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## **Botany/Plant Physiology**

### **The Affect of Vitamin Water on Phaseolus vulgaris' Growth and Development Brandon Smith**

Plants have been grown by humans since the dawn of time for use as food, medicine, and beauty. One of the main problems that humans run into while farming is the lack of nutrition that the plants receive, and which of the different ways that could be used to solve this problem such as fertilizer and nutrition enriched soils would produce better results. This project tested the affects of vitamin water as a water source for the Phaseolus vulgaris' growth and development. It is hypothesized that the vitamin water could decrease, increase, or have no significant affect on the plants growth and development. Phaseolus vulgaris seeds were grown in greenhouse seed starting kits, once fifteen germinated the plants were transferred to planting pots filled with potting soil, plants were then watered with the appropriate type of water, and plants were measured daily to record their changes. The results of this experiment show dramatic affects of the vitamin water severely decreasing the growth and development of the plants compared to those grown with tap water.

## **Cellular Biology/Microbiology/Bacteriology**

### **Correlation between Single Nucleotide Polymorphism in the Promoter Region of Tryptophan Hydroxylase-2 (TPH2) and Gene Expression in Human Tissue Prarthana Dalal**

Prader-Willi Syndrome (PWS) is a neurodevelopmental disorder caused by a defect on chromosome 15 resulting in behavioral and cognitive impairment. Behavioral biologists have identified many neurotransmitters that impact behavior such as serotonin. Serotonin is involved in the regulation of sleep, mood, eating, pain, and aggressive behavior many of which are dysregulated in PWS. Tryptophan hydroxylase-2 (TPH2) is the rate-limiting enzyme for serotonin synthesis in the brain. A polymorphism in the promoter region of TPH2 was examined and a relationship was found between the promoter sequence and gene expression. Previous studies have found, using functional magnetic resonance imaging (fMRI) in the amygdale, that there is a correlation between variation in the TPH2 promoter and changes in brain functions impacting behavior. It was found that in the control tissues (saliva, lymphoblast, brain) the G/G genotype had greater expression than the T/G genotype, but in the PWS lymphoblasts T/T demonstrated greater expression than G/G. Results of this experiment suggest the sequence variant (G(-844)T) impacts gene expression and may ultimately impact our knowledge of serotonin biology and human behavior.

### **Effect of In Vitro Mechanical Stress on Prostaglandin E2 Production by Kidney Podocytes Megha Garg**

Proteinuria and hypertension are harmful diseases in the kidney where blood is not filtered properly. This study investigated if mechanical stress, which vitro is blood pressure, effects the expression of Fibrous Actin (F-Actin), a protein in the Podocyte's cytoskeleton and cytoplasmic processes, part of the cell's cytoskeleton. This study also investigated if mechanical stress affects the levels of Prostaglandin E2 (PGE2), a chemical in the kidney. The study further investigated if there was a correlation between the levels of PGE2 and the expression of F-actin and cytoplasmic processes. The cells were put under pressure for 2 hours at 0.2 dynes. To see the expression, both F-actin and cytoplasmic processes were stained and looked at under a microscope. The levels of PGE2 were also tested by collecting media from the mechanical stress experiment. The conclusion was as the cell is being put under pressure, a chemical reaction occurs with PGE2 which creates a change in the protein F-Actin and cytoplasmic processes. When the protein F-Actin changes the cytoskeleton of the cell changes, and the cell contracts and relaxes which allows blood to be filtered more easily.

A Novel Drug Delivery System for the Treatment of Retinoblastoma- Nanotechnology Based Anti-cancer Drug  
Therapy For Targeting Uveal Melanoma Cells  
Monica Roy Chowdhury

To find a better therapeutic strategy for retinoblastoma, by direct intervention of cancer cells of the retina, through development and characterization of folate-conjugated nanoparticles of doxorubicin targeted to retinoblastoma cells.

A Bug In Your Ear  
Sarah Briggs

Because germs and bacteria can grow almost anywhere, they can be found on all different types of earphones. Certain environments are better for bacteria growth (moist and humid) while other places are not conducive to bacteria growth. This research was conducted to determine which type of earphones (Canal phones, Ear Buds, or Wrap-around) has the most bacteria after wearing them for 45 minutes, testing them, and then retesting them another 45 minutes. The procedure was carried out by having a control group (brand new out of packaging). This would give you your baseline statistics. The earphones were worn in the ears for 45 minutes then swabbed for bacteria and then placed back in the ears. Earphones were tested 10 times per person. Once the bacteria was swabbed from the earphones it was placed in a Petri dish with agar and placed on a heat source. If any part of the bacteria was growing in the square, it was marked so the results could be noted. Most Petri dishes grew bacteria. The average growth for the Ear Bud Earphones was 78.6 half centimeters squared. The average growth of the Canal Phone Earphones was 94.2 half centimeters squared. The average growth for the Wrap-Around Earphones was 91.0 half centimeters squared. Therefore the hypothesis was accepted. Each type of earphone didn't have a constant average range. The average range was 123 half centimeters squared. The lowest range was 105 half centimeters squared. The largest was 156 half centimeters squared. More testing would be needed to truly find out if the Ear Bud style really grows the least bacteria on them.

A Comparative Study of Bacterial Growth in Canines' and Humans' Mouths  
Jacob Thomas Ilten

"Don't let that dog lick you in the face...it's unsanitary" is a common admonishment in many homes. This study investigated just how unsanitary dogs' mouths were compared to humans'. If the amount of bacteria in canine and human mouths is compared, then the canines' mouths will show fewer bacteria than the humans' mouths. A group of dogs' mouths and humans' mouths were swabbed on the inside of the cheek with a sterile cotton applicator. The contents on the applicator were then transferred onto Petri plates. The aggregate growth of bacteria for each specimen, measured in a grid system, was recorded daily for four days. The average aggregate bacterial growth for the canines was 32.6 colonies and the average for the humans was 13.9 colonies. Therefore, the hypothesis was not supported in this small study. The canines averaged an aggregate bacterial growth slightly more than double that of the human test group, indicating that canines' mouths indeed carried more bacteria than their human counterparts.

Resistance to *Aspergillus Flavus* Contamination as Influenced by the Addition of Lyophilized Catalase  
Derived from Bovine Liver  
Varsha Subramanyam

*Aspergillus Flavus*, a filamentous species of fungus, is a plant, animal and human pathogen that produces the carcinogen, aflatoxin. Aflatoxin is one of the most naturally occurring toxic substances. *Aspergillus flavus* infected corn is extremely dangerous to both humans and animals. Contamination of corn with *Aspergillus flavus* also reduces the profitability of corn production in the United States. This project focuses on suppressing the growth of *Aspergillus flavus* using the enzyme and protein catalase. The fungus was grown on Sabouraud's dextrose agar, a dextrose peptone media that supports the growth of most pathogenic fungi. Catalase derived from bovine liver was added to the plates. Of the seven plates that had the catalase, three plates had a very low percentage of fungus growth when compared to the control that did not have catalase. It can be somewhat concluded that catalase does a play role in suppressing the growth of the fungus *Aspergillus flavus*, and thereby reduces the risk of the production of aflatoxin.

Valsalva Maneuver's Effect on Heart Rate  
Robert Parati and Ashley Moretti

Research over the usage of the Valsalva maneuver had been previously tested while recording its affect on arterial pressure. With the forced exhalation on a closed glottis, the maneuver increases the blood pressure as long as it is being performed. This maneuver has been used for years by weight lifters but has not been deeply investigated until the past few decades. With many hospitals using the exercise for post cardiac patients, much was to find out about its affect on the heart. In the experiment one group was given the instruction on how to properly perform the maneuver and one group was not. Then data was recorded on their heart rate while lifting 40% of their body weight.

Antimicrobials in Plants Against Strains of Bacteria  
Elizabeth Towne

Antibiotics are gradually becoming useless since bacterial strains are obtaining resistance to them. Antimicrobials in plants may have an impact on these bacterial strains. The antimicrobials would kill off the bacteria and replace current antibiotics bacteria are growing resistant against. The prospect plants would go through a process of extraction, concentration, sterilization, and a disk assay to see if the particular plant has an effect on the bacterial strains. Plant antimicrobials could become the new antibiotics to combat bacterial strains.

The Chemical Effects of Brass, Aluminum, Steel, Stainless Steel, and  
Electro-polished Steel on *Escherichia coli* and *Staphylococcus epidermidis* Bacterium  
Cricket Garancosky

Aluminum, steel, stainless steel, brass, and electro-polished steel were tested to see if any of these metals could inhibit or kill *Escherichia coli* and *Staphylococcus epidermidis* bacterial growth. The hypothesis was that brass would inhibit or kill the bacteria while the rest of the metals would do little or nothing to stop growth. Aluminum did not inhibit the bacteria; growth was little. Steel did not inhibit the bacteria, growth was moderate most of the time, but sometimes no growth was present. Brass inhibited many bacteria except in one instance, which could have been human error. Electro-polished steel did not inhibit *Staphylococcus epidermidis* very well, but until the last test *Escherichia coli* was inhibited. Stainless steel did not inhibit bacteria in every test, amounts of inhibition varying. The hypothesis was supported.

Relationship between Texture of Hand Towels and Amount of Cultured Bacteria  
Sarah Masenthin

An experiment was done to determine if the texture of hand towels used during the process of hand washing had an affect on the amount of bacteria grown over time. The hands of the test subjects were washed and dried on two differently textured towels. The towels were swabbed and plated to culture bacteria and the data was recorded. It was found that in three out of four recordings the thinner tea towel cultured a wider variety of bacteria along with the greatest number of colonies. Therefore, the experiment suggests that a thicker towel would be the best option to achieve minimum bacterial growth.

**Earth Science/Environmental Science/Ecology**

Use of Additives to Improve Stability of a Biodegradable Plastic in Acidic and Basic Environments  
Megan Van Ness

As the world increasingly relies on plastics as structural support for everything from chairs to computers it also relies on landfills as the common method of disposal yet biodegradable plastics are often overlooked due to their instability. It is anticipated that the stability of a biodegradable plastic can be enhanced by both optimal gelatin/glycerin ratios and by the addition of glass microspheres, cellulose, and carbon nanotubes, single or in combination. Furthermore, it is anticipated that formulations of the components will improve stability in both acidic and basic environments. It is also anticipated that the formulation containing carbon nanotubes will be capable of serving as an electrode for a battery due to the conductive properties of the carbon. Plastic was made from differing ratios of gelatin to glycerin and then glass microspheres, cellulose, and SWNTs were incorporated to increase stability in acidic and basic environments. Stability was determined by placing a sample of the plastic in .5M H<sub>2</sub>SO<sub>4</sub>, .5M NaOH, or H<sub>2</sub>O and testing disintegration time. Plastic glycerin formulations proved to be unstable in acidic environments. Glass microsphere, cellulose, and carbon nanotube additives significantly increased the plastic's ability to exist in basic environments although they still disintegrated in strong acid.

Synthesis of a Cassava-Based Plastic for Use as a Biodegradable Computer Casing  
Elise McKenna

Plastic computer casings are overflowing landfills and their continual production emits greenhouse gasses into the atmosphere. Current biodegradable plastics tend to be brittle, and lack the strength and heat resistance needed in computer casings. It is predicted that by combining cassava root derivatives with glycerin a biodegradable matrix will be obtained. It is expected that the addition of fly ash and clay will increase heat and moisture resistance as well as increase the flammability requirements for a computer grade plastics. It is expected that the addition of micro-particulate glass spheres will strengthen the plastic to acceptable computer plastic standards in terms of impact resistance and load strength, as well as increase the heat resistance. The plastic matrix was formed by starting with a base of cassava flour, glycerol, and water. Feather fiber was added and demonstrated its ability to strengthen the plastic base. The optimum ratio of the four variables was achieved, then fly ash, clay, and glass spheres were added to the plastic. Load bearing strength, impact resistance, heat resistance, and biodegradability in water, acid, and base solution were measure for all the plastic composites and compared with standard computer plastic casing. The addition of feather fiber substantial increased the load bearing strength and impact resistance when compared to the cassava flour matrix. The addition of clay substantial increased the bearing strength, impact resistance, and the heat resistance of the plastic when compared to the cassava flour matrix. The addition of glass spheres and fly ash substantial increased the impact resistance and heat resistance of the plastic when compared to the cassava flour matrix. A plastic comprised of cassava flour, glycerol, feather fiber, clay, fly ash, and glass demonstrated the ability to be utilized in computer casings when compared to standard computer plastic.

## Processing of Hemp Waste Used as the Sorbent in an Oil Release Clean-up System into a Biofuel Source Erin Diel

This experiment tested the capacity of *Cannabis sativa* (hemp) hurds in the sorption of oil and the resulting oil-soaked biomass' productivity as a fuel source. Both hemp hurds processed with hemp seed oil and unprocessed hurds were tested for their ability to absorb oil from oil-water waste mixtures. Hurds were found to pick up 3 to 5 times their weight in oil, with the hemp seed oil processed hurds absorbing the most. Oil soaked hurd samples were later processed with egg white and briquetted to form a fuel source. Calorimetric tests were performed to measure effectiveness of the hemp/oil briquettes as a fuel source. Tests indicate that hemp hurds can effectively be used to mitigate oil/water pollutants and subsequently be processed into a fuel source.

## Use of Industrial Orange Wastes to Improve Electrokinetic Remediation of Lead Contaminated Soil Emily Dellwig

In today's society, environmental pollution is constantly increasing. Utilizing an organic waste product to improve collection and removal of soil pollutants would provide an environmentally friendly soil remediation method that does not rely on the use of synthetic chemicals. It is expected that waste byproducts from the orange industry can be used to enhance electrokinetic remediation of lead contaminated soil. Specifically, it is predicted that the citric acid in orange waste will enhance electroosmosis of the metal ions in the soil as well as make the lead compounds more soluble. It is also anticipated that a Saponified Orange Waste gel (SOW gel) "sleeve" around the collecting electrode can be designed such that lead ions migrating to the electrode can be adsorbed and removed. Citric acid in the form of orange juice was added to lead contaminated soil to increase the migration and the solubility of the lead compounds during the electrokinetic remediation process. The addition of orange juice to the contaminated soil resulted in greater removal of lead. The anode surrounded by SOW gel absorbed the migrated lead ions and significantly improved the electrokinetic remediation of the contaminated soil.

## The Effect of Iron Fertilization of Oceans on Aquatic Environment and Algal Growth Doug Dellinger

The main point of this experiment is to show that there are environmental consequences to using artificial iron deposits as catalysts for sequestering atmospheric carbon dioxide in the oceans. So far in this study, adding plankton to the non-iron environment has yielded a small increase in dissolved carbon dioxide and a large increase in dissolved oxygen. However, in the iron-enriched cultures, plankton appear to be using carbon dioxide and oxygen at a higher rate, shown by measured decreases in both. Adding iron to the point of .00125 M solution brings the acidity from between 6 and 7 on a pH scale to between 3 and 4. This level appears hazardous to *Thalassiosira*, the model organism used, as shown by the smaller increases in plankton counts of iron-enriched samples.

Pretreatment to Enhance Ethanol Production from the Cellulose in Switchgrass  
Samantha King

The purpose of this investigation was to determine ethanol yield from the cellulose in switchgrass using simultaneous saccharification and fermentation (a method currently employed with other cellulosic sources). Pretreatment methods are important because they increase the efficiency of ethanol production from cellulosic materials. Low efficiency and high cost are the two major factors preventing ethanol production from being viable on the commercial level. Individual pretreatment methods, including shredding, dilute acid, and base, were tested for their effect on ethanol yield from switchgrass, and the data was used to determine the most effective and cost efficient pretreatment or combination of pretreatments for maximizing ethanol yield from this source. The results were then used to establish a protocol for production of ethanol from switchgrass.

**Engineering/Physical Science**

A Study of the Effects of Increased Dihedral Angle on the Flight Distance of a Balsa Wood Glider  
Andrew Longhofer and Mackenna VanScyoc

A glider is an aircraft which is not propelled by engines but by its own weight. In a balsa wood glider, the wings may be attached at different dihedral angles. An investigation was conducted to discover a measurement which allows for the longest flight distance. It was hypothesized that increasing the dihedral angle would provide more stability, and therefore would increase the flight distance of the glider. Two gliders were built, one with a dihedral angle of 0 degrees and one with 5 degrees. The gliders were then launched ten times each, and their flight distance was recorded. The results of the experiment indicated that increasing the dihedral angle significantly increases the flight distance of a glider.

Use of Vehicular Draft in Tunnels for Electric Generation  
Jackson Shuttleworth

Providing another solution for clean, alternative energy, this project utilizes a wind energy that has been ignored up until the last few years. Vehicles, from cars to subway trains, create high amounts of draft cutting through the air, which in its simplest form is no different than atmospheric wind. The purpose of the project is to design, construct and test a vertical axis wind generating system that can be incorporated into designs such as tunnel walls and roadway medians. A series of Savonius Vertical Axis Rotors were incorporated into a framework that could be mounted to capture vehicular drafts. The generators were shown to produce significant amounts of electrical energy.

Improving Adaptive Technology for Low Level Quadriplegics  
Through the Design of a Pneumatic Reacher System  
Jacob Kasten, Allen Burright and Nathan Thammavongsa

Low-Level Quadriplegia, caused by c4-c7 spinal cord disk injuries, affects many people, and there is limited adaptive technology made to address this specific injury. A prototype of a pneumatic reaching device that could aid in the picking up of lightweight objects by low-level quadriplegics was constructed. This device was operated by contracting a pneumatic bladder, which would pull a string, closing a hand around an object. A grasping versatility test and a grasping force test were conducted and determined that the prototype had the ability to grasp several commonly dropped items. A survey was conducted among people directly involved within the field of rehabilitative engineering and possible consumers determined that the prototype was well designed and would be capable of being used by persons suffering from c4-c7 spinal cord disk injuries.

Reducing the Amount of Injuries Caused Specifically by Seatbelts in an Automobile Accident  
Flor Maria Urbina

Seatbelts have saved an insurmountable number of lives since their introduction into several different forms of transportation. However, the placement of the belts over sensitive portions of the body causes unnecessary injuries during collisions. A prototype was designed to distribute the forces of the seatbelt more uniformly on the passenger. Testing was conducted to contrast the prototype, and the distance of force of the standard seatbelt. The prototype exceeded expectations in all tests, making it a viable replacement to current seatbelts.

Stabilizing SpaceShipOne with the Use of Canards  
Paul Knightly

During the test flights of SS1 in 2004, there were various issues that came up that threatened the safety of the crew and the vehicle. The problem was caused by a thrust asymmetry at the end of the burn that the pilot's were unable to control. The result was that the spacecraft entered into an uncontrollable roll. While the craft eventually regained stability, rolls like this do pose a concern for any future commercial endeavor. The other issue regarding the stability of SS1 is the intense vibrations that occur in flight. The purpose of this project will be to find a way to improve the vehicle's stability in such a way that these affects are diminished or neutralized. The project will make use of Olathe Northwest's wind tunnel to perform the tests and make conclusions to prove/disprove the hypothesis.

Potential of Processed Aspen as a Replacement for Traditional Tone Woods  
Kevan Clarkston

Certain tone woods used in the construction of musical instruments have become scarce, expensive, and endangered due to deforestation. Brazilian rosewood (*Dalbergia nigra*) is one of the best of these woods. In 1992, the Convention on International Trade in Endangered Species (CITES) banned the shipment of Brazilian rosewood in South America. Research by Teruaki Ono and Daisuke Isomura of Gifu University has suggested that materials with properties similar to tone woods made into violins can produce similar sounds. Research by Joseph Nagyvary of Texas A&M University stipulates that soaking wood in grape juice and seawater will increase its ability to transmit sound. Aspen, an abundant yet less utilized wood, could potentially replace Brazilian Rosewood. It has yet to be manipulated for use in musical instruments. The variables being tested are the amplitude and duration of sound through Aspen wood samples under different treatments, including the application of shellac, polyurethane varnish, tung oil, clear lacquer, grape juice, and saltwater. 26 samples of Aspen wood were acquired and 18 were treated. Sound transmission was measured by dropping a plastic hammer on the wood through a cardboard tube. The sound was recorded and analyzed through a computer. It is anticipated that Aspen wood can be treated so that it acquires acoustic properties similar to those of Brazilian Rosewood.

The Potential of Spider Silk as a Surgical Suture  
Michael McClung

While the properties of spider silk have always been recognized as unique, there has been a surprising lack of utilization or application of the material. It was hypothesized that the tensile strength of spider silk is greater than that of surgical nylon and the elasticity greater than that of nylon. Furthermore, it is anticipated that spider silk can be used as a medical suture, with better mechanical properties than that of commercially produced 12-0 nylon sutures. More specifically, the tensile strength and elasticity are expected to be significantly greater for braided silk comparable in size to 12-0 nylon sutures. Tests to determine the tensile strength and elasticity of the materials were conducted, which resulted in spider silk having statistically comparable properties to the nylon suture.

Testing the Effects of Successive Copying on  
Different Colors of the Color Spectrum  
Arjun Kumar

Many people use digital photography to store and distribute valued memories, but do the pictures change when they are copied and does a particular color change more than any other? This research was conducted to determine whether a photograph will change if it is sequentially copied multiple times in the JPEG file format. At the beginning of this experiment, three photographs were taken and stored in JPEG file format. Each file was then opened and saved as a new copy. This was repeated 50 times for each trial. The controls were the original photos prior to copying. To make them the control, they were opened and close after each copy, without saving. Once all copies had been made, the binary content of each file was compared to the original file to see if the picture had changed. The binary content of the photographs stored using the JPEG format had an average of 31.86 different byte sequences (areas of the file) which were different from the original photograph (Photo #1), and 24.04 different byte sequences for the second photograph (Photo #2) and finally 31.96 differences in the third photo (Photo #3). When comparing each copy of the photographs with the previous version JPEG file format had on average 8.46 different byte sequences in Photo #1 and 1.66 different byte sequences in Photo #2 and 4.94 differences in Photo #3. The data showed that when using the JPEG file format substantial differences occurred between each copy and could also be seen by the human eye after 8 copies of Photo #1, 7 copies of Photo#2 and the first copy of Photo #3. The pale colors then started to visibly deteriorate. The conclusion of this experiment means the hypothesis can be accepted.

**Experimental Psychology/Animal Behavior**

The Effect of the Corpus Callosum on Human Spatial Abilities Between the Two Cerebral Hemispheres  
Korbin Richards

This study investigated the efficiency of the corpus callosum in the spatial capabilities of female and male Homo sapien. The subjects were a group of twenty-eight with an even number of males and females. Each subject was led to a secluded room and asked to simultaneously draw a circle and square which is only possible with a patient with agenesis of the corpus callosum. The hypothesis was if a male Homo sapien's messages do not cross each other in the brain and a female Homo sapien's messages do, then a female is more apt to simultaneously draw a circle and square. Data shows that female Homo sapien more successfully handled the task than male Homo sapien by 12%. It can be concluded that the communication in a female Homo sapien's brain is more efficient due to the corpus callosum.

Age and Gender Differentials in Peripheral Vision Alex Henriquez and Jordan Parsons

Peripheral vision exists outside of the very center of one's gaze. Rod cells are critical for peripheral vision and they are susceptible to damage through injury or illness. Little is known about differences in peripheral vision based on gender or age. Our hypothesis was that females that are under age 40 would have the best peripheral vision due to less likelihood of injuries. Fifty-six participants were tested for peripheral vision. A bright colored bandana was moved around their head towards the back until they reported that they could no longer see it. Then the bandana was moved towards the front of the head until they reported that they could see it, at which point the angle was measured. The data were analyzed in a 2 (male, female) X 2 (39 yrs. Or under, over 40 yrs.) analysis of variance (ANOVA). The findings were that males under 40 had the best peripheral vision, but the ANOVA showed that the differences were not statistically significant. This trend might be because of gender differences in types of activities that might develop peripheral vision.

The Calories in Snack Items Using a Homemade Calorimeter  
Emmi Murao

My project deals with the calories of snack items detected by a homemade calorimeter. The snack items include: peanut, Cheeto, marshmallow, Goldfish, Teddy Grams, and popcorn. The purpose of my investigation is to rank the calories of these common snack items. Recently I watched the movie Super Size Me and realized that I have been eating more than what is recommended in the dietary guidelines for Americans. My hypothesis is that peanuts will have the most calories, and popcorn will have the least from the tested food items. The data from my results show that the peanuts had the most calories per gram, and the snack item with the fewest calories was the marshmallows. But the results that were published were not the same as my results; my results were generally higher than the published data, excluding Cheetos. Both of our results came with the conclusion of peanuts having the most calories. The marshmallows have the least calories in my results from the homemade calorimeter, while the published data for Cheetos has the lowest calories. I conclude that my hypothesis is correct because the peanuts had the most calories, but the marshmallows had the lowest calories instead of the popcorn.

The Effects of Music on Blood Pressure  
Dively Zarate

The purpose of this experiment was to see what kind of music reduced blood pressure levels and which kinds increased blood pressure levels. Music was played on a laptop while the students who were tested listened to it through headphones. The data was kept and then later analyzed to see what music increased or decreased blood pressure. The results showed that for some people the music did reduce blood pressure. But, for others, the same music increased their blood pressure. This could be because the music was not chosen by the student or the student didn't like the type of music played.

Remembering More: How Cognitive Load Theory Affects Our Memory  
Cody Zabroski

This test is concerned with the concept of Cognitive Load Theory. With the ever need for education, comes the need to be able to remember and recall more information than ever. A student at Chaparral High School test subjects on their ability to remember a visual stimuli. The subjects watched either a video or a slide show, then tested on the information that was given during the video/slideshow. The results suggested that people who watched the video remembered more than the people who watched the slideshow.