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The addition of Phenobarbital to MINDS Protocol treatment in patients with a diagnosis of AWS in the ICU setting: a retrospective chart review

Katie Schaub
Karla Salnoris

Alcohol withdrawal syndrome (AWS) can occur in chronic alcohol users who abruptly cease alcohol use, leading to overexcitability in the brain. Over-excitation causes a range of symptoms that are often treated with benzodiazepines. Barbiturates, such as phenobarbital, may also be an option for treatment and synergism is seen when the two classes are used in combination. Both reduce withdrawal symptoms and prevent delirium tremens, which is severe and potentially fatal. In the intensive care (ICU) setting, the Minnesota Detoxification Scale (MINDS) protocol identifies the severity of withdrawal and guides treatment. Studies evaluating the use of additive phenobarbital exist with the Clinical Institute Withdrawal Assessment for Alcohol-Revised (CIWA-Ar) protocol but are lacking for use with the MINDS protocol. As of now, there are no publications that investigate the effectiveness of phenobarbital within the MINDS protocol, making this topic critical and timely. An IRB approved retrospective chart review will be performed from January 2018 to January 2021 at Winchester Medical Center. The purpose of this study is to determine if the addition of phenobarbital in the MINDS protocol demonstrates a clinical benefit in AWS compared to those who do not receive phenobarbital. The primary objective and outcome of this study will be to determine if the use of phenobarbital within the MINDS protocol impacts ICU length of stay (median, hours). Secondary outcomes will explore additional efficacy and safety concerns. Outcome will be analyzed as continuous data using an unpaired t-test where appropriate. Descriptive statistics will be used for the remaining outcomes.
Age as an influencing factor in parasitism of male morphotypes of bluegill sunfish (Lepomis macrochirus)
Victoria Krist

Bluegill sunfish (Lepomis macrochirus) are a common sportfish found in the United States and Canada. Different reproductive morphotypes have been observed within male bluegill sunfish with alpha-males being larger in size, having increased territoriality, and increased reproductive investment. Unlike alpha-males, the subordinate beta-males tend to be smaller in size and express cuckold reproductive tactics, contributing to future cohorts without involvement in rearing young. The purpose of this study was to determine the role of age on parasite recruitment in male morphotypes of bluegill sunfish. A total of 1,752 fish was collected from 14 ponds in northwestern Virginia and the parasites infecting each fish were identified and enumerated. Parasite abundance in beta-males correlated closely with the age of the fish, while host size influenced parasite abundance in alpha-males and females. As beta-males aged, they accumulated more parasites, likely due to increased exposure time. However, parasite abundance in alpha-males and females was influenced by size, where larger fish tended to harbor greater parasite loads. The difference in the factors influencing parasite recruitment between morphotypes may be attributed to differences in behavior and trophic status, particularly in relation to when the morphotypes reach sexual maturity. These differences in parasite recruitment patterns between male morphotypes of bluegill sunfish may contribute to the maintenance of multiple male morphotypes in a community despite vastly different reproductive outputs.
Arts Education Helps Improve K-12 Student Learning
James Smith

This is a review of research done on arts education improving student learning in K-12 schools. This review consists of an analysis of fifteen articles published between 2004 and 2019 that are dedicated to primary research providing conclusions on how arts education improves student learning. The results found were that while there is little evidence to prove causation, correlation is apparent. Arts education and arts-integrated studies showed improvement in student learning regarding cognitive development, long-term retention, higher achievement in other subject areas, and greatest improvement made in lower proficiency level learners from low-income communities. This study discusses the lack of representation in regard to special needs students, whom have one article referenced, but more research needs to be done on that subtopic due to evidence of improved learning from arts education practices. The conclusion was found that arts education does improve learning in K-12 schools, but that this learning cannot be measured by standardized test alone. Improvements in cognitive development to assist in other subject areas is measurable through student self-surveys and teacher-led assessments in the classroom.
Assessing Higher Education Policy for Pregnant and Lactating Women in Traditional Cadaveric Laboratories
Jessica Drury Carrero, Roxanna Luster Jordan Considine

Introduction: The number of women teaching and participating in anatomical sciences in healthcare programs continues to expand. Anatomical didactic coursework often includes participation in cadaveric laboratories utilizing embalming chemicals including formaldehyde and phenol. Existing literature is limited and conflicting regarding effects of these chemicals on pregnancy and lactation. Minimal literature exists on policies for pregnant and lactating women participating in these settings.

Objective: The purpose of this study was to determine the existence and breadth of policies on pregnant and/or lactating female students, lab personnel, and faculty in cadaveric laboratories.

Methods: A survey was developed and piloted to the Virginia Anatomical Advisory Board. The survey was electronically distributed to the Anatomy Special Interest Group of the American Physical Therapy Association, the American Academy of Clinical Anatomists, and the American Association for Anatomy.

Results: The survey yielded 42 respondents, totaling 103 programs of different disciplines. Approximately 40% of respondents reported having written policies for pregnant and/or lactating women. Sixty percent of respondents reporting a lack of policy noted implementation of precautions including obstetrician consultation and wearing additional personal protective equipment (PPE).

Conclusion and Significance: A majority of respondents reported lack of policies for pregnant and/or lactating women involved in traditional cadaveric laboratories across a variety of health care disciplines. Common recommendations, in lieu of a written policy, included additional PPE layering, participation discouragement, and recommendations for physician/obstetrician consultation. Future studies should investigate specific written policy content and the generation of policy at specific institutional and program levels.
This literature review focuses on audience development techniques used to attract audiences to attend classical music concerts. Topics ranging from environmental to personal factors are analyzed as well as the online presence of the organization, consumer behavior, and the fundamentals of what first time audiences describe as an enjoyable concert experience. These topics all combine to create a marketing strategy that organizations can use to see areas in which they can improve upon to draw larger and more diverse audiences as well as maintain their returning audience members.
The Ballad of The Faerie Queene
Abigail Boyer

“The Ballad of The Faerie Queene,” an original musical project, explores several key themes in Sir Edmund Spenser’s epic poem, The Faerie Queene, published in 1590. Spenser’s work is divided into six sections, each telling a story attached to a specific Renaissance moral or value. “The Ballad of The Faerie Queene” focuses on the first three stories, which highlight holiness, temperance, and chastity. This musical piece conveys core elements of these tales — including the heroic deeds of the Redcrosse Knight, Sir Guyon, and Britomart, while tying each story to the values on which they are based. The lyrics feature ideas of chivalry, the knightly code of Arthurian literature, and various daring escapades (involving jousting tournaments, magical spells, and battles with giants and dragons). Using an alternative singer-songwriter style, I retell these time-tested tales in an enjoyable way that explores the epic’s hidden meanings while also providing the audience with insights into Spenser’s Renaissance values.
School of Pharmacy
Pharmacy
Graduate

Coding for an Anticoagulant: Systematic Review of Pharmacogenetic-guided Warfarin Therapy on the Therapeutic and Adverse Clinical Events on Patients with Atrial Fibrillation, Deep Vein Thrombosis, and Pulmonary Embolism
Amy Green

BACKGROUND:
Warfarin is an anticoagulant widely used to prevent thromboembolic events (TEs) in patients and has a narrow therapeutic window. Pharmacogenomics (PGx) testing is suggested to help predict warfarin dosing. A systemic review was performed to compare the incidence of TEs and bleeding events (BE) between PGx-guided warfarin therapy versus standard of care (SOC) in patients with non-valvular atrial fibrillation (Afib), pulmonary embolism (PE), and deep vein thrombosis (DVT). Also evaluated were the time to therapeutic range (PTTR) and time in therapeutic range (TTR).

OBJECTIVE:
The objective of this study is to fill the knowledge gap in PGx-guided warfarin dosing’s therapeutic and adverse effects in patients with Afib, PE, or DVT.

METHODS:
Articles were reviewed for outcomes of interest and demographics. These studies measured outcomes based on International Normalized Ratio (INR) readings, such as TTR and PTTR, and adverse effects of TEs and BEs.

RESULTS:
From the database search, 6 articles met our indications and were ultimately included. All articles found statistical favor in the PGx-guided group in terms of TTR. There were also findings favoring PTTR, decreased BE, and fewer dose adjustments in the PGx-guided group. There were no significant different findings for TEs.

CONCLUSION:
Results demonstrate PGx-guided warfarin dosing is more likely to establish a longer TTR compared to SOC treatment in patients with a history of cardiovascular disease. In select patient populations, PGx-guided warfarin therapy may decrease PTTR, reduce BE, and require fewer dose adjustments. There is no statistically significant benefit in PGx-guided therapy to reduce TEs.
Community Policing; Impacts on the interaction between the Police and the Community
Elise Rocconi, Anna Burns, Maddison Hansen, Tessa Myers, Alisa van Crommert
Domonique Gholson

Students from the division of Occupational Therapy at Shenandoah University partnered with the Strasburg Police Department to examine the impact of community policing on outcomes of officer interactions with community members. This project was a mixed-methods study, that included quantitative and qualitative data. The quantitative portion of the project included an analysis of police reports and community events that occurred from January 1st, 2016 to December 31st, 2020. The qualitative portion of the project consisted of an online survey and individual interviews completed by the Strasburg police officers. These interviews and surveys focused on the officer’s experiences with community policing in Strasburg, and their understanding of mental health, disability, and cultural awareness within their line of work. This study was completely voluntary for officers and did not impact their standing within the department as their contributions were kept anonymous. Our study sought to determine if the implementation of community policing reduced disciplinary actions issued during law enforcement encounters with community members. The police reports, surveys, and interviews were analyzed to determine the effectiveness of community policing within the town of Strasburg.
Alcohol withdrawal syndrome (AWS) occurs following abrupt cessation of alcohol due to dysregulation of GABA, glutamate, and dopamine neurotransmitters. Upon discontinuation of alcohol, unregulated excess excitation and overactivity of the CNS results. It is recommended to use a symptom-triggered approach with benzodiazepines because of their effect on GABA receptors to treat symptoms and to prevent the progression to major withdrawal like delirium tremens which can be fatal. The Clinical Institute Withdrawal Assessment of Alcohol Scale (CIWA) is a protocol used to assess the severity of AWS symptoms and provide symptom based benzodiazepine dosing. The Minnesota Detoxification Scale (MINDS) is a protocol created specifically for the intensive care setting (ICU) for the same purpose. Several studies have looked at the effectiveness of CIWA, but research concerning a comparison between the CIWA and MINDS treatment protocols is lacking. This study will be a retrospective, non-interventional, IRB approved chart review in Winchester Medical Center’s ICU. Patients treated with CIWA from January 2015 to December 2017 or with MINDS from January 2018 to January 2021 will be identified via the EMR to determine which protocol has better outcomes for ICU patients with AWS. The primary objective of this study will be to determine the difference in median ICU length of stay between patients receiving the CIWA versus the MINDS protocols. Secondary outcomes include additional safety and efficacy outcomes. Unpaired t-tests will be used to compare continuous data and chi-square tests will be used to evaluate categorical data.
Covid-19 impact on physical activity and mental health
Megan Boyd
James Dwyer

This study aims to explore the relationship between physical activity changes and its impact on mental health for college students during the COVID-19 pandemic
Creative Ways and Changes Made: Solving Issues in the Live Entertainment industry
Chace Washington

The objective of this research is to show the recurring themes that connect the recurring changes of the performing arts. This information is for those who are in the administrative and technical side of the performing arts, who are looking for ways to better enhance the performing arts organization that they are a part of. Whether it is connected to better understanding safety regulations, legal agreements, or best practices, this information will be beneficial as an overview of how the performing arts and specifically live performance is the way it is today. I used secondary research as my method. This entails scholarly sources, other research papers, online articles, and some web magazine articles for the basis of my research. I have found that there are recurring themes that are the basis of change or innovation within the live entertainment industry. These themes are security, technology, health, and law. These findings show that the live entertainment industry will continue to evolve with those recurring themes at its core.
Development of Therapeutic Use of Self through Life Experiences: A Nationwide Survey of Mental Health OT Practitioners
Gaelyn Everhart, Nate Ranck, Megan Bryan, Hailey Turner, Rachael Laughlin, Jenna Rockwell, Gra Hill

The purpose of this study was to utilize a mixed-methods design to gather descriptive data via survey format about the influence of life experiences on development of Therapeutic Use of Self (TUS) for Occupational Therapy (OT) practitioners who have specialized in mental health practice. Specifically, our study aims to answer the following research questions:

1) Do mental health occupational therapists believe that life experiences develop their capacity to use themselves therapeutically?

2) What are the contributions of both pleasurable and challenging life experiences to development of TUS for mental health occupational therapy practitioners?

3) How important is self-awareness and self-care in the development of TUS for mental health occupational therapy practitioners?

4) How do life experiences influence the process of developing one’s TUS?

At this time, we have received 107 responses which we are analyzing to determine major trends in the development of TUS. Our interpretation of the results will be included in our final presentation upon conclusion of our research.
Differential Strigeid Infections Patterns in Bluegill (Lepomis macrochirus) and Green Sunfish (Lepomis cyanellus)
Erin Atkinson

Various factors contribute to behavioral variation among conspecific and interspecific organisms, which can have substantial ecological impacts. In order to test the effects of behavioral variation on strigeid parasite abundance and distribution in the second intermediate host, Lepomis spp., fish were collected and necropsied for analyses of parasite infection. The methods of rod and reel and seine were utilized to collect all fish prior to euthanization and necropsy. Size metrics, stomach contents, and quantities of strigeids were recorded. Lepomis macrochirus had an increased abundance and different distribution patterns of strigeid infections compared to L. cyanellus. Potential causes for the differences were the aggressive behavior and sheltered habitat of L. cyanellus, which may have limited parasite exposure. Data also revealed that strigeid infections in L. macrochirus α-males were in greater abundance and had different distribution patterns compared to females and β-males. Increased nesting responsibilities and habitat use of α-males may lead to the differences in infection patterns. The distinction of morphotypes revealed significant differences in abundance and distribution of parasite infections between the sexes of L. macrochirus.
This literature review aims to explore why nonprofit performing arts organizations must utilize and expand digital engagement strategies such as digital marketing, social media marketing, and mobile marketing to engage their communities in the 21st century. The text explains the timeline of digital marketing growth, from its creation in 2000 through three five-year periods until 2015. Each evolving era has seen significant change regarding marketing goals, outreach to the consumer, and the types and use of digital platforms. The review then addresses traditional arts marketing theories with a modernist as well as a relationist lens. It details contemporary arts marketing challenges, which include finding the target market, expanding to potential markets, and keeping members of the market engaged. The text reveals important data on how influential digital engagement is among arts audiences as the use of technology, the internet, and social media have increased exponentially in all age groups. The literature review explains how nonprofit performing art organizations can utilize digital marketing through an analysis of scholarly research, including websites and email marketing, social media marketing, and mobile marketing. The results conclude that arts organizations can practice relational marketing and increase audience development by taking advantage of digital engagement. The synthesis states that to maintain cultural relevance and audience satisfaction, it is imperative that nonprofit performing arts organizations expand their digital engagement strategies.
Disability in the Performing Arts
Alissa Cecala

This literature review examines how disabled people are treated in the performing arts. Many performing arts organizations lack necessary accommodations for disabled audience members, making it more difficult for them to take advantage of important cultural opportunities. In addition, disabled performers are often not offered equal opportunities. For instance, there are few theatrical productions that feature disabled characters or actors. Those that do feature disabled characters often depict the disabled characters as less than the nondisabled characters. Disabled dancers struggle find training opportunities as many teachers do not believe disabled dancers are capable of performing. Many performing arts organizations also do not provide appropriate accommodations to allow disabled technicians and administrators to have equal employment opportunities. In addition to professional performing arts, arts education needs to be modified in order to better serve disabled students. Disabled students are hindered by curriculums that are currently offered. There are a few performing arts organizations and programs that successfully promote the participation of disabled people in the performing arts. The organizations and programs discussed in this review offer valuable ideas for performing arts organizations that need modifications in order to become more inclusive of disabled people.
Effects of a Strength Training Program on Anaerobic Power in Dancers

Morgan Mays

Introduction: Anaerobic fitness is crucial to the success of dancers, helping them perform to their full capability, maintain technique for longer, and reduce fatigue. There is a lack of research concerning performing artists and strength training (Koutedakis et al., 2005). The purpose of this study was to examine anaerobic performance after an 11-week strength training program.

Methods: Five first-year female dance students participated in a three-phase progressive strength training program created by a certified strength and conditioning specialist. Anaerobic power was measured using the Wingate Cycle Ergometer Test at baseline and post-training.

Results: Significant differences were found from baseline to post-testing for mean absolute power (p = 0.012) and mean relative power (p = 0.028). No significant differences were found from baseline to post testing for peak relative power (p = 0.52) nor for fatigue index (p = 0.143).

Conclusion: Mean absolute power and mean relative power were both statistically significant, indicating that the dancers could generate more power post strength training. While not statistically significant any improvement in peak power would be helpful for dancers to improve performance of explosive movements. Muscular strength levels in dancers only accounts for 38% to 43% of body weight, suggesting that they are significantly weaker than traditional athletes (Koutedakis et al., 2005). In order to perform at a higher level, maintain technique throughout a performance, and dance with a more powerful and stable body, strength training must be incorporated into a dancer’s routine.
Effective Marketing Strategies that Pique Audience Curiosity into Attending Provocative Performances
Adrienne Elion

Provocative shows, or the genres of performance that are not within mainstream tastes, like avant-garde, post-modern, etc., have valuable contributions to progress the arts, yet still need an audience to share their ideas. Looking at standing research, the best way to grow an audience is word of mouth, but in order to achieve the free marketing, the initial product and original marketing strategy of show value needs to be addressed.

Keywords: Marketing, ticket sales, strategy, motivation, provocative, theatre, performance, audience, word of mouth.
Effect of Sportsmetrics on ACL Injury Rates in Female Youth Athletes
Elizabeth Thacker
Ashleigh Dough

Clinical Scenario: Female youth athletes have a high prevalence of anterior cruciate ligament (ACL) tears and injuries while participating in sports. Programs such as Sportsmetrics have been created to improve strength and other biomechanical factors associated with ACL injury risk to potentially decrease the prevalence of non-contact ACL tears. Clinical Question: Does the Sportsmetrics program improve strength in the knee and reduce the risk of ACL injuries in female youth athletes? Summary of Key Findings: Two studies were included in this Critically Appraised Topic. In one study, after the intervention of the Sportsmetrics ACL prevention program, the subjects significantly improved multiple biomechanical variables in the knee that reduced their risk of ACL injury. The hamstring to quad muscle activation ratio was also significantly improved. There was a reduction in the total number of ACL injuries within the Sportsmetrics group. In a second study, following the Sportsmetrics intervention, there was a statistically significant increase in knee separation distance in the landing phase, vertical jump height, and agility testing. Both of these studies found significant improvements in knee strength and functional measures. Clinical Bottom Line: There is strong evidence to suggest that Sportmetrics is successful in increasing strength within the knee and may be able to reduce the risk of ACL injuries in female youth athletes.
Effectiveness of Embedded Tutors and Mastery Based Testing
Madison Shannon

In this study we tried to determine the effectiveness of embedded tutoring and mastery based testing. We did so by analyzing the final grades from Fall 2018 to Fall 2020 for College Algebra, PreCalculus, and Statistics. To help us determine the effectiveness we ran independent t-tests, proportion tests, and compared means and standard deviations. From these tests, contrary to the hypothesis, the classroom aid methods did not have an effect on student success. Future work for this project would consist of eliminating variables that may skew the results, ie different professors, COVID-19, etc.
Effective Teaching Strategies in Math
Julianna Hart

Math is a difficult subject to teach and learn. What if changing the way teachers teach and students learn math could improve the outcome of math classes, and leave students feeling proud and successful. The most common form of teaching math is lecture, and teaching math in lecture form has shown to be ineffective. There are much better ways to teach math. A method shown to be more effective is the flipped classroom environment. A flipped classroom provides time for students to problem solve with the teacher, and to watch the lessons from home. Students in math seem to struggle with homework and problem solving. If a professor or a teacher is able to guide them when a student goes astray it will prevent the student from learning the information incorrectly. However, most students seem to not enjoy a flipped classroom environment. In this presentation we will look at data showing students preferences of classes, and how a flipped classroom might be changed to better suit the average student.
Effects of COVID-19 on Mental and Physical Health among University Students
Jesse Acierto
Kristen Hughes

The COVID-19 pandemic has introduced new fears, worries, physical movement constraints, social constraints, and serious lifestyle changes (Son et al., 2020). Due to their excessive exposure to social media regarding COVID-19 and vulnerable developmental stage, college students encounter dietary pattern changes (e.g. increased consumption of unhealthy snacks, irregular eating patterns, and increased emotional eating) as a result of significant emotional distress (Alonzi, Torre, & Silverstein, 2020; Son et al., 2020). The literature fails to indicate how the mental health of college students has been impacted during the pandemic as a result of dietary changes. Therefore, this study aims to explore the relationship between diet change and mental health in college students during the COVID-19 pandemic.
The use of social media has skyrocketed across the globe over the past 20 years. Although these platforms can be a tool for connecting people, they seem to be highly addictive and can be harmful to users’ mental health. The purpose of the current research is to evaluate how one’s level of social media use is related to perceived self-esteem and quality of offline friendships. I hypothesized that individuals who reported higher levels of social media addiction would have lower self-esteem and lower levels of satisfaction with their offline friendships. Approximately 200 participants from the online crowdsourcing platform, Amazon Mechanical Turk (AMT), participated in the study. The sample mostly identified as male (66.8%) and had an average age of 35. Instruments included the Rosenberg Self-Esteem Scale (measuring participants' level of self-esteem), Friendship Scale (measuring social isolation and the status of participants’ friendships), and the Social Media Addiction Questionnaire (SMAQ) and Social Media Engagement Questionnaire (SMEQ) (both of which measured amounts of social media use). Participants who had high social media addiction and engagement scores had a lower self-esteem than those who did not. Participants who reported lower levels of self-esteem also reported higher levels of isolation and poor friendships. Results also showed that participants who had higher levels of isolation reported higher levels of social media addiction. This reveals that social media use directly affects levels of self-esteem and feelings of social isolation. It is apparent that social media use can negatively affect multiple aspects of life.
The Evaluation of Individuals' Perceptions of Social Media Posts Relating to Mental Health
Emilie Smith

Social media has evolved and research has adapted to it being a negative influence on its users, especially relating to mental health. However, positive posts about the importance of mental health are easy to find in social media. I evaluated individuals’ positive or negative perceptions when viewing mental health social media posts on Twitter, focusing on which post results in positive perceptions: statistics or personal narratives. My hypothesis was that viewing mental health personal narratives would result in higher positive affect than mental health statistics. 203 participants from Amazon Mechanical Turk completed a Qualtrics online questionnaire asking demographic information and their perspective on individuals with mental illness. They viewed a randomly assigned set of five posts about mental health personal narratives or mental health statistics. Participants completed the Positive Affect Negative Affect Scale (PANAS) to determine how they felt in that moment. The personal narrative posts had a higher positive score than the statistics posts. There is not a significant difference between the two different posts within their negative score. These results implicate that the viewing of personal narratives is better than statistics for an individual. This information can be useful for organizations who promote mental health and the well-being of others. Future research could be to study individuals who have a mental illness and what type of affect social media mental health posts have on those individuals.
An Exploration of the Literary Elements that Construct the Poetic Voice of Robert Frost

Gabrielle Koon

Robert Frost is one of the most well-known poets of the Western World, and his writing style is an example of the possibilities of expertly constructed use of language. When first reading the work of Frost a reader might appreciate the use of the natural world as a backdrop for most of his poems, but the themes of his work go well beyond appreciation of nature. Through close readings of multiple examples in Frost’s anthology, one can evaluate the most effective elements of Frost’s writing style. Considering elements used, there is possibility for a more-in-depth view of Frost work as a whole, and a deeper understanding of the naturalistic voice attributed to Frost writing style. Frost uses environment as a way to reinforce metaphor and theme which, when included with his choice of language and repetition, create the desired emotion and audience reaction to each of his heavily constructed and developed works. The naturalistic voice Frost is most known for, is used as a means to explore humanistic themes in his work.
Exploring Accessibility and Inclusion in the Arts for People with Disabilities
Nicolette Minella

In 1990, the Americans with Disabilities Act (“ADA”) was signed, providing equal opportunity and access for people with disabilities…or so we thought. Three decades later, and this legislation has not cured the rampant ableism in society. Historic discrimination against people with disabilities, classifying them as a “tragic” and inferior population, has persisted to the present-day, and the arts field is no exception to this exclusion and injustice. In the 21st century, arts leaders face a moral and legal obligation to not only meet ADA requirements, but also break the stigmas placed on artists and audiences with disabilities, including this marginalized group in the growing conversation on equality. This presentation will explore this issue by examining the history of the disability rights movement and basic knowledge on “disability”, introducing the stereotypes in both general society and the arts, and discussing how arts organizations can plan for and create accessibility, foster inclusion, and change the daily culture.
How has the change in schooling environments (online classes vs in-person classes) affected the physical and mental health of college athletes?

Austin Stone
Hanifah Mohamad

In response to the pandemic, Shenandoah university adapted their delivery of education. Shenandoah university now offers remote and in-person learning to accommodate the CDC recommendations regarding COVID-19. With these changes, athletic programs/sports have been modified or canceled. There is a limited understanding of how these environmental changes and cancellations have impacted the physical and mental health of student-athletes. The purpose of this study is to determine if the change in schooling environments (online classes vs in-person classes), due to COVID-19, has affected the physical and mental health of college athletes. With regards to COVID-19, this study will investigate how the change in schooling environments (online classes vs in-person classes) has affected the physical and mental health of college athletes.
Hyperloop: Wireless Safety Features
Trammell Anthony

In the field of technology, Hyperloops are beginning to emerge as the future of transportation. Hyperloops are Magnetic Levitating trains that use conducting magnets and computer-based algorithms to travel through airless tubes at high speeds. After studying the Hyperloops systems, I began to look closely at the means in which it would operate. The control system of the Hyperloop is structured to be operated autonomously. Meaning it will not be operated by a person. The research I prioritized was for safety measures that should be taken into consideration in the design and execution of the Hyperloops control systems. Through extensive research, I not only have physical implementations that can be made for the Hyperloop, but I also developed a fail safe system for how the Hyperloop is controlled. Through wireless communication systems the Hyperloop can be a safer means of transportation. The wireless communication system will be connected to the Hyperloop and if anything were to go wrong the system will have the ability to control the Hyperloop safely.
The Impact of COVID-19 on Undergraduate College Students in the United States
Chelsey Aistrop, Brooke Coley, Matthew Stoltzfus, Amanda Ponack, Morgan Hilker
Dominique Zerna

This quantitative study investigated the potential effects of the impact of COVID-19 on undergraduate college students in the United States. Over the past year the COVID-19 pandemic has necessitated further research on the influence of stressors on students' mental health and occupational performance. This study examines overall mental health and motivation regarding their occupational performance as an undergraduate student during the Fall semester of 2020 to fill this need. Undergraduate students across the United States (n=188) participated in the study online through various social media platforms. Participants completed an online survey that contained open-ended and closed-ended questions that were analyzed through SPSS. Results of this study indicated that a majority of college students who experienced a negative impact towards academic performance and occupational performance including specific tasks of caregiving of self and others, social and leisure participation, and safety and emergency management also reported an increased significant negative impact towards their current mental health. Key limitations of this study include limited sample characteristics including race, gender, and location of participants. Undergraduate students who indicated a negative impact on academic performance and occupational deprivation due to COVID-19 may be more at risk of experiencing a decline on their mental health and everyday occupational performance. The findings of our study demonstrate the demand for coping strategies, support for online learning, and access to counselors to improve the mental health and occupational performance of undergraduate college students.
The Impact of Culture on Health Before, During, and After Pregnancy
Samantha Chambers

Background
Many cultural factors can impact health decisions before, during, and after pregnancy. These prove to be important implications for the health of the mother and newborn.

Objective
The purpose of this research was to determine possible obstacles, disparities, and other factors related to health prior to conception, during pregnancy, and in the postnatal period.

Methods
At a local Women, Infants, and Children clinic, n=298 women were recruited and completed a questionnaire focusing on health before, during, and after pregnancy. Responses were gathered from both English and Spanish-speaking women. Qualitative data coding and analysis was performed on open ended questions included in the questionnaire, first individually, and then in conjunction with another student-researcher in order to ensure agreement. Codes were enumerated, then analyzed to find noticeable themes common across participants.

Results
Most notable themes include: Women from Spanish-speaking countries were more likely to mention extreme food restrictions following birth; 210 out of the 298 (70.5%) women said they did not see a healthcare provider before becoming pregnant, and 157 women (52.7%) mentioned they followed some type of nutrition-related tradition during their pregnancy; and crosstabulations showed that women who attended religious services regularly felt they had less control over future pregnancies than those who did not attend, but it did not reach statistical significance from a chi-square analysis.

Conclusions
This analysis shows several possible implications for health prior to, during, and after pregnancy, especially in regard to tradition and culture, which is important in regard to an increasingly diverse population.
I have selected material from ten arts educators, academic researchers and six medical organizations to understand the impact Theatre for Young Audiences (TYA) programs have on adolescent development. This information is separated into two categories, cognitive development, and social development. Cognitive is the “construction of thought processes, including remembering, problem solving, and decision-making” (Cognitive Development, n.d) and social development “refers to how people develop social and emotional skills” (Social Development, n.d.)
The “Great Experiment” project is a research project based on the idea of recreating the debates of the constitutional convention of the United States of America in an immersive virtual environment.

To recreate such a historical moment and afford a platform that allows the user to relive it, the environment and its participants have to be constructed. This digital content creation process is a major component of the project that involves advanced 3-dimensional modeling and texturing. This constitutes general research on entities to be modeled, creating complex 3D models, manipulating vertices of the model, and creating physically-based rendering textures which provide photo-realism. Examples of this generated content are avatars of founding fathers, furniture of Independence Hall, tools, props, among others.

Another primary component of this work is creating an interactive platform using the generated content. This is achieved by utilizing motion capture technology. The work of this project necessitated constructing a motion capture studio integrating a number of state-of-the-art hardware and software tools. This has afforded the ability to track and record the motion of the body, fingers, and facial expressions of actors and use that data to drive the motion of avatars of the founding fathers in the virtual environment.

The combination of these two components results with a live recreation of a historical moment that the user can witness first-hand, with the goal of enhancing learning and education.
Influence of Ethnicity on Pharmacy Residency Match Rates
Dr. Sanaa Belrhiti, Dr. Kayla Joyner, Dr. Mark Johnson
Kendall Kolk

A first year postgraduate residency (PGY1) is highly coveted by many pharmacy school graduates each year. Unfortunately, there is a significant gap between the number of available residencies and applicants, leaving thousands unmatched each year. While some factors have been determined as influencing the likelihood of obtaining a pharmacy residency such as GPA, research involvement, organizational involvement, and leadership, it is unknown whether underrepresented minority (URM) status also influences a candidate’s matching likelihood. The primary objective of this study will be to determine the difference between URM students who entered the match and subsequently matched vs. non-URM students. Other objectives will be to assess if URM students apply for and match for PGY1 residencies at the same rate as non-URM students, to evaluate if URM have similar curricular and extra-curricular experiences that may influence match success, and to determine if foreign-sounding name, visa requirement, foreign degree, and faculty diversity influences match success. This study will be an IRB-approved, retrospective non-interventional study that will include data between the academic years of 2016 and 2021 from two schools of pharmacy: Shenandoah University and Howard University. Primary and secondary endpoints will be presented as descriptive data and statistical analysis will be performed to compare the two groups using a t-test for continuous variables and chi-square test for categorical variables. A logistic regression will be used to analyze the impact of pharmacy school involvement and non-modifiable race and ethnicity-related factors on match success.
Is Pyocin Production Dependent on Genotypic Stress Level?
Monica Werner, Isabella Fegley
Katherine Underwood

Pseudomonas aeruginosa is a Gram-negative opportunistic pathogen that is commonly found in the environment and is the primary bacterial pathogen in cystic fibrosis (CF) patients. Many strains of P. aeruginosa produce an antimicrobial toxin known as pyocin which can kill other, susceptible strains of P. aeruginosa. Recent studies have demonstrated that environmental and CF isolates significantly differ in their production and susceptibility to pyocin; isolates from CF patients do not produce pyocins, or produce lower levels of pyocins than strains found in the environment and are more susceptible to pyocin inhibition. In our current study, we are investigating the hypothesis that CF isolates may need to experience higher levels of stress in order to induce pyocin production.
Is virtual good for Math?
Maria Hoogeveen

With data gathered from 2018 through 2020, We will show the affect of covid on students grades, from there we will look at how students adjust or cope with moving to a hybrid/virtual education platform in the fall of 2020. The adjustment to Virtual learning would have occurred in the spring semester of 2020, so the continued usage of that platform should be something that students have adjusted to and will hopefully show whether students can do well in college math with a virtual learning base. Currently we are only able to look at the data of one schools math program and only have a couple hundred students data to work with so the findings may not be across the board the same for all schools. In the future we would like to look at hybrid synchronous learning environments versus online asynchronous learning environments and which is a better fit for math.
The written word has, historically, been humanity’s greatest method of creating a connection that transcends time. Though culturally we have become less likely to seek the answers to life’s questions through literature, poetry remains a powerful tool for understanding the cyclical nature of time, and the enduring emotions and experiences humankind continues to face. That being said, poetry is often underutilized and overanalyzed, and many adults fail to ever properly connect to poetry because they’re not given the opportunity to discover styles of poetry that resonate with them. I will be using the apprenticeship model of writing poetry—responding to poems written on a variety of themes and topics from a variety of literary schools—to further my own relationship with poetry and literature, to better understand how I belong to a greater tradition of writers, and to develop a greater appreciation for both the universal and niche experiences of life and death, and all that falls under their purview.
Living under the radar: Family engagement perceptions, experiences, and factors among Indigenous Guatemalan Mayan families living in the United States
Manuel De Jesus Gomez Portillo

A great deal of the literature on immigrant family engagement has demonstrated that effective family engagement programs result in students having higher levels of academic achievement; teachers having decreased stress; schools practicing equitable and culturally responsive practices; and enhanced collaborative relationships between schools and families. Although a number of sources, such as immigration records, have shown increased numbers of Indigenous Guatemalan immigrants living in the United States, research focusing solely on the family engagement of Indigenous Guatemalan families living in the United States is extremely limited, as often, Indigenous Guatemalan families are generalized with the Latino population. Through qualitative case studies, six Indigenous Guatemalan families shared their perceptions, experiences, and factors contributing to their family engagement. The findings that emerged from interviews, document analysis, and field notes suggest that participants valued education, had high academic beliefs, had their own definition of family engagement, and unique family practices contributed to their family engagement. Experiences, such as the Guatemalan Civil War, access to formal education, immigration experiences, and relationships with school personnel all impacted the family engagement experiences of participants. Last, culture, lack of recognition of their Mayan identities, languages, time, employment, social networks, school policies, and practices were all factors described by participants. The findings of this study have implications for policy, practice, and future research. Family engagement policies and programs should recognize and include the perceptions, experiences, and factors contributing to the engagement of Indigenous Guatemalan families, as they are unique and different from those of the general Latino population.
Mathematical Applications in Population Models for Fish Abundance Data
Cheyenne Hawkins

Mathematical applications are key components to analyzing population data in ecology and conservation biology. Different models can be applied, depending on the available data that is collected for the studied species. This study uses mathematical applications to analyze National Ecological Observatory Network (NEON) fish data sampled using electrofishing, fill netting, and fyke netting counts from two sites in Virginia from 2016 to 2020 to display the relevance of math in ecology and conservation biology data analysis. A variety of applications, including statistical models and differential equations, were studied during the research to discover the best methods for analyzing the fish population data when abundance, environmental changes, and fish length and weight is known for the specified time period. It was determined that logistic growth models would be the best mathematical application to study the population fluctuations with the data collected. The logistic growth function was further analyzed to determine if carrying capacity (K) and other variables can be predicted when current population size and time is known.
Medical Screening of an Adolescent Male with Idiopathic Foot Drop: A Case Report

Megan Harne, Braden Cook, Sam Johnson, Sandro Minichiello

Megan Harne

Background and Purpose: Lyme disease (LD) is more common among younger males and often presents with widespread musculoskeletal and nervous system impairments, including peripheral neuropathy. Due to physical therapists (PT) knowledge of the musculoskeletal system, atypical presentations, such as LD, must be recognized. This case report describes the medical screening and referral necessary for appropriate treatment of idiopathic foot drop caused by LD.

Case Description: A 13-year-old male was referred to PT for idiopathic foot drop. Subjective reports included foot and ankle paresthesia, limited range of motion, and impaired ability to walk. Discussion revealed symptom onset five days after flu-like symptoms. Based on the amount of functional loss without a proportionate mechanism of injury, the high incidence of tick-borne illnesses in the mid-Atlantic region and the subjective history, a non-musculoskeletal origin was suspected.

Outcomes: A referral back to his pediatrician resulted in tests that confirmed LD. He was prescribed Doxycycline and referred back to PT. Following nine PT treatment sessions combined with pharmacological treatment, the patient had fully restored ankle range of motion, strength, sensation, and returned to his prior level of function.

Discussion: This case highlights the importance of medical screening to timely identify impairments from LD. The medical screening and referral enabled proper diagnosis leading to medical and rehabilitation management. Clinicians should include LD as a differential diagnosis when an atypical neuromusculoskeletal presentation is seen in regions known for higher incidence of tick-borne diseases.
The Mental Health of College Students in an Academic and Conservatory setting

Allison Farrall

This study aims to analyze the mental health of college students within a conservatory and academic setting. The mental health of college students is essential because it affects students' behavior, the ability to do work, and overall well-being. Poor mental health hinders students' academic success. Untreated mental health issues may lead to lower GPAs, and discontinuous enrollment. An institution's investment in student mental health is important for the social, environmental, and economic well-being of students, their campuses, and broader society. Investing time and resources in student mental health can result in academic and economic benefits for an institution and society. Mental health will be analyzed through different academic settings and majors. Surveys will be used to analyze the mental health of college students. Young adulthood, specifically the college years, is a time of growth, learning, exploration, and students' time to start building their lives. Unfortunately, the transition into adulthood is a time of significant change and intense challenge to college students' emotional health and well-being. Data indicates that three out of five students experienced overwhelming anxiety, and two out of five students were too depressed to function. Many students are struggling with mental health concerns, such as anxiety and depression. Only a small percentage of these students seek services at their counseling center. Instead, they continue to struggle, which can have a substantial impact on their academic performance. This disconnect requires campuses to rethink their approach to supporting students with mental health concerns.
A Modified Approach of Storing Delaunay Triangulation
Victoria Krist

Delaunay Triangulation has been used previously in fingerprinting studies as a paired approach to compare template and input data. This method of triangulation has been shown to be very efficient as opposed to other methods since total evaluation of spatial characteristics is done with only similar triangles yielded from Delaunay. In this talk, the Delaunay Triangulation of fingerprint and constellation data is used to model the efficiency of a modified yield of triangulations in order to shorten the size of stored data for comparison. Components of the modified triangulation include a threshold based on the weighted average of input nodes and edge relationships between vital nodes. Effectiveness has been tested using constellation data with known stars.
Performance-based Risk-sharing Arrangements (Pbrsa): Is It A Solution To Increase Bang For The Buck For Pharmaceutical Reimbursement Strategy For Our Nation And Around The World?
Andy Kim

Due to risks involved in not achieving desired health outcomes for the dollar spent on drugs, healthcare decision-makers, including payers, providers, drug manufacturers, and patients, need a mechanism to share this financial risk among the involved parties. Performance-based risk-sharing arrangements (PBRSAs) are agreements that can potentially reduce the ‘drug lag’ in which patients wait for an unknown amount of time until a particular drug is covered under their health plan. In addition, PBRSAs can mitigate the risk of investing heavily in drugs that are ineffective or do not deliver good value or “bang for the buck”. This review describes and evaluates PBRSAs for drugs in the US and juxtaposes to Germany that adopted PBRSAs in their healthcare model. There are different types of outcomes-based health schemes, namely conditional coverage, which can be further broken down into coverage with evidence development (CED), conditional treatment continuation (CTC), and performance-linked reimbursement, which includes outcomes guarantees. Both CED and CTC are ‘conditional’ on the evidence of the new drug’s effectiveness, offering discount only if the drug delivers desirable results. The outcomes guarantee scheme offers a discount or even a full refund if the outcome is less than expected, forcing the drug to meet the expected effectiveness. The US can follow the German reference pricing model in which the assessment of new drugs is centralized and done collectively by representatives from a group of health care decision-makers. PBRSA is a clever mechanism to cope with uncertainty if drug price is scaled appropriately based on value.
School of Pharmacy
Pharmacy
Graduate

Prevalence of Serious Adverse Events Including Death in Patients with Chronic Illnesses Who Received Pfizer or Moderna Vaccines.
Samhitha Dhandamudy, Saja Al-Adhami
Saja Al-Adhami

Introduction: Studies have shown correlation in patients with severe SARS-CoV-2 and chronic illnesses (Hypertension, Diabetes, Heart/Respiratory Conditions). Secondary database analysis of CDC Vaccine Adverse Events Reporting System (VAERS) was conducted to explore patient-reported outcomes for serious adverse events (ADE) with chronic illnesses (CI) and received Pfizer or Moderna vaccines. CDC defines ADE as any reaction that results in “death, a life-threatening adverse experience, hospitalization or prolongation of hospitalization, a persistent or significant disability, or birth defects.”
Objectives: To review the prevalence and severity of reported ADE in patients with CI that received either vaccine.
Methods: VAERS data was extracted for the study patients who reported ADE with CI. Patients were identified by their CI, ADE severity vaccine type, age, gender, and the reported symptoms.
Results: Total of 130 patients with CI (790 ADEs) were reported for both vaccines. The study patients ranged from 30-65+ years; with 52% males and 48% females. The prevalence of ADE was highest for patients 65+ years (n=102 (78%)).
34% (n=44) of the study patients reported death, with 40% males and 27% females. Out of 44 reported deaths, 48% received Moderna (males=16/females=5); and 52% got Pfizer (males=11/females=12).
Conclusion: 95% of patients with CI reported to VAERS after their COVID vaccination. Due to their CI, careful monitoring of ADE after vaccinations is beneficial. More data analysis is needed to look into the correlation between specific CI and their impact on the severity of the post-COVID vaccine ADE.
Background: Equitable access to nutrition resources and education is lacking across the U.S., creating food insecurity for children. Significant factors for food insecurity are low socioeconomic statuses of families and insufficient infrastructure in rural locations.

Aims: The proposed program, Grab’n Go, will increase access to food and increase education on meal preparation for improved nutrition over the lifespan.

Theoretical Framework: Social Cognitive Theory (SCT) describes how personal, environmental, and behavioral factors all contribute to a behavioral change. This program will target changing the environment and access for participants, which will lead to changing individual behavioral habits. We will target the behavioral capability construct of SCT by having an educational aspect to this program that will provide the children with the knowledge and skills needed to make healthy decisions.

Intervention Design: Project Grab N’ Go will target elementary students within the Winchester community by developing and implementing a volunteer boxed food program, an in-school nutrition education curriculum, and a cooking course for guardians. Survey evaluations will be conducted to assess the program’s ongoing success in varying intervals specific to each component during the year of the study. Project collaborators will continue to provide volunteer support to maintain the Grab N’ Go box system and ease access barriers to nutrition-rich foods.

Conclusion: The Project Grab N’ Go design model will be replicable in elementary schools nationwide through increased access to nutritious goods, combined with nutritional education, and online instructional videos that create communities with sufficient self-efficacy to maintain behavioral changes.
Raising the Barre: Analysis of Arts Marketing Strategies by Performing Arts Education Nonprofits that Focus on Dance
Dot Kelly

Creative organizations that focus on performing arts education face financial shortfalls such as loss of grant funding and low participation. This presentation will specifically focus on American dance education organizations that are nonprofits. In an effort to remain relevant and sustainable, these organizations must rely on resourceful revenue streams while also focusing on effective marketing strategies. This presentation will examine leadership and management strategies these organizations should take and explore past research that analyzes their effectiveness. Sources identified are obtained from scholarly journals, current empirical data from the National Endowment for the Arts, peer-reviewed online articles, Shenandoah University library’s databases, and books. The goal of this analysis is to better inform the reader of a topic while providing research and examples.
SARS-COV-2 (Covid-19) has fundamentally changed the way many people go about their daily lives. While many people have been able to return to school or work, athletics posed a difficult challenge, in that face masks and social distancing are often unfeasible during play. This has further complicated the return-to-play of sports. On top of this, Covid-19 has led to increased concern for mental health of all individuals (Pfefferbaum & North, 2020). These two factors, when in tandem, present a unique concern to collegiate athletes. However, resilience may help mitigate those mental health concerns by offering a protective factor to help prevent adverse mental health outcomes. Therefore, the purpose of the current study was to determine the relationship between mental well-being (flourishing) and resilience. The respondents were NCAA Division III athletes from a small, private university (N=91, Nwomen=54), who completed an anonymous, cross-sectional, online questionnaire consisting of three scales about covid specific worries, resilience, and flourishing. Responses were analyzed using hierarchical multiple regression. The data suggests that there is a significant, positive relationship between resilience and flourishing ($\beta=.44$, $t=3.99$, $p=<.001$). These results show that as resilience increases, so does mental well-being and, given the well documented relationship between resilience and mental health, a possible decrease in risk for adverse mental health outcomes. Furthermore, by engaging athletes in a resilience training protocol may increase, adding to the positive mental health outcomes.
As an English 284 honors student in the spring of 2020, I had already begun working on a VR script project for the course’s visual component assignment. But when COVID hit, it upended our plans and I found myself creating a brisk and sassy film adaptation of William Faulkner’s classic tale of grief, denial, and necrophilia, “A Rose for Emily,” as an assignment replacement armed with energy, curiosity, and exactly zero dollars, I moved forward with my plans.

This original film adaptation project explores William Faulkner’s gruesome, Southern Gothic tale of Miss Emily Grierson, the story’s main character. My film adaptation explores Emily’s relationship with her apparent suitor, Homer Barron, especially in relation to her unresolved grief she has for her dead father. My film also considers Emily’s Southern pride and her lack of emotional resilience.

My film is an independent project in which I created the script, assembled and coached the actors, scouted and retained locations, acquired costumes and props; and filmed, scored, and edited the video and audio aspects. Because this is a “short film” project, I used symbols, such as “evolving” wigs and other aspects to represent the passing of time. The main goal of my film is to compress the story of Emily Grierson into a concise yet thought-provoking review of how her stubbornness alienated her, and ultimately brought her to horrific life choices.

This is my first film project, and I am eager to create more films and to develop my storytelling skills further.
"A Rose for Emily" and "Chrysanthemums": Gender Experience in the Twentieth Century
Callista Mayberry

William Faulkner’s “A Rose for Emily” and John Steinbeck’s “Chrysanthemums” focus on similar themes and symbols to tell stories of American women in the twentieth century. Because of their unique personalities, these women struggle to adhere to social expectations for their gender during the time period.

Many peer-reviewed articles apply psychoanalytic and feminist theories to Emily and Elisa, the main characters of these stories. That is, much research already considers ideas of sexual oppression and gender; however, few articles consider these two American classics together. The protagonists are driven by repressions that transform them both physically and mentally.

My research essay explores symbols, themes, and character motivations as well as specific correspondences between these literary works. The similarities of Emily's and Elisa's lives reveal important aspects of gender experience in isolated American communities during the last century.
Supporting Caregivers of Children during the COVID-19 Pandemic
Janielle Colon, Sara Green, Ashley Mathieu, Apyll Siazon, Taylor Winslow
Hailey Foley

The Covid-19 pandemic has brought tremendous changes to society. The public health response has been drastic with many businesses, schools, and programs shutting their doors and offering virtual alternatives. The pandemic has necessitated several changes to families’ daily routines, occupations, and habits. The impacts of the Covid-19 Pandemic may lead to significant changes in mental health and quality of life for caregivers, to include parents or any primary caretaker of school-age children. Families of children with and without disabilities may need more support services due to the changes brought about by the pandemic. There are limited studies that investigated the mental health and wellness of caregivers and ways they may need support when caring for their children during the Covid-19 pandemic. The purpose of this study is to determine what the mental health status is of caregivers and if there are differences among caregivers for children with disabilities and those with children who do not have a disability regarding levels of depression, anxiety and stress. The study also seeks to understand if caregivers utilize provided support resources to address their mental health, well-being, routines, and occupations and to what extent do the resources impact their degrees of depression, anxiety, and stress.
This study is an inquiry into how school leaders influence the integration of sustainable practices within their schools. This multiple case study explores and describes how five Green Ribbon Schools integrated sustainability literacy in their curriculum, modeled best management practices within their school facilities, and created healthy and sustainable communities. In addition, this study focused on how school leaders promoted and supported the integration of sustainability concepts into a standards-based curriculum.
Occupational Therapy services can be provided both in-person and via telehealth. Due to COVID-19, there has been a rise in telehealth services. The focus of this study is on occupational therapy practitioners (OTs) and their perceptions of the delivery of telehealth services due to the COVID-19 pandemic. There is a lack of information on how prepared OTs feel to provide telehealth services, the training they have or have not received for telehealth services, and an overall shortage of information on this topic. This study included semi-structured interviews with 5 OT participants with varying years of practice and pediatric settings. The interviews yielded results of both positives and negatives of telehealth services. Due to a small sample size, more research on this topic needs.
Usage of Photo Altering Apps & Self-Esteem, Self-Perception, and Body Comparison
Sophia Loukopoulos

The relationship between facial or body manipulations during photo altering and an individual’s self-esteem, self-perception, and likeliness to compare one’s body has been a topic of conversation since the use of social media went mainstream. With constant advancements in technology and increasing exposure of social media in individuals’ lives, many are unaware of the effects that idealized images have on them. Exposure to face-altering filters may cause a morphed perception of one’s self, ultimately creating problems with the individual’s self-esteem and body image. This study will aim to find the relationship between people’s tendencies to alter their face or body in images used on social media and levels of self-esteem, self-perception, and likeliness to compare their body. We predicted increased use of photo alteration would correlate with lower levels of appearance and social self-esteem and self-perception, and higher levels of body comparison. Approximately 200 participants from Amazon Mechanical Turk completed a survey evaluating their use of social media and photo altering services, self-esteem, fear of negative appearance, and likeliness of body comparison. Instruments included the Social Media Engagement Questionnaire, Heatherton Self-Esteem Scale, the Fear of Negative Appearance Evaluation Scale, and the Body Comparison Scale. Results showed that an increase in the use of photo alteration resulted in increased levels of appearance self-esteem and negative self-perception, decreased levels of social self-esteem, and increased likeness to compare one’s body. Finding should be further investigated to compare the effect specifically across varying genders.
Using Baseball Sabermetrics to Predict Goal Scoring in Hockey
Andrew Kappel

This presentation will try to apply Sabermetrics to predict goal scoring in hockey. I am trying to take the statistics and equations that are used in analyzing baseball and transforming them into data that will make sense for hockey. From there, I will try to make my own equation for goal scoring in hockey, and make predictions for goal scoring in hockey. I am also using linear regression models to make predictions comparing goals scored and wins, goals allowed and wins, goals scored and playoffs, goals allowed and playoffs, etc. I will then run a quick accuracy test based off prior seasons numbers. This will allow me to present how many goals a team will need to score in order to get a certain number of points, and then how many points they will need to make the playoffs. To take this project a step further I am going to analyze the top 10 forwards ranked in hockey every year going back at least 10 years. They will be classified as either Sniper, Playmaker, or Two-Way. I will find a pattern and try to discover which type of player will be used the most in the near future to help teams be better. After that I will look into where on the ice goals are scored and try to analyze where players should go on the ice to optimize scoring as well as what type of shot they should be taking.
Using Category Theory to Study Logic Operations and Other Properties of Stochastic Matrices Through Convex Sets
Caleb Allen

The category of stochastic matrices is a poor environment for logical operations. Other categories, such as the category of convex sets, have a lot more structure which allows for said operations. We will define and examine the category of convex sets; work on finding and studying functors between the categories of stochastic matrices and convex sets, as well as the properties and viability of these functors; and work to find what logical operations
The Way Forward: A Look at How Social Media Can Help Navigate the Performing Arts Sector Through the Crisis of COVID-19
Kaila Friedman

The intent of this paper is to highlight previous literature that notes a swing in marketing strategies toward social media and how this new trend impacts performing arts organizations in an attempt to analyze where the performing arts industry is headed in the aftermath of the COVID-19 global pandemic. The performing arts industry has taken a severe blow with the worldwide online transition, as it is meant for face-to-face, human-to-human, authentic connection. The idea of this paper is to explore how social media could propel the performing arts industry past the deteriorating conditions that the Coronavirus has and continues to inflict.
We Play Together: A Collaboration Between Music & ESports
James Hardwick

We Play Together: A Collaboration between Music and ESports is a transdisciplinary research project focused on the similarities in the practice, pedagogy, and performance of music and ESports.

Transdisciplinary study involves an expectation of diversity to inform and advance innovation in research and learning. This project seeks to accomplish this in three ways. First, the We Play Together facilitates the collaboration and study of performance and pedagogical practices beneficial to both music and esports. Second, it showcases Shenandoah’s commitment to ingenuity, diversity, and transformative learning in the 21st century. Finally, it serves as an example of interdisciplinary synthesis using cutting-edge technological methods for discourse and education.

The project features a Shenandoah Conservatory student music performance followed by an ESports student game performance. They will be recorded by students and faculty of the Music Production and Recording Technology program. Scholars from Shenandoah’s Division of Athletic Training and Performing Arts Medicine, ESports, and Music departments will provide commentary during the performances. The project will be live streamed globally via YouTube, Twitch, and Facebook. Audiences will be invited to interact via Twitch chat and Facebook comments. A live, moderated discussion with the artists, gamers, and collaborators will follow the performances.

The We Play Together project presents Shenandoah students, faculty, and the global academic community an innovative approach to study, highlighting the future of collaborative and diversified research and learning in the 21st century.
Social media has made news of current events much more accessible to people around the world. However, this phenomenon has resulted in a bevy of “Fake News”: falsified or misleading stories. The spread of extreme misinformation has created a unique problem for the digital age. To help combat this threat, I investigated different ways of flagging false Tweets. 210 participants recruited from Amazon Mechanical Turk viewed a Tweet in one of four conditions: unflagged, flagged with a comment, flagged with an inconspicuous warning, or flagged with a translucent overlay. After participants viewed their randomly assigned Tweet, they answered questions related to how believable they viewed the information and how likely they were to conduct further research. Additionally, I analyzed the Big Five personality traits and political ideologies of my participants to see if these variables play a role in how likely one is to believe a Tweet without doing further research. While I observed no significant relationship between any of my conditions and likelihood of further research, the conditions had an effect on the perception of truthfulness. Participants were more likely to view information with skepticism if they saw either a Tweet flagged with a comment or a Tweet flagged with an overlay. There was no significant difference in the perceived truthfulness between Tweets flagged inconspicuously or not flagged at all. This reveals that Twitter should implement an overlay or comment form of flagging in order to keep its user base from believing false information.

Keywords: fake news, Twitter, personality, internet, social media, survey, big 5
What’s your Snapscore? Correlations to Personality, Narcissism, and Anxiety
Samantha Chambers

Snapchat is a popular social media network, but considerably less researched than other more established platforms. The purpose of this study was to examine how the amount of Snapchat use is correlated to personality, narcissism, and anxiety. We hypothesized there would be positive correlations between Snapchat usage and narcissism, extroversion, and anxiety. Using data from a convenience sample of participants recruited from Amazon Mechanical Turk, Pearson’s correlations and t-test analysis provided insight on these connections. There were significant positive correlations between Snapchat usage and narcissism, anxiety, and extraversion, but t-test analyses revealed that the users with low Snapscores had higher narcissism, anxiety, and extraversion.
**WISHES: An Inclusivity-Focused Sexual Health Education Program**
Sarah Benson, Lindsey Davis, Allison Delawder
Samantha Benton

**Background:**
Experts estimate that 4 in 10 high school students have engaged in sexual intercourse, and of those sexually active students, approximately 46% reported not using a condom during their last intercourse. These adolescents account for almost half of incident sexually transmitted infections and approximately 26% of the $16 billion spent on direct medical costs associated with STIs in the United States.

**Aims:**
The WISHES Program will increase knowledge and access to resources regarding sexual and reproductive health for adolescents of all gender and sexual identities.

**Theoretical Framework:**
The Health Belief Model will be utilized to motivate students to consider their susceptibility to negative health outcomes associated with risky sexual behaviors. Cues to action, perceived barriers, and likelihood of taking recommended preventive health action are three constructs of the HBM that are relevant to this program's design, delivery, and evaluation.

**Intervention Design:**
WISHES aims to implement sexual education modules within high school curricula in Winchester, VA to reach students and provide them with the necessary resources to support their development. Additional resources will include licensed professionals, barrier methods, and brochures that are readily available at all times in the schools’ guidance and health offices.

**Conclusion:**
Comprehensive sexual education is becoming increasingly relevant in mitigating the risks and various costs, both monetary and societal, associated with risky sexual behaviors and misinformation. Empowering young people to feel comfortable expressing their truest selves in a safe and educated manner within WISHES can provide the necessary support for healthier lifestyle choices in the future.
Zebrafish (Danio rerio), are a small species of freshwater fish known for quick generation times and the ability to heal wounded structures throughout development. Utilizing their regenerative capabilities, these fish are primary subjects to elucidate the underlying mechanisms for scar-free wound healing. Micro RNAs are a class of non-coding RNAs, which function to alter gene expression by binding to coding sequences of mRNA. Functionally, a miRNA binds to the 3’ untranslated region of the mRNA to reduce expression. A miRNA sequencing assay demonstrated an increase in expression miR-10a during wound regeneration in D. rerio. Using a picospritzer microinjector equipped with a glass capillary needle, freshly collected fertilized embryos were injected at the one-cell stage with synthetic oligonucleotide strands known as morpholinos (MOs). For the following study, a specific MO which selectively targeted miR-10a was used. Our study demonstrates a preliminary role for miR-10a in the tail regeneration of D. rerio. Through measurements of both tail length and area, a downregulation of miR-10a decreases the subsequent regenerative capabilities of D. rerio. These novel findings open the door to a cascade of future studies which provide details on the ordinary processes through which miR-10a functions to assist in wound regeneration.