

Poster ABSTRACT BOOK

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Characterization of *Francisella tularensis* in the Lone Star Tick, *Amblyomma americanum*

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Presentation Subject Area: Biological Sciences

The highly fatal bacterial disease tularemia caused by *Francisella tularensis* is transmitted to animals and humans by ticks. Our objective was to develop a *F. tularensis* transmission model in lone star ticks (*Amblyomma americanum*) that does not require infection of animals to establish tick colonization. Colony-reared *A. americanum* were artificially fed with tick meal containing 10^6 *F. tularensis* using a fine bore capillary tube placed over the tick capitulum. Post feeding, ticks were surface sterilized and held under isolation conditions. For adult *A. americanum* 20 to 80% were colonized with 10^1 to 10^4 CFU *F. tularensis*/tick, whereas for nymphs 60 to 90% were colonized with 10^1 to 10^5 CFU *F. tularensis*/nymph. Although this colonization was relatively short-lived with 90% of ticks free of *F. tularensis* 3 weeks following colonization, this model had sufficient reproducibility to replace costly infestation of ticks on infected animals for studying *A. americanum* transmission of tularemia.

Depression and Social Interaction: A Comparison between Males and Females

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The Depression and Stress Generation study is done with volunteer college students as participants. It examines the correlation between our everyday relationships with others, and the occurrence of symptoms of depression. Participants answer questions concerning negative and positive experiences they have had with friends and family in the last five weeks. They also respond to questions assessing their mood at the time. I predict the results will show that the more positive interactions we have with others, the less likely for symptoms of depression to occur. I also predict the results will uncover a different correlation for males versus females. I hypothesize the difference will show females as likely to show more symptoms of depression than males when encountering similar negative social interactions.

Correlations between Parenting and Sociomoral Reflection in a Sample of Low-Income Mothers

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Presentation Subject Area: Social Sciences

Few studies have considered how parents' moral development may influence their interaction with their children. This study sought to examine the links between sociomoral reflection and parenting among low-income mothers while their children were in Head Start and first grade. Participants consisted of 77 mothers whose children were enrolled in Head Start centers. Sociomoral reflection was assessed by the Sociomoral Reflective Measure-Short Form. Parenting was measured using both the Mother-Child Teaching Task and the Computer Presented-Parenting Dilemma. Results suggest that parenting is related to sociomoral reflection in this sample of mothers. Mothers moral development may play a role in the way in which they respond to their child's distress or non-compliance. Further, the way in which they react to these situations may change as a function of time.

Structural and functional characterization of Fowlicidin-1, a cationic host defense peptide with potent antibacterial and LPS-neutralizing activities

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Presentation Subject Area: Biological Sciences

We recently identified fowlicidin-1, a chicken cathelicidin, which possesses broad-spectrum antibacterial and LPS-neutralizing activities but with considerable toxicity toward mammalian cells. NMR spectroscopy revealed that fowlicidin-1 mainly adopts an α -helical conformation with a glycine-induced kink in the center and a short flexible unstructured N-terminal end. To reveal functions of structural regions and identify peptide analogs with enhanced therapeutic potential, a series of deletion analogs were synthesized. Eight amino acids (residues 16–23) at the C-terminal were found to be critically involved in bacterial killing, LPS-binding and cytotoxicity. We also revealed that the N-terminal (residues 1–5) plays a minimum role in antibacterial and LPS-neutralizing activities. Removal of valine at position 5 reduced the cytotoxicity 4-fold while retaining antibacterial potency. However, omission of tryptophan at position 6 resulted in 4-fold reduction in bacteria-killing efficiency, indicating the critical involvement of tryptophan. Fowlicidin-1(6-26) represents a peptide analog with potential as a novel antimicrobial.

Structure of human Retanoic Acid Receptor Gamma LBD with Retanoic Acids and Other Heteretanoids

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Presentation Subject Area: Biomedical Sciences

Human Retinoic Acid Receptor-Gamma (hRAR-G) is a nuclear receptor in human cells. It is activated by all-trans retinoic acid (t-RA) and has shown potential to induce apoptosis (programmed cell death) in cancerous cells. However, t-RA is very toxic and has a very low maximum tolerated dose. One lab here at OSU is synthesizing heteroretinoid derivatives of t-RA, that still activate hRAR-G but are less toxic. Our lab is attempting to solve the ligand binding domain (LBD) of hRAR-G while bound to these heteroretinoids in hopes of gaining information that could allow our corresponders to better synthesize potential anti-cancer agents of this pathway.

Stereocontrol: Photon Induced Chirality Transfer in Solution

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Presentation Subject Area: Biological Sciences

A new methodology to enhance chirality selection (or stereocontrol in solution) in photocyclization is under exploration. Molecular chirality is transformed to point chirality in the product. As a model reaction we have investigated the 6pi-photocyclization of molecularly chiral acrylanilides to test the methodology and so far, it has successfully worked. The primary reactions were done using Methacrylanilide and Tigloyanilide derivatives as template. In the early works, we have struggled for the proper reaction conditions for carrying the photoreactions. Alternatively, the substrates of interests were being synthesized and characterized. Then, photocyclization at low temperature of exclusive atropisomers has been done. The isomers have been separated by HPLC (various solvent systems). After separation the samples are concentrated and kept at a temperature of ' 20 o C to avoid the interconversion, and for long-term use.

Breastfeeding Attitudes of non-Hispanic White and Hispanic Mothers Living in the United States

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Presentation Subject Area: Social Science

Breastfeeding confers multiple health benefits to both the infant and mother. Despite these benefits, as many as thirty percent of U.S. infants are never breastfed, and certain groups exhibit below-average breastfeeding rates. Non-immigrant Hispanic mothers and low-income women are among those with the lowest breastfeeding rates in the U.S. The breastfeeding status of Hispanic mothers differs based on immigration status and increases in residency length correlate with decreased levels of breastfeeding among Hispanic mothers. Identifying correlations in attitudes non-Hispanic White and Hispanic mothers have towards breastfeeding may help design educational materials and programs that will improve the breastfeeding rates among these women. This project involves the administration of a questionnaire to one-hundred non-Hispanic White and Hispanic mothers of children under two in Tulsa. The questionnaire will be analyzed to determine if any correlations exist between specific factors affecting breastfeeding attitudes among non-Hispanic White and Hispanic women.

The Regulation of VAMPs in the Developing Lung

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Presentation Subject Area: Biological Sciences

Lung surfactant is composed of phospholipids and surfactant proteins A, B, and C. Its functions include reducing the surface tension and preventing the alveoli from collapsing. Alveolar type II cells synthesize the lung surfactant to be stored in lamellar bodies, where it is secreted via exocytosis, which results in the fusion of vesicles to the plasma membrane. Vamp 2 and Vamp 8, in previous studies from our lab, have been expressed in alveolar type II cells and are present in the lamellar bodies. This provides the assumption that Vamp 2 and Vamp 8 are likely involved in surfactant secretion. This study further examines the cellular localization of VAMPs in the lungs at various stages of development. Immunohistochemistry showed that VAMP-2 and VAMP-8 were localized in lung epithelial cells and were highly expressed at prenatal stages. These results provide insights into the mechanisms of lung surfactant secretion.

Home Literacy Practices: A study of the self-reported home literacy practices and literacy of children from urban Los Angeles

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Presentation Subject Area: Education

This study aims to identify the effects of Spanish-speaking immigrant parents' home literacy practices on their children's literacy in English. The participants in this study will be Latino third-grade students from urban Los Angeles and one Spanish-speaking parent of each. Data collection included parent and student surveys and an analysis of the survey information's relationships to the students' standardized reading scores from the third grade. The research focused on five sub-questions: (a) Is there a connection between Spanish-speaking immigrant parents' backgrounds and students' reading performance?; (b) Which of the aspects of the Spanish-speaking immigrant parents' backgrounds are most closely related to the students' reading performance?; (c) Is there a relationship between parents' and students' self-reported home literacy practices?; (d) Which self-reported home literacy practices influence students' reading performance?; and (e) Do employing home literacy practices in either English or Spanish relate to reading scores in the same way. The findings allow for the identification of effective home literacy practices and their correlations to

parental background. This research may also offer support for strategies being implemented with the aim of closing the academic achievement gap between native English-speaking children and the children of Spanish-speaking immigrants.

Effects Of Leg Length And Q-Angle On Vertical Jump

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Presentation Subject Area: Biomedical Sciences

PURPOSE: The purpose of this study was to determine whether skeletal structures affect vertical jump.

METHODS: Fifty-eight college age males and females (Mean Age= 21.9 +/- 2.07 years, Mean Ht= 167.77 +/- 8.76 cm, Mean Weight= 72.21 +/- 19.46 kgs) volunteered for this study. Skeletal structures such as leg length and Q-Angle were measured three times on all subjects and the average of those measures was used. The subjects were then asked to perform 2 maximal effort vertical jumps, and the average vertical jump measured was used. A one-way ANOVA and Newman-Keuls post hoc test were used to determine significance of Q-Angle and leg length and their effects on vertical jump. **RESULTS:** There was no statistical significance for leg length and vertical jump for either sex. There was also no statistical significance in Q-Angle and vertical jump amongst males, but there was statistical significance in Q-Angle and vertical jump amongst females ($p < 0.03$). The post-hoc analysis determined that females with Q-Angles 3.3-6.3 degrees had significantly higher vertical jumps than females with Q-Angles 6.4-9.0 degrees ($p < 0.03$) and Q-Angles > 9.1 degrees ($p < 0.018$). There was no significant difference between females in the groups 6.4-9.0 degrees and > 9.1 degrees ($p < 0.08$). **CONCLUSION:** There was a statistical significance in Q-Angle and vertical jump. The smaller the Q-Angle the greater the vertical jump was measured. There was no significance in leg length and vertical jump.

Parental meal attitudes and practices among low-income families with preschool children in Oklahoma

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Presentation Subject Area: Social Sciences

Since the 1970s, the prevalence of child overweight has doubled in Oklahoma. The occurrence of overweight is one of the leading causes of preventable death in this country. The cause of this health concern possibly lies within some of the earliest experiences a child has in relation to food consumption. This study evaluated family meal practices and attitudes of parents of low-income preschool children in Oklahoma. The study also helps explain the relationship between parental attitudes towards family meals and the frequency and environment of family meals. Understanding attitudes towards family meals is an important factor when developing effective nutrition intervention programs for low-income families with preschool children. The survey was administered to a sample of Primary Care Providers of preschool age children enrolled in Tulsa area Head Start Programs. The survey examined parental behaviors, thoughts, and attitudes about eating family meals with their children.

Predictive Validity of the Anger-Irritability subscale of the Massachusetts Youth Screening Instrument-Second Version of Recidivism With a Juvenile Offender Population

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Presentation Subject Area: Social Sciences

The Massachusetts Youth Screening Instrument 'Second Version (MAYSI-2) has been accepted and utilized in the juvenile justice system as a mental health screener. However, its utility in predicting juvenile recidivism has not yet been explored. This study is comprised of 424 subjects who have been detained at Allen County Juvenile Justice Center (ACJC) for criminal charges. Participants MAYSI-2 Anger-Irritability subscale scores were used to assess their utility in predicting juvenile recidivism. A multiple hierarchical regression analysis was conducted. Findings indicated that the MAYSI-2 Anger-Irritability subscale score was a significant predictor of how many times a juvenile offender will recidivate, but is not a significant predictor or recidivism.

Effects of Tanning Beds on the Normal Microbial Flora of the Skin

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Presentation Subject Area: Biological Sciences

This study aims to investigate what effects artificial tanning beds have on the microbial community of the human skin. The human skin has hundreds of species of microorganisms living on it, among these microorganisms are large numbers of bacteria species called normal flora that live in a symbiotic relationship with our body'. Through the process of indoor tanning, one exposes their skin (and their normal flora) to unknown concentrations of Ultraviolet light, damaging bacterial DNA and causing cell death. Ten healthy test subjects (all having been exposed to varying concentrations of tanning bed light in the past) were swabbed before and after a twenty minute tanning sessions. The swabs were then cultured out and cataloged. After a month the results will show what effects tanning has on the normal flora.

Entrepreneurial Communities in Rural Oklahoma

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Presentation Subject Area: Social Sciences

A growing number of U.S. rural communities are experiencing struggles of sustainability and economic vitality (Innovation & Information Consultants, 2006). Rural Oklahoma also faces the same obstacles of declining population, the loss of local businesses, and simply the challenge of existence in some cases. Yet some communities survive and thrive, often by proving to be entrepreneurial. The overall purpose of this research is to assist local officials and citizens improve city planning and rural development efforts across the state of Oklahoma. Both quantitative and qualitative research will be utilized. The Oklahoma Social Indicator Survey of 2006 and community-specific characteristics will be utilized to determine if the community offers services and resources utilized by entrepreneurs. Case studies from selected successful rural communities will offer insight on how a community as a whole behaves as an entrepreneur and provides resources utilized by entrepreneurs.

A Historical Perspective on Renaissance Literature - Mary Queen of Scots: Catholic Heir to a Protestant Throne

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Presentation Subject Area: Humanities

My research will evaluate the complex relationship between John Leslie and Mary Queen of Scots to determine if Leslie's support of Mary Stuart's claim to the throne of England had any validity. Furthermore, my research suggests Mary Queen of Scots lost her life trying to rid England of Queen Elizabeth.

The Relationship Between Alcoholic Drinks Per Week And Driving While Intoxicated In A College Population

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Oklahoma has enacted a Zero Tolerance Policy in regards to drinking and driving. Despite this, young people continue to drive while intoxicated. Alcoholic drinks per week may be a predictor of driving while intoxicated.

Purpose: To determine if alcoholic drinks per week predicts driving while intoxicated.

Method: Questions regarding alcoholic drinks per week consumed and drunk driving were administered to an undergraduate health/wellness class (N = 158). A regression analysis was performed using the number of alcoholic drinks per week and the statement 'I have driven while intoxicated.'

Results: The Pearson correlation between these two variables was .511* (p<.01). R² = .261* [F(1,156) = 55.226; p = .000].

Discussion: The amount of alcoholic drinks per week significantly predicted driving while intoxicated in this study. Given this, efforts should be placed on the importance not only decreasing binge drinking on the weekends, but drinking during the week as well.

Purification and Characterization of Ycf30, a LysR-Type Transcriptional Regulator Found in *Synechocystis* sp. PCC6803

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Presentation Subject Area: Not Chosen

This involves a study of the function of closely related LysR-type transcriptional regulators that exist as a gene family in cyanobacteria. One of the most profound questions in evolutionary biology is how organisms acquire new functions which give them a selective advantage in the competition for scarce resources. Part of the answer to this question is the process of gene duplication and the subsequent evolutionary divergence of the duplicated genes. The set of similar genes arising by this mechanism are considered as members of a 'gene family'. Gene duplication occasionally occurs by accident during DNA replication and gives rise to a situation where an organism contains multiple copies of a gene when it really only needs one copy to ensure survival. However, the 'extra' copy of the gene is free to mutate without the organism suffering negative consequences. Therefore, the extra gene copies can diverge through the process of mutation as it is handed down through the generations. In this way, the duplicated gene can acquire new cellular functions which may be advantageous. Overall, this evolutionary mechanism helps explain how new features of a species can emerge during their evolution. This is exactly what we hypothesize has happened with the family of

regulatory proteins involved in controlling photosynthetic carbon metabolism in cyanobacteria. The experiments described here aim to better define these functions.

Effect of Genotype and Environment on Phytosterol Content and Composition in Wheat Grain

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Presentation Subject Area: Biological Sciences

Wheat straw and wheat germ and bran fractions contain significant amounts of Phytosterols, which can lower LDL and also provide protection against certain types of cancer. The main objective of this study was to evaluate the effect of genotype and environment on PS content and composition in wheat grain. Three varieties Jagger, Trego, and Intrada, grown at three locations, Alva, Balko and Goodwell in 2005 were analyzed. Two sets of samples were obtained from Goodwell (irrigated and dryland samples). Total phytosterol content and composition in whole-wheat grain samples were determined by using a GC-FID system. Whole wheat grain samples varied in PS content from 201.5 mg/kg to 354.8 mg/kg. β -Sitosterol, campesterol and stigmasterol were the major PS compounds found in all the samples. There was a significant location by variety random effect for PS content ($p < 0.048$). Within each location, a significant variety effect was observed. This study is the first step achieving this goal by revealing significant genetic differences in a limited set of genotypes.

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The number of lessons needed to maximize behavior change among Community Nutrition Education Program (CNEP) participants

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Presentation Subject Area: Social Sciences

Objective: To determine the number of lessons needed in the Community Nutrition Education Program (CNEP) to produce a positive behavior change among participants.

Methods: Data was used from the FY 2007 Oklahoma CNEP. 2139 out of 4185 participants had complete data. Lesson numbers were separated into four quartiles: 6-8, 9-12, 13-16, and >16. Pre and post CNEP surveys measured nutrition related behavior change. A factor analysis identified correlated items on the survey. A one way ANOVA and Tukey's post hoc determined significance between the number of lessons taught and behavior change. Results: The factor analysis produced two components, shopping habits and food safety. The shopping habits component produced significant differences between participants receiving 6-8 lessons and 9-12 lessons, and between participants receiving 9-12 lessons and >16 lessons. The food safety component showed a significant difference between participants receiving 6-8 lessons and 9-12 lessons. Conclusion: Although there was a significant difference in behavior change under the shopping habits component between 9-12 lessons and >16 lessons, it is concluded that the number of lessons needed to optimize behavior change and program efficiency in the CNEP is 9-12 lessons.

An analysis of the influence of music videos on self-esteem and body-image in college women

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Presentation Subject Area: Social Sciences

The mass media is a powerful conveyor of socio-cultural ideals and is argued to play an important role in the development of body dissatisfaction and eating pathology. In a meta-analysis of experimental studies investigating how viewing media depicting women models with stereotypically slim bodies affected women, it was found that such pictures resulted in increased body dissatisfaction. The current study looked at how music videos affect women's self-esteem and body image. Seventy three mainly Caucasian college aged women viewed two music videos (No women, sexy Black women lead singers, or sexy White women lead singers). Type of video did not directly affect body image, but it was found that women's self-esteem was higher when they viewed the video featuring Black women than White women and self-esteem was related to body image. Specifically as self-esteem increased body image problems decreased. This study suggests several interesting avenues for prevention and intervention programs.

Boundaries and Dynamics of Mocking bird territories on the Oklahoma State University Campus

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Presentation Subject Area: Social Sciences

Since August I have been plotting mocking birds and their territories. I have been identifying the birds through many long hours of observation and have made use of recorded mockingbird songs to help call them in and thus get an idea of which direction they are coming from. By plotting the sitings and locations of the birds I am able to get an outline of the individual territories and make observations and record changes in territories. The original hypothesis was that in urban environments the birds are using man made objects like buildings to define their territories. We can observe this and many other mocking bird territory aspects using the collected data.

Demographic and Psychosocial Predictors of Mental and Subjective Well-being Among Aging Prisoners

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Presentation Subject Area: Social Sciences

The purpose of this investigation was to examine predictors of mental and subjective well-being among aging prisoners. This study involved 261 male offenders, age 45 and older, incarcerated in Oklahoma state correctional facilities. Multiple regression analyses were computed to assess demographic and psychosocial resource predictors of mental and subjective well-being. Significant predictors of loneliness included education, stress, and social support, whereas race, education, stress, perceived health, social support, and coping predicted depression. Relative to subjective well-being, stress, perceived health, social support, and spiritual attachment predicted purpose in life. In addition, spiritual attachment and coping significantly predicted personal growth. The findings help identify key demographic and psychosocial influences of mental and subjective well-being among older offenders. This has implications relative to developing services and programs to sustain positive well-being among persons who may experience incarceration later in life.

An Investigation of Cognitive Performance Modifiers

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Presentation Subject Area: Social Sciences

The purpose of this project is to test the effect of three manipulations that could improve cognitive functioning. A cognitive battery examines the subjects' spatial ability, executive control, short-term memory, and long-term memory. Preliminary results indicate that all three groups outperform control subjects in a number of cognitive tasks.

The Relationship Between Health Knowledge and Health-Related Behavior in a College Population

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Presentation Subject Area: Social Sciences

The idea that knowledge influences behavior is at the root of health education and health promotion. Despite this widespread belief, little research exists supporting this assertion. Purpose: To determine if health knowledge can significantly predict health-related behavior and the amount of variance in health-related behavior attributable to health knowledge. Method: Two surveys, a health knowledge survey and a health-related behavior survey, were administered as part of an overall knowledge and behavior survey to an undergraduate health/wellness class at a Midwestern university (N = 159). A simple regression analysis was run using the health knowledge score (predictor) and the health-related behavior score (criterion). Results: The Pearson correlation coefficient between these two variables was .133. $R^2 = .018$ [$F(1,157) = 2.832$; $p = .094$]. Discussion: The non-significant findings emphasize the importance of considering and including factors, in addition to knowledge, in the design and implementation of health education and health promotion programs

Water Quality in the North Bosque River Watershed, Erath County Texas

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Presentation Subject Area: Environmental Sciences

The North Bosque River watershed in Erath County, Texas is characterized by high spatial density dairy farms. Water samples were collected from the Bosque River, select tributaries, and Lake Waco to evaluate water quality in relation to proximity to dairy farming. Most of the dairy farms are located in the upper watershed within the study area. Preliminary results show that pH ranged from 6.5 to 8.6 and oxidation reduction potential (ORP) ranged from -4 to 155 mV. Highest pH and lowest ORP values were observed in the stream segments in the upper watershed. Alkalinity values ranged from 152 to 358 mg/L with the lowest values at Lake Waco. Our results indicate that poor water quality was observed mainly in the upper watershed where the most dairy farms are located. We conclude that the dairy operations in the upper watershed of the North Bosque River may be impacting surface water quality.

Immunocytochemical distribution of H-K-ATPase beta subunit in hyperglycemic mice

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Presentation Subject Area: Biomedical Sciences

BACKGROUND: Two proton pumps, H-K-ATPase (HKA) and H-ATPase play an important role in acid-base balance in the kidney. Three H-K-ATPase subunits (HKAalpha1, HKAalpha2, HKAbeta) are expressed in the collecting duct. The beta-subunit is essential for the functional expression of both the HKAalpha1 and HKAalpha2.

It has been reported that the HKAalpha1 (gastric) antibody level is increased in type 1 diabetic patients. Glucose stimulates H-ATPase and H-K-ATPase activities and has been demonstrated in the kidney cells. We examined whether hyperglycemia stimulates the HKA beta-subunit in the outer medullary collecting duct (OMCD) in the mouse kidney.

METHODS: The hyperglycemia was induced by an intraperitoneal injection of streptozotocin (65 mg/kg) and monitored for 5 days. The OMCD tubules were dissected and placed on the center of PLL-coated cover glass and covered with a phosphate buffered saline (PBS). The OMCDs were fixed in 4% paraformaldehyde, permeabilized with 0.5% Triton X-100, incubated with a specific monoclonal antibody (HKA beta-subunit, 34 kDa) and stained with FITC-conjugated antibody.

RESULTS: In the normal mice OMCDs, the intercalated cells demonstrated the immunocytochemical distribution on HKA that was mainly polarized to apical pole and slightly polarized to basolateral pole. In the hyperglycemic mice OMCDs, there was a diffusely distributed staining throughout the cells.

CONCLUSIONS: Results suggested that the HKA beta-subunit is stimulated by hyperglycemia in the renal OMCDs. The HKA beta-subunit is likely to associate with the HKAalpha1 and HKAalpha2 under normal and hyperglycemic conditions.

Confocal Raman Tweezers for a Nanotoxicology Application

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Presentation Subject Area: Physical Sciences & Technology

Raman measurements from optically trapped dielectric and magnetic microparticles, under various visible laser excitation wavelengths, are being studied. Changes in the Raman spectra for trapped living cells embedded with nanoparticles will be investigated.

The Effects Of Hydration On Lactic Acid Accumulation In College Age Male And Female

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Presentation Subject Area: Education

PURPOSE: The purpose of the present study was to investigate the effects of increasing the Recommended Daily Allowance (RDA) of hydration on lactate levels in college age males and females. **METHODS:** College age males and females volunteered for participation in this study. Age, height, body weight, RPE, run time, blood lactate, and specific gravity and osmolality of urine was recorded during pre and post hydration tests. Blood lactate was measured by Accusport/Accutrend Lactate Portable Lactate Analyzer. Subjects ran a pre-hydration 5k test on the track at 'tempo'pace and immediately following urine and lactate samples were collected. The subjects were randomly assigned to one of three RDA groups: 1) RDA intake

of water (control), 2) 1.5 x RDA of water, or 3) 2 x RDA of water. Intake lasted a total of 7 days. After a week of hydrating, the same protocol was used for the posttest as was used for the pre-test. The blood lactate, specific gravity and osmolality were recorded and used for SPSS analysis of different RDA hydration levels on lactic acid accumulation. **RESULTS:** The results of the present study indicated that there was not a significant ($p>0.05$) change in different RDA hydration levels on lactic acid accumulation.

CONCLUSION: It is possible that running at different levels of RDA hydration may lead to different levels of lactic acid accumulation; however, in the present study the lactate accumulations were not significantly different at different RDA hydration levels.

Does size matter? The relationship between clothing size and frequency of shopping in brick and mortar.

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Presentation Subject Area: Social Sciences

Previous research shows that body size is a significant factor affecting women's preferences for clothing and apparel-related products. The purpose of this study was to assess if clothing size is related to how often women shop in brick and mortar stores. The sample consisted of 454 women between the ages 18 and 44 from around the U.S.A. A number of questionnaires including self-report measures assessing body size and frequency of purchase using different retail channels were completed via the internet. The results showed that pant size, but not shirt size, was a significant negative predictor of brick and mortar shopping for clothing. Wearing a larger clothing size was related to shopping in brick and mortar less frequently. These results provide partial support to previous research showing that larger sized women may use alternative forms of clothing shopping because of the lack of clothing assortment or fear of being scrutinized.

A Comparison Of Shoulder Range Of Motion In Collegiate Baseball And Softball Players

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Presentation Subject Area: Education

Research shows that a lack of shoulder range of motion (SROM) leads to increased risk of injury and that there is a significant difference in ROM when comparing dominant versus non-dominant upper extremities in overhead athletics. The purpose is to determine what differences exist between shoulder internal and external rotation ROM of baseball compared to softball players and compare dominant versus non-dominant SROM in overhead athletes. ROM was assessed during pre-season for 12 softball and 16 baseball athletes. Paired t-tests were run to determine significant differences between extremities and genders. No significance was found in SROM between genders or between dominant versus non-dominant arms collectively. Baseball players' external rotation of dominant versus non-dominant extremities was found to be significant ($p=0.013$). Our findings suggest that more research should be done to look at total arc of motion increases and decreases as there was no difference in dominant versus non-dominant ROM collectively.

A Critical Analysis of School Funding.

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Presentation Subject Area: Education

The purpose of this research is to analyze the issues surrounding the problems with school funding in Ohio. This research contains information such as how Ohio public schools are funded, the current condition of the school system, and the proposed solutions to fixing the current condition.

Positive Life Events as a Protective Factor for Depression

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Presentation Subject Area: Social Sciences

The purpose of this longitudinal study is to examine college students' self-reported positive life events, as indicated by the Positive Life Events Questionnaire, and to further examine whether those events serve as a protective factor against the manifestation of depression in the population. The Positive Life Events Questionnaire measures a variety of different events that are typical of college students' experiences. The questionnaire includes items that refer to school, family, finance, achievement, roommates, and significant others. 89 undergraduate participants completed a self-report questionnaire at two time points separated by 5 weeks. It is hypothesized that positive life events serve as a protective influence on depression, such that there is a significant negative relationship between positive life events and symptoms of depression. Thus, the current study proposes to find that increases in positive life events will show a decrease in depressive symptoms.

Antimicrobial effect of a cathelicidin host defense peptide, Fowlicidin-1 (5-26), on *Coxiella burnetii*

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Presentation Subject Area: Biological Sciences

Coxiella burnetii is a Gram-negative obligate intracellular bacterium and the causative agent of acute Q fever as well as chronic diseases. Efforts to find alternative diagnostic and intervention strategies are ongoing. Cathelicidins are naturally occurring, small peptides, with a broad spectrum of antimicrobial activity. Fowlicidin-1 is a cathelicidin found in chickens. It exhibits an antimicrobial effect on many Gram-positive and Gram-negative bacteria. In this study we have tested the antimicrobial potential of a modified Fowlicidin-1, called Fowlicidin-1 (5-26), against *C. burnetii*. Purified *C. burnetii* NMII were treated with Fowlicidin-1 (5-26) and then used to infect Vero cells. Genomic DNA was harvested and *C. burnetii* genomes were quantitated by real time PCR. When compared to untreated *C. burnetii*, experiments revealed an average reduction in the number of *C. burnetii* genomes after treatment with Fowlicidin-1 (5-26). This indicates the potential for these peptides as novel therapeutics for this pathogen.

Factors influencing the adoption of RFID technology by meeting planners

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Presentation Subject Area: Humanities

The purpose of this study is to develop a forecasting model regarding the adoption of radio frequency identification (RFID) technology by meeting planners. Traditional uses of RFID have been in the supply chain and manufacturing areas. Emerging uses for RFID include gas station 'speed passes,' anti-theft devices on cars, and hospital inventory controls. Recent developments in applications for meeting planners have included lead retrieval systems in exhibitions, tracking CEUs at conventions, and monitoring attendance in conference sessions. Despite the uses for RFID technology in the meetings industry, adoption has been slow. Meeting planners were surveyed to determine the extent to which they have adopted the technology, the factors that have influenced their decision to adopt or not adopt the technology, and their projection of when they believe their organizations may adopt the technology. Using this survey data, a forecasting model will be developed using @Risk software.

The Effect of NCLB Mandates on Special Education Programs in Rural Schools

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Presentation Subject Area: Education

The purpose of this descriptive survey study was to investigate the effects of NCLB mandates on the special education programs in rural school districts as expressed by rural school administrators. Rural school districts continue to experience shortages of teachers with Highly Qualified Teacher status, especially at secondary sites. Overall, administrators are reporting that special education subgroups are achieving Adequate Yearly Progress at a higher rate than was predicted by previous research. Professional development needs identified by respondents include diversified instruction, inclusion, and resistance to intervention.

Structural and Functional Studies of Cytochrome *bc*₁ Complex

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Presentation Subject Area: Biological Sciences

The cytochrome *bc*₁ complex (Complex III) is an important segment of the electron transfer chain of mitochondria and many respiratory and photosynthetic bacteria. It catalyzes electron transfer from ubiquinol to cytochrome *c* with concomitant translocation of protons across the membrane to generate a proton gradient and membrane potential for ATP synthesis.

The research is focused on structural studies of *bc*₁ complex. Great efforts are being made on the step-by-step purification of *bc*₁ complex. The condition for crystallization of membrane protein like *bc*₁ complex is laborious, and so a lot of optimization was done to help *bc*₁ complex crystallize and diffract well. The plan is to crystallize *bc*₁ complex under different redox status. Other experimentation in kinetics assay on *bc*₁ complex and superoxide anion generation by *bc*₁ under certain conditions is also being done.

Health And Nutrition Perspectives Of Native American Women Living Within The Chickasaw Nation

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Presentation Subject Area: Social Sciences

This study explored health perceptions of 43 Native American women aged 20-78 years eligible to receive food stamp or commodity food benefits. Twelve focus groups were conducted and verbatim transcripts were analyzed to identify common themes framed using social marketing principles. The major theme identified for health product was diabetes prevention. Participants indicated a preference for interactive education with an intergenerational focus when promoting health information. Participants identified Chickasaw specific locations within the community for program implementation. Price for lack of attention to Native American values when designing health programs is lack of adherence to advice from health professionals. Findings emphasize the need to attend to Native American culture when developing health programs. Results can be used to develop and test health messages specific to Chickasaw Native Americans. Findings indicate social marketing principles should be utilized prior to developing interventions to address health concerns specific to Native American populations.

Health issues within the Hispanic community.

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Presentation Subject Area: Minority Issues

Abstract Not Yet Received

An international immersion experience: Developing cultural competence in nursing students

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Presentation Subject Area: Education

An outcome of baccalaureate level nursing education is the development of cultural competence to provide care for diverse clients (AACN, 1986). The purpose of this study was to investigate if an international cross cultural encounter would increase baccalaureate nursing students' cultural competence. Campinha-Bacote's (1998) model of cultural competence development was used as the framework for a pre-test post test study design. T-test analysis indicated that cultural competence in students who participated in the immersion experience (n=12) had a significant decrease in level of cultural competence while the control group (n=21) exhibited no significant change. Written comments from students, suggest that prior to the encounter, student's self-perception of cultural competence may have been inflated, whereas afterwards they were more aware of their deficiencies in cultural competence. They also reported an increased in 'cultural desire' to work with diverse clients which is a critical aspect of development of cultural competency (Campinha-Bacote, 2003).

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Chemical sensing based upon hybrid plasmon damping in metal nanostructures

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Presentation Subject Area: Physical Sciences & Technology

With the launch of intense research activity in the fabrication and utilization of nanostructures in recent years, localized surface plasmon resonance (LSPR) sensors using metal nanostructures gained significant attention with the objective of detecting biomolecules, explosives, toxins, and warfare agents at trace levels. The present work, demonstrates a new mechanism of LSPR sensing. This is increase in plasmon damping due to molecular adsorption on nanoparticles. The investigators synthesized Ag nanoparticles (average size of 28 nm) by redox chemistry on Si films. The nanoparticles were found to exhibit a dominant hybrid dipolar plasmon resonance at 600 nm due to strong inter-particle electromagnetic interaction. It is found that, this hybrid mode undergoes remarkable damping due to molecular adsorption, once the intrinsic damping is minimized through a proprietary annealing step. Damping can be easily monitored from optical extinction in seconds and at trace levels below ppb (e.g., for Hg, H₂S).

The Relationship Between STD Attitudes and Practice of Safe Sex in a College Population

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Presentation Subject Area: Social Sciences

Sexual education programs have been implemented at colleges throughout the nation. Despite this, students continue to engage in unsafe sexual practices. Attitude toward STDs may be a predictor of safe sexual practices.

Purpose: To determine if attitudes on sexually transmitted diseases can significantly predict safe sex practices.

Method: A STD attitude scale and questions regarding the practice of safe sex were administered to an undergraduate health/wellness class (N = 134). A regression analysis was performed using the STD attitude scale score and the statement "I always practice safe sex."

Results: The Pearson correlation between these two variables was .218. $R^2 = .047$ [$F(1,132) = 6.576$; $p = .011^*$].

Discussion: This significant finding emphasizes the importance of considering the influence of attitude on safe sex practices. These results suggest that attitude should be considered in the development of sexual education programs.

Effects Of Short-Term Hmb Supplementation On Quadriceps Peak Torque Following An Over-Reaching Training Protocol

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Presentation Subject Area: Biological Sciences

PURPOSE: The purpose of this study was to determine the extent of muscular fatigue and reduction in performance due to a rigorous strength training protocol and to determine if Beta-hydroxy-Beta-methylbutyrate (HMB) is effective in curbing any reductions in performance. **METHODS:** Peak torque and Percent Decline of the quadriceps were examined using an isokinetic dynamometer. Thirteen college-aged male participants with prior weight training experience were randomly assigned supplementation with HMB or supplementation with placebo as a control. **RESULTS:** There was no significant change in PT or Percent Decline for either group ($p > 0.05$). **CONCLUSION:** Our results indicate no decline in PT or Percent Decline when HMB was supplemented during an over-reaching training protocol.

An Analysis of Variance on Proportions with Unequal Sample Sizes

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Presentation Subject Area: Physical Sciences & Technology

The use of transformation on proportions with equal sample sizes to stabilize the variance of Binomial data and the test statistic for testing significance differences among proportions was familiar. The test statistic with unequal sample sizes for testing significance differences among proportions was less familiar. The purpose of this study was to compare different transformations by simulation process. The test statistic results using the harmonic mean on sample size with the unweighted and weighted means on transformed data, and reciprocal of the variance as the weight with the unweighted and weighted means on transformed data were also compared. Results indicated that all test statistics using angular transformation exhibited poor

Type I error control. However, when p was large (0.9 in this study), the Type I error rates for all tests using Bartlett, Anscombe, and Freeman-Tukey transformations showed extremely conservative results.

Impacts of Color on Natural Fibers, Natural Dyes, and Mordants

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Presentation Subject Area: Environmental Sciences

Natural fibers such as silk, cotton, linen, and wool hold a naturalistic significance. The dyeing of natural fibers, using the unaffected process of natural dyeing, was also considered respectful of nature. Colors coming from natural dyes are elegant and subtle, but deep enough to express colors used in nature. After synthetic dyes were invented, the use of natural dyes was greatly diminished for many years. With the trend of 'green,' people unconsciously would like to live in nature by viewing natural colors (Lee, 2001). Many designers are looking for more environmental friendly ways to design and produce products. However, there is no set standard of how to prepare and practice the craft of natural dyeing. The purpose of this study is to investigate impact of natural fiber and yarn types specific to natural dye and mordant.

Two natural fibers (cotton and wool), five natural dyes (tea, coffee, pecan, brazilwood, and cutch), and three mordant (alum, chrome, and iron) were selected. The natural dyes selected were in shade of brown. Dyeing recipes and procedures for each dye were recorded. The results reported based on the Munsell color system. Wool yielded a more clear and desirable color than cotton. The non-mordant yarns presented the same hue (with different value/chroma) for both cotton and wool. The use of mordant changed the visible colors from dyed fibers as follows: alum made the color brighter on both cotton and wool: iron generally resulted in a dark, dull, and smoky color such as dark brown and gray, and brought out green shades on both the cotton and wool fibers: chrome made the dyed color more clear and appear lighter on cotton while more intense on wool. Additionally, with five natural dyes in brown after different dyeing procedures, the hue ranged from beige, pink, purple, green, brown, and grey.

Outdoor Lighting Products Survey of Retail Establishments: Observations from a Field Study Participant

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Presentation Subject Area: Social Sciences

Light trespass, a form of light pollution, occurs when unnecessary or wasted light encroaches into an inappropriate area, as in the case of unwanted light in the night sky from consumer installed outdoor lighting (Narisada & Schreuder, 2004). The current research was conducted as a field study examining specific retailers' inventory to determine if "dark-sky friendly" (International Dark-sky Association, 2008) outdoor lighting products are accessible to consumers. The International Dark-sky Association (IDA) utilized a convenience sample of ten member-volunteers for the study. Participants developed a physical inventory of the outdoor lighting products available in local retail stores. Results were submitted to the IDA via email.

To date, the data have not yet been completely analyzed, but based on preliminary findings, it appears that there were few "dark-sky friendly" outdoor lighting products found on the shelves of major retailers in the United States. Further research and analysis is needed to determine if this is a widespread trend.

The future of hospitality education: How hospitality schools prepare their international doctoral students to become future educators in the U.S.

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Presentation Subject Area: Education

This study explores the area of hospitality education and examines issues that are faced by international teaching assistants (ITAs) on their pass to become future educators. The main purposes of this study are to investigate a) the processes that an international student in a Ph.D. program in the U.S. has to experience in order to become an instructor in his/her university and b) the issues associated with his/her first-time teaching experience in the US. Two sets of data will be collected: first, data will be collected by using phone interviews with graduate coordinators in the universities offering Ph.D. programs in hospitality, and second, a survey will be conducted on international Ph.D. students who have been ITAs. Acquired data will be analyzed and the results will be presented. Finally, implications of the study will be discussed and recommendations for issues/challenges associated with ITAs and their training programs will be provided.

A Wireless Sensor Network System for Multi-plot Soil Moisture Monitoring

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Presentation Subject Area: Environmental Sciences

A wireless sensor network system was developed and tested which was able to continuously monitoring soil moisture in a wheat field. The system consisted of 12 wireless nodes running on TinyOS in which ten were used as sensor nodes, one as central node to collect data from the sensor nodes and one as a base node connected to a PC to retrieve, store, and present the data. Each sensor node included mote, signal conditioning board and soil sensors buried at four depths at a sampling location. A central node could store data for 21 days with a sampling frequency of every two hours. Laboratory experiments were carried out with soil at eight soil moisture levels, 10%, 15%, 20%, 25%, 30%, 35%, 40% and 50%. Results showed that the sensor output responded according to the changes of soil moisture and data were successfully transmitted and stored on the central node.

Expression and Characterization of *Anopheles gambiae* Acetylcholinesterase-1

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Presentation Subject Area: Biological Sciences

Insect and mammalian acetylcholinesterases (AChEs) terminate acetylcholine action at cholinergic synapses. Due to their physiological significance, many AChEs have been extensively studied. However, the biochemical properties of *Anopheles gambiae* AChEs remain unknown, which negatively impacts the development of insecticides highly selective against this principal vector of malaria. We expressed *A. gambiae* AChE1 and purified it 2.6×10^4 folds by ion-exchange and affinity chromatography. From 600 mL culture supernatant, we obtained 0.48 mg AgAChE1 with a specific activity of 525 U/mg at a yield of 52%. The enzyme migrated as a single band at 65 and 130 kDa positions under reducing and nonreducing conditions, respectively. While K_M 's of AgAChE1 for ATC, A β MTC, PTC and BTC were comparable, their V_{max} 's were substantially different: 209, 122, 84 and 15 μ M/min/mg. The IC_{50} 's for carbaryl, eserine, BW284C51, ethopropazine, malaoxon, paraoxon, and malathion were 0.02, 2.41, 57.8, 2.9×10^5 , 0.01, 0.06, and 47.4 pM, respectively.

Acid mine drainage contamination of Neosho and Spring Rivers and Grand Lake in the Tar Creek area

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Presentation Subject Area: Environmental Sciences

The Tri-State Mining District in N. Eastern Oklahoma is known for severe lead, zinc, and cadmium contamination of streams due to previous mining activity. Contamination from these elements is particularly dangerous due to the toxic nature of Pb, Zn and Cd in the human body, especially children. In this study, water samples were collected from several stations from the Neosho and Spring Rivers and in Grand Lake. The objective was to assess the general water quality and specifically the extent to which previous mining activities was impacting the water quality. The temperature, pH, dissolved oxygen, oxidation reduction potential (OPR) was measured using an YSI multi-parameter probe. Alkalinity was measured in the field by acid titration. Major anions were measured on filtered samples by ion chromatography and major cations and metal were measured on acidified samples by inductively coupled plasma optical emission spectrometer. Silica was measured by spectrophotometry. The results show that the water quality for the two rivers and the lake were different. For example, K, Na and Mg were higher in the samples from the Neosho River while Ca and Si were higher in the Spring River. Grand lake showed lower concentrations of these parameters compared to the rivers. Analyses of the water samples showed that Cd, Pb and Zn, were below detection suggesting minimal impact of water column of the rivers and lake. This observation is consistent with high pH (7.5 to 8.5) which promotes precipitation for these metals from the water column. The results also show that the water chemistry of Grand Lake was more similar to that of Neosho River than Spring River indicating that the Neosho River may be a more prominent source for the lake. This suggests that water quality impairments in the Neosho River are more likely to impact the lake.

Plant Architecture Across the Grasses Is Phylogenetically Meaningful!

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Presentation Subject Area: Biological Sciences

One of the traits that has been selected upon during the domestication of the cereal grasses is plant architecture. Across the grasses this has resulted in varying branching patterns. In wheat, oats, and rice, this trend has resulted in a number of equal length basal branches (tillers), while in maize, sorghum and the millets, the trend has been to reduce all growth to a single stem. We are exploring whether these patterns are the result of selection upon pre-existing variation, and if there is a correlation between the architecture of domesticated grasses and architecture of closely related grass species. Our findings so far indicate that there is a close relationship between evolutionary history and architectural form of domesticated grasses, but that there is also much flexibility, even within genera. This is not surprising, considering the large effect that environmental variation, especially in light quality, can have on branching patterns.

Electrical Penetration Graphs of Squash Bugs feeding on watermelon

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Presentation Subject Area: Biological Sciences

Electrical Penetration Graph (EPG) technology is a useful tool to study the feeding behavior of piercing and sucking insects. The squash bug is a serious pest of watermelon in the United States and is a vector of Cucurbit yellow vine disease (CYVD). This study focused on the identification of the EPG waveforms produced by squash bug feeding on watermelon. After 24 hrs of starvation, squash bug nymphs and adults were fed on young watermelon plants and the waveforms produced during feeding were recorded using EPG

technology. The squash bug feeding on the watermelon plants produces four different waveforms patterns, including the pathway phase and the ingestion phase (based on the previous work). This work is a part of a larger study designed to determine where they feed inside the plant and how they inoculate CYVD bacteria.

Giving As a Coping Strategy in Holocaust Survivors

Lee Ann Miller

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McNair Scholar from Texas Christian University

Presentation Subject Area: Social Sciences

Holocaust survivors experienced atrocities and brutality at the hands of the Nazis in Germany and German occupied territories from 1933 to 1945. They lost family members, their homes, property, and community. They were forced to relocate to a different country, learn a new language and culture, accept their death of many of their family members and friends, and make meaning to their lives. These Holocaust survivors are now in the 70', 80' and 90's. Altruism is defined as concern for the welfare of others, without reward. In contrast to what they experienced at the hands of a dictator, it seems that these survivors appear to have a desire to serve their immediate their communities as a way to cope with the atrocities they have suffered. I think that our research is demonstrating that these people are giving back to the community as a moral imperative to help others and in contrast to the "Germans who lost their moral compass." As their interviews have shown, they will never forget what happened to them so many years ago, but they will not dwell on it; their present rules their lives, but their past helped shape them for who they are today.

In Defense of Science Fiction

Daniel Morrissey

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McNair Scholar from Harding University

Presentation Subject Area: Humanities

The research project was centered on the recognition of the value of science fiction to society and the individual, and briefly examines the content and application of four great works of science fiction from four different time periods.

6-Nitro-1,2,3,4-tetrahydroquinolines by a tandem reductive amination-S_NAr reaction

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Presentation Subject Area: Biomedical Sciences

A tandem reductive amination-S_NAr reaction has been developed for the synthesis of 6-nitro-1,2,3,4-tetrahydroquinolines. Treatment of 4-(2-fluoro-5-nitrophenyl)-2-butanone or 3-(2-fluoro-5-nitrophenyl)-propanal with primary amines and sodium cyanoborohydride in methanol provided good to excellent yields of the substituted tetrahydroquinolines. The reaction proceeded best with the ketone substrate using primary amines that were unbranched at the alpha-carbon giving yields of 88-98%; alpha-branching lowered yields to less than 20%, presumably due to steric hindrance. The aldehyde also produced the target heterocycles, but in lower yields of 70-76%. The products from these substrates were accompanied by 10-15% of the uncyclized side chain reductive amination products. Yields from reaction of the aldehyde with alpha-branched amines were slightly higher. The poster will summarize our results and give a mechanistic rationale for the observed yields.

A Conceptual Framework for Sustainable Home Furnishing Products Online Shopping

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Presentation Subject Area: Environmental Sciences

As global environmental concern has increased, sustainable product development has become significant issue for producers and users (Harris, 2007). One effective device for targeting green consumer is Internet (Polonsky & Rosenberger, 2001). Previous studies typically focused on traditional demographic and psychographic variables influenced on desire for sustainable products (Shrum, McCarty & Lowrey, 1995). However, little information is available on the relationship between the desire for sustainable products and online shopping. The purpose of this study was to develop a conceptual framework for sustainable home furnishing products online shopping. The conceptual framework related to innovativeness, leadership and environmental attitude was developed for sustainable home furnishing products online shopping. It may provide a deeper understanding of the consumer characteristics of those persons who adopt the sustainable home furnishing products online shopping. Such information can assist the marketing for sustainable home furnishing products over the Internet in developing and evaluating their markets.

Tryptophan dependent but IDO-independent, regulation of Meth A fibrosarcoma cell growth by a nylon wool adherent subpopulation.

Meagan Nasworthy and Dr. Kim Burnham
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Presentation Subject Area: Biological Sciences

Little is known about the cellular complexity of tumors and how this complexity might effect the survival, growth and metastasis of tumors. Tumors consist of heterogeneous populations, including transformed cells, endothelial cells, stromal cells, and host leukocytes. We are trying to understand tumor cell heterogeneity by examining how different sub populations of tumor cells affect tumor cell growth in vitro and in vivo. We are using the Meth A fibrosarcoma grown in BALB/c white mice as our source of cells. We have found that the growth of tumor cells is increased by removing the nylon wool adherent cells or by adding excess tryptophan to the media. These results suggest that nylon wool adherent cells reduce growth by limiting the availability of tryptophan. We hope this study will help us to understand the functional capacities of the different types of tumor cells and how those cells effect tumor growth and survival.

Studies of Marine Turtle Nesting Activity and Reproductive Success: Brevard County Geotextile Tube Installation

Annie Nguyen
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McNair Scholar from University of Central Florida
Presentation Subject Area: Biological Sciences

Florida experienced severe hurricanes in 2004 and geotextile tubes were installed on the Archie Carr National Wildlife Refuge, a nesting beach for endangered green, loggerhead, and leatherback turtles. Observations of nest disturbance, hatchling emergence and sand depth measurements depict the interaction between geotextile tubes and marine turtle nesting.

Human Nuclear Distribution Gene C (NudC) protein and Heat Shock Protein 90 (Hsp90)

Braxton Nottingham
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Presentation Subject Area: Not Chosen

Research has shown that the Human Nuclear Distribution Gene C (NudC) protein and Heat Shock Protein 90 (Hsp90) are over-expressed in cancer cells, and seem to be physically associated with each other. This physical connection suggests that NudC and Hsp90 function together within the cell. Both are chaperone proteins that fold newly synthesized proteins into their proper structure. I am working to find out where the two proteins bind together. I am performing protein dissections to cut the full length NudC at various points. Full length NudC binds to Hsp90, and therefore co-purifies with it. I test the shortened NudC proteins, and if they are still bound to Hsp90, I continue until I no longer see binding. Knowing where the two proteins bind will give insight into how these two proteins function together.

The impact of convention destination image on future attendees' intention: A cultural perspectives

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Presentation Subject Area: Social Sciences

The objectives of this study were to examine the influence of convention destination image on convention attendees satisfaction and future intentions, to compare different perceptions by culture, and to suggest strategies meeting planners, organizers, and convention bureaus should adopt to improve their current marketing strategy. The convention destination image was assessed on six factors: 'Meeting facilities', 'Special programs', 'Environment', 'Extra-activities', 'Accessibility', and 'Meeting management'. 'Meeting facilities' and 'Environment' have a significant effect on satisfaction of convention destination, and also influence their future intentions. The Structure Equation Model (SEM) was used to understand the relationship of convention destination image, satisfaction, and future intentions. The independent t-test was analyzed to find the differences in terms of culture on convention destination image. The findings of this study will help contribute the development of marketing strategies in convention or tourism industries to satisfy convention attendees' needs and thereby the growth of participation on meetings.

Arabidopsis thaliana RNA Binding Protein Involved in Oxidative Stress

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Presentation Subject Area: Biological Sciences

RNA binding proteins (RBPs) play a role in post-transcriptional regulation via mRNA stability, splicing, polyadenylation, transport and translation. RBPs containing RNA recognition motifs (RRM) are the most common among eukaryotes. In *Arabidopsis thaliana*, there are 196 RBPs containing different number of RRM ranging from one to four. We examined the RBP gene sequences containing three RRM in several other plant species to investigate the evolutionary conservation of these RBPs. Seven RBPs in *Arabidopsis* with three RRM are closely related to the RBP45 and RBP47 of tobacco. The expression profiles of those RBPs were examined under ozone stress. Of these seven, At1g11650 showed increased expression 2, 6, 10, and 18 hours after ozone fumigation. Interestingly, At1g11650 has 59 % similarity to yeast oxidative stress regulator protein, CSX1. We will use ribonomics to identify the RNA targets of At1g11650 to further understand its role in oxidative stress regulation pathways.

Comparison Study on Emotional and Social Development of Low-Income Children in Developed and Developing Countries.

Brandy Peoples, Mumbi Kithakye, and Dr. Amanda Morris
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Oklahoma State University
Presentation Subject Area: Humanities

Numerous studies have shown that the family, community and socioeconomic environment within which a child grows impact a child's social and emotional development. Children exposed to low-income settings, chronically ill family members, and dangerous communities generally show poor developmental outcomes. Much of the research on the impact of the environment on child social and emotional adjustment is among children living in developed countries, despite the fact that approximately 86% of children in the world live in developing countries. This study is going to evaluate the social competence, emotion regulation, and ego resiliency of pre-school age children living in Kibera, Kenya one of the largest urban slums in Africa. This study will then compare these results to data previously gathered on pre-school aged children of similar ages in a small southern city in the United States. We predict to find differences between the data collected in these two cities.

Examining Website Accessibility among the Disabled Population

Mikki Phan and Barbara Chaparro, Ph.D.
McNair Scholar from Wichita State University
Presentation Subject Area: Social Sciences

The Internet has given people opportunities to work at home, shop at their convenience, communicate with each other globally, and retrieve information that wasn't easily accessible before. However, not everyone is given equal access to enjoy what the Web has to offer. People with disabilities in particular have more difficulty than the non-disabled population when accessing websites and processing information on the Web. This two-phase study focuses on people with various types of disabilities. The first phase involved a survey to assess the general internet usage of disabled people and the general views that they have about government (.gov), education (.edu), and other websites (.com, .net, etc.) The second phase involved the examination of performance and preference of people with learning and/or cognitive disabilities on two travel websites. Results will be used to determine potential ways that webmasters and web designers can improve accessibility of websites for the disabled population.

OSU High-Performance Cluster Computer for Scientific Studies

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Presentation Subject Area: Physical Sciences & Technology

Computer simulations are programmed to model complex interactions in molecular dynamics, data optimizations, electromagnetics and a host of other problems. In order to serve the high-demand for computing power, the High Performance Computing Center (HPCC) provides supercomputing services to enable faculty and students to conduct a wide range of focused research and development. Code-named 'Bullet', each of the 64 nodes in the cluster has dual Intel Xeon 3.2GHz processors with 4GB RAM. The cluster supports application packages including Mathematica, Gaussian and R, and compilers such as MPI and GNU C/C++/Fortran. The poster describes simple procedures to enable job submissions using Platform LSF' cluster scheduler.

Does Suicidal Ideation Cause Stress to Occur?

Kathy Rasmussen and LaRicka Wingate, PhD
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Oklahoma State University
Presentation Subject Area: Social Sciences

There is a wealth of research showing that stress can lead to depression, and also that depression can lead to stress. This creates a possible feedback situation wherein stress generates depression and, in turn, depression generates further stress. Previous research has also shown a link between hopelessness and the generation of stress. Suicidal ideation has been associated with hopelessness; and thus warrants further examination as to the role it plays in stress generation. The current longitudinal study seeks to examine the possible relationship between suicidal ideation and the generation of negative life events. We hypothesize that suicidal ideation predicts the generation of stressful negative life events. Two hundred two undergraduate participants completed a self-report questionnaire at two time points separated by seven weeks.

Attachment style, negative affect, and physiological reactivity: Connecting the dots.

Emily Rolling and Brandt Gardner
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Oklahoma State University
Presentation Subject Area: Social Sciences

Negative affect has long been associated with relational distress, and attachment styles have shed considerable light on the processes which leave certain individuals and couples more vulnerable to negative emotional response patterns. Specifically, individuals with insecure attachment styles have been shown to demonstrate higher levels of negative affect as well as more difficulty regulating states of negative arousal. In addition to levels of negative affect, preliminary evidence suggests that individuals with insecure attachment styles may have more difficulty transitioning from negative affective states. This study examined this relationship as well as discussed the possibility of the meditational role of physiological reactivity measured by levels of alpha-amylase.

Elusiveness of Race: White Denial, Black Trauma

Kevina Satterfield and Dr. Michael Herndon
Department of Psychology
McNair Scholar from Hampton University/Virginia Tech
Presentation Subject Area: Minority Issues

Race in America has been conceptualized as a social construct that has supported racist mannerisms toward minorities. Recently, researchers have devoted great energy studying the Black psyche. The purpose of this study is to explore the denial of race. To execute this study we used a secondary database, General Social Survey, to collect our data. Over 50% of the respondents believed ethnic differences must be ignored in order to achieve harmony in the United States. Thus, the denial of race is a dynamic of racism which should be examined to establish effective ways to maneuver the taboo of race.

Extracts of white button mushroom block the growth (proliferation) of the human cancer cell line THP1.

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Presentation Subject Area: Biomedical Sciences

Various types of mushrooms, such as shiitake, maitake, and white button, have anti-tumor properties. Some mechanisms of anti-tumor properties include blocking tumor cell proliferation (cytostatic effect), killing

cancer cells (cytotoxic effect), and activating other immune cells that are involved in killing cancerous cells. For the assay protocol, varying concentrations of white button mushroom extract and fetal calf serum were added to THP1 cells (leukemic monocytes). The THP1 cells were incubated for approximately 44 hours and the results were studied by MTT reduction. Cell viability, which affects cell proliferation, was measured by optical density. Our results suggest that consumption of white button mushrooms may limit or block cancer cell proliferation in vivo. In future experiments, we will test the capacity of white button mushrooms to block the development and/or progression of certain types of cancers in laboratory mice.

Oklahoma City Navigator

Majunu Seran

Department of Geography

Oklahoma State University

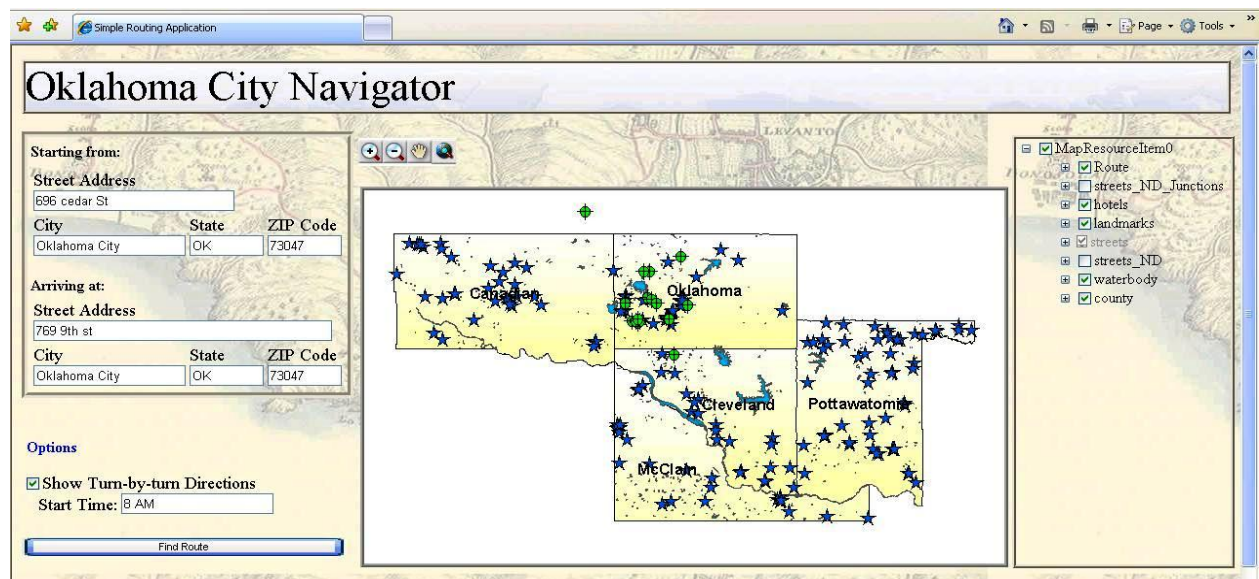
Presentation Subject Area: Social Sciences

Internet has revolutionized the way information is disseminated to distant people. The current business industry flourishing with customer oriented services demands the deployment of the available information to the user community either in the form of customer support services or information services.

Oklahoma City navigator website provides network based routing services and driving directions through the existing infrastructure of the Oklahoma City. The website is targeted at people who are new to the city as they are absolutely stranded without knowing what is where and a Geospatial information system might help the tourist to receive localized information. The system provides information about the user location “where he is?” the optimal path to destination “where he wants to go?” and what are the “services and facilities” available to user at the closest?

The project utilizes ArcGIS 9.2 for the GIS database building and ArcGIS Server with .NET framework for routing analysis. Through this service the user is expected to get information about routes based on travel time and distance, non spatial information like food courts, health services, postal services, recreation center, transit service, and ATM centers. Every time the information is available to the user the user community as a spatially referenced item. My poster would present all the steps involved in building the website and usage tips for the user community.

Snap shots of the Oklahoma City navigator website:



Over Rated: Are Youth Watching Age Appropriate Television and Movies?

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Presentation Subject Area: Education

American youth's high media consumption has been blamed for many national issues, but problems lie in what our youth are watching on television and in the movies and in their level of awareness when it comes to violence, language, and other inappropriate themes in the media. Media literacy education aims to give students the critical thinking and analysis skills needed to gain more awareness of the media's values.

This study focuses on media access, how viewing choices are made, and the age appropriateness of these media selections. This research couples data gathered through media viewing logs and a ratings awareness survey. Twelve participants (ages 12-15) cataloged their television and movie viewing choices for one week and completed a survey explaining reasons behind viewing choices. The data shows youth are watching television programs and movies that are rated inappropriate for their age; they are aware of the ratings systems, but do not allow ratings to affect their viewing choices.

The Benefits of Reading Remediation at the Elementary School Level

Zhanna Shatrova and Brent Hill
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Presentation Subject Area: Education

Considerable resources in time and funds are allocated for reading remediation to ensure that all children be able to read by the end of the third grade. However, research shows that hippocampus of a child's brain is well established by ages 9-12 (Giedd, et al, 1999; NIMH, 2001). The purpose of this study was to determine if reading remediation may be more beneficial for students in upper elementary grades than primary grades.

This study used existing data from the Literacy First Process (100 schools across 19 states). Fluency scores were used to determine if the maturation of the brain might be a significant factor in reading fluency. Fluency was chosen as the dependent variable since it easily correlates with comprehension, standard reading test scores, and grade level of reading.

Results of this study indicate that reading remediation is significantly more effective at the 4th grade than at the 2nd grade.

The Influence of Religious Beliefs on Hope and Suicide

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Presentation Subject Area: Social Sciences

Past research has shown a strong positive relationship between religiosity and hope. The current study further investigated the relationship between hope and religiosity and the effect of religiosity on suicide. Hope is defined as a cognitive motivational construct composed of goals, agency (motivation) and pathways (strategies to attain goals). Religiosity is the extent to which religious beliefs play a role in an individual's life. Intrinsic religiosity is a measure of the extent to which religion affects an individual's life and is contrasted with extrinsic religious orientation wherein people use religion for social and personal gains. Results indicated that hope and religiosity were highly positively related supporting previous research. In addition, results indicated that religiosity was not significantly related to suicidal risk or suicidal ideation. This indicates that religiosity may not buffer individuals against suicide thoughts or risk factors contrary to popular opinion.

The Effect of Hyperglycemia on Leukocyte Migration and Differentiation in a 3D Human Tissue Model

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Presentation Subject Area: Biomedical Sciences

Efforts to determine a link between diabetes and atherosclerosis have involved examining the effect of high glucose levels on leukocyte migration and differentiation, associated with atherosclerosis. Hyperglycemia influences monocyte migration from the blood into peripheral tissues. Monocytes differentiate into either dendritic cells or macrophages depending on a number of factors. Macrophages are suspected to trigger formation of atherosclerotic plaques in blood vessels, but the exact mechanisms describing these interconnected phenomena are not well understood. A novel 3D human tissue model containing a blood endothelium (HUVECs) was used to investigate the migration and differentiation of monocytes in response to increasing glucose concentrations. Cells that initially transmigrated (SE-2hr) into the tissue model (after two hours), cells that transmigrated into the tissue model and then reverse-transmigrated at a later time point (48 hours) (RT), and cells that remained within the subendothelium space of the tissue (SE-48hr) were counted and characterized by performing flow cytometry. There was a 34% increase in SE-2hr cells, with an increase in glucose concentration. For total SE cells, there was a 32% increase in the number of cells that differentiated into macrophages in response to an increase in glucose concentration. The viability of the HUVECs along with the expression of the cell adhesion molecules PECAM-1 and VCAM-1 were assessed for each condition by using fluorescent probes with confocal microscopy.

A New Approach to State Freight Flow Model Development

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Department of Industrial Engineering and Management
Oklahoma State University
Presentation Subject Area: Physical Sciences & Technology

We present a novel approach that considers the regional and within state freight flows in a unified manner. We develop a code-mapping scheme to link commodity categories to industrial sectors. Using the code-mapping scheme and the population and employment data in each county in the state we split the attraction and production freight flows from state to county level. The flow assignment (shortest distance and shortest travel time) of combined regional-state freight movement will be used to identify paths with high freight flow by mode, origin-destination pair and commodity type at the county level.

Coping Styles as a Mediator of the Relationship Between Hopelessness and Depression

Meredith Shish and LaRicka R. Wingate, PhD
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Oklahoma State University
Presentation Subject Area: Social Sciences

A significant amount of research has supported the relationship between hopelessness and the manifestation of depression. Also, the interaction between coping styles and the presence of depression has been positively correlated, such that approach coping serves as a protective factor against depression and avoidance coping styles tend to perpetuate the existence of depression. The current longitudinal study seeks to examine the possible mediational relationship between hopelessness and depression. We hypothesize that avoidant coping style serves as a mediator between hopelessness and depression. We also expect that the data will support previous findings of the relationship between hopelessness/avoidant coping and depression. Eighty-nine undergraduate participants completed a self-report questionnaire at two points in time separated by five weeks.

Effects of Dietary Protein Source and Isoflavones on Bone Quality in Dahl Salt-Sensitive and Salt-Resistant Rats

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Presentation Subject Area: Biomedical Sciences

This study tested effects of protein source and soy isoflavones (IF) supplementation on bone mass and microarchitecture in hypertensive rats. Weanling male Dahl salt-sensitive (DS) and Dahl salt-resistant rats (DR) were fed one of six experimental diets for 12 wk and given drinking water with 10 g NaCl / L to induce earlier hypertension. Sixty DS and 60 DR rats (10/group) were randomly assigned to one of the following: 1) casein control, 2) casein +100 mg isoflavones/kg diet, 3) casein + 200 mg isoflavones/kg, 4) soy protein isolate (SPI) which was alcohol washed to be devoid of isoflavones 5) SPI + 100 mg isoflavones/kg or 6) SPI + 200 mg isoflavones/kg. At necropsy, a hind limb was stored at -20oC. Femurs were isolated later. Mortality was high among DS rats supplemented with IF, but surviving DS rats were significantly heavier than DR rats. With dual-energy X-ray absorptiometry (DEXA), bone mineral area and bone mineral content were higher in DS rats than in DR. To assess microarchitecture, the distal femur was scanned at 16.5 μ intervals and 100 slices were contoured. Bone volume fraction (BV/TV) was significantly lowered by IF in DS but not in DR rats; this reduction was seen with both casein and SPI. In the DS rats, significant decreases in connectivity density and increases in trabecular separation supported the BV/TV results. Cortical thickness at the femur midshaft was also significantly reduced by IF in DS rats but not in DR. In this study addition of IF to the diet significantly impaired bone quality in DS rats and had little effect in DR rats.

Characterization of Azo dye reduction in the oral organism *Actinomyces odontolyticus*

Katie Southard
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Presentation Subject Area: Biological Sciences

Azo reductase enzymes have been found in intestinal microorganisms. They break down azo dyes found in everything from clothing dye to cosmetics to tattoos. The focus of this presentation is on characterizing *Actinomyces odontolyticus*, a fastidious oral flora, in the presence of azo dyes. The study analyzed azoreductase activity, growth response and protein profiles. The presence of azoreductase activity in *A. odontolyticus* cultures grown in Brain Heart Infusion (BHI) were tested. The following dyes were used: Direct Blue 15, Tartrazine, and Methyl Red. The result showed no decrease in dye concentration, suggesting the dye did not enter the bacterium to undergo azoreduction. The bacterial growth response showed the dyes are not inhibitory, which suggest a survival response occurred. In addition, it was shown that a slight increase in growth occurred with Direct Blue 15. The protein profiles may show unique proteins for cultures grown in the presence of dyes.

A comparison of skills desired for success as entry level managers in the hospitality industry vs. the skills graduates possess.

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Department of Hotel & Restaurant Administration
Oklahoma State University
Presentation Subject Area: Education

Identification of the skills desired for success as entry level managers in the hospitality industry could influence future post secondary hospitality education. Hospitality recruiters and educators were asked to rank order skills identified in the review of literature as desired for success in entry level hospitality managers. The results were analyzed to determine if there was a gap between the skills desired for success

as an entry level managers and skills recent graduates of post secondary education possess. The research findings can be used to develop future hospitality education curriculum and will be presented at a later date.

Single in the City: Differences in vanity concern based on demographics of U.S. women.

Carlee Suchy, Lisa L. Neitzke, Adelina Q. Longoria, Daesha Fisher, & Charvee Nash
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Presentation Subject Area: Social Sciences

Research shows that the amount of money spent on apparel is related to the setting one lives in (e.g. rural or urban), marital status, and age. This study examined the relationship between age, marital status, setting and vanity view (VV; degree to which one sees oneself as overall attractive). An online study was conducted with 454 women 18 to 44 years of age. It was hypothesized that: 1) VV would be negatively related to age, 2) single women would have higher VV scores than married women, and 3) women living in urban areas would have higher VV scores than those living in rural locations. While results were not statistically significant, setting of residence ($p=.13$), and marital status ($p=.17$) approached significance. Single women showed the highest and married women showed the lowest levels of VV. Women living in urban settings showed the highest and those living in rural settings showed the lowest levels of VV.

The Role of the Media in Preschool Childrens Construction of Obesity Stigmatization

Taren Swindle
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McNair Scholar from Harding University
Presentation Subject Area: Social Sciences

In addition to supporting the existing literature that shows a bias against obese children, the effect of a media stimulus is demonstrated as having a role in the construction of obesity stigmatization in preschool children. Two measures were used to test for differences in attitude between a group that viewed a media stimulus and a group that did not. The measure assessing individual trait attribution yielded no significant results; whereas, the measure assessing overall playmate preference yielded significant differences ($\chi^2= 6.47$, $df=2$). This suggests that the immediate impact on children's views of other obese children after viewing the media stimulus is affecting the overall perception of obese children rather than thoughts about their individual traits. With these findings, it is recommended that the media should move to a more balanced representation of obese children so that these biases can be overcome.

Attitudes towards Herbal Supplements: Results from the 'Alternative Health/Complementary and Alternative Medicine Survey

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Oklahoma State University
Presentation Subject Area: Biomedical Sciences

In 2002 Americans spent 4.3 billion dollars on herbal supplements. Research is available about what herbs people use and what health conditions herbs are used to treat but information is scarce about attitudes and beliefs surrounding herbal use. This study investigates differences in attitudes towards herbal supplements based on demographic and health characteristics extracted from the 2002 National Health Interview Survey supplement entitled 'Alternative Health/Complementary and Alternative Medicine'. Only respondents who reported the use of herbs during the past one year and have used them to treat a specific health condition ($n = 3315$) were selected for this analysis. A positive attitude score was created based on five questions

regarding the reasons for herbal use. Results suggest that the attitudes among herbal users vary by age, marital and employment status, use of prescription drugs, and use of preventive and acute medical services.

Student Comfort and Competency on Service-learning Behavior when Working with Older Adults.

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Department of Health Leisure and Human Performance

Oklahoma State University

Presentation Subject Area: Social Sciences

Due to the increase in the older adult population, new challenges present themselves. Society needs to adjust to the aging pattern socially to help remediate the problem of an over abundance of older adults in our country at one time. Facilities must have personnel that are both comfortable and competent to handle the situations that may arise.

To What Extent Does Social Physique Anxiety along with External Motivation Predict Exercise Behavior?

Barbara Terral

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Presentation Subject Area: Social Sciences

Regular exercise improves physiological and psychological well-being as well as lowers chances of obesity, heart disease, and other health-related chronic diseases such as diabetes. The self-determination theory has been applied to the area of exercise. It postulates that human behavior can be described through processes of intrinsic motivation and the internalization of externally motivated behavior. Research has also been gathered on body image and exercise. This study investigated the extent to which social physique anxiety and extrinsic motivation predict exercise behavior. The participants included 52 individuals, 35 females and 17 males, with ages ranging from 20-55. Participants were given the Exercise Motivation Scale, the Social Physique Anxiety Scale, and asked about the frequency of exercise behavior in an average week. Results suggested that social physique anxiety and extrinsic motivation did not significantly predict exercise behavior (either higher or lower frequency of exercise behavior); however, it was found that social physique anxiety and extrinsic motivation were significantly correlated meaning that individuals that have high social physique anxiety may engage in exercise behavior because of extrinsic motivational factors.

The Guy on the Shirt: The Implications of Cooptation and Ernesto "Che" Guevara

Celina Valencia and Laura Briggs, PhD

Department of Women's Studies

McNair Scholar from University of Arizona

Presentation Subject Area: Social Sciences

Using a theoretical framework this work seeks to understand the impact that neoliberalism has on how the individual perceives themselves as political actors. This theoretical framework is juxtaposed by a historical analysis that investigates the discussion surrounding Ernesto 'Che' Guevara in 1968 and from 2000-2007.

Fruit and Vegetable Intake Among Low Income Hispanic Families with Pre-school Children

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Presentation Subject Area: Social Sciences

Child obesity is an increasing problem, especially among low-income minority children. Adequate fruit and vegetable (FV) intake has been shown to be effective in preventing obesity; however, FV consumption is low among young children in Oklahoma. This study examined the amount, frequency, and type of FV that Hispanic parents of 3-5 year old children enrolled in Head Start program serve their children. Thirty-one parents completed the FV Survey. Parents served 4.26 ± 2.38 cups of FV, with 2.35 ± 2.08 servings of fruits and 1.91 ± 1.97 of servings of vegetables. Fruit juice accounted for 1.23 ± 1.12 servings of total fruit intake. The amount of vegetables served was significantly lower compared to the amount of fruit served. The amount of FV servings was below the recommended 5 cups for the age group. Effective strategies for increasing the amount of FV served to low-income Hispanic children need to be developed.

The Effect of Player Position on Average Power Produced in the Dominant Shoulder of Softball Athletes

Amanda Wheeler, Aric Warren, Tona Hetzler, Doug Smith, Matt O'Brien

Department of Health & Human Performance

Oklahoma State University

Presentation Subject Area: Education

Literature concerning strength ratios in the shoulder predominantly focuses on professional baseball pitchers. Very little research has examined those ratios in conjunction with position players, and even less is found in relation to softball athletes. This study investigated player position in the prediction of average power produced in internal and external rotation of the shoulder in both eccentric and concentric movements. Fifteen softball athletes (average age = 20.2 years) were recruited for inclusion in this study. The Biodex II Isokinetic System was utilized in obtaining average power data. Simple regression was utilized with each movement (CERRAP, CIRRAP, EERRAP, EIRRAP). Significance was found in CERRAP ($p = .038$) and EIRRAP ($p = .014$), yielding explained variances of 29% and 38%, respectively. This indicated that player position may predict average power categories for concentric external rotation and eccentric internal rotation. These findings are supported by research on agonist and antagonist muscle groups.

Positively- and Negatively-Framed University Diversity Messages

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Presentation Subject Area: Minority Issues

Previous research suggests that positively-framed messages persuade people that the behavior discussed is rare; whereas negatively-framed messages persuade that the behavior is common. Persuasive message framing and how it affects consumer behavior has mostly been studied in health psychology. To our knowledge has never been applied to investigating conceptions of diversity. The effects of positively-framed and negatively-framed university diversity statements on students' impressions of nondescript universities was examined. This is important because most universities provide positively-framed diversity mission statements to the public, and could accidentally be sending the message that their university is lacking in diversity. 156 participants read either positively- or negatively-framed essays describing the importance of campus diversity, and rated persuasiveness via questionnaires. A two-group between-subjects design was implemented. Results were mixed, with the negative message being more effective on some measures, but not others. Further research implementing a larger, more diverse sample, could elicit different findings.

Susceptibility of Great Salt Plains *Halomonas* spp. Isolates to Ultraviolet Radiation at Varying Salinities

Williams Woods

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Presentation Subject Area: Not Chosen

This study investigates the effects of salinity on the susceptibility of *Halomonas* isolates collected at the Great Salt Plains National Wildlife Refuge to ultraviolet radiation. A similar study (Martin et al.) showed that *H. elongata* were more resistant to UV radiation when grown at higher salinities. Our tests will see if this holds true with the GSP isolates and at what salinities all the *Halomonas* isolates from GSP will grow. Survival of these GSP isolates after subjection to UV radiation will be used as a tool to test this hypothesis.

Development and Validation of General Inventory of Stereotype Threat

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Presentation Subject Area: Education

The General Inventory of Stereotype Threat (GIST) is a self-administered scale that is intended to assess the extent to which an individual is subject to the phenomenon of stereotype threat. The instrument was composed of 21 items designed to tap three proposed dimensions as suggested by the preliminary study. In this study, the instrument will be further validated through correlating with two other relevant psychological constructs, public self-consciousness and social anxiety. 169 students at a large Midwestern university voluntarily participated in the survey, which is composed of 34 items. Statistical evidence is provided to show the convergent and divergent validity characteristics of the inventory.

Functionalization of Aligned Carbon Nanotube Arrays for Bionanocomposite Applications

Yumin Ye and Yu Mao

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Presentation Subject Area: Biological Sciences

Carbon nanotubes (CNTs) offer real potential to enable new and multifunctional properties in composite and hybrid materials. Fabrication of macroscopic materials with bulk properties approaching those of individual CNTs requires incorporation of ordered CNTs in host matrices as well as efficient modification of CNTs to improve the interface between CNT and matrix materials. We report a novel vapor deposition method to functionalize CNT arrays with the aligned structure preserved. The thickness of functional layers can be controlled in situ. Characterizations, such as SEM, TEM and FT-IR, indicated uniform and conformal coatings covering each individual CNT with the desired functional groups. Raman spectra also revealed covalent bonding between CNT surface and polymer coating. A significant improvement of mechanical properties of CNT films was achieved. The functionalized CNT arrays are promising for the development of both thin film and bulk bionanocomposites.

Broad-spectrum Antimicrobial Activity of the Reactive Compounds Generated in vitro by *Manduca sexta* Phenoloxidase

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Presentation Subject Area: Biological Sciences

Although quinone production and melanin formation are widely recognized as an integral part of the insect defense system, experimental evidence is lacking that the proteolytic activation of prophenoloxidase (proPO) participates in the direct killing of invading microbes. Active phenoloxidase (PO) generates quinones that polymerize to form melanin. Here, we report the antimicrobial effect of reactive intermediates produced in PO-catalyzed reactions. After being treated with *M. sexta* PO and dopamine, *E. coli* and *B. subtilis* ceased to grow whereas the growth of *P. pastoris* was slightly affected. Microscopic analysis showed melanin deposition on cell surface, aggregation of bacteria, and loss of cell mobility. Viability tests revealed major decreases in the bacterial colony counts and, since the decrease remained significant after dispersion of the cell clumps, the reactive compounds were surmised to have aggregated and killed *E. coli* and *B. subtilis* cells. Under the experimental conditions, 60-94% of the Gram- bacteria (*E. coli*, *K. pneumoniae*, *P. aeruginosa*, and *S. typhi-murium*) and 52-99% of the Gram+ bacteria (*B. cereus*, *B. sub-tilis*, *M. luteus*, and *S. aureus*) were killed. As one of the oxidation products of dopamine, 5,6-dihydroxyindole (DHI) killed bacteria (*E. coli* and *B. subtilis*), fungi (*P. pastoris*, *S. cerevisiae*, *C. albicans* and *B. bassiana*), and viruses (baculovirus and lambda bacteriophage). These results established that proPO activation is an important component of the insect immune system, which immobilizes and kills invading microorganisms.