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Abstracts from the 2014 Oklahoma Research Day

Held at the University of Central Oklahoma

02. Education and Professional Studies

03. Health Studies

02.03.01 Exercise and Media Influences on Women's Body Image

TaNiqua, Ward

Oklahoma State University

Introduction:Body image includes many components of an individual; some of the components associated with body image are physical appearance, physical ability, and biological integrity (3). Media exposure gives individual's unrealistic body images to attain. Purpose:The purpose of this study is to create a literature review that further analyzes exercise and media influences on women's body image and ways to encourage a healthy and positive body image. Methods:A literature review was conducted pertaining to exercise and media influences on women's body image. Results:The results indicated a significant difference ($p=0.001$) in the participant's state self-objectification scores for the participants that watched the appearance focused DVD compared to the participants that watched the non-appearance focused DVD. Women in the group that did not exercise felt less physically attractive ($p=0.008$) and less satisfied with their bodies ($p=0.001$) compared to the women that were in the exercise group when viewing the two different DVDs. Conclusion:The information found from this literature review can be distributed to help educate health professionals on the issue of women's body image.

02.03.02 Neuropsychological Effects of Sport-related Concussions in Student Athletes

Kathleen, Olson

Oklahoma State University

Sport-related concussions (SRC) have become more of a public concern due to catastrophic outcomes in youth sports. The psychological effects of SRC are often overlooked despite their implications for academic performance and overall well-being. Purpose: The purpose of this study is to provide a review of current literature to identify the neuropsychological effects of SRC and determine the role of the neuropsychologist in the assessment and treatment of student-athletes. Methods: A comprehensive review of the literature. Results: SRC present with a variety of somatic, cognitive, and psychological symptoms that generally resolve within 7-10 days of the initial injury. These symptoms not only affect an athlete's ability to participate in their sport, but their ability to succeed in school. The current neurocognitive assessments used by sports medicine professionals are valid and reliable measures, however they should not serve as a substitute for a full neuropsychological examination. Conclusions: SRC evaluation and management requires a multi-faceted approach. Neuropsychologists should be made an integral part of the SRC evaluation and management team alongside physicians and athletic trainers. They are uniquely qualified to assess cognitive and psychological functioning, monitor athletes returning to school, and treat emotional problems associated with SRC.

02.03.03 Newly Diagnosed vs. Current Dialysis Patients Perceptions About Nutrition

Shaina, George , Huey Chan, Tawni Holmes

University of Central Oklahoma

The purpose of this study was to compare newly diagnosed dialysis patients (n=8), and current (> 6 months)(n=8) dialysis patients on their perceptions about nutrition. Self-perceptions about nutrition were compared to lab data. Each newly diagnosed patient was interviewed about their attitudes regarding their long-term health status compared to current patients whose views on nutrition may have changed since they have been on dialysis. The newly diagnosed patients knowledge about which foods contained phosphorus, sodium, and potassium, which are essential for every dialysis patient, was lower. When comparing their knowledge of each of the key nutrients to their lab values for those nutrients, half of the newly diagnosed patients lab values were higher than normal compared to current patients whose lab values were normal. This research will be used to develop better methods of reaching the newly diagnosed patient with important dietary information.

02.03.04 The Stability of Low-Top versus High-Top Basketball Shoes

Ruth, Gillespie , Paul House

University of Central Oklahoma

Background: Ankle sprains are one of the most common athletic injuries that occur in sports participation (Trevino, Davis, & Hecht, 1994). There has been numerous prevention strategies designed to decrease the occurrence of ankle sprains (Hume & Gerrard, 1998). Objective: To evaluate the stability of collegiate level basketball players wearing low-top and high-top basketball shoes. The researcher's hypothesis is that the high-tops will provide significantly greater stability than the low-tops. Methods: Multiple male and female intercollegiate basketball players from the University of Central Oklahoma will serve as subjects. To qualify as a participant, the subjects have to be free of lower leg injuries for the previous 3 months. Measurement: Average left-right excursion will be recorded, using the F-Scan Foot Pressure Mapping System (Tekscan, Boston, MA). The left-right excursion will be evaluated as subjects perform layups in high-top and low-top basketball shoes. The data will be inputted into PAWS version 18 for data analysis. A dependent t-test will be the statistical test used to determine if there are significant differences between shoe type and stability. To minimize committing a type II error, an alpha level of $p=0.05$ will be set as the criteria for differences between groups. Results: In progress.

02.03.05 Creating Resources for Navigating and Utilizing the University of Central Oklahoma Campus Labyrinth

Shelby, Graves , Diane Rudebock

University of Central Oklahoma

This presentation will feature highlights from the 2013-2014 RCSA grant, "Creating Resources for Navigating and Utilizing the University of Central Oklahoma Campus Labyrinth." This student RCSA grant was approved in order for the student researcher to update the Labyrinth Society's online research database and bring labyrinth related resources to the University of Central Oklahoma's (UCO) campus. The highlights of this presentation include the description, goals, and guidelines of the student grant. The creation of resources, updating of the Labyrinth Society's online research database, the purchase of UCO labyrinth related materials, and survey collection at the Labyrinth Society's Annual Gathering will also be discussed at this presentation.

02.03.06 Evaluating the Impact of Healthy Vending Machines at the University of Central Oklahoma (UCO)

Kuan Yen, Siew , Tawni Holmes

University of Central Oklahoma

The initiative by the Healthy Campus Leadership Team to implement healthy vending machines on campus aims to provide healthy snack options to both college students and faculty, to support healthy eating habits, and to promote healthy eating environments at UCO. The purpose of this research project is to evaluate the usage of healthy vending machines by UCO students and faculty, and to determine their satisfaction with the new healthy vending options. Both electronic (n=320) and paper surveys (n=23) were used to collect data. Comment boxes were installed on each vending machine to collect additional comments from the public. The first healthy vending machine was installed August of 2013, and has already received a large volume of positive responses from the UCO community, enough that a second machine was added in November of 2013, and a third is planned for Spring 2014. A total of 6 machines are expected. Based on surveys, the majority (>50%) are willing to pay a higher price for healthier and higher quality snacks options. Female students aged 18-24 has been the largest demographic to respond to the survey, and they are highly motivated (63%) to get healthy snacks on campus. This has been an incentive for us to hear that having healthy vending options on campus is very important to more than half of our participants, and has revealed the health and wellness concerns of the student population.

02.03.07 Undergraduate Students' Attitudes Toward Older Adults After Intergenerational Learning Projects

Laura, Gregory , Diane Rudebock, Melissa Powers

University of Central Oklahoma

The purpose of this study was to assess approximately 40 students enrolled in a college level health and aging course to identify the difference of community/public health undergraduate college students' attitudes toward older adults after an intergenerational learning project with older adults. The hypothesis was students' perceptions of older adults would become more positive after the intergenerational activity. Students were involved in classroom discussions, assignments, and four-week intergenerational activity with older adults. Students were in the classroom for the first four weeks, broke into two groups the next eight weeks, and finished the semester in class. Each group participated in the intergenerational activity one day a week and attended class the other day. The first group participated in the intergenerational activity during weeks five through eight and the second group participated weeks nine through 13. Demographics, experiences with older adults, and career interests working with older adults were collected. Perceptions were measured using the Aging Semantic Differential and Student Assisted Independent Living Questionnaire. Students tested during week four, before the intergenerational activity, week eight, after the first group completed the activity and before the second group began, and week 13, after all students had completed activities with older adults. The study began January 2014 and preliminary results will be available May

02.03.08 Determination of Log P values of New Cyclen Based Antimalarial Drug Leads Using RP-HPLC

Apoorva, Rudraraju , Faruk Khan, Mohammad Hossain, Prince Amoyaw

Southwestern Oklahoma State University

The main purpose of this study is to determine the log P values of drug leads using high performance liquid chromatography. The main objective is to provide a standard calibration curve between parameters of the lipophilicity that is logarithm of retention coefficient (log k) and partition coefficient (log P) values using a series of reference standards which helps to determine the partition coefficient of the new drug leads. The reference standards with varying polarity ranges were dissolved in methanol and analyzed by RP-HPLC. The HPLC analyses were performed using C18 column and the mobile phase consisted of a mixture of water, acetonitrile and methanol in a gradient elution mode. A calibration curve is plotted between the experimental log P values and obtained log K values of the test compounds to get a best fit line. The log K values of the new drug leads determined in the same solvent system were used to calculate the respective log P values by using the best fit equation in ExcelTM. From the calibration curve, we obtained a coefficient of determination (R²) as 0.9768 and the adjusted R² as 0.9541. The P values of the intercept and slope were found to be 0.000258 and 3.83E-06 respectively at 0.05 level of significance and 95% confidence interval. Log P values of the new drug leads A, B, C, D, and E were 7.546, 5.574, 5.546, 3.494, 5.506, respectively. The estimated log P values of the drug leads by HPLC were closely related to the clog P values using ChemDraw Ultra 12.

02.03.09 Metabolic Stability Study of New Cyclen Based Antimalarial Drug Leads Using RP-HPLC

Apoorva, Rudraraju , Anjuli Shrestha, Faruk Khan, Prince Amoyaw

Southwestern Oklahoma State University

Metabolic stability of newly discovered drug leads in our laboratory using RP-HPLC as well as LC-MS. Metabolic stability of the drug leads is determined using specific cytochrome P450 enzymes taking chloroquine as the reference standard. All the assays were conducted in 0.2M phosphate buffer at pH 7.4. The total assay mixture contained 25pmoles/ml of CYP2C8, 0.5mM of sample. Sample and buffer was taken into a reaction flask and was preincubated for 2 mins and then enzyme was added. The reaction was initiated by adding 1mM NADPH. Incubations were done with increasing time (t= 0hr, 1hr, 2hrs) at 37oC. After incubation, the reactions were terminated by adding acetonitrile in the equal amounts of the assay mixture taken. Then the samples were centrifuged for 15mins at 10,000x g at 4oC. An aliquot of the supernatant fraction was subjected to analysis using the above HPLC conditions. The mass of the drug and the metabolite were determined by using LC-MS. The drug lead A,B,C,D, and E were metabolically stable as shown by both HPLC and LC-MS at the experimental conditions utilized. Molecular ion peak of the drugs A, B, C, D, E, and chloroquine are 523m/z, 495m/z, 561m/z, 885m/z, 619m/z, and 515m/z, respectively. HLM and CYP2C8 contributed to the chloroquine (320 m/z) N-deethylation to desethylchloroquine (292 m/z) up to 5.12% and 10.33%, respectively, after 1 hour of incubation and 6.416% and 12.26% after 2 hours of incubation, respectively.

02.03.10 Formulation, Characterization And Antimicrobial Efficacy Of Cinnamon Oil Emulsion Against Staphylococcus Aureus

Kanika, Bhargava , Ashley Park, Hari Kotturi, Lilian ChoobackPritika Khadka, Sarvenaz Vandyousefi, Yvonne Daugherty

University of Central Oklahoma

S. aureus is responsible for a wide variety of human ailments including skin, soft tissue, bone infections, pneumonia, and bacteremia etc. Phytochemicals, plant derived compounds such as cinnamon oil is well-recognized for their therapeutic properties, however, their application is limited due to their lipophilic behavior and insolubility in water. One of the strategies in dealing with such hydrophobic compounds is by dispersing them in emulsion droplets. Emulsion of cinnamon oil was formulated by ultrasonication utilizing tween 80 as an emulsifier. Emulsions were characterized using Olympus 1X71 Inverted Microscope for droplet size. Antimicrobial efficacy of cinnamon oil emulsion and standard antimicrobials (ampicillin, erythromycin, penicillin, streptomycin, tetracycline and triple sulfa) against *S.aureus* ATCC 25923 were evaluated using disc diffusion method. Broth micro-dilution method was performed to determine Minimum Inhibitory Concentration of cinnamon oil emulsions. Average diameter of the antimicrobial emulsions was 3 micro meter. Zone of Inhibition (mm) for cinnamon oil emulsion, ampicillin, tetracycline, ampicillin, erythromycin, penicillin, streptomycin, tetracycline and triple sulfa were 27 mm, 35 mm, 31 mm, 40 mm, 18 mm, 32 mm, and 26 mm respectively. Minimum inhibitory and minimum bactericidal concentration of cinnamon oil emulsion was 0.078%v/v and 0.156%v/v respectively. Cinnamon oil emulsions offer potential to be used as antimicrobial against *S. aureus*.

02.03.11 Effects of Resistance Training on Cognitive Function Among Older Adults

Simon, Smith , Brandon Hamill, Cody Sodowsky, Melissa PowersMichelle Gray

University of Central Oklahoma

The purpose of this one-year study was to assess the impact of resistance training protocols on cognitive function among older adults. Participants over the age of 75 years were randomly assigned to a low velocity (LV) or high velocity (HV) resistance training group. Both groups trained two days per week and completed eight exercises following American College of Sports Medicine recommendations. The LV group completed the concentric contraction over 2-3 seconds; whereas the HV group completed the concentric contraction as quickly as possible. Cognitive function was assessed by the Trail Making Test (TMT) and the Executive Function (EF) subscale of the Cognitive Linguistic Quick Test. ANOVA with repeated measures were used for analyses and effect sizes were calculated. Results indicated no significant group-by-time interactions for the TMT Part A, TMT Part B, TMT Differences between Part A and Part B, and EF. The strongest effect size for improvement was seen in the HV group for EF ($d = -0.997$). The HV group also displayed a small effect for the improvement on the TMT differences ($d = 0.149$). High velocity training is capable of improving cognitive function in older adults. Higher levels of cognitive function can result in optimal aging. Future studies should further examine the relationship between cognitive function and resistance training among older adults.

02.03.12 Formulation, Physical and Chemical Characterization of Lentil Based Yogurt and its Comparison with Traditional Dairy Yogurt

Carissa, Jetto , Kanika Bhargava

University of Central Oklahoma

Lentils contain nutrients (carbohydrates, proteins, vitamins and minerals) which are essential requirements in the human diet. Also, they could serve as growth nutrients for probiotic and yogurt starter cultures. This study was conducted to formulate, characterize and compare red lentil based yogurt inoculated with live active yogurt cultures against traditional dairy yogurt. Lentil yogurt was developed and pH, moisture content, total solids and total soluble solids were determined. Yogurt culture was formulated using dairy milk (2% fat). Danisco culture (Danisco YO-MIX 495 LYO 250 DCU; *Streptococcus thermophilus* and *Lactobacillus delbrueckii* subsp. *bulgaricus*) was used to inoculate milk. The pH before inoculation and after fermentation (8 hours) was 7 and 4 respectively. For red lentil milk preparation, red lentils were soaked in water followed by blending. The mixture was then pasteurized and cooled to 110 degree F. The pH of the lentil milk before inoculation and after fermentation (8 hours) was 6 and 5 respectively. Moisture content of lentil yogurt was less (79.7%) in comparison to dairy yogurt (88.8%). Total solids were more in lentil yogurt than dairy yogurt (LY: 20.3%, DY: 11.2%). Total soluble solids in lentil yogurt were 4 degree brix when compared to dairy yogurt (8 degree brix). The results indicated the potential for a new, fermentable lentil based product which is rich in phytonutrients and offer many health benefits.

02.03.13 Predictors of Vertical Jump Performance in Women Ages 35-50

Simon, Smith , Paul House

University of Central Oklahoma

Muscular power is important to sustain throughout a lifetime because it is a strong predictor of prevalence of falling in later life. Vertical jumping ability has been linked to lower body power (Genuario & Dolgener, 1980; Thomas et al., 1996). Therefore; the purpose of this study is to find the best predictor of vertical jump performance in women between the ages of 35-50 years. The ability to find the best predictor of vertical jump performance in women ages 35-50 can determine the mode of training that should be emphasized to improve lower body muscular power. Not many studies have been conducted on predictors of vertical jump performance in women ages 35-50 years with the combination of variables being proposed in this study. Participants will be tested on three different occasions over a one week period of time. Variables to be examined in this study will be isokinetic knee extension peak torque at two different speeds (500°/s & 300°/s), lower body lean tissue mass (LTM), and a one-repetition maximum (1RM) leg press. Vertical jump height will be assessed using a VerTec device. The researcher's hypothesis is that isokinetic knee extension peak torque at both speeds, 1RM leg press, and lower body LTM will have a strong, significant relationship with vertical jump height. No data has been collected at the time of abstract submission. The study is pending Institutional Review Board (IRB) approval.

02.03.14 Student Stress, an Outdoor Labyrinth and Managing Wellness

Jenine, Kern , Diane Rudebock

University of Central Oklahoma

The main objective of this research project was to contribute to labyrinth and greenspace related literature as they pertain to student stress and other psychological, emotional and spiritual components of health and wellness. The null hypothesis for this research project was that neither walking an outdoor labyrinth nor walking an outdoor space (non-labyrinth) caused any changes over time for participants' perceived stress. All 46 participating students (from Fall 2013 Success Central Classes) took the 10 question Perceived Stress Scale both as a pre-test and as a post-test. Group I also completed the Labyrinth Walk Questionnaire. Data from the Perceived Stress Scales were analyzed using one 2x2 ANOVA with repeated measures. The time x group ($F(1) = .310, p > .05$) was not significantly present. No significant main effect measures were found. Despite these findings, there were positive trends in the results; 96% of the labyrinth walkers reported that the outdoor sounds, temperature and overall outdoor environment to have a positive affect on their labyrinth experience. Similarly, the majority of participants (73%) reported feeling less to much less stress. Because perceived stress was lowered in labyrinth walking participants and reports of the outdoor experience being so positive, the University of Central Oklahoma's new outdoor labyrinth seems to provide to be an effective stress-reducing activity for students.

02.03.15 Quality of Care in the Rural Health Care Setting

Mary Grace, Schurter , Karlea Pearson, Kelsey Gingrich

Northwestern State University

The purpose of this study was to evaluate the quality of care at rural health care facilities. The study depicted that care was used as a preventative measure and is effective if the staff is well educated and has the appropriate technology. The main focus of the rural nurse should be to teach the rural dwellers appropriate and adequate education towards their specific disease process with the aim of decreasing emergent situations.

02.03.16 A Comparison of Publication Metrics Among Regional Universities in Oklahoma

Krista, Brooks , Dennis Thompson

Southwestern Oklahoma State University

Introduction: Teaching, research, and service are traditionally acknowledged as the goal of higher education institutions. Scholarship, as measured by journal publications, is a common method of quantifying this aspect of academics. The purpose of our project was to collect and compare bibliometric publication data from the six regional universities in Oklahoma. Methods: The advanced search feature in Web of Science (WoS) was used to collect bibliometric data from each school by typing in the standardized University name used by WoS into the address field tag (ad = Southwestern Oklahoma State Univ). All languages as well as all document types were searched. Citation reports were created for each university. Collected data included the universities most prominent research areas, authors, number of publications, and most cited publications Where possible, data were normalized by FTE faculty to better compare universities with varying faculty sizes. Results: Mean h-index for the six universities was 20.8 + 9.9. Mean publications per university for all years was 344 + 257. On average, 12% of the faculty accounted for 80% of the total publications for the university. Individual university data will also be presented. Conclusions: Journal publications are one measure of scholarship that universities may use to track outcomes. Our data suggest that there is great variability in the six Oklahoma regional universities in publication metrics.

02.03.17 Antimalarial Activity of Metal Complexes of Cross-bridged Tetraazamacrocyclic Ligands

Prince, Amoyaw

Southwestern Oklahoma State University

02.03.18 Physical Activity, Weight Status, and Feeling Overwhelmed among College Students

Antonio, Ross

University of Central Oklahoma

The purpose of this study was to observe the relationship between meeting the physical activity guidelines (P.A.G), desired weight, and feeling overwhelmed among college students. The hypothesis of the study is, students that felt overwhelmed for the past 12 months and desired to lose weight did not meet the P.A.G. ACHS-NCHA II survey was used, the survey questions consisted of several different questions related to feeling overwhelmed, desired weight, and meeting the P.A.G. All data was ran through SPSS data base and cross tabulations analysis was utilized. Results showed. More than 50% of subjects wanted to lose weight, and 59.1% of the entire sample had not met the P.A.G. Data also showed those that meet the P.A.G, did not report feeling overwhelmed as often. The finding of this study showed that the majority of college students have felt overwhelmed within the one year had a desire to lose weight, but did not meet the P.A.G.

02.03.19 Determining How Individual Experiences Describe Societal Obstacles And Identify Health Disparities For The Homeless And Impoverished In Oklahoma City Through PhotoVoice.

Haleigh, Larkin , Dr. Sunshine Cowan

University of Central Oklahoma

PhotoVoice is an interactive medium used within communities for the promotion of communal expression and individual empowerment through photography. The objective of utilizing PhotoVoice within the homeless and impoverished community in Oklahoma City is to strive for societal change through the advancement of identifying population specific health disparities and societal obstacles. The purpose of this research is to address the effects of inaccessibility to resources and lack of proper health care for the homeless in Oklahoma City. Participants will capture their conjectures of health inequalities and societal injustices regarding health care and health resources. At the conclusion of the study, researchers will interview the participants in congruence with their photographs for clarification of perceived hindrances and inequalities. The projected results, through the impact of the photographs, will provide insight into what problems are present within the homeless community as well as render potential and attainable solutions to advance health equity. For individuals who are chronically homeless, have intermittent bouts of unstable residency, and live in poverty, the photographic perceptions illustrating the continuing issues will provide a foundation for additional investigative procedures by local advocacy groups for the furtherance of support and activism.

02.03.20 Evaluation of a Fitness-based Intergenerational Transformative Learning Experience

Terry, Taylor

University of Central Oklahoma

The purpose of this study was to examine students' attitudes toward older adults and community service before and after a senior fitness class assignment. The participants were students enrolled in an undergraduate exercise programming class. For a class assignment, students conducted fitness testing at a local retirement community, after which the students developed exercise recommendations based on the testing results. The students were examined through surveys designed to assess attitudes before and after the senior fitness testing to monitor any changes in attitudes/beliefs toward older adults, community service, working with the older adults and in the ability and confidence in working with this population. The results from the dependent t-tests show that the Aging Semantic Differential Scale (PASD) Mean (M) pre = 76.78 ± 17.31 , M post = 60.26 ± 20.54 ($t(22) = 4.603$, $p = .000$) and Attitudes Toward the Elderly (ATE/Scale 1), M pre = 22.39 ± 2.92 , 24.48 ± 3.31 , ($t(22) = -5.391$, $p = .000$), but no change in attitudes in working with the senior population or community service was noted. The research indicates that through the interactive learning programs that the negative attitudes toward the older adult population can be changed.

02.03.21 The Affordable Care Act and The Practice of Optometry in Oklahoma

Casey, Wright , Amanda Herrera

Northeastern State University

Purpose. To analyze how the new Affordable Care will affect optometrists in the state of Oklahoma. Investigate optometrists' views toward the law, and how they anticipate it will affect their practices. Methods. A 16-question, 10-minutes web-based survey was created to address important aspects of the Affordable Care Act that pertain to Optometry. Working with the Oklahoma Association of Optometric Physicians (OAOP), anonymous survey data from members of the organization will be collected via email and analyzed. Results. We found that most optometrists in the state of Oklahoma, who responded to the survey, felt very negatively towards the Affordable Care Act even though most of them reported having little understanding of the changes implemented in the Affordable Care Act. They feel that it will have a negative impact on the profession of Optometry. Conclusion. Overall Optometrists in Oklahoma have a somewhat negative view towards the law and are concerned about its impact on their practices.

02.03.22 Impact of Cooperative Learning Elements in Group Work on Students' Academic Achievement and Satisfaction

Michelle, Miller , Christine Cobb, Jacilyn Olson, Jeff King

University of Central Oklahoma

INTRO: Cooperative learning (CL) elements are imperative in a group work setting for the development of students' leadership, decision-making, communication and conflict management skills. The 5 CL elements are positive interdependence, individual accountability, face-to-face promotive interaction, small group skill and group processing. PURPOSE: This project sought to analyze students' perceptions of the emphasis on CL elements in group work at UCO and the relationship of these elements on students' academic achievement and satisfaction. METHODS: Pearson's correlations and qualitative analysis were utilized. RESULTS: The survey yielded 1280 student responses from 70 randomly selected fall 2013, in-class sections from all six colleges. There was a significant positive relationship between students' perceptions of (a) group work participation effectiveness and workplace engagement, and (b) overall GPA attainment and group participation and effectiveness and workplace engagement with all 5 CL elements. Better productivity ranked highest among students' positive qualitative comments that group work would increase their academic achievement and satisfaction level. CONCLUSION: This research supports existing literature findings and reinforces the importance of incorporating CL elements in group work as part of UCO's transformative learning initiative to increase students' learning and maximization of their academic success.

02.03.23 Physico-Chemical Characteristics of Yogurt Supplemented With Roasted Chick Pea Flour

Xi, Chen , Kanika Bhargava

University of Central Oklahoma

Yogurt is well known for its health promoting properties. Lentils flour has been suggested to increase the growth of probiotic bacteria during yogurt production, however, studies on effect of dry beans flours on physico-chemical characteristics of yogurt are limited. We aimed to evaluate effect of roasted chick pea flour on overall quality of yogurt and anticipate inventing new protein rich yogurt product. Skim milk was supplemented with 0.1–1.5% (w/v) roasted chick pea flour, inoculated with a yogurt culture (Danisco YO-MIX 495 LYO 250 DCU), fermented (8 hours) and stored at 4 degree C. Physico-chemical properties (Moisture content, total solids, total soluble solids and pH) were studied. Results demonstrated that chick pea flour slightly enhanced the total solids from 10.68% to 10.98%. On the contrary, the moisture content was decreased from 89.32% to 89.02%. Total soluble solids were increased from 8.0 to 9.0 degree Brix. Furthermore, the overall average pH decreased and reached the lowest point at 0.9% (4.06). However, 1%-1.5% chick pea flour resulted in increase in pH. This indicated that the percentage of chick pea flour should be kept below 1% or else it might reduce the probiotic growth. The results indicated that milk supplementation with roasted chick pea flour offer an alternative as a new product and provide better quality yogurt product.

02.03.24 Differences in the Judged Direction of Gaze Imaged in 3-D vs. 2-D

Charles, Gallegos , John Johnson, Roger West

Northeastern State University

ABSTRACT Purpose. The purpose of this study was to compare the perceived direction of gaze from an LCD imaged head viewed in 3-D vs. 2-D. **Methods.** We photographed a model in both 2-D and 3-D as he gazed at points along a horizontally oriented meter stick from a distance of 80 cm while his head was either straight or turned 20° to the side and, in each head orientation, with his gaze directed 0°, 10°, or 20° from the center of the meter stick. The images were then presented to 32 optometry students on a computer monitor in both 2-D and 3-D. They viewed the images from 80 cm while centered directly behind the meter stick and pointed to where along the meter stick the model appeared to be gazing. The data was analyzed to compare accuracy and reliability of the judgments in 2-D vs. 3-D for all combinations of straight vs. turned head, straight vs. averted gaze, and the eyes individually open vs. both open. **Results.** The judged directions of head point with the model's eyes closed were virtually identical for both the 2-D and the 3-D images. Whether the head was straight or turned 20°, perception of the direction of gaze from the right, left, and both eyes together showed virtually no differences between the 2-D vs. 3-D images. **Conclusions.** No additional accuracy is gained by using 3-D rather than 2-D images. Previous studies that have used 2-D images may be applied to real world 3-D gaze perception.