

Academic Showcase 2019

Student and Faculty Poster Sessions

Spagnuolo Hall
9:30-11:00 a.m.

Student Posters:

A Link in Senses: The Perception of Taste with an Absence of Sight

Savanna LeBlanc, Julia Smith

Abstract:

Background: The brain is a flexible organ that has the ability to change at any time in order to make information easier to process. Within seconds, the brain can identify what taste, smell, image, sound or feeling is occurring due to communication through semaphorins.

Aim: Our goal for this study was to see whether the brain would be “tricked” into mistaking one sense for another in a way that does not naturally occur.

Method: We conducted a study using a variety of skittles of which participants ate blindly and then had to report back to us what flavor they believed the skittle was. There assumption was based on the color we told them the skittle was (whether the color we told them was the correct or incorrect color) and based on the taste their brain was communicating to them that it was.

Results: In both parts of our study we saw significant data outcomes from the analysis. When participants were told the correct correlating color for flavor the rate of correct interpretation was greater than 47% whereas when the participants were told the incorrect color for flavor the rate of correct interpretation was only 23%. In a questionnaire we had each individual complete after they were tested showed that 100% of our participates believe there is some type of correlation between color and taste. The data analysis showed significant numbers for both trails as well: correct color group 0.8, incorrect color group 0.07. Along with these results we also compared a “baseline” flavor to see the extent of our research, and its accuracy.

Conclusion: In our study testing the link between taste and sight, the outcomes after participants blindly ate an array of flavored skittles showed significant results that the brain can in fact be tricked into relying on another sense that would not normally occur unless another sense is taken away.

Key Words: Flavor, Interpretation, Link, Sense, Sight, Skittle, Taste, Taste Buds

Amount of Sleep and its Effect on Cognitive Performance in College Students

Marisa Lamb, Jaelyn Blair, Hunter Francouer, Megan Holland

Abstract:

The purpose of this research is to see if there is a correlation between a student's tests score and the amount of hours they slept the night before. Our thinking is that sleep deprivation will cause brain activity to decrease, affecting the cognitive function in a student, and in return their test scores will be lower than those of students who sleep enough the night before. Some studies have found that cognitive function is not affected (“Effects of sleep deprivation on cognitive and physical performance

in university students conducted by Yusuf Patrick”) and there are other studies that did find cognitive function to be affected by sleep deprivation (“Effect of Sleep Pattern on Academic Performance of Medical Students (A multi-center study)” conducted by Homaira Iqbal Khan M. Phil and “The Prevalence of Sleep Disorders in College Students: Impact on Academic Performance” conducted by Jane F. Gaultney). General and Organic chemistry are being used to collect data for this study. These courses were chosen in order to compare an upper and lower level course. Throughout the spring semester students in General and Organic Chemistry will take two exams. Along with each exam the participants will be asked to answer a survey, stapled to the back of their test, asking questions about their sleep from the prior night. Answers from the survey and test scores for each corresponding participant will be recorded and compared for the two tests over the semester. To ensure subject participation is confidential, instructors will be asked to assign a number to each participant. Researchers will receive student scores and survey results with the corresponding number. Researchers will not have the ability to match student number and name together as subject contribution to the study will be held confidential by their professor. Professors will aid researchers by assigning a corresponding number to each participant for identification and will withhold student names from the researchers for sake of confidentiality. We expect to see higher test scores correlate with more amounts of sleep amongst both classes.

An Assessment of DNA Testing for Native American Ancestry

Isabella Niemi

Abstract:

This poster illustrates aspects of a paper that explores the usefulness of genetic testing when it comes to identifying Native American DNA. Scientific studies and other published sources offered varying information about the validity of DNA tests for Native ancestry. Rasmussen et al. (2015) demonstrated archaeological benefit through their examination of the Kennewick Man, and showed that further ancestral identification can be found by sequencing additional Native American groups. This point is reinforced by Shelton and Marks (n.d.), who also explain why this can generate false positive and false negative test results. Besides a deficient genetic database, federal records of Native American ancestors can be unreliable, and blood quantum values can differ from genetic estimates (Bader & Malhi, 2015). Additionally, genetic testing is beginning to be used for admitting individuals into tribes, which can cause issues for those already admitted or attempting to join (Geddes, 2011). Ultimately, the importance of DNA testing for Native Americans may have to be determined on a tribe-by-tribe basis, with each tribe determining for themselves what value, if any, DNA testing will have for their people.

An Exploration of Rape Culture at the State Level

Emma Gelinas, Kaitlyn Rooney, Felicia Walalis

Abstract:

Rape culture describes the social, cultural, and structural practices that tolerate and trivialize sexual assault, increasing the occurrence of sexual assault (see Burt, 1980; Gavey, 2005). The development of rape culture is typically attributed to gender inequality and homogenous male environments (O’Toole, 2007; Temkin, 2002). While the United States is often labeled a rape culture, characteristics of what constitutes rape culture are largely studied within specific sub-groups (e.g., fraternities). Across two studies we argue that the elements comprising rape culture can, and should, be studied at a broader level to fully understand the systemic nature of rape culture in the U.S. In study 1, we explore rape culture at the state-level, predicting that homogeneously male and less egalitarian states will have the greatest number of rapes. In study 2, we experimentally manipulate male and female participants’ perceptions of gender equality at the state-level and assess their feelings of (1) acceptance for sexual

violence, and (2) feelings of safety in reporting sexual violence. The results from these two studies indicate preliminary support for a precarious manhood approach to sexual violence; when men feel threatened by female equality, they may sexually aggress as a way to reassert their masculinity.

Analyzing and Annotating Wipeout Using Bioinformatics

Cassidy Morgan

Abstract:

Bacteriophages (viruses which infect bacteria) are genetically diverse due to their ability to transduce bacterial DNA. Genomic sequencing and gene annotation have been used to predict the location, coding regions and putative function of various genes. In this study, a *Streptomyces* bacteriophage was annotated and analyzed using various bioinformatics programs. Programs such as Starterator, Glimmer, and DNA Master in combination can help determine start site predictions of a gene. DNA Master can also be used in order to help find the genomic features of each gene and what they could be responsible for. Wipeout, a *Streptomyces griseus* virus, is a member of the BE2 sub cluster. Wipeout's genome is large, at 132,935 base pairs. Analyses included manual curation of the complete genomes, functional annotation, comparative genomics, and phylogeny.

Archaeological Investigation at Site 27HB0492, Merrimack, New Hampshire

Benjamin Heaney, Michael Crossman, Roslyn Hodgkins, Samantha Sweetman

Abstract:

Site 27HB0492 is a multi-component pre-Contact Native American site on the banks of the Souhegan River in Merrimack, New Hampshire. The site was discovered in 2017 during an archaeological study required by the National Historic Preservation Act prior to the construction of a housing development for senior citizens. Additional fieldwork at the site was conducted by students in the Franklin Pierce University AN424 Advanced Archaeology Laboratory course in the fall of 2018. This fieldwork was designed to gather additional data to define site boundaries, identify the number, age, and nature of each occupation, and to reconstruct Native American site selection and land use practices. Artifacts recovered from the site include stone tools, ceramics, fragments of calcined animal bone, and the remains of cooking hearths. This poster presents a summary of the results of the excavation, an assessment of the site's significance, and a consideration of the site's role in the larger cultural geography of Native American societies.

Archaeology at Achill Island, Ireland

Samantha Sweetman

Abstract:

This poster will illustrate the Achill Archaeological Field School on Achill Island, Caraun Point, Ireland in the summer of 2018. Archaeologists worked for six weeks and during that time the field school excavated a house from the early 1700s and a shell midden. Archaeologists used a variety of methods including photogrammetry and drawing before the excavation started to get a better understanding of what the site looked like at the time of occupation. While excavating they were able to find a wine bottle that was later reconstructed back into a full bottle, as well as quern stone and more than 200 pieces of animal bone. After excavation was finished, the findings were taken into the lab and analyzed to try and interpret human life at the site. The field methodology and the results will be summarized in this poster and the excavation at the site will continue during the summer of 2019.

Are Multimedia Tools the Solution for Better Informed Consent?

Leah Varney

Abstract:

Insufficiency of current informed consent processes necessitates examination of methods to improve this process both for clinical treatment and medical research. This review seeks to examine the effectiveness of using multimedia tools to improve informed consent. Multiple databases such as Medline Complete, PubMed, and Google Scholar were searched and the literature was analyzed and synthesized. A great deal of evidence was found to support the idea that multimedia tools can improve informed consent in clinical settings when compared to standard methods. However, some research also suggests that other modifications to current informed consent practice may be similarly or more effective than multimedia tools. In research settings, multimedia tools were found to not significantly improve understanding of concepts related to the research process, including participant rights. This review suggests that multimedia tools are one possible solution for better informed consent, particularly in clinical settings. However, further research should be done to determine which different methods of informed consent, or what combination thereof, would be most beneficial in both clinical treatment and medical research situations.

Assessing the Role of Precarious Manhood in Rape Culture

Emma Gelinas, Kaitlyn Rooney & Felicia Walalis

Abstract:

Cultures of rape are typically described as settings that are both male-dominated and male-governed (Sanday, 1981). While theoretically discussed as a global phenomenon, rape cultures are typically studied in subgroups (e.g., fraternities, athletics). Importantly, rape culture is also believed to occur in homogenous male environments in which men feel the need to assert their masculinity (O'Toole, 1994). This masculinity assertion parallels social psychological research on precarious manhood, in which men who feel like their masculinity is threatened tend to physically aggress or engage in risky behaviors to reassert their dominance (see Vandello & Bosson, 2012, for a review). While sexual aggression has not been explicitly explored in the precarious manhood paradigm, sexual assault is a crime of power assertion (Burt, 1980), and thus, a threatened male may sexually aggress to demonstrate their manhood. Taken together, the current work had two primary goals: 1) to establish the effects of rape culture at a broader (state) level, and 2) to examine how societal masculinity threats via efforts toward gender equality may increase male aggression via sexual aggression toward women. While data collection is on-going, our work provides preliminary evidence for the role of precarious manhood within rape culture.

Balance Position and its Effects on Balance and Coordination on College Students

Carissa Gordon, Brittney Ketchum, Annalea Wohlgemuth

Abstract:

Backpacks are an essential tool for college students to transport textbooks and class supplies. The heavy weight of backpacks has become concerning to the health of students and studies that have been conducted confirm a specific maximum backpack weight that prevents harm to students. There is no published research on the possible impacted balance that backpacks may inflict on students, and if high or low positions have an effect. It was hypothesized that backpacks would affect balance and low backpack adjustments would have a larger impact on balance than high adjustment. Balance was tested on college students using the Modified Bass Test. The results concluded that wearing a backpack poorly affected balance compared to no backpack, but there was no significant difference between high and low backpack adjustment.

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Bela Blake, Seafaring Merchant from Rindge, New Hampshire

Abigail Purches

Abstract:

On April 12, 1829, Bela Blake, a resident of Rindge, New Hampshire, died at the age of thirty-nine on his own ship on his way home from the Philippines. Blake is memorialized with an elaborate cenotaph at the Meeting House cemetery in Rindge, New Hampshire. The cause of Blake's death and the exact location where he died is not known. Blake started his journey overseas in 1816, embarking as a clerk on a merchant ship bound for the Western coast of Mexico. On his voyage, Blake faced imprisonment by the Mexican government and cruel suffering at the hands of the Spanish. Blake was imprisoned until December 14, 1820 after which he quickly took an opportunity to aboard another merchant vessel bound for Manilla in the Philippines Islands. The research will provide a summary of his life, looking at how a man from Rindge came to be an international merchant seafarer.

Caffeine and Cognition: Determining if it Enhances or Declines with Caffeine from Coffee, Tea, Red Bull

Leila Jabbour, Anthony Guida, Calia Joslyn, Casey Wayrynen

Abstract:

Background: When it comes to caffeine, it is a highly used substance being consumed by 87% of adults daily. There have been studies supporting that caffeine does in fact improve a person's alertness, reaction times, and alertness along with reducing the decline in cognition. While another study found that a small amount between 2 to 4 mg of caffeine impaired women's cognition, then a study off of that found that consuming 100 mg of caffeine is helpful with cognition. Since there has been mixed results when it comes to cognition enhancement or decline, further research is needed.

Question: The aim of this study is to test if caffeine consumption has an impact on cognition in ways that will cause a decline in cognition and whether or not the amount of caffeine contributes.

Hypothesis: The substance with the highest caffeine content, red bull, will cause a decline in cognition after consumption because of the effects of increased heart rate and restlessness that it can cause and the other substances it contains while the substance with the moderate amount of caffeine, coffee, will cause enhancement because there it is a purer substance without additives like in energy drinks.

Methods: With a total of 10-15 participants, each participant took part in three meetings that were no longer than an hour and a half. During each meeting the participant drank 3 ounces of water, waited 10 minutes, and then completed a timed word search. After this they then drank 3 ounces of the corresponding caffeinated drink, waited 40 minutes so that the body could fully absorb the caffeine, and then completed a timed word search. The first meeting included the consumption of water and

black coffee, the second included water and black tea consumption, and the final meeting included the consumption of water and red bull. After consuming each substance, we timed how long it takes to complete the word search and use that to assess cognition. Once completing each meeting, we then averaged out the times after drinking water and compared that to each time after drinking the caffeinated drink. Results: The results are pending being that the study is still being carried out.

Cardiovascular and Respiratory Research Laboratory

Devin Neary

Abstract:

The goal of our research is to conduct exercise tests on college female soccer players that simulate a game-like situation and observe physiological parameters for these athletes. This study will allow us to gain knowledge about their physical fitness and ability during their training season (Volume Oxygen, Volume Carbon Dioxide, Respiratory Exchange Ratio, Heart Rate, Blood Pressure, Total Time Exhaustion, recovery); this is an observational study and only the physiologic specifics above will be recorded. The purpose of this study is to establish internal and external validity for the protocol to prepare to test the effects of dietary intervention on soccer performance in future studies. A future study will work on seeing how nutrition education affects players' performance.

Case study of a 19-year-old female who experienced nerve, cervical spine and muscle damage after a car accident one year ago

Kiera Duggan, Alise Friel, Molly Jones

Abstract:

It is well known that injuries to the spine are extremely dangerous, especially the cervical spine due its numerous functions related to the skeletal, nervous and muscular systems of the body. Cervical spine damage can result in complete or partial paralysis, the inability to breathe, chronic pain in the neck, shoulder and arms, etc. As a result, one of the first steps an EMT takes on a call for an individual with suspected trauma is cervical spine stabilization. With all these possible injuries in mind, the road to recovery for a patient who has experienced cervical spine damage is not easy. In this case study, a 19-year-old female is examined two years post car accident that injured her C5 and C6 vertebrae. The injuries included a 2 mm anterolisthesis of the C5 and C6 vertebrae, a slight grade 1 anterior spondylolisthesis of the C5 and C6, C6 left articular pillar fracture, fracture through the left C6 transverse process and a fracture line through the superior and inferior C6 facets. Her past to current treatment plan includes medications, physical therapy, acupuncture, massage therapy, chiropractic therapy, and a possible fusing surgery in the next 10 to 15 years due to arthritis found at the site of the injury. Despite all these interventions there is still approximately 3 mm anterior subluxation in the C5 and C6, narrowing of the mid left neural foramen at the C5-C6 level, and deformity of the left lamina.

Child Abuse and Neglect Contribute to the Development of Personality Disorders

Krista Herz

Abstract:

Child abuse and neglect affects about three million children annually. Child abuse can be defined as physical maltreatment or sexual molestation of children, and child neglect can be defined as the failure to provide essential age appropriate care. Vulnerability to victimization peaks between ages nine through twelve but regresses during later adolescent years. The impact on children who suffer abuse and neglect is evident in behavioral, cognitive and even emotional development. This review examines the effects of child abuse and neglect on child development. The result of maltreatment is extensive in

that there is an increased likelihood of impaired development and serious long-term consequences. There is significant evidence that supports the differential relationships amongst childhood trauma and personality disorders. The study of co-occurring trauma suggests there are neurological pathways in the hypothalamic-pituitary-adrenal axis dysfunction that may link early adverse experiences with the development of mood and anxiety disorders later in life.

Chronic Myeloid Leukemia

Antonio Rua

Abstract:

The central question was to see if there were any forms of cancer that are currently fully treatable. The purpose was to, if they existed, research them deeper to further inform the public on up to date cancer research. Medical journals, official websites, and research articles were searched to find the most up-to-date information on the diagnosis and treatment of one of the most treatable forms of cancer, Chronic Myeloid Leukemia (CML). The background of the disease, its genetic origins, and phenotypic symptoms are explained. CML is a form of cancer that is well understood and documented. Educating the public on cancer, and its curability, is important as it can change the outlook on cancer being a “death sentence” for many. Nearly everyone has been or will be affected by cancer in their lifetime so the public should know about the disease like they know about the flu. Furthering the research on CML could lead to breakthroughs in cancer research and possibly enhanced treatment for many related types of cancer.

Climate Change and Dietary Patterns

Taylor Abbott, Tyler Hayes, Annabel Lee, Cody Tallent, Rachael Wood

Abstract:

A poster will be presented that highlights a variety of diets and the benefits and drawbacks of each diet for planetary health. This poster will highlight how eating habits around the world impact and are impacted by climate change.

Comparing Survival Rates of Normal and Mutant Nematode Worms Exposed to Pathogenic Bacteria

Morgan Candon, Samantha Casey

Abstract:

The nematode worm *C. elegans* was studied in order to figure out how different bacteria alter its survival. We were also interested in examining the unknown function of the *bir-2* gene. First, the survival rates of the normal wild-type strain of *C. elegans* exposed to pathogenic bacteria was compared to when the survival rates when the *bir-2* gene was knocked down. In the second experiment, the mutant strain *trf-1* was used to compare the same survival rates. The survival of different generations were tested as well in the same conditions. The findings show that the lifespan of *C. elegans* nematodes is shortened with exposure to the *bir-2* knockdown. The mutant's *trf-1* survival seems to be lessened in the experiments conducted although not conclusive. Future studies could test other strains of *C. elegans* under different bacterial conditions or even other pathogens. The overall importance of this research was determining how the genetic makeup of these organisms affects their survival in the presence of pathogens. These studies could provide important information about the evolution of the response of the human immune system to pathogenic challenge.

The results will be added in afterwards

Cupping Therapy: An Effective Treatment Method or Just a Fad?

Marisa Carbone

Abstract:

Alternative medicines have become increasingly important in recent years, particularly in the treatment of musculoskeletal ailments. Some of these elements include myofascial release, dry needling, acupuncture and cupping therapy. Evidence for these therapies is just beginning to be developed with clinical trials in their infant stages. Cupping therapy has also become increasingly popular with high level athletes such as Olympic swimmer Michael Phelps. However, the bruises created by the cups have raised questions about whether the treatment is doing more harm than good. Through research of the library database, multiple articles were found including studies done on low back pain, plantar fasciitis and chronic non-specific neck pain. The data from these studies suggests that there is a benefit to cupping as a therapy. Information from these studies will be presented.

"Dark Deeds in the Dutch Republic: Microhistory's Small but Powerful Lens"

Roslyn Hodgkins

Abstract:

This presentation seeks to explore connections between social anxieties and religious instabilities in the Dutch Republic in the 1700s from the following perspectives. The presentation's large-scale view will also incorporate evidence of how these faith-based turbulences manifested on the micro level. To explore this connection, the history Cunegonde's Kidnapping: A Story of Religious Conflict in the Age of the Enlightenment as researched by Benjamin J. Kaplan will be employed as the main focus. This microhistory reveals unsettled social relations in the outskirts of the Dutch Republic that contradicts longstanding, common perceptions of the religiously-tolerant Dutch Republic.

Microhistories continue to hold significance within the discipline of history because they reveal the perspectives of ordinary people, particularly those who lack public power. Such individuals tend to be marginalized or overlooked in macrohistories and traditional narratives involving political, military, economic or national themes. As this presentation will demonstrate, microhistories afford historians and readers a distinct and useful lens on dimensions of history playing out below the national radar. They yield insight into the mindset of local people that may otherwise be lost to us.

DeltaFosB Expression in Opioid Addiction

Sashealy Rivera

Abstract:

Opioid addiction is a prevalent public health issue in America and more research must be conducted to further the understanding of how the human brain is affected. Previous research done on transgenic mice has identified Δ FosB as a significant molecular marker in the addicted brain. This poster gathers results from different experiments to present an overview of what Δ FosB is and the role that it plays in opioid addiction. Researchers have found prevalent induction in areas of the brain implicated in addiction which varies by drug of choice. The area most affected by chronic drug use is the nucleus accumbens with lesser degrees of induction found in the hippocampus and the amygdala. Δ FosB accumulates in these areas of the brain and attributes to the behavioral aspects of opioid addiction such as tolerance, sensitivity, dependence, and drug-seeking behaviors. This literature will be shared with fellow peers at the showcase to shed light on the inner workings of opioid addiction.

Dental Hygiene and Healthy Choices

Siobhan Murphy, Payal Patel, Dominique Valentine, Nicholas Wood

Abstract:

Dental hygiene, proper nutrition, and adequate physical activity are important for the development of primary school students. Researchers wanted to determine if college students could make an impact on children of this age group. After IRB approval was obtained, parents of fifth grade students at Rindge Memorial School were consented and the students assented. A pre-survey was given to determine a baseline of knowledge and behaviors. This was followed by a series of modules and presentations sharing information about these important topics. College students encouraged the primary school students to engage in positive behaviors. A post survey was administered after the presentations to determine the impact the researchers had on the primary school students. Data and analysis of results will be presented at showcase.

Diet and Exercise in Improving Type 2 Diabetes Management

Gerald Robert Boardman

Abstract:

Diabetes is one of the fastest growing chronic diseases in the United States of America, particularly type 2 diabetes. Oral medications and insulin are common treatments for type 2 diabetes. Taking these medications and having to give yourself these shots is a large damper on the patient's overall quality of life. With more Americans living with diabetes it becomes increasingly important to learn how to improve their everyday quality of life. A literature review was done in order to determine the most effective methods for improving type 2 diabetic's quality of life using diet and exercise. It was found that individuals following the Mediterranean diet had higher rates of remission and decreased their medication use. When it comes to exercise it is found that the most effective form is a combination of cardio and strength training. Combining almost any diet with any combination of training is also found to be effective over no action. It is found that the Mediterranean diet and a combination of training types are the most effective means of improving metabolic parameters in type 2 diabetics.

Differences in Eyewitness Memory Recall between Participants Who Experienced Accurate, Inaccurate, or No Distractions

Kimberly Gerlarneau

Abstract:

Eyewitness testimony is extremely influential in court cases involving eyewitnesses. Juries take their testimony seriously and are far more likely to convict the defendant if an eyewitness is involved. The issue is that eyewitness memory is not reliable. During the event of a crime, a witness does not have a lot of time to properly remember what they have seen. They also are competing with a lot of outside distractors that can come in both visual and auditory forms. For the purpose of this study, auditory distractors were the main focus. Participants were asked to watch a short video of a staged robbery and then answered a memory questionnaire regarding what they saw. The three conditions tested were: 1) a group that experienced a conversational distractor that was accurate to the video, 2) a group that experienced an inaccurate conversation that contradicted the video, and 3) a control group that watched the video without being distracted. It was hypothesized that the group experiencing the inaccurate conversation distractor will have their memory negatively impacted the most, and therefore will recall more inaccuracies in their questionnaire.

Does Sleep Affect Memory and Focus?

Payal Patel, Kelsey Dumont, Tori Scholtz, Dominique Valentine

Abstract:

The National Sleep Foundation recommends 7-9 hours of sleep for young adults and adults (2015). People are more likely to experience fatigue, clumsiness and difficulty focusing when deprived of sleep (Ranasinghe et al, 2018). The purpose of the study was to determine if the amount of sleep a person receives the night before affects cognition and memory. A total of 40 participants read and signed an informed consent and students who participated took a survey, a timed word search, a picture recall test and word recall test both consisting of ten items. Sleep was not manipulated by the researchers. Of the 40 participants in the study, 18 students received 7-9 hours of sleep, 20 students received 4-6 hours of sleep, and 2 students received 10+ hours of sleep. Average word search times between the 4-6 hour group and 7-9 hour group showed a higher average time in participants who received 4-6 hours. The average amount of words and pictures recalled for both the 4-6 hour and 7-9 hour group showed that students who received less sleep actually recalled more words and pictures than those who received the recommended amount of sleep. There were no significant differences in comparing the participants who received 4-6 hours of sleep to the students who received 7-9 hours of sleep, thus rejecting our hypothesis.

Does the Gut Microbiome Affect Mental Health

Marissa Farago, Cole Dorman and Jeremy Wood

Abstract:

The project focused on investigating the effects of gut health on mental health. The research was conducted by compiling sources found on the library databases to uncover these effects. The overall research shows a strong correlation between the bacteria, the gut and an individual's mental state. Neurologists have linked gut bacterial health to a multitude of psychological disorders. Research was done to investigate how to avoid disorders as such by finding connections. This can be done, simply, by enhancing one's diet through including probiotics and practice overall healthier diet choices. This relates to all individuals, including young adults, to maintain healthy bacterial levels in their body to live a healthy lifestyle.

Effects of pre-workout supplement vs. honey on running time during a distance lap around a track

Victoria Vargas, Ashley Hovan, Kailey Ross

Abstract:

Pre-workout supplement is a common energy source, used by athletes and people who routinely go to the gym, that is said to improve overall energy, strength, and performance levels. Creatine is the ingredient found in pre-workout supplement that contributes to improving performance levels. In comparison, honey is a natural source of carbohydrates where carbs are able to improve stamina, speed, endurance, and performance. The goal of the study was to observe whether a serving of pre-workout supplement, of synthetic ingredients, or a tablespoon of honey, of natural carbohydrates, prior to running a single lap around a track (0.18 miles) would affect performance in terms of running time. 29 participants from Franklin Pierce University, with activity levels determined as high activity (HA), medium activity (MA), or low activity (LA), were directed to run a baseline lap and an experimental lap on two separate occasions after consuming either pre-workout supplement or honey. Results showed that the participants ran significantly faster compared to their baseline run after consuming both the pre-workout supplement and the tablespoon of honey. Unfortunately, the data was inconclusive because when analyzing the difference between each participant's baseline runs we found a significant difference, therefore honey and pre-workout cannot be compared to determine

which better improved performance. Overall, honey and pre-workout improved mean running times after consumption when compared to baseline running times.

Effects of short term exercise on short term memory

Leila Jabbour, Antonio Ayala, Paul Hartin, and Sarah White

Abstract:

Previous research has shown evidence linking long term exercise and long term memory function. The purpose of this study is to observe if short term exercise will affect short term memory function. The study tested the cognition and memorization of subjects before and after physical activity. A questionnaire was given to each participant before the experiment began to notify the researchers whether or not the subject had received adequate hours of sleep the night before as well as a consumption of food throughout the day. The participants were also given a medical questionnaire before the study to ensure the safety of our participants. Each participant was tested over how many objects they could memorize in one minute before and after a light jog around the bubble's track. A study like this can be useful to determine if short term exercise may influence academic performance, and has potential aid to students and the average person in increasing productivity of daily tasks or grades of daily life as a student.

Efficacy of Proprioceptive Neuromuscular Facilitation on Males vs. Females

Rebecca Zylak, Eileen Savinelli

Abstract:

Proprioceptive Neuromuscular Facilitation (PNF) stretching is a form of flexibility training that has been shown to effectively increase range of motion (ROM) in the body by increasing the length of the muscle. Research shows that PNF stretching increases ROM in both trained and untrained individuals, however there is minimal research done looking at the effects of PNF stretching on males versus females. The goal of our research was to investigate sex differences in the efficacy of PNF stretching by using a goniometer to test hamstring flexibility at the femoroacetabular joint. A hold-relax method of PNF stretching was used on the participants. The purpose of this research was to examine if ROM was increased after the test in order to determine the efficacy of PNF as form of flexibility training in the hamstrings. This research may be helpful in the use of PNF stretching as a rehabilitation technique in the clinic or as a way to help develop muscular strength, muscular flexibility, or athletic performance.

Evolving Curriculum: Prevalence of Evolutionary Psychology in American Psychology Programs

Felicia Walalis, Caitlyn Dion, Dr. Jennie Brown

Abstract:

There has been an increase in coverage of evolutionary psychology (EP) course work in introductory psychology textbooks. Although there is a perceived increased presence of evolutionary theory in psychology, it may not accurately represent student exposure to the material due to possible anti-EP attitudes by faculty and/or departments. The purpose of this study is to examine EP course offerings from 2006, 2011, and 2016 to determine if there is an increased presence in the past ten years. A random number generator was used to select 25% of schools from each state using a downloaded list of non-profit colleges and universities. Within the sample, schools that offered a BS/BA in psychology and an EP course were identified using online course catalogs from 2006, 2011, and 2016. Data from 2016 indicated about 15% of schools offered EP. Data is still being collected for 2006 and 2011.

Factor V Leiden

Hannah Gouldrup, Carina Dillon

Abstract:

Does the Factor V Leiden mutation have an effect on Pregnancy?

Factor V Leiden is an autosomal dominant genetic mutation that increases blood coagulation. This mutation is most common in Caucasians, affecting around 5% of the population. This mutation can be found in both sexes, however pregnant women are most affected by it. The purpose of this research on FVL was to investigate if Factor V Leiden contributes to fetal loss. The research done and evidence gathered resulted in the conclusion that having Factor V Leiden dramatically increases the chance of fetal loss as well as contributes to various other pregnancy associated risks. This research will be presented at the Franklin Pierce University 2019 Academic Showcase in order to increase awareness to students, faculty, and staff about the dangers of this blood mutation.

Food Safety in the United States: Challenges and Opportunities

Ashley Haluch

Abstract:

In the most recent report by the CDC, the yearly number of food-borne illness outbreaks exceeded 800, resulting in close to 15,000 illnesses and 17 deaths. Many of these outbreaks are the result of improper food handling that could have been easily preventable if food safety procedures were followed at each step of the food system. The goal of this poster presentation is to inform the public of the path that food takes from production, processing, packaging, transporting, distributing, and retailing to consumption, and identify the various points at which contamination often occurs. An epidemiological approach is used to look deeply in to the challenges of food safety and the consequences of improper food handling that follow. First-hand experiences interning at a local health department are highlighted throughout the poster, and opportunities for further research and education are addressed at each potential point of improper food handling and contamination in the food system.

From Classical God to Modern Bust: Greece's Transition from the Creators of Democracy to a Corrupt Parliamentary System

Julius Peel

Abstract:

Greece has been a focus for international politics because of its shifts in political ideologies and swings in economic stability. Within the last ten years, Greece has been Europe's worst case of an economic depression since WWII, a widely different perspective than historian's Classical Greece. By analyzing the state's changes in global trade, gross national income, economic policies and population it will be possible to evaluate Greece's economic stability. States who have positive trends in these variables are more likely to be stable economically, while the inverse can also be concluded. After reviewing historical data from post WWII until present day and looking back on the prominence of the Greek empire, evidence clearly indicates that historical dominance does not correlate to a stable economic future.

Generational Differences in Interviewer Perception and Willingness to Hire Nervous Job Candidates

Sadie Pavao

Abstract:

Is there a difference in participants' perception and willingness to hire job candidates who are exhibiting nervous behaviors or not exhibiting nervous behaviors, depending whether the participants are students or faculty/staff? The predicted hypothesis was that the faculty/staff group (i.e., the older generation of this study) would be less likely to hire an interviewee exhibiting interview anxiety than the students (i.e., the younger generation of this study), as compared to an interviewee who was not exhibiting interview anxiety. Both students and faculty/staff were randomly assigned to two different conditions: 1) the control group narrative, which told a story of a newly graduated male who was interviewing for a job with no nervous behaviors exhibited, or 2) the interview anxiety narrative, which told the same story except the newly graduated male was exhibiting nervous behaviors. All participants received the same survey following the narrative asking if they would hire the individual and what they considered when making that decision. Data collection is currently in progress.

How Do Biomechanics of Different Sports Affect the Type of Knee Injuries Sustained?

Alexandra Duddy, Samantha Casey, Emily James

Abstract:

The knee is highly susceptible to a wide variety of injuries that can occur in many ways. The biomechanics of soccer, distance running, and volleyball were investigated in this research to determine how variation in biomechanics can impact the type of knee injury most commonly found in these sports. Soccer players are more likely to have knee injuries due to rapid movements and rotation, distance running leads to injuries of shock absorption and rapid movements, leading to patellofemoral syndrome, and volleyball also has injuries of shock absorption and impact injuries leading to tears and patellofemoral issues. The findings of the research show that even though there are different movements in the athletics, the knee injuries that are sustained are similar. Many of the injuries are common across all three sports and the similar injuries stems from rapid flexion and extension. Continuing research based off of our findings could possibly include using greater technologies, such as force plates, to see where the threshold of force is for specific injuries, looking at different age groups, and level of play.

How Does Extreme Exercise Affect the GI Tract?

Jamie Toomey

Abstract:

Problems with the gastrointestinal tract (GI) can be a result of extreme exercise. Many Olympic athletes experience GI tract issues due to the intense and frequent exercising they do in order to prepare their body for the Olympics. The central question of this research is, how does extreme exercise affect the GI tract? The purpose of this research is to understand how extreme exercise negatively affects the GI tract. Studies have been conducted evaluating endurance athletes and athletes in intense training like Olympians to assess their rigorous exercise routines along with their diets. Endurance athletes are popularly selected to be evaluated due to 30-50% of endurance athletes having GI tract issues. Extreme exercise does negatively affect the GI tract. The effects on the GI tract can cause nausea, abdominal pain, bloating, diarrhea, constipation, irritable bowel syndrome, GERD, and changes in bacterial communities within the gut. The effect of bacterial communities within the gut can lead to additional problems in the body.

How Natural are National Parks?

Mary Hines

Abstract:

Mary's project will take on the question of are national parks truly considered to be natural pieces of land? In order to come to a conclusion, she will explain differing viewpoints from different cultures and also look into different approaches to environmental ethics. The two main points that she will be presenting on will be a preservationist view versus a conservationist view. A preservationist would most likely not consider national parks to be natural because they are still being impacted by humans on a day to day basis. While a conservationist would be more likely to consider them to be natural because they believe that as long as land is being used for the right reasons, then people should be able to use it. She will also be looking into other cultures viewpoints, such as European, Native American, Asian, etc., to see if they have differing views on what would truly be natural.

Inclusivity in the Elementary School Classroom

Samantha Bedard

Abstract:

The problem addressed in this study is the lack of inclusivity in elementary school classrooms. Special and general education students can be taught in the same classroom with all of their needs taken care of. An inclusive classroom is one where special and general education teachers work together to meet the needs of all students. The idea of an inclusive classroom is significant in the lives of students with special needs. With an inclusive classroom, they can learn alongside their peers while receiving the accommodations and modifications they require. For this study, a checklist was developed to ensure that general education teachers make their classroom a welcoming place for all types of students. The research question focused on what aspects made a classroom inclusive. Research was conducted through observations in an elementary school inclusive classroom and by reviewing scholarly journals and articles. Results showed that a majority of general education classrooms did not exemplify the characteristics of an inclusive classroom, barely meeting any criteria on the checklist. With access to this checklist, both special and general education teachers can determine whether their classroom is fitting the needs of all types of students. Teachers can use this checklist to adjust and embrace having an inclusive classroom.

Internship: Rindge PD

Julie Hinckley

Abstract:

This internship at the police department allows the student to gain practical experience in the field of law enforcement so that she can critically evaluate law enforcement policies, practices, and theory. Over spring semester, she has been working with Rindge Police Department on various activities like crime analysis and data entry. Also, learning how the inside of a police department functions and getting to know the officer that work here. One of the projects she is currently working on is GIS mapping for Rindge. In the poster, she will show the various tasks that she has done at the police department and explain what she has learned from the internship with the Rindge Police.

Introvert (I) and Extrovert (E) Behavior Modification in Groups

Patrick Gagne, Teagen Comeau

Abstract:

In this study, the researchers Comeau and Gagne sought to identify if introverts or extroverts modify their behavior to conform to group dynamics by giving false responses to a questionnaire when faced

with group pressure, or will one or both of the groups disregard the group consensus and give the correct responses despite the group pressure. The hypothesis of this experiment is that the extraverts will conform to group pressure more often than introverts due to their observed tendencies to perform better in group situations. The main methods used to reach this goal is a slideshow comprised of fifteen line matching exercises similar to the Asch line conformity experiment, followed by an open source personality test based on the five OCEAN (Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism), specifically the relative level of extraversion is the primary focus from the examination results. The results are still to be determined due to the ongoing nature of the project.

Isolation of Bacteriophage and Bacterial Runoff

Nick Wood

Abstract:

There were two projects that were launched this semester, both of which have to do with genomics. The first process is the isolation of a bacteriophage. A bacteriophage is a virus that injects its DNA into a cell and causes this cell to reproduce the virus, until the cell is destroyed. This is a novel organism whose genome will be sequenced and analyzed.

The other project is the isolation of an environmental sample. Dr. Kotila's students will collect a runoff samples and the bacteria will be isolated, sequenced and the bacterial population compared with the bacteria in Pearly Pond. This study will help to determine the bacterial load of runoff into the pond.

Liches and Literacy: Using Roleplaying Games in the Classroom to Inspire and Revitalize Reading and Creative Thinking

Cameron Day

Abstract:

This poster will take a far more in-depth look at the information, theories, and ideas laid out in the presenter's poster from last Academic Showcase; primarily in the presentation of hard data and facts about the utilization of roleplaying games in the classroom to encourage and inspire a new growth and development of literacy, reading, and creative thinking. Through the presenter's experiences in classrooms, as well as learning in Franklin Pierce's own system, he has come to discover that there is a large gap within adolescent and teen reading, as well as the ability to think creatively. Through these observations, the presenter has created and generated the beginnings of a long-term personal study in order to ascertain and create a plan to remedy this issue in American classrooms. Roleplaying games – whether they be fantasy, horror, science fiction or any other genre – provide ample opportunity for students to step out of their comfort zone and gain a large understanding of performance, public speaking, literature, close reading, critical thinking, and decision making. Through several trial games with students from varying age groups, the presenter will show that with the right planning and implementation that roleplaying games in the classroom can save reading.

Lung Capacity of Fall Varsity Sports Athletes at Franklin Pierce University

Jessica Harpell, Emmalisa Belfiore, Stella Dema

Abstract:

The central question was to find out what fall sports team at Franklin Pierce had the best lung volume capacity. Purpose of the work was to determine how much air the different sports teams could hold in their lungs and compare the results. The coaches of the different teams were interested in this study as

well. Lung function tests are useful in measuring the functional standing of the respiratory system in both physiological as well as pathological conditions. The researchers hypothesized that the Cross-Country team would have the best lung capacity for fall varsity athletes. The researchers asked the participants to blow into a designated bag as much as the participants could. The men's soccer team had the highest results. A limitation of our study was the rolling up the bags along with the participants not always sitting up as straight as they could. In the future, we will be looking at other season sport teams on campus.

Money Laundering

Jessica Strack

Abstract:

Money laundering is the process of concealing the origins of illegally obtained money and integrating it into the legitimate financial system so that it cannot be traced. In order to take the profit out of crime, money laundering was made a federal crime when the Money Laundering Control Act of 1986, which is a United States Act of Congress, was passed. Money laundering has a corrosive effect on a country's economy, government, and social well-being. The purpose of this poster presentation is to first explain how money laundering works and the three step process which is used to legitimize illicit funds. Second, is to give a brief over view of regulations and controls that are used to prevent and combat money laundering. Businesses and banks have such regulations and controls in place to attempt to spot illegally obtained money and the federal government has sentencing guideline for those convicted of money laundering offenses.

Motion Sensor Lights on Campus

Hannah Cuzner

Abstract:

In 2007 and then again in 2016, Franklin Pierce University agreed to be a part of the American College and University President's Commitment to Climate (ACUPCC) Neutrality. This means that the school, through sustainable green practices, is trying to become carbon neutral. Carbon Neutrality is when you reach zero CO₂ emissions by balancing carbon emissions with carbon removal or eliminating carbon altogether (Wikipedia, 2019). I started this project in my sustainability seminar class, but later implemented it through the sustainability council. I wanted to figure out what the school was doing to reach this carbon neutrality, if they were doing anything. I wanted to focus my project on reducing the school's use of energy. The school is releasing greenhouse gases through the burning of fossil fuels and wood for heat, transportation and electricity. Throughout the buildings on campus, some lights are left on 24/7, even if no one was in that room. This wasted energy is not only releasing greenhouse gases, but it is also costing the school money. My solution to this problem would be to install wireless motion sensors, which will shut lights off automatically when no one is there. This will help decrease Franklin Pierces energy use as well as save the university money. I wanted to run this project with the laundry rooms in freshman, sophomore, and junior dorms. Laundry rooms have low foot traffic and when people are in there it is usually for short amounts of time. There are about 9 laundry rooms throughout these buildings. Through research, the cheapest motion sensor system I found was 25 dollars (Intermatic IOS-DPBIF2-WH). So, to have one system in each of the nine laundry rooms it would equal to around \$225 each. With the size of this project, it should be around a one-year payback for the school. This project will help the school save money fast, as well as help the school reach their goal of carbon neutrality.

"Motiv8ya"

Aloysius Jackson Jr.

Abstract:

"Motiv8ya" is a motivational speaking platform created and launched by Aloysius Jackson Jr. The purpose of this platform is to Motivate and Inspire men and women on local, regional, national and international levels. The idea originated in the zone of sports practice--focusing on goals of motivating teammates to conquer challenges, build success and strengthen team-spirit. From this beginning, the aspiration to motivate his teammates evolved into a larger plan—to introduce others beyond the team to this inspirational power. This presentation will offer insight on how message videos are crafted and designed. An overview of the equipment required for such work will be provided. Anyone can make videos and capture footage, but this presentation will reveal how a class like Media Production can expand your expertise and raise your message. This presentation will demonstrate how there is more to making videos and movies than just recording and sharing them with the world. The audience is encouraged to take a closer look through the lens of a camera, step into the world of editing, and create platforms to bring dreams to reality.

Perks of Global Citizenship Certificate

Natalie Hamilton, Elizabeth Jurgilewicz

Abstract:

The Global Citizenship Certificate is an interdisciplinary program that offers an integrative approach to learning about the interconnections among societies. The program aims to give students support and opportunity to learn how to make the effort to build a global community that involves human interdependence, equality, and justice. The poster is to bring awareness of this certificate and all the good things it brings to the campus and what more it could be.

Phosphorus Monitoring and Research in the Pearly Pond Watershed

Kyra Fairley, Catherine Owen Koning and Shannon T Stroble

Abstract:

Pearly Pond has a phosphorus problem! High levels of phosphorus in the Pond and surrounding watershed has led the Pond to become eutrophic. This has stimulated the growth of algae and caused a decrease in dissolved oxygen. The New Hampshire Department of Environmental Services (NHDES) has declared Pearly Pond to be in "impaired" status due to the low dissolved oxygen and high levels of chlorophyll-a. The water quality of Pearly Pond has been monitored since 1992 as samples have been collected and analyzed by the NHDES lab in Concord, NH. This past year, with funding provided by NH-INBRE Research Support and Training Grant (RSTG), a water quality testing lab was established at Franklin Pierce University. The first analyte to be tested in this lab was total phosphorus (TP). For six months analysis was performed on water samples from Pearly Pond and the surrounding watershed in accordance with the Environmental Protection Agency (EPA) Method 365.3: Phosphorous, All Forms (Colorimetric, Ascorbic Acid, Two Reagent). These results have been compared to the results from the NHDES lab.

Potential for Emotional Callousness in Gaming Addicts

Tia Sanchez, Brandi A. Klein, Ph.D.

Abstract:

This study investigates addiction to gaming and the potential desensitization behind it. The purpose of this study is to determine whether or not violent video games lead to emotional callousness and whether this is related to addictive traits in certain gamers. Video game addiction is prevalent in

Millennials and Generation Z children, and those who are addicted show restlessness when unable to play, isolation from others, and an impacted social, familial, or academic life. Those with a high video game addiction are said to have higher hostility levels than those who occasionally play video games. This can vary between the individual as the player may previously have a hostile nature not influenced by the video game alone, which is why they are drawn to it. Some believe that playing violent video games engenders hostility levels in already aggressive individuals. This study is designed to provide ethical data-driven identification of hundreds of online participants in hopes of bringing awareness to the potential effects of violent and non-violent video games.

Protein vs Fruit in the Completion of Mazes

Marissa DiVito, Molly Ruhan

Abstract:

The purpose of this study is to test and determine if protein or sugar support cognitive thinking better. Both are known to improve a person's cognition and this study is testing which one is more affective. There will be three portions to this study. In the first trial the participant will be timed to complete a maze on an empty stomach as a control trial. Then they will complete a different maze of the same difficulty after digesting a serving of a protein bar. On a second day they will come again and complete a different maze after consuming a piece of fruit. Cognition will be measured in this study through a stopwatch, which will time how long it takes each participant to finish each maze. Fruit and protein tested mazes will be compared to each other along with the control in order to see if any significant difference was shown. This study hopes to conclude that protein is an equal enhancer of cognitive function to sugar.

Raising awareness of food quality in the age of corporations and global capitalism

Niklas Ralf Laudahn, Yannik Felber, Noam Kolakofsky

Abstract:

In one of his books published at the beginning of the 20th century, Max Weber talked about an "iron cage" where humans are pushed against their will (Weber 1930). This is a metaphor of human transformation through technological progress imposed by capitalism' strive for efficiency and rationalization. More recently, William Robinson is talking about a crisis of humanity in the age of Global Capitalism (Robinson 2014). There is one major question that our study poses: is the recent development of our food system part of this landscape created by global capitalism, which negatively affects human beings? Unlike in the past, when humans were both the consumer and the producer of the food they eat, currently in the most developed countries people's access to food is mediated by giant corporations and artificial production chains that became harder to be controlled by ordinary people. Giant food corporations in their run for profit shape people's tastes and make them addicted to unhealthy food (Moss 2014) The rising of obesity, heart problems, and diabetes threaten to lead our medical system into collapse (Lusting 2018). The main point of our presentation is to raise awareness of our food quality in the age of global capitalism.

Risk Factors of Developing a Sickness in the Fall at Franklin Pierce University

Kelsey Dungan, Christina Viering, Mikayla Guskey

Abstract:

Background: The most common illnesses that occur on a college campus includes upper respiratory infections, influenza, mononucleosis, gastroenteritis, conjunctivitis, and meningitis (Ecampus, 2015). College students are more susceptible to these infectious agents because of, stress, lack of sleep, and poor eating habits (Ecampus, 2015). New college students get involved in campus activities and work

on very little sleep and some experiment with alcohol and sex. These activities can result in a decline in students health (Swiech, 2009).

Aim: To see if freshman and sophomores at Franklin Pierce University, get sick more often than the juniors and seniors in the first three months of the year.

Methods: Tally sheets were handed out to freshman, sophomores, juniors, and seniors with demographic information and boxes for each month. The students put down a tally mark every time they were sick in the first three months of the year with symptoms of a common cold. Sheets were collected during November and then analyzed.

Results: There is a significant difference between the freshman to the juniors and seniors getting sick, but not a significant difference between any of the other class pairings. P-value for Freshman and seniors=0.04376884 which is a significant difference, and P- value for freshman and juniors=0.02805768 which also is a significant difference. Students got sick the most in October, and the students that went out more often also got sick more often.

Conclusion: Hypothesis is proven, that students who have been at Franklin Pierce for a longer period such as juniors and seniors are less likely to become sick in the first months of the years than the freshman, but we did not prove a significant difference for sophomores. These freshmen are being exposed to a new environment of which their immune systems are not used to and there are experimenting with many new activities.

Running With or Without Music

Jocelyn Moody, Allison Collins, Katilyn Benoit, Yuval Barak

Abstract:

The difference in performance when running with music and without

The purpose of this research is to test the effects of music on running performance and perceived exertion in a submaximal run. It was hypothesized that running with music would increase performance and decrease perceived exertion, compared to running without music. Participants came on two different days to the track in the bubble and ran two laps around the track (each lap is 0.182 miles). On the first day they ran without music and on the second day they ran with music. For the music, participants brought their own headphones. The participants had to choose 1 song out of 5 songs of 130 BPM. A survey was given after each run to see how they perceived their exertion. Data was collected on the time it took each participant to complete two laps. Results and analysis to be determined.

Sources:

Bonnette, R., Smith, M., Spaniol, F., Ocker, L., and Melrose, D. The Effect of Music Listening on Running Performance and Rating of Perceived Exertion of College Students. The Sport Journal. 2015.

Smartphones and Visual Recall

Leah Varney, Lillian Bibeau, Benjamin Choinere, Brent Chesbrough

Abstract:

Studies have shown that smartphones can negatively affect cognitive capacity even when not in use. The purpose of this study is to examine the degree to which both the presence and the use of

smartphones affect visual recall. It is hypothesized that the presence and use of smartphones will decrease the accuracy of visual recall and that the use of smartphones will cause a greater decrease in accuracy than the presence of smartphones alone.

Participants will be asked to watch three short animated videos, each being a separate trial. The three trials will be: no smartphone present, smartphone on the table, and receiving one text message per minute. At the conclusion of each video, participants will be given several detail-oriented questions specific to the video they just watched. The number of correct answers for each video will be used to determine the level of distraction. After the testing period, each subject will be fully debriefed and given an anonymous survey regarding their personal smartphone use and distraction level. This survey will be attached to their data. Finally, statistical analysis will be performed to determine if a correlation exists between the number of correct answers and smartphone presence or use.*

*This study was in progress at the time of this writing. Results and conclusion will be available at the presentation.

Stressed Undergrad Students: The use of Music and Canine Therapies

Yeonje Choi, Alison Stanlewicz, Stephanie Flores, Tori Aponte

Abstract:

The purpose of our research study is to determine if music or animal therapy is more effective in relieving stress in undergraduate students. Music and animal therapy have both been proven to be effective when it comes to lower stress and has been used throughout numerous research studies. The study will be conducted over two different time periods which will consist of about 15 minutes per day. The two types of stress relievers we will be using is music and dog therapy. The therapy will be randomized based on flipping a coin for each participant which will determine which therapy they will do first. First, a survey will be completed by the participant, based on their stress levels. Blood pressure will then be completed by a researcher and will be taken initially, after the stressor, and after the therapy. The stressor will be given after the initial blood pressure and survey. An unsolvable riddle or puzzle will be used as a stressor and participants will have two minutes to solve. The answer to the unsolvable puzzle will be kept from their knowledge until they are done with both days of the study. The use of an unsolvable riddle will be to equally stress all of the participants without the possible chance of solving it. The subjects will then be exposed to one of two randomly chosen stress relievers.

The Effect of Music on Physical Endurance

Leila Jabbour, Andrea Rogers

Abstract:

Previous research has been conducted trying to understand the impact of distractions while exercising. According to the literature music improves work performance, states of higher functioning and delays perception of fatigue with ongoing exercise (Thakare 2017). The purpose of this research is to find whether endurance during exercise is increased when listening to music.

The Effects of Chest Training on Muscle Growth and Number of Pushups

Bailey Fernandes, Marshall Bordeau

Abstract:

A pillar within our society is exercising, which can be obtained through resistance training. Studies such as one repetition max test are used to test muscle growth and strength and have been used for previous research. The purpose of our research is to test whether or not a specific training program designed using hypertrophic factors could show increased muscle growth, as well as increase the

number of pushups a participant could complete. Participants were between the ages of 19 and 22, who are students at Franklin Pierce University. Five work outs were assigned and participants were asked to perform these workouts twice a week for a time period of six weeks. The participants were asked to meet on the first, third, and sixth week with the investigators to record any changes in muscle size and number of pushups that can be performed in one minute. After analysis it was found that there was a both an increase in the number of pushups and the participant's chest size, but there was no statistical significance to the data. In conclusion we can state that there was an increase in both pushups and chest size but not enough to show significant improvement.

The Effects of Different Training Method on Vertical Testing **Emma McGonagle, Abigail Garnhart and Brandon Thibodeau**

Abstract:

The study “The Effects of Different Training Methods on Vertical Testing” inquires if the different training methods among athletes at Franklin Pierce University has an effect on their vertical testing. We hypothesize that teams with plyometric based training will yield higher vertical tests because plyometric training is focused on improving power and a previous study found that an athlete's ability to exert power is directly related to the results of their vertical test (Mandic, 2016). The data will be collected by team at their individual weight lifting sessions in the Bubble. Results will then be averaged by team, training method, and gender to see if there is a significant difference between groups.

The Evolution of Antibiotic Resistance in Bacteria **Kelly Wilson**

Abstract:

How do bacteria evolve and develop resistance to certain antibiotics? Peer reviewed articles were studied to find an answer and a correlation between the increased use of antibiotics and the increase of resistance in bacteria. In many studies it is explained that gram-negative bacteria evolve resistance to antibiotics in two ways: spontaneous mutation and horizontal gene transfer. Gram-positive bacteria evolve through transformation, recombination or through mobile genetic elements that come into contact with these genes. These antibacterial resistant genes are found in large sums together in multiresistant regions (MMR), and are carried on plasmids. Due to the increase in antibiotic resistance, many of the antibiotics used in earlier treatments are ineffective. From one source in particular, it was found that 23,000 people in the United States alone die every year due to antibiotic resistance. Methicillin-resistant Staphylococcus aureus (MRSA) is a multiple resistant gram-positive bacterium that causes severe illness and death if not treated correctly. In conclusion, bacteria evolve resistance by either spontaneous mutation, horizontal gene transfer, recombination, transformation, or through contact with mobile genetic elements. Antibiotic resistance is a current battle and continues to increase over time in our population.

The Evolution of Inclusivity in Sports and Recreation **Cameron Torres**

Abstract:

Inclusion/Diversity in Sports and Recreation is an important and ever-changing landscape. Evidence of this can be observed through the ever-evolving history of the inclusivity of sports and recreation. Showcasing this rich history is important because society needs to know the mistakes and innovations

of the past to either discontinue or expand on them, respectively, in the future. Inclusion is such a broad topic that includes a wide variety of subject matter. For example, with regards to sports and recreation, the typical impression is that inclusion is only concerned with persons with disabilities. Unfortunately, individuals do not take the necessary time to educate themselves on the vast sects of disabilities that are in today's world. Inclusion within sports and recreation has begun to evolve and take shape as more individuals have taken the time to learn the ins and outs of living as a person with disabilities. Gaining this knowledge base has assisted countless individuals in exposing themselves to a vast range of opportunities to have successful programs to increase not only inclusion, but equity for all.

The Flint Water Crisis: What Happened and What will be Done

Douglas Quinn

Abstract:

In 2014, Flint, Michigan's water supply became contaminated due to poor treatment and care for the water source. Five years later, the city continues to feel the effects and expenses of polluted water. Not only is the Flint water crisis about the cost and the time to make repairs, it has also had deadly outcomes and permanent damages to the citizens who drank the unclean water. Many wonder where their government was, the people who represent the people of Flint, that let this issue happen to them. In this poster, research shows that the money the government spent on switching the water source for the city of Flint and attempting to make drinking water cheaper to make, but saving money resulted in missing crucial inspections has led to a health and safety emergency. With the city government making critical mistakes in the process of switching the water sources and the notorious struggles of Michigan's economy, the federal government must make a priority of restoring clean water to the people of Flint.

The Great Boston Molasses Flood

Tori Scholtz

Abstract:

In 1919 a 2-million-gallon tank of molasses exploded. Sending a 25-foot wave of molasses rushing at 35 mph down the streets of the North End in Boston Massachusetts. When all was said and done, 21 people were killed and 150 people were injured. The explosion happened due to molasses fermentation and a poorly structured tank. 100 years later, this presentation looks to cover the structural issues that lead up to the rupture, along with stories of the victims that succumbed to the molasses. Victims varied in age and job. Most were labor workers, but there was also a young child and a firefighter among others. The presentation will also look at the Architectural planning of the molasses tank or lack thereof. There were many protocol shortcuts taken during the construction of the holding tank in order to complete it faster and get it into use quicker. From a very early stage the tank had leaks and other structural damages. This presentation will cover the event of the molasses flood from pre explosion and post explosion. Essentially, it covers the conditions that lead up to the rupture.

The Health Risks of High Fructose Corn Syrup

Abigail Garnhart

Abstract:

The purpose of this research is to raise awareness of the potential health risks associated with the intake of high fructose corn syrup. It is an industrial sweetener that is used in an abundance of food products. High fructose corn syrup is sweeter and cheaper to use compared to regular sugar, which is

why many companies choose to add it into their products. While this product may be more cost effective than regular sugar, there are numerous health risks connected to high intake. These health risks include obesity, diabetes, cardiovascular complications, and metabolic syndromes. There are many alternative options that consumers can take advantage of that do not contain high fructose corn syrup and even though they may be more expensive, they will help improve your overall health.

The Ins and Outs of a Health Science Internship

Thomas Cantwell

Abstract:

The purpose of this poster presentation is to explain how an internship in the health science field, specifically physical therapy, should look like, as well as answer questions that underclassmen may have with the process. Seeing and learning about a real life example will better prepare students for what they should expect and what to look for when making their decision. Hearing advice that was acquired from the experience that is not taught in the classroom will be an excellent learning opportunity.

The Perception of Memories In Undergraduate Students

Alyssa Shaw, Caroline Lounsbury and Zoe Totland

Abstract:

This research study explores the meaning behind memories and individuals perception on how powerful a memory can be. Background research was done to find out different aspects that can alter a memory and how much a person is able to change one. Wanting to know how to change a memory, or seeing how people had done it in the past would allow us to see how we might be able to get a more accurate representation from the study body. Later, a survey was sent out to the students on the Franklin Pierce University campus to see what their opinions on memories were. Several questions were asked to get their thoughts on how a memory could be created, if they could be changed, and where they felt that most of their information was gained from. The results showed that in today's society, people are more willing to believe what they see on social media as opposed to what their friends are telling them.

The Prevalence, Severity, and Treatment of Skin Picking Disorder

Kellie Reis

Abstract:

The purpose of this review is to determine the prevalence of Excoriation disorder (ED), a disorder in which individuals repetitively pick at their skin. This review also seeks to determine the severity of ED's symptoms, and the available treatments along with their efficacy. Electronic databases such as Academic Search Complete and Google Scholar were explored for articles that focused on ED and were published between 2000 and 2019. The electronic databases also provided articles that gave background information on ED. Ten studies, which involved over 3000 participants total, were identified and fit the inclusion criteria. The results showed that a disorder in which individuals repetitively pick at their skin is prevalent in 1.4 - 5.4% of the general population and is often misdiagnosed/not diagnosed at all. Various medications attempt to reduce the urge to pick at the skin and manipulate target systems that control compulsive behaviors. ED can be potentially life-threatening in severe cases but is not an impossible disorder to live with. Alongside medications are various behavioral therapies that can be used to reduce symptoms and in some cases completely subside the urge to perform repetitive skin picking.

The Role of Artificial Intelligence in Health Care

Rachael Wood

Abstract:

To Be Determined

The Transition From Mental Institution to Prison

Delaney Waite

Abstract:

This poster will be presenting the transition from the use of mental institutions to prisons in the United States. It will focus on how this transition has led to the incarceration of so many mentally ill people in the present day. This presentation will explain how the use of mental hospitals in the past deteriorated, and how society struggled to find a place for the mentally ill afterwards. This then leads to the use of jails and prisons to hold the mentally ill and keep them separate from society. The North Central Correctional Institution in Gardner, Massachusetts is a perfect example of an institution that underwent this transition and will be used as a case study in this presentation.

Think Fast! Who has the best reaction time?

Samantha Lagle, Erin Daley, Samantha Yeaw

Abstract:

Aim:

To compare different athlete's hand-eye reaction times to find any correlation or difference between average reaction times and specific sports.

Methods:

Athletes that perform only with their bodies, such as runners, will be compared to athletes that perform with another object, such as basketball players. Both men's and women's teams will be tested using a hand-eye reaction test. An online reaction test will be used and will calculate the average time after each athlete performs the test.

Results:

Data is currently being collected.

Conclusion:

Conclusion cannot be made until data collection complete.

Using Cash Flow Analysis to Increase Profits in the NCAA

Hannah Everidge

Abstract:

Money, madness, and million dollar contracts are all common themes when discussing the NCAA. How are these contracts decided and how much thought is given to the financial effects of these legal obligations? This poster will analyze the effects of using the Statement of Cash Flows along with changes in working capital to predict and/or increase profits in the NCAA. Effects of multi-million dollar contracts on the bottom line will be explored. Cost benefit analysis of signing players to lucrative, long-term contracts will be examined. Data on where funding originates and the expenditures related to the successful operation of NCAA teams will be presented.

Vampire Facial: What is the Scientific Background Behind It?

Nicole Amato

Abstract:

Vampire Facial was discovered by Charles Runels, MD. Vampire facial is a cosmetic procedure used to rid of acne scarring, melasma, surgical scarring, and wrinkles. It is commonly known as the procedure performed on celebrity Kim Kardashian. Most patients receive this procedure to get rid of acne scarring, smooth fine lines, or to sustain a “youthful” look. It is considered one of the safest procedures, but what is the scientific background behind it? This research presents the scientific procedure that is utilized for skin care treatment.

Veganism and a Sustainable Future

Annalea Wohlgemuth

Abstract:

Vegan diets are selected for a variety of reasons ranging from concerns involving environmental sustainability, animal welfare, and health benefits. These diets focus on plant sources for all nutritional needs and exclude all animal sources including red meat, poultry, eggs, dairy and honey. It can be a challenge to maintain a healthy diet without these common food groups, however there are many benefits to the diet.

The increased fiber and phytochemical intake in a vegan diet from sources including unrefined carbohydrates, fruits and vegetables is good for overall health including increased immunity, antioxidants, and anti-inflammatory properties (Hever 2016). Meat and animal product processing is associated with increased water, fuel, use of space, and pollution, and so using vegan protein sources such as tofu, beans, lentils and nuts is a more sustainable option. Animal products and meat can produce toxic chemicals when they are cooked that can become carcinogenic within the body, but a vegan diet will reduce the chances of certain types of cancer from the elimination of meat and by the addition of plant-based nutrients that can counteract cancerous activity (Hever 2016). Vegan diets can provide a sustainable future by preventing harmful diseases such as cancer, as well as supplying an environmentally friendly source of protein.

Hever J. (2016). Plant-Based Diets: A Physician's Guide. *The Permanente journal*, 20(3), 15-082.

Views of Violence in College Students and Law Enforcement

Patrick Gagne, Hunter Ventiere

Abstract:

The theories on violence highlight that there are great differences in the way people perceive, understand, and conceptualize violence (Scheerer-Hughes, Bourgois 2004). While physical violence seems to be self-evident for everybody, some other forms of violence like structural violence (Galtung 1969), cultural violence (Galtung 1990), psychological harm, and emotional trauma (Suarez-Orozco, and Robben 2000) are much more difficult to comprehend. In this study, the researchers sought to identify how college students and police officers conceptualize and internalize violence based on their experience and views on this phenomenon. The main method used to reach our goals was the structured interview. We conducted structured interviews with fourteen participants comprised of six Franklin Pierce University students, and eight police officers. There is little comparative research on how different groups of people like college students and police officers conceptualize and internalize violence. Thus, our study aims to bring light not only into a complex and sensitive field of study, but

also into a corner of our social landscape where social perceptions and daily experiences shape people's views and understanding regarding physical violence.

VO2 Max Testing on the Women's Soccer Team: An Observational Study in Progress

Victoria Vargas, Yuval Barak, Cole Dorman, Lexi Duddy, Bailey Fernandes, Steven Finnell, Abigail Garnhart, Devin Neary, Alison Stanlewicz

Abstract:

The purpose of this research is to test the Women's Soccer team to get preliminary data on their exhaustion point. This research is important because it creates a relationship between the CVR Lab and the athletic department, and it also allows us to provide the athletes and coaches with specific data related to their athletic performance and how they can use this data to improve their performance in the future.

Waste Around the World

Lauren Christensen, Sarah Ernst, Jordyn Fiske, Ashley Haluch, Vivian Pham, Victoria Preis, Jess Rego, Katrina Wilson, Lidia Yen

Abstract:

This poster will showcase the impact of human solid waste/trash in different parts of the world using a before/after creative visualization.

Faculty Posters:

Chronic Myeloid Leukemia

Antonio Rua

Abstract:

The central question was to see if there were any forms of cancer that are currently fully treatable. The purpose was to, if they existed, research them deeper to further inform the public on up to date cancer research. Medical journals, official websites, and research articles were searched to find the most up-to-date information on the diagnosis and treatment of one of the most treatable forms of cancer, Chronic Myeloid Leukemia (CML). The background of the disease, its genetic origins, and phenotypic symptoms are explained. CML is a form of cancer that is well understood and documented. Educating the public on cancer, and its curability, is important as it can change the outlook on cancer being a "death sentence" for many. Nearly everyone has been or will be affected by cancer in their lifetime so the public should know about the disease like they know about the flu. Furthering the research on CML could lead to breakthroughs in cancer research and possibly enhanced treatment for many related types of cancer.

Psychological Characteristics of Gamers: A Pilot Study

Brandi A. Klein, Ph.D., Amber M. Henslee, Ph.D.

Abstract:

Gaming is becoming increasingly popular in our society. There are many factors related to gaming—both positive and negative. Research has shown positive benefits of gaming, such as the development of spatial ability, spatial attention, and improved focus on certain tasks. Research has also shown negative results of gaming, mostly related to gaming addiction and potentially fostering aggression. This survey was designed to be a pilot study where we surveyed hundreds of gamers and non-gamers

to see if there were any cognitive, clinical, or experiential differences between them. We also wanted to see if certain experiential factors were related to the development of gaming addiction, and if autistic personality traits were related to gaming addiction. We also wanted to determine the reasons why people play games in the first place, and accumulate both the positive and negative reasons for gaming to determine which factors could lead to healthy or addictive gaming habits.

The effect of music on non-athletes endurance

Leila Jabbour, Raeshell Nixon, Andrea Rogers, Melissa Tivnan

Abstract:

Previous research has been conducted trying to understand the impact of distractions while exercising. According to the literature music improves work performance, states of higher functioning and delays perception of fatigue with ongoing exercise (Thakare 2017). The purpose of this research is to find whether endurance during exercise is increased when listening to music.

The Greatest

Karen Brown, Gerald Burns, Laura Christoph, Robert Goodby, Paul Jenkins, Jules Kleinhaus,

Kristen Nevious, Annalea Wohlgemuth

Abstract:

Muhammad Ali styled himself “the Greatest,” and so he was, one of the premier athletes, and most compelling public personalities, of the 20th century. His boxing career alone is the stuff of legends: Olympic champion at 18, World Heavyweight Champion at 22, winner of epic fights such as the “Thrilla in Manila” and the “Rumble in the Jungle.” The names he gave to those contests exemplify another of his talents: impromptu poetry. He also undertook courageous, culture-changing endeavors in religion—converting to the Nation of Islam and rallying many others to its standard—and in politics—resisting the draft into Vietnam and serving three years in prison, galvanizing the wider anti-draft movement. Ali then returned to boxing, winning and defending the championship more times, before reaching out to other interests: travel, diplomacy, family (he fathered nine children), and education (a Muhammad Ali Educational Center is established in his honor in his hometown of Louisville). Such is the career and the historic legacy to be celebrated in this poster presentation.

Using Motion Sensors to work towards Climate Neutrality

Hannah Cuzner, Catherine Koning

Abstract:

In 2007 and again in 2016, Franklin Pierce University committed to work towards climate neutrality. This means that the school, through sustainable green practices, is trying to become carbon neutral. The school is releasing greenhouse gases through the burning of fossil fuels and wood for heat, transportation and electricity. Throughout the buildings on campus, some lights are left on 24/7, even if no one was in that room. This wasted energy is not only releasing greenhouse gases, but it is also costing the school money. The solution to this problem would be to install motion sensors, which will shut lights off automatically when no one is there. The project will be implemented in the laundry rooms in freshman, sophomore, and junior dorms. Laundry rooms have low foot traffic and when people are in there it is usually for short amounts of time. There are about 9 laundry rooms throughout these buildings. This project researched potential motion sensors, and the cheapest motion sensor system found was 25 dollars (Intermatic IOS-DPBIF2-WH). So, to have one system in each of the nine laundry rooms it would equal to around \$225 total, which should be around a one-year payback.