

Marciano D. Bagnoli

Space: There and Back Again

This is a story of a dream, exploration, adventure, and risk. The goal of this project was to construct an apparatus to collect data concerning air pressure and temperature of the high atmosphere as well as recording altitude and photographs. The apparatus was propelled into the air by means of a helium filled weather balloon and retrieved via satellite tracking upon touchdown. A small data processing unit installed in the apparatus recorded the measurements and was used to draw conclusions about the properties of the stratosphere. The method was formulated by adapting a design for a low cost photography balloon into a portable observation unit designed to withstand the harsh environment of space and the perilous conditions of retrieval. Multiple balloons were launched, but only a few returned.

Julie A. Kish

2. I would like my abstract to appear as follows:

Have you heard of the smartphone app that claims to clear up acne by emitting colored flashing lights? What about the "chat online now with a live doctor" websites? More than 80% of people use the internet for health-related information, often without taking into consideration reliability, accuracy, relevance, and credibility of the sources being used. The abundance of inaccurate information readily available to consumers has the potential to be detrimental to one's health. This study addresses positive and negative consequences of internet use for health information, as well as suggestions for how to utilize the internet for reliable health-related advice. The research was conducted through a literature review with the ultimate goal of creating an evidence based practice guideline. Findings suggest that internet use for health-related information can be beneficial when practiced responsibly and in conjunction with healthcare provider consultation.

Trent Vallinger and Tyler Ganelli

Abstract

Energy drinks are becoming a popular source of energy for many individuals prior to working out. The purpose of this study was to examine the effects of two energy drinks (Red Bull and Monster) on power output. A group of 20 recreationally active males and females (ages 18-25) performed a 1-RM bench press to measure maximal strength. 75% of 1-RM was used to perform 1 set of repetitions to failure for each subject. Upon failure the subjects performed 3 additional reps using the maximum amount of force/effort they could tolerate. The

subjects were then given a 12 oz. can of either Monster or Red Bull energy drink. After a 60 minute digestion period they repeated the protocol of reps to failure, and 3 maximal effort reps. Power output was measured using the ballistic measurement system. Currently data collection has not been completed, and results are still being obtained.

Jasmine Bentley and Lisa Comella

Here is our revised abstract

Most individuals listen to music while they are working out or prior to an athletic event as a tool for motivation. The objective of this study was to determine how self-selected music impacts anaerobic performance and rate of perceived exertion. Over a three week period, ten recreationally active males aged 18-25 participated in three trials under 3 conditions: no music, music during the warm-up, or music during the test. During each trial, subjects performed three Wingate tests (all out cycling for 20 seconds) with peak power output, mean power, fatigue index, and rate of perceived exertion measured. Results from each testing condition were compared to find any significant changes in the subject's anaerobic performance. Statistical analyses showed no statistical significance in peak power ($p=.54$); mean power ($p=.628$); fatigue index ($p=.97$); or rate of perceived exertion ($p=.88$). In conclusion, music had no effect on anaerobic performance.

Tom Dunham

Andy Ruffing

The Effects of Plyometrics Vs. Traditional Weight Training on Club Head Speed

Golfers have become more engaged in ways to be physically fit to improve their game.

The result has been individuals with faster club head speed generally have greater driving distance. Having greater driving distance is very important in golf to make the second shot easier, which in turn will lower the golfer's score. Many golfers are looking to increase their driving distance by incorporating different exercise routines including general conditioning,

functional training, traditional weight training, stretching and plyometrics. The purpose of this study is to determine effectiveness of a plyometric training program on club head speed in experienced golfers. The University of Mount Union men's golf team will participate in this study and divided into two separate groups. One group will be using plyometrics and the other will use traditional weight training. Club head speed will be measured prior to the start of the training period and will be measured using a swing speed monitor. Each group will train for six weeks and then club head speed will be measured at the end of the training period. Data collection is not complete at this time, but will be presented upon completion. We are expecting plyometric training to have a greater effect on club head speed due to the effect that plyometrics has on the stretch shortening cycle.

Name: Jeffrey W. Slater

Abstract:

Enzymes are used in the synthesis of sugars in organisms. This is true whether they be one-celled or complex, multicellular organisms like humans. Most cellular processes employ multiple enzymes and intermediate compounds in the process of making a final product sugar. By binding intermediate sugars from these processes to different enzymes, novel products can be made. By performing a simple substrate switch and using an enzyme with a similar substrate to that of its natural substrate, it is proposed that a novel sugar will be synthesized. This project intends to employ this substrate switching process. The novel sugar compound that may be formed in this project could be used to modify antibiotics that have known bacterial resistances, and allow that antibiotic to become effective enough to kill the bacteria.

Courtney Gabel
Christine Frazier
Joseph Trocchio

Title: The Effects of Exercise on Cognitive Processes.

It is a common observation to see college students managing their time by studying and exercising at the same time. Some studies have shown a positive correlation between short term memory and

cognitive processes with exercise while others have shown no evidence, sometimes even a decrease in these processes. The present research on (n=10) female recreationally active college students (ages 18-22) examined the cognitive effects of studying at rest versus studying while exercising. Subjects were tested over a two week period, twice a week. Day one subjects exercised on a cycle ergometer at 40% of their maximum heart rate while studying the selected information for 20 minutes. One hour later, the subject's memory and basic cognition were tested. Day two subjects studied at rest, and performed similar tests one hour later. The protocol was repeated during the second week with the subjects completing the tests four hours after studying. At this time data is still being collected but we predict that subjects will be able to retain more information after studying during exercise rather than studying at rest, especially one hour after studying. Results from this study will determine if studying while exercising is productive, this could lead to more beneficial learning and study habits for students.

Nicolina Nolletti
Samantha Stilson
Rachael Carmine
Alisha Wartluft

The Influence of Music on the Perception of Physical Attractiveness

Scholar Day Abstract

Previous research suggests that music can impact physiology, such as heart rate (Zimny & Weidenfeller, 1961), which has been evaluated in terms of attraction. This study attempted to bridge the gap between music and visual perception by determining whether the impact of music on physiology would also have an impact on the rating of another individual's physical attractiveness. Forty-eight female students rated photographs of male students on a scale from 1 (Very Unattractive) to 6 (Very Attractive) either while listening to music or in silence. The interaction of photo subjects and condition had a significant impact on heart rate ($F(3.4,136.3)=3.71, p<.05$), and ratings for the photo subjects were found to be significantly influenced by photo order ($F(4.4,195.6)=2.5, p<.05$). Based on the results of this study, future research could include evaluation of the influence of order in the perception of attractiveness of people or products.

Bevin Blake

Lisa Brasdovich
Erin Krafka
Jenna Waltz

The title of our presentation is:

The Effects of Auditory and Visual Feedback on Physiological Responses to Test Taking

Abstract

Academic stress that students are exposed to during test taking can negatively impact both their performance and physical health (Conley & Lehman, 2012; Collingwood, 2007). Forty-seven college students were assigned to one of three conditions (positive or negative auditory and visual feedback or no feedback) and asked to take an Intelligence Quotient (IQ) test during which blood pressure, heart rate, and performance were measured. We expected that across all conditions the negative feedback group would display higher physiological responses than the positive feedback group, with the no feedback group experiencing the least change. We also predicted that auditory feedback, visual feedback, and the no feedback conditions would mirror this responsive pattern respectively, but these hypotheses were not supported. Results show that systolic blood pressure was different between testing conditions after exposure to visual feedback ($F(2,27)=5.013, p<.05$).

Christina Woofter

As humans age, memory and cognitive function can decline. For some, it can lead to neurodegenerative disease with the most prominent being Alzheimer's disease. Alzheimer's disease is characterized by the gradual loss of memory and cognitive function and is associated with oxidative stress levels in the brain. The physical and social stimulation of an enriched environment has been shown to increase neurological function through learning and memory in the brains of mice. In this study, the effect of voluntary exercise was compared to the effect of exploration toys on the oxidative stress levels in the brains of mice.

Brandi N. Roberts

Title: *The Ideological Stability of the U.S. Supreme Court: An Ideological Comparison between the Burger and Roberts Courts*

Abstract

Politics today are perceived to be much more partisan than politics in years past by the American public. The Supreme Court of the United States is not immune from such criticism, and based on the decisions the public hears about today, the Supreme Court certainly does appear more ideological. Those who discuss the Supreme Court today, including scholars, media, and students, all believe that the Justices make decisions based on their personal ideologies and partisan politics. As we await the Court's decision on some of the most pressing issues of the day, it is important to identify whether or not the personal ideologies of the Justices will play a role in how the cases are decided. In comparing the Burger Court with the Roberts Court, it can be concluded that ideological preference of individual Justices is no more apparent today than over twenty years ago in the Burger Court.

Daad Sarkis

Influence of Hormones and Pre-existing Psychiatric Symptoms on Mood Changes During Combined Oral Contraceptive Use

Are you taking oral contraceptives and feeling more moody than usual? Oral contraceptives are the most popular form of birth control worldwide, and, for unclear reasons, negative mood symptoms commonly cause women to discontinue oral contraceptive use. The goal was to determine whether women and health professionals should consider pre-existing psychiatric symptoms and/or hormones to avoid unfavorable mood symptoms during combined oral contraceptive (COC) use. By conducting a systematic literature review of the most current journal articles, the influence of the hormones, estrogen and progesterone, and preceding psychiatric symptoms are compared. The research suggests that women on COCs are less likely to have negative mood symptoms in comparison to progestin-only contraceptives, but more likely in comparison to non-users. Additionally, depressive and anxiety disorders are more common in women with adverse mood effects during COC use than those that don't have any, but it is uncertain whether they are pre-existing.

Danielle Dumski, Kelsey Kincaid, Joshua Scott, and Jacob Ward.

ABSTRACT

Service-learning is used to enhance academic and social skills by asking students to venture into the community to apply and extend learning by fulfilling a community need. As a service-learning requirement of our multicultural education course, we created a conference for Alliance Middle School students; our objective was to share our knowledge of multiculturalism through the following topics: stereotypes, media literacy, bullying, body image for girls, cultural dance, healthy relationships, and masculinity. We chose topics based upon middle school need. This experience benefitted the community and enhanced our knowledge of multiculturalism, as we were required to do outside research in order to create conference sessions. We conducted research on the effectiveness of the conference for the middle

school students and determined how we, as a class, were impacted by the experience. Also, we found that multicultural topics are not integral in mainstream classrooms; our goal was to change this.

Name: Caitlin Rothman

Abstract: Chronic cannabis use is increasing through legalization, recreational use, and medicinal therapies. Chronic use can lead to cyclical vomiting and severe abdominal cramping, a disorder now described as cannabinoid hyperemesis. Patients' only relief for their symptoms is to bathe in hot water for extended periods of time. This odd condition was first described only seven years ago, but patients who suffer from cannabinoid hyperemesis are nearly incapacitated by their symptoms as they may be taking upwards of 5 baths or showers per day in hot water to alleviate their symptoms. An effective treatment needs to be identified. Based on this evidence that this systematic review uncovers, the most effective therapy for cannabinoid hyperemesis is cannabis cessation.