



Southwestern Oklahoma State University
SWOSU Digital Commons

Oklahoma Research Day Abstracts

2015 Oklahoma Research Day

Jan 1st, 12:00 AM

03. Health Studies

Northeastern State University

Follow this and additional works at: <https://dc.swosu.edu/ordabstracts>



Part of the [Curriculum and Instruction Commons](#), [Educational Assessment, Evaluation, and Research Commons](#), and the [Higher Education Commons](#)

Northeastern State University, "03. Health Studies" (2015). *Oklahoma Research Day Abstracts*. 3.
<https://dc.swosu.edu/ordabstracts/2015oklahomaresearchday/educationandprofstudies/3>

This Event is brought to you for free and open access by the Oklahoma Research Day at SWOSU Digital Commons. It has been accepted for inclusion in Oklahoma Research Day Abstracts by an authorized administrator of SWOSU Digital Commons. An ADA compliant document is available upon request. For more information, please contact phillip.fitzsimmons@swosu.edu.

Abstracts from the 2015 Oklahoma Research Day

Held at Northeastern State University

02. Education and Professional Studies

03. Health Studies

02.03.01 High School and College Student Engagement: A Threshold for Exploring Opportunities Using the Labyrinth

Diane,Rudebock *University of Central Oklahoma*

Labyrinth designs used as moving mediations provide unique experiences for students to become engaged in research, and labyrinths can also be utilized for service learning with the community. The University of Central Oklahoma in Edmond, Oklahoma is the first public university to install a permanent labyrinth on campus. Labyrinths can be experienced individually or with groups, and provide unique learning opportunities, whether the focus is leadership or health and wellness.

02.03.02 Exploring the Effects of two Different Labyrinth Experiences in University Females

Kaitlyn,Burnett *University of Central Oklahoma*

The purpose of this study was to explore the effects of two different labyrinth experiences with University of Central Oklahoma sorority students. The null hypothesis for this research study was that the two different types of labyrinth experiences would produce equivalent effects. Participants were randomly divided into either the group walking the outdoor, paved campus labyrinth, or the group experiencing the 18-inch handheld, wooden labyrinth. Each participant completed a post-questionnaire that included a Likert scale to describe how one felt after, versus before, experiencing the labyrinth. Some of the qualities assessed in the questionnaire included feeling relaxed, anxious, stressed, quiet, reflective, and more. The resulting data showed no statistically significant difference ($\alpha=0.05$) between the two experiences (walking versus the finger labyrinth). Despite these findings, the data portrayed that 50% of the walking group reporting feeling "much more" peaceful after their experience, where only 25% of the finger labyrinth group reported the same. This study may contribute to academic improvements at the university level by reducing stress and providing insights to the benefits of experiencing the campus labyrinth opportunities.

02.03.03 Patient Knowledge of Complications, Care, and Management of Contact Lens Wear

Bethany,Hess *Northeastern State University*

Dr. Kippi,Wyatt *Northeastern State University*

Jaclyn,Hicks *Northeastern State University*

ABSTRACT Purpose. To obtain a better understanding of the knowledge patients have on complications and care of contact lenses. To identify the percentage of patients at Northeastern State University Oklahoma College of Optometry, NSUOCO, who are poorly educated on contact lens management. Methods. A 10 question survey was handed out to 50 contact lens patients before the start of the exam. The results were added to find the main response to each question. A handout was made based on the questions in the survey and is now given to contact lens patients. Results. Only 28 patients think a case should be changed every three months or more often. Majority did not know that cleaning a case with spit, water, or alcohol can increase risk of complications. 56% knew that rubbing lenses does not increase complications. Seven patients said hot tubs, showering, and swimming are not safe while wearing contacts. 42% believed a complication had occurred due to contact lenses, solution, or both. Only 21 patients had received a handout before. Conclusion. Based on this anonymous survey it is apparent that contact lens patients need to be better educated on care of contact lenses. The contact lens handout will increase patients' knowledge about caring for lenses. Key Words: patients' knowledge, contact lens care and management, educational handout

02.03.04 A Survey of Optometric Meaningful Use Compliance in the State of Oklahoma

Matt,Geiger *Northeastern State University*

Purpose. A survey of optometrists in Oklahoma, to measure their compliance with meaningful use guidelines and to determine if there were any correlations with years in practice or the electronic health record software that they were using. **Methods.** The study was an anonymous survey-based study, which contained four questions as well as a comments section. The survey was given to optometrists attending a continuing education meeting at the Five State Symposium in Tahlequah, OK. **Results.** We found "number of years practiced" to be the only statistically significant factor for non-compliance. Although more participants would have increased the reliability of our findings, we did observe a correlation between a practitioner's dislike of electronic health record system and non-compliance. **Conclusion.** Based on our findings, "years of practice" was confirmed statistically to have an effect on rate of compliance. Due to the broad range of electronic health records our participants used, we were unable to correlate the type of electronic health record used with rate of compliance. **Key Words:** Meaningful use, electronic health records, HITECH Act, practice management

02.03.05 Hoya's Recharge Blue-light Blocking Lens Treatment: Potential Effects on Color Vision

Jane, Kosin Northeastern State University

Thien, Nguyen Northeastern State University

Purpose. This study aims to evaluate if Recharge, a blue-light blocking lens treatment by Hoya Vision Care, affects color vision. **Methods.** The subjects wore a random pair of plano glasses with either Hoya's standard anti-reflective coating or with Hoya's Recharge EX3 anti-reflective coating. After wearing the lenses for 5 minutes, the subjects performed a computerized color vision test while being timed. The color vision test involved rearranging colored plates in the order of the color spectrum. The subjects performed the test two times for each pair of spectacles for a total of four times. The subjects also completed a short printed survey at the end of the study. **Results.** Of the 30 participants recruited, 24 completed the study. There was no statistically significant difference between the Hoya's standard anti-reflective coating and Hoya's Recharge EX3 anti-reflective coating ($P = .735$). There were also no statistically significant differences in the time it took to complete the 4 rows while wearing Hoya's Recharge EX3 ($P = .205$). **Conclusion.** There was no significant difference in color perception and the ability to differentiate colors between the two anti-reflective lenses used in the study.

02.03.06 Application of Orange and Rosemary Oil Emulsions to Improve Quality and Shelf Life of Yogurt

Julie, Barros University of Central Oklahoma

Kanika, Bhargava University of Central Oklahoma

Matheus, Almeida University of Central Oklahoma

Wanderley, Sousa Junior University of Central Oklahoma

Yogurt is well known for its health properties. Essential oils have been suggested for its vast benefits such as flavor, antioxidant and antimicrobial properties. Therefore, they can be applied to improve quality and shelf life of yogurt. However, application of these oils is limited due to their lipophilic nature. The study aimed to evaluate the effects of the use of essential oil emulsions in yogurt. The essential oil emulsions were made by ultrasonication process and characterized for particle size and stability. 2% low-fat milk was supplemented with 0.5% and 1% of orange and rosemary oil emulsions. The samples were inoculated with yogurt culture (Danisco YO-MIX 883 LYO 500 DCU), fermented (8 hours), and stored at 4 °C. Total titrable acidity (TTA), pH, viscosity and moisture content were studied. Average particle size of emulsions was 130 nm and emulsions were stable for at least 4 months. The results indicated that the application of essential oil emulsions in yogurts could be a possible alternative for a better improvement of the quality and shelf life of yogurt.

02.03.07 An Evaluation of the Optelec Low Vision Diagnostic Tool

Jedediah,Reece *Northeastern State University*

Purpose. We evaluated the Optelec Low Vision Diagnostic Tool (OLVDT), a portable electronic magnification device, for its accuracy in determining add power. We also provided a survey to determine the subject's optimism in achieving their goal of reading more effectively while using the device. **Methods.** We performed an observational clinical study of 20 low vision subjects. Exclusions: BCVA of 20/40 or better, illiteracy, and significant dementia. Each subject's predicted add power for reading 1.0M text was assessed with the MNRead and the OLVDT. Subjects then rated each test on a 1-10 scale for its ability to give them more hope for improved reading ability. **Results.** The mean predicted add powers for the MNRead and the OLVDT were 7.80 and 7.29 D respectively, a difference of 0.51 D with a standard deviation of 3.59 D. The paired t-test for means was not significantly different between the two methods of add prediction ($p=0.531$). The mean levels of subjective hopefulness on a 1-10 scale for the MNRead and the OLVDT were 7.75 and 8.30 respectively, a difference of 0.55 with a standard deviation of 1.905. The paired t-test for means was not significantly different between the two ($p=0.212$). **Conclusion.** We found the OLVDT compared favorably with the MNRead in determining predicted add power. In our study, the OLVDT did not make subjects more hopeful about their ability to successfully read compared with the MNRead. Further research is indicated due to small sample size

02.03.08 Cardiac Vagal Regulation in Complex PTSD

Alisa,Huskey *University of Central Oklahoma*

Andrew,Rutter *University of Central Oklahoma*

Caleb,Lack *University of Central Oklahoma*

Kyle,Haws *University of Central Oklahoma*

Yasmine,Shirali *University of Central Oklahoma*

Objectives The proposed study examines potential differences between nosologically differing trauma symptomology. This investigation proposes the polyvagal theory as a comprehensive theory that examines psychological and physiological coupling, demonstrating a systemic perspective of Complex PTSD and its fundamental differences from PTSD alone. **Hypotheses** Downward trends in RSA and shorter heart periods are expected to be most pronounced in the Complex PTSD group. We anticipate a lower correlation between RSA-change and heart-period-change in the Complex PTSD versus the PTSD and control groups, indicating decreased vagal regulation. **Methodology** Clinical and control samples will be selected via diagnostic, screening, and other self-report measures on Qualtrics. Participants selected to participate will be monitored with an ECG amplifier. Subsequently, they will complete a ten minute stress-inducing math task, and then a five minute post-stress resting period. Participants will then complete the Trauma History Screen and be debriefed. **Summary** Hypothetically, observations of vagal regulation, proposed by the Polyvagal Theory will reveal differences between Complex PTSD and PTSD populations. Vagal regulation is expected to be very low or absent post laboratory-induced stress in both groups. However, during the resting period following the stressful task, individuals in the Complex PTSD are expected to exhibit less vagal brake than those in the PTSD group.

02.03.09 Fortification of Yogurt with Chickpea Flour Enhance Overall Quality of Yogurt

Kanika, Bhargava *University of Central Oklahoma*

Meity, Kumalasari *University of Central Oklahoma*

Xi, Chen *University of Central Oklahoma*

Yogurt is well known for its health promoting properties. Chickpea flour has been suggested to increase the growth of probiotic bacteria during yogurt production. This study aimed to evaluate the effects of raw chickpea flour on the overall quality of yogurt and anticipate inventing a new protein rich yogurt product. 2% low-fat milk was supplemented with 1%- 5% (w/v) raw chickpea flour, inoculated with a yogurt culture (Danisco YO-MIX 883 LYO 500 DCU), fermented (8 hours) and stored at 4 °C. Moisture content, total soluble solids, pH, total titratable acidity (TTA), and microbial counts were measured over a 21-day storage period. The results demonstrated that chickpea flour increased the Total Soluble Solids from 7.6 to 9.0 degree Brix. On the contrary, the moisture content slightly decreased from 88.83% to 88.08%. Additionally, overall average pH decreased (from 4.2 to 3.8) and the TTA (from 0.78% to 1.18%) increased toward the end of storage. Furthermore, the number of probiotic bacteria significantly enhanced from 1.6×10^8 CFU /ml to 8×10^8 CFU /ml with the addition of chickpea flour (5%, w/v) at the initial day. It even maintain the microbial counts from 4×10^8 CFU /ml to 3.5×10^8 CFU /ml with the concentration of 2% chickpea flour during the 21-day storage. The results indicated that milk supplementations with chickpea flour offer an alternative as a new product and provide better quality yogurt product.

02.03.10 Distribution of Conditions in Students Attending the Oklahoma School for the Blind

David, Lewerenz *Northeastern State University*

Kyle, Peter *Northeastern State University*

Phillip, Ford *Northeastern State University*

Introduction: This study evaluates the distribution of causes of visual impairment in students at the Oklahoma School of the Blind. This was a unique opportunity to compare our findings with a similar study performed 26 years previously. Methods: Diagnoses from records of 93 students at the Oklahoma School of the Blind were acquired from a review of their medical records. A list of the most common conditions was compiled. These results were compared with other studies previously performed with special attention to a 1988 study performed at the same location. Results: Optic nerve hypoplasia was the most common diagnosis for subjects in our study. Retinopathy of prematurity was second most common, and was twice as prevalent as in 1988. The third most common diagnosis was cortical visual impairment, which was not reported in 1988. Students in 2014 were, on average, two years older than in the 1988 study and about 54 percent of students had best corrected visual acuity of worse than 20/200 in both studies. Discussion: Our finding of a significant increase in the prevalence of retinopathy of prematurity is supported by other studies. Increased survival of premature infants is likely the cause of the increased prevalence of retinopathy of prematurity. It is likely that both optic nerve hypoplasia and cortical visual impairment have increased in prevalence, but we cannot state this for certain because of the way conditions were categorized in the 1988 study.

02.03.11 Footstrike and Flexibility of Collegiate Cross-Country Runners

Evan,Fike *University of Central Oklahoma*

Footstrike and Flexibility of College Cross-Country Runners Long distance runners and flexibility are often, without evidence, put together and people often assume that runners are flexible. The hypothesis for this study is that forefoot striking participants are more flexible in the Hip, knee, ankle and hamstring than the heel striking participants. 25 male and female runners from the Oklahoma Christian cross-country team will be recruited for this study. After recruitment the participants will sign an informed consent and then answer a demographic questionnaire. The participants will then perform a treadmill test using the F-scan Tekscan system with sensor insoles placed in their shoes while running to determine footstrike of the runners. The runners will run at four different speeds for length of one minute in each stage. Using a remote, at the 30 second mark of each stage the foot strike will record for 10 seconds to determine footstrike for that stage. Footstrike will be determined by what part of the foot strikes the ground first. After the treadmill test, the runners will perform a sit and reach test to gain their hamstring flexibility. With goniometers to assess hip joint flexibility, runners flexibility will also be tested in the knee for knee extension and flexion and ankle flexibility for dorsiflexion and plantar flexion. A 2x2 ANOVA will be performed. Independent variables for this study are footstrike and sex, and the dependent variable is flexibility.

02.03.12 Effect of Nintendo® Wii Fit™ Balance Games on Postural Control and Balance Among Adults with Down Syndrome

Michelle,Miller *University of Central Oklahoma*

INTRODUCTION: Adults with Down syndrome may benefit from a balance training regimen. Utilizing a Nintendo Wii Fit gaming device may eliminate several barriers to exercise and promote participation in balance training. PURPOSE: This study seeks to determine if implementing a Nintendo Wii balance exercise regimen will improve postural control and balance among adults with Down syndrome over the age of 18. METHODS: Eleven adults with Down syndrome over the age of 18 years old will be randomly divided into an experimental and comparison group. The experimental group will participate in specific exercises utilizing 4-6 of the Nintendo Wii balance games and the comparison group will use up to 4 sport games on the Nintendo Wii Fit. A Tekscan HR mat will be utilized to measure center of pressure medio/lateral and anterior/posterior measurements before and after the intervention period. Balance will be measured as the time (in seconds) the participant can hold each stance. Results will be analyzed using a 2 X 2 ANOVA for each dependent variable. RESULTS: To be determined. DISCUSSION: To be determined.

02.03.13 Comparison of the Cirrus HD-OCT and the iVue SD-OCT Derived Cup-to-Disc Values

Colby,Ricks *Northeastern State University*

Kyle,Henderson *Northeastern State University*

ABSTRACT Purpose. The main purpose of this study is to use the Cirrus HD-OCT and the iVue SD-OCT to compare and analyze the cup-to-disc values given by each instrument for the same patient at one visit. **Methods.** We recruited 48 subjects primarily from the NSUOCO optometry student population. We measured the vertical cup to disc ratio, average rim area, and average disc area of each subjects optic nerve using the Cirrus HD-OCT and the iVue SD-OCT. **Results.** According to our results, the comparison of data shows the Cirrus HD-OCT measured the vertical C/D ratio larger than the iVue SD OCT on 58% of the scans. The iVue had a greater average rim area measurement 84% of the time vs. the Cirrus. Finally, the iVue rated the average disc area of each individual larger than the Cirrus on 98% of the scans. **Conclusion.** We found a statistically significant difference when comparing the average rim area and average disc area, but no statistically significant difference when comparing the vertical C/D ratio. **Key Words:** oct, optic nerve head, cup-to-disc ratio

02.03.14 An Analysis of Food Options Available at and Near the University of Central Oklahoma Dania Ghassoub, Tawni Holmes PhD, RD, LD; University of Central Oklahoma

Dania,Ghassoub *University of Central Oklahoma*

Dr. Tawni,Holmes Ph. D., R.D., L.D. *University of Central Oklahoma*

It is well known that college students have generally poor eating habits. This research aims to assess the food preferences of UCO students by use of a survey and to assess food options on or near the UCO campus. Nutritional content of foods available as well as healthy alternatives to preferred foods will be provided. Results from survey and analysis will be presented on the Oklahoma Research Day.

02.03.15 The Effects of High-Intensity Interval Training on Postural Control, Dynamic Balance, and Muscular Strength Among Older Adults

Antonio,Ross *University of Central Oklahoma*

Due to the rapid growth of older adults, it is expected that dependency and risk of disability to increase. Unfortunately, increased age is associated with increase falls. In fact, a high percentage of falls are linked to hip injuries. Hip injuries can result in immobility, decreased autonomy, physiological disruption, etc. These complications can lead to other problems far more severe. Therefore, the purpose of this study is to investigate the effects of High-Intensity Interval Training (HIIT) on postural control, dynamic balance, and lower body muscular strength; these variables have been shown to effect balance. By improving lower body strength, postural control and dynamic balance could improve. Improving these variables can reduce falls among older adults. The intervention will last 4-weeks, both groups (intervention and control group) will be assessed before and after. Participants will be active and 65 years older or older. The intervention group will complete ten different exercises targeting specific muscle groups. The exercises will be time based interval done at high intensities, respectively. The control group will continue to use their current fitness regimen throughout the intervention. Four 2X2 ANOVAs with repeated measures will be used to compare the changes in all variables. Researchers hypothesize that HIIT will produce a positive impact on all the variables and improve balance.

02.03.16 Susceptibility of Burkholderia cepacia Complex Isolates from Cystic Fibrosis Patients in Northeast Oklahoma

Jodi, Corley Saint Francis Hospital

Sallie, Ruskoski Northeastern State University

VeraLynn, Mecham Northeastern State University

The Burkholderia cepacia complex (Bcc) is comprised of 18 distinct species which are known to be resistant to antibiotics and cause opportunistic pulmonary infections in cystic fibrosis (CF). The present study compared isolates from CF patients in northeast Oklahoma for colonial morphology, extracellular polysaccharide (EPS) expression, capsulation, and antibiotic susceptibility in order to more effectively differentiate the isolates. Yeast Extract Agar containing mannose (YEA-ms) were employed to determine sugar supplementation effects on EPS production based on colonial morphology and capsulation. Antibiotic susceptibilities were performed using automated platforms. Two B. vietnamiensis isolates cultivated on YEA-ms were slightly mucoid and 25-30% of cells were capsulated when observed microscopically while the remaining isolates were butyrous and non-capsulated after incubating 24 h at 37°C. At 48 h at 37°C, all isolates were slight to moderately mucoid on YEA-ms and all B. vietnamiensis strains exhibited 50% capsulated cells when observed microscopically. Susceptibilities were performed on 10 isolates with 7 B. multivorans isolates being 93-100% resistant, 2 isolates were 83% and 61% resistant and 1 B. vietnamiensis isolate 53% resistant to of the antibiotics tested. These data support the conclusion that most CF isolates were morphologically similar and capable of expressing EPS but not necessarily associated with cellular capsulation or antibiotic resistance.

02.03.17 Public Health Implications of Colombian Diaspora: Market Density as an Indicator for Food Insecurities

Mark, Johnson University of Central Oklahoma

Food security is outlined as the universal capacity to procure safe food goods in a diurnal modus consistent with biological load and lifestyle. Therefore, food insecurity is the failure of these processes, which can predictably lead to anthropometric deviations, reduced educational attainment, and other deleterious public health disruptions. It is thereby crucial to reveal novel approaches in predicting food insecurities, and to elucidate subsisting mechanisms that either frustrate or fortify these conditions. Colombia is a developing country suffering from an internal conflict that has displaced over 5.2 million residents. This humanitarian crisis characteristically exacerbates established food insecurities, which reaches over 19.2 million inhabitants, > 41% of the total population. Hencetofore, no study has attempted to couple market distribution to the reported food security status of Bogotá D.C., a megalopolis of 8.7 million residents, of which, more than 5.8 million remain currently food insecure. It was then hypothesized that market density will reliably infer sustenance anxieties across the 20 localities of Bogotá. Our results revealed an orthogonal relationship between market distribution and varying levels of food insecurities throughout Bogotá, foisting poverty as a primary antecedent to hunger.

02.03.18 A Systematic Review of Grounded Theory Methodology and Reporting Practices in Medical Education Literature

Matt,Vassar *Oklahoma State University*

Matthew,Holzmann *Oral Roberts University*

Grounded theory is among the most popular qualitative methods in medicine and among the most widely cited references of qualitative research in medical education. Given its widespread usage relative to other qualitative approaches, as well as misapplication of the technique, we conducted a systematic review of three medical education journals over a ten year period. One hundred three (103) articles were retrieved that met criteria and were coded based on relevant study characteristics including constant comparison, theoretical saturation, iterative process, and theoretical sampling; we also examined evaluative criteria for qualitative studies. Results suggest that constant comparison was discussed in 62% (n=62) of the articles, theoretical sampling in 86.4% (n=89), iterative process in 51.5% (n=53), and theoretical saturation in 37.4% (n=37). We also found that many of the evaluative criteria are not adequately mentioned in our sample of studies. In conclusion, we found significant variability in the reporting of these studies. We recommend that methods sections of grounded theory manuscripts more adequately describe these important components.

02.03.19 Acute Effects of two Different Foam Rollers on Range of Motion

Isaac,Henry *University of Central Oklahoma*

Foam rolling is based on the concept of self-myofascial release (SMR), which simply means using one's own body weight to achieve myofascial release. The popularization of foam rolling is partly due to the documented and perceived benefits of increasing ROM before physical activity such as lowering the risk of injury and maximizing the benefits of certain exercises. The purpose of this study is to compare the acute effects of two different foam rollers on hip and shoulder ROM. It is hypothesized that the denser and more versatile foam roller will more significantly increase hip and shoulder ROM. Only those who have had experience foam rolling will be allowed to participate. A randomized cross-over design will be used, with three different treatments: multi-rigid foam roller, super nova, and a control trial which will receive no treatment. Hip and shoulder ROM will be measured with a goniometer before and after each treatment by the same tester. Both foam rolling treatments are expected to improve ROM more effectively than the control, but the super nova treatment is expected to show the most favorable results. The results of this study will help clarify if foam rolling is effective at acutely increasing ROM and which foam roller is superior. Health professionals will then be able to make a better decision as to whether foam rolling should be practiced before physical activity and which foam roller will be most effective.