easier to share previous career experience and help grow a students' network. Emphasizing the faculty's reputation in the career field and engaging students in potential career opportunities post-graduation. As social media presence was the lowest rated influencer this could indicate the need to shift focus from those platforms and restructure towards the reputation of the program and its staff.

Biography: Kirsten Weifenbach is a former graduate from SDSU's Sport and Recreation Management bachelor's program and is now completing her master's in the Sport and Recreation Administration program. She came to South Dakota from Winona, Minnesota where she was raised and graduated high school as a three-sport athlete driving her towards her current pursuit in the sport management world. Kirsten now finds herself working as a full-time Sales Coordinator for Daktronics after completing their sales internship where she was able to travel the US. Working back in Minnesota she keeps engaged in athletics by attending local high school, collegiate and professional athletic events. She would like to thank Dr. Romsa and Dr. Liu for all their help and support during her time at SDSU.

Project title: Long-term Prevalence of Tibiofemoral Osteoarthritis Following ACLR based on Graft Selection

Specht B, Roiger TC: South Dakota State University, Brookings, South Dakota

Presenter: Ben Specht

Advisor: Trevor Roiger

Context: Nearly 250,000 traumatic ACL injuries occur each year across the United States. The vast majority of ACL-injured patients elect to undergo reconstructive surgery to improve post-injury function, most often using hamstring semitendinosus tendon (ST) or bone-patellar tendon-bone (BPTB) autografts. Unfortunately, a long-term complication of ACL reconstruction is osteoarthritis. The efficacy of surgical techniques to limit the future onset of tibiofemoral OA remains unclear. **Objective:** The aim of this study is to evaluate the prevalence of tibiofemoral osteoarthritis (TFOA) in athletes following ACL reconstruction with BPTB compared to ST autograft. Data Sources: PubMed Central, ScienceDirect, and Google Scholar were searched for articles. Keywords included tibiofemoral osteoarthritis, ACL reconstruction, and BPTB or ST autograft. **Study Selection:** Studies that were level 2 or higher, published in the past 12 years, including research studies evaluating the prevalence of TFOA following ACL reconstruction with ipsilateral BPTB or HT autograft. Studies assessing multi capsuloligamentous reconstructions or ACL revisions and studies reporting duplicate data were excluded. **Extraction:** Three studies meeting the inclusion criteria (two Level 1 and one Level 2) were identified and evaluated according to the Oxford 2011 Levels of Evidence and the Strength of Recommendation Taxonomy (SORT). **Synthesis:** TFOA was significantly more prevalent in the reconstructed knee compared to the contralateral knee. There were no significant differences in the prevalence of long-term TFOA based on graft type. Resection of the meniscus was a strong risk factor for OA. Conclusion: Graft type following an ACL injury has minimal influence on the prevalence of OA. The prevalence of OA is significantly higher in the reconstructed knee compared to the contralateral knee. These results are limited to athletes who experienced an ACLR with fixation of bone-patellar tendon-bone autograft or semitendinosus autograft.

Biography: Ben Specht is seeking a Masters Degree in Athletic Training. Ben received his Bachelors Degree from Southwest Minnesota State University with a major in Exercise Science. Upon completion of his Masters Degree, he wishes to seek a job in the Athletic Training field in a college or secondary setting.



Section 5: 12:00 PM – 1:00 PM

Facilitator: Bryan Romsa

Project title: Marketing Sports Camps Through Social Media

Brown W: South Dakota State University Brookings, South Dakota

Presenter: William Brown **Advisor:** Bryan Romsa

Abstract: Due to the COVID-19 many obstacles for the arose for South Dakota State Men’s Basketball team. One major obstacle being camps in the summer of 2020 and fall of 2020 had to be canceled. As a result, we wanted to increase participants in our summer camps in 2021. In prior years, we would use traditional methods to advertise our camps, in addition to Tweeting and posting to our Facebook page. Those posts received very few interactions and was limited to people who follow our accounts. We wanted to reach people who may not follow our accounts, but still have an interest in our camps. **Objective:** We ultimately wanted to find creative ways where we could bring in 5-10 participants more per camp and bring athletes from schools that weren’t located in Brookings County. We wanted to reach Sioux Falls and parts of Minnesota. As we researched, we found that advertising through social media platforms like Facebook and Twitter may be a great strategy to be able to reach more people throughout multiple communities. **Method:** While advertising through Facebook, the advertisement can be placed in the market you select by radius of miles. We selected the radius of 100 miles which included Sioux Falls, Watertown, parts of Minnesota, and South Dakota communities that we normally did not get flyers to. **Analysis:** Statistics from previous camps we used to compare the increase in numbers. The 2017 summer to 2019 summer numbers’, where traditional marketing methods were used, was compared to 2021 summer numbers’ where marketing methods like purchasing ads through social media sites were used. **Results:** In the 2021 camp season there was a total of 169 athletes at the camps, which averaged 56 athletes per camp. This was the highest number of athletes at camps since 2017.

Biography: My name is William Brown, I am a 2nd year student from Spirit Lake, Iowa, in the Sport and Recreation administration program here at South Dakota State University. I am currently a Graduate Assistant for the Men’s Basketball team, which is why I decided to go into the Sport and Rec. Program. Previously, I got my undergrad in Financial Economics at The University of North Dakota in Grand Forks, ND. At the University of North Dakota, I also played basketball there for 4 years.

Project title: The Effectiveness of Bone-Tendon-Bone vs Hamstring Grafts in ACL Reconstruction in Relation to Re-Tears.

Opdahl B, Zwart MB: South Dakota State University Brookings, SD

Presenter: Brooke Opdahl **Advisor:** Mary Beth Zwart

Context: The risk of re-tearing an ACL a second time is greater following initial reconstruction, even if the proper protocols are followed. **Objective:** What is the incidence rate of re-tear in bone-tendon-bone vs hamstring grafts in 18-23-year-old female athletes who have undergone ACL reconstruction? **Data Sources:** A search was conducted using PubMed, Briggs Library databases, and Google Scholar. Search terms included: 18-23-year-old female athletes, ACL reconstruction, bone-tendon-bone and hamstring grafts, and incidence rate. **Study Selection:** Studies were included if they involved the use of a hamstring graft or bone-tendon-bone graft in ACL reconstruction, patients who experienced a re-tear following initial reconstruction, limited to English, and available in full text. Studies were excluded if they required purchase, were informative articles, and studies that looked at utilizing other graft choices, such as an allograft or synthetic graft. **Data Extraction:** Four relevant studies were identified and appraised; one cohort study, one prospective cohort study, one systematic review, and one meta-analysis. **Data Synthesis:** The studies compared the failure rate of hamstring and bone-tendon-bone grafts about frequency of graft failure and time until failure, along with subjective satisfaction of athletes in two of the studies. Two of the studies found no significant differences between the grafts but suggest a BPTB graft is at less of a risk for a re-tear. It was also found that individuals undergoing BPTB grafts may be associated with functional knee pain in the long run. **Conclusions:** Evidence suggests that the use of bone-tendon-bone grafts lowers the risk of an athlete experiencing a re-tear following rehabilitation and return-to-play, however they are associated with an increase in anterior knee pain and



osteoarthritis. Both grafts are viable choices, but individuals younger than 25 years-old are at a greater risk of re-tears regardless of other potential variables. Strength of Recommendation: B Word Count: 300.

Biography: Brooke Opdahl is a student in the MSAT graduate program and is from Hazel, South Dakota. She was lucky enough to complete her undergrad degree here at SDSU, getting her Bachelor's in Exercise Science and a minor in Psychology. Through the AT program she was able to gain significant skills and knowledge while in her clinical experiences by working with athletes & preceptors from O'Gorman High School, SDSU Track & Field, University of Colorado Boulder, and University of South Dakota. Her hope is to provide student-athletes with the most advanced care for optimal performance and the ability to continue playing their sport. After graduation, Brooke hopes to pursue her AT career at a college/university.

Project title: Budgeting Summer Basketball Camps

Will Glisky, South Dakota State University, South Dakota

Presenter: Will Glisky **Advisor:** Hung-Ling (Stella) Liu

South Dakota State University has grown their men's basketball program into a mid-major powerhouse in recent history, winning multiple Summit League titles in the past decade. With their storied success and tradition, they also run popular basketball camps during the summer months that raise money for the program and university. During the summer of 2021, I helped with budgeting the SDSU basketball camps and gained an increased knowledge of sports finance. **Objective:** I was tasked with keeping track of various financial information throughout the summer camps, including payroll, campers' insurance, catering, department fees, tax information, and various other costs and revenues. By budgeting the summer camps, I was able to gain an increased knowledge of sports finance and suggest ways to increase revenues or cut costs for the future. **Method:** By creating a spreadsheet with Microsoft Excel, I recorded the revenues and expenses of operating the camps. I was able to see how much revenue we brought in from campers alone, how much we paid student workers, how much various operations cost, and more. **Analysis:** Because I recorded the financial information, I was able to see various revenues and expenses of the camp. We brought in almost \$15,000 in revenue from campers. To increase revenue, I suggested we reach a wider geographical area with our marketing efforts to draw more campers for next year. Another suggestion would be to run the camps as an LLC, independent from the university to avoid tax costs. Cutting costs such as finding cheaper alternatives for catering, design services, and even payroll could increase profits. Profits were likely lower in 2021 compared to previous years as SDSU cancelled their team camp dates due to COVID-19. Results: Camper revenue totaled \$14,700 while expenses amounted to around \$13,200.

Biography: I am from Cold Spring, MN. I completed my undergraduate degree in economics and marketing from South Dakota State University. I chose to come back to SDSU to pursue my masters degree in Sports Administration and plan to work in the basketball industry upon graduation. I worked for the SDSU men's basketball team as a student manager for 3 years before taking a coaching job during my last year of graduate school. I currently work as an assistant men's basketball coach at Presentation College in Aberdeen, SD.

Project title: The effect on function of platelet-rich plasma on incomplete ruptures of the ulnar collateral ligament in overhead throwing sport.

Braegelmann B, Zwart MB: South Dakota State University Brookings, SD

Presenter: Brady Braegelmann **Advisor:** Mary Beth Zwart

Context: Ulnar collateral ligament (UCL) injuries of the elbow, are common to overhead throwing athletes. Complete UCL ruptures are treated with reconstruction, but how should partial UCL ruptures be treated? **Objective:** Will the inclusion of platelet rich plasma (PRP) injections to normal conservative treatment restore function in elite overhead throwing athletes? **Data Sources:** A search was conducted using Pubmed, Google Scholar, and the Cochrane Library. Search terms included: partial UCL tears, PRP injections, baseball players, overhead throwing athletes, function after PRP injections, and effects of PRP injections. **Study Selection:** Studies were included if participants received a PRP injection, were overhead throwing athletes, had partial UCL tears, outcome measure was function, free full text articles, and written in English. Studies were excluded if participants underwent UCL reconstruction, were recreational or non-throwing. **Data Extraction:** 2 case series and 1 retrospective cohort study were appraised. **Data Synthesis:** All three studies assessed the functionality of athletes following one to three PRP injections administered at least one week apart paired with conservative treatment. The conservative treatment



included hip and core strength, range of motion, wrist, hand, and elbow strengthening, and a return to throwing program. **Conclusions:** The evidence suggests that the inclusion of PRP injections with conservative treatment is practical to restore function in overhead throwing athletes. Podesta et al. found that 30 out of 34 athletes returned to the same level of play following PRP injection. Banks Deal et al. found that 22 out of 25 athletes returned to play at the same or higher level of play than before injury. They also found that 20 of those 22 athletes showed full reconstitution of the UCL. Dines et al. found that 32 out of 44 athletes had an excellent outcome according to the modified Conway Scale. Strength of Recommendation: C Word Count: 299

Biography: Brady is a student in the Master's of science Athletic Training program at South Dakota State University. He is a graduate of South Dakota State University in the Exercise Science bachelor's program with minors in health communications and health science. Brady's future plans include beginning a career with DonJoy Orthopedics Global in Oceanside California.