College Of Sciences and Health Professions
ABSTRACTS
Research Day 2018

Friday, April 6, 2018
CSU Student Center Ballroom

Agenda

10:30 - 11:30 am	Open viewing of posters
11:30 am - 1:00 pm	Lunch, Research Award Presentation and Keynote Speaker
	2018 College of Sciences & Health Professions Outstanding Research Award presented to **Conor McLennan, Ph.D.,** **Associate Professor** **Department of Psychology**
	Keynote Speaker **Susan Bazyk, Ph.D., OTR/L, FAOTA,** **Professor** **School of Health Sciences**
	"Creating Change Leaders: Knowledge Translation, Community Building, and Innovation"
1:00 - 3:30 pm	Poster Session **Posters of research, teaching and service topics presented by students and faculty in chemistry, biology, geology, environmental science, health sciences, mathematics, physics, and psychology**
	Poster authors will be available at their posters during these times: 1:00 pm – 2:15 pm odd numbered posters 2:15 pm – 3:30 pm even numbered posters

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001 PURIFICATION AND CRYSTALLIZATION TRIALS OF THE DIHYDROOROTASE FROM METHANOCOCCUS JANNASCHII

Amy K. Dadisman, B.A.[1]; Jacqueline Vitali, Ph.D.[1,2]
[1]Department of Biological, Geological and Environmental Sciences
[2]Department of Physics, Cleveland State University

Dihydroorotase is the enzyme that catalyzes the third step of the de novo biosynthesis of pyrimidines. M. jannaschii is a hyperthermophillic archaeon that can serve as a model organism for research purposes. This experiment is a first step toward elucidating the structure of the dihydroorotase in M. jannaschii. The enzyme was purified by salting out and heating the solution and then putting the supernatant through cation exchange chromatography and hydrophobic interaction chromatography. Twenty-four conditions were tested to determine if a crystal of dihydroorotase could be formed. Two of these conditions led to preliminary crystal formation. These findings can be utilized to determine which other conditions to test to form a crystal. Once a crystal is formed, it can undergo X-ray crystallography to determine its structure. The structure of dihydroorotase in M. jannaschii can elucidate what structural characteristics allow this archaeon to survive in extreme heat and provides further understanding of the diversity within the dihydroorotase family of proteins. It can also give further insight into this pathway in humans.

002 SPEECH SOUND DEVELOPMENT IN ENGLISH AND RUSSIAN

Lina C. Billings, B.A.; Monica Gordon Pershey, Ed.D., CCC-SLP
School of Health Sciences, Cleveland State University

The American Speech-Language-Hearing Association formulates the guidelines and regulations that govern the field of speech-language pathology. Current guidelines require speech-language pathologists to attain the cultural and linguistic competence needed to provide appropriate diagnostic and remediation services to clients who represent diverse cultures and who speak diverse languages. One cultural and linguistic group that is represented in Northeast Ohio is Russian-speaking individuals, and many children in this group are bilingual in English and Russian. However, it is not easy for a speech-language pathologist to assess whether children's development of English and Russian speech sounds is progressing appropriately, because the comparison of English and Russian speech development has not been widely researched. The present study offers a comparative analysis of speech sound development in English and Russian. The product of this research is developmental comparison chart that can serve as a measurement tool. This chart can be used by speech-language pathologists, parents, and teachers who need to compare a child's speech sound development to developmental norms for English and Russian. This research is the foundation for future research on speech-language development in bilingual English-Russian children.

003 MIXING ANALYSIS IN SERPENTINE TYPE MICROMIXERS

Joshua Clark, BS; Petru Fodor, Ph.D.; Miron Kaufman, Ph.D.
Department of Physics

We are using numerical solutions for the Navier-Stokes equations and the concentration - diffusion equation to model fluid flow and reactant distribution in serpentine type micromixers. These mixers rely on the transversal vortices induced by forcing fluids to move around curved trajectories, to enhance the speed at which two of more chemical or particulate components are mixed. It is shown that using non-rectangular sections for the mixing units is a very efficient method to introduce an extensional component to the fluid flow leading to chaotic advection. The efficiency of the mixers studied is evaluated as a function of the Reynolds number.

004 A PROPOSED CURRICULUM IN INTERDISCIPLINARY EDUCATION: CULTIVATING COLLABORATION BETWEEN OCCUPATION, PHYSICAL AND SPEECH-LANGUAGE THERAPY TO MAXIMIZE PATIENT OUTCOMES

Alexandra K. Hornak, BA; Elizabeth Divis, BA, Olivia V. Prexta, BA; Brigette Culliver, M.A.
School of Health Sciences, Speech Language Pathology, Cleveland State University

This project outlines a proposed interdisciplinary course between occupational therapy, physical therapy, and speech language pathology graduate students. A pre- and post- course survey was administered to students during a semester-long interdisciplinary education seminar at Cleveland State University. The survey aimed to collect information from students about what they would find most effective in an interdisciplinary course and what they have learned about the varying disciplines. The proposed course will involve student led case studies and presentations, as well as observations of other disciplines. The ultimate goal of this interdisciplinary education course is to create professional therapists that are able to integrate their unique skill set into a team based model to maximize client and patient outcomes in a collaborative setting.

005 EVIDENCE FOR AN ELASTIC SHELL MODEL OF A PRIMARY CILIUM VIA STOCHASTIC MEASUREMENTS AND MODELING

Andrew Resnick Ph.D.[1]; JustinFlaherty, B.S.[2]; ZheFeng, M.S.[3]; Zhangli Peng, Ph.D.[3], Yuan-nan Young, Ph.D.[4]
[1]Department of Physics and Center for Gene Regulation in Health and Disease, Cleveland State University
[2]Department of Physics, Cleveland State University;
[3]OhioDepartment of Aerospace and Mechanical Engineering, University of Notre Dame, Indiana
[4]Department of Mathematical Sciences, New Jersey Institute of Technology, Newark, NJ

Using experimental, analytical, and computational tools, we quantify the stochastic dynamics of a biologically significant slender microcantilever, the primary cilium, held within an optical trap. Primary cilia are cellular organelles, present on most vertebrate cells, hypothesized to function as a fluid flow sensor. The mechanical properties of a cilium remain incompletely characterized. Optical trapping is an ideal method to probe and characterize the mechanical properties of a cilium due to the spatial localization and non-contact nature of the applied force. We simulated the thermal fluctuations of an optically trapped cilium and compared those results analytical modeling to derive the mean-squared displacement of the trapped tip of a cilium. We provide, for the first time, evidence that the effective flexural rigidity of a ciliary axoneme is length-dependent and provide a rational explanation for the effect. We demonstrate the apparent length-dependent flexural rigidity can be understood by a combination of modeling the cilium in terms of an elastic shell and also including stochastic basal body motion. It is hoped that our improved characterization of cilia will result in deeper understanding of the biological function of cellular flow sensing by this organelle. Our model could be profitably applied to motile cilia and our results also demonstrate the possibility of using easily observable ciliary dynamics to probe interior cytoskeletal dynamics.

006 MODELING PULSATILE FLOW WITHIN A SEMIPERMEABLE ELASTIC TUBE

Niksa Praljac; Andrew Resnick, Ph.D.
Department of Physics, Cleveland State University

We have begun a research effort to model the pressure-driven flow of a Newtonian fluid within a semipermeable elastic cylindrical tube when the driving pressure is periodic. Time-dependent flow within an elastic semipermeable tube is a problem of broad science and engineering interest. The full problem is currently intractable, but an advanced undergraduate student is able to make substantial inroads by beginning with a simplified problem: axisymmetric pulsatile flow within an elastic cylindrical impermeable tube. Incorporating elasticity requires matching the Navier-Stokes equations for fluid velocity and solid body equations for the wall motion at the wall. Incorporating permeable walls forces the continuity and no-slip boundary condition to be violated and will be incorporated in future work. We present analytical and computational results obtained to date.

007 NITROSILATION OF S100A8/A9 PROTEIN COMPLEX BY THE INDUCIBLE NITRIC OXIDE SYNTHASE

Kia Smith B.S.; Valentin Gogonea, Ph.D.
Cleveland State University, Department of Chemistry

How does the body fight infection? What causes inflammation? These are only a few questions that have been asked by many doctors across the globe. One thing that is known for certain about infection is that there is a particular sub-group of enzymes called nitric oxide synthases (eNOS, nNOS and iNOS) that produce Nitric Oxide (NO), a molecule radical capable of oxidizing proteins and alter their function. In our study we focus on inducible Nitric Oxide Synthase (iNOS). NOS enzymes are comprised of oxidase and reductase domains linked by Calmodulin (CAM), a polypeptide linker. According to prior studies, iNOS's input and output states were analyzed showing the enzyme as highly malleable molecule virtually creating a shape-shifting enzyme capable of various shapes, however, the internal placement of the oxidase and reductase domain within iNOS is not clearly understood. As a result, the method of transport for NO was not revealed. This enzyme is responsible for the releasing of NO throughout the body when activated. NO then targets sites of infection and as a result, causes inflammation in the affected area. The true question is, what mechanism of transport does iNOS use to safely transfer NO (a protein nitrosylating agent) throughout the body as NO is known to be a highly reactive. Our computational research study utilized a protein-protein docking program (PatchDock) and a molecular visualizer (PyMol) in order to gain a digital grasp of the transfer path of the NO molecule to NO-carrier proteins like the S100A8/A9 protein complex.

008 TARGETING THE TRIMETHYLAMINE OXIDE BIOSYNTHESIS PATHWAY

Ashraf Duzan, M.S.[1]; Xiaodong Gu, Ph.D.; Adam Roberts, Ph.D.; Jennifer Buffa, Ph.D.; Stanley L.Hazen, M.D.; Valentin Gogonea, Ph.D.[1]
[1]Cleveland State University, Department of Chemistry
[2]Cleveland Clinic, Department of Cellular and Molecular Medicine, Cleveland, Ohio

Recent clinical research points to trimethylamine oxide (TMAO) as a biomarker molecule associated with several homeostasis disruptions, such as cardiovascular disease. Our goal in this project is to alter the biosynthetic pathway of TMAO through the inhibition of the gut microbial trimethylamine (TMA) lyase: the choline utilization cluster enzyme (CutC/D). We are using structure activity relationships (SAR) to predict new classes of chemical structures as potential efficient inhibitors. Thus, we are exploring the synthesis of new chemical compounds, non-lethal to gut microbial community, with high enzymatic efficacy both in vitro and in vivo. We are preparing and assessing inhibitors that can work either through irreversible non-competitive or competitive mechanisms, have minimal side effects, possess appropriate physico-chemical pharmaceutical properties as needed for a drug. Our leading candidates have excellent enzyme blocking efficiency and display good pharmacokinetic/ pharmacodynamics properties.

009 S100A8/A9 AND GAPDH PROTEIN-PROTEIN INTERACTION MODULATES THE ACTIVITY OF THE GAIT COMPLEX

Bargeen Turzo, B.S.; Valentin, Gogonea, Ph.D.
Cleveland State University, Department of Chemistry

Selective nitrosylation of glyceraldehyde 3-phosphate dehydrogenase (GAPDH) at Cys-247 affects gene regulation through the interferon-gamma (IFN-g) activated inhibitor of translation (GAIT) complex. Oxidized low-density lipoprotein (LDLox) and INF-γ induces assembly of the nitrosylase complex composed of inducible nitric oxide synthase (iNOS), S100A8 and A100A9 proteins. Intracellular GAPDH has been shown to exist as a mixture of monomer, dimer, and tetramer in cell lysate. Our goal is to investigate the interaction interface between GAPDH and S100A8/A9 proteins by using protein-protein docking calculations. The candidate molecular models were analyzed by measuring the shortest distance from GAPDH interaction domains (1 and 3) to each of the three residues of S100A8 (Ile22, D32, D52), which when used as anchor points for the FeBABE moiety, leads to significant cleavage of GAPDH. Proposed models of the S100A8/A9/GAPDH complex presented herein were selected as the best candidates from each category based on this criteria and overall consistency with the FeBABE cleavage experimental data. Our analysis concludes that molecular models of GAPDH tetramer and monomer with S100A8/A9 lead to cleavage patterns that agree with the experimental data.

010 PLASMA LEVELS OF HYDROGEN SULFIDE IN HUMANS AND INCIDENT RISKS FOR CARDIOVASCULAR DISEASE

Hind G. Malaeb, B.S.[1]; Zeneng Wang, Ph.D.[2]; Stanley L.Hazen, M.D.[2]; Valentin Gogonea, Ph.D.[1]
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[2]Cleveland Clinic, Department of Cellular and Molecular Medicine, Cleveland, Ohio

Hydrogen sulfide (H2S) is a water soluble and colorless gastro-transmitter with a distinctive rotten egg smell. Most endogenous H2S is produced in mammalian cells through enzymatic pathways using L-cysteine as a substrate. In addition, H2S is generated by the sulfur reducing bacteria present in the intestinal flora. As a gas, H2S serves as a signaling molecule playing several physiological roles in the cardiovascular, gastrointestinal, central nervous, and respiratory systems. Abnormal levels of H2S in plasma and tissue are linked to various pathological conditions in humans. Different methods used to quantify H2S levels give differences of orders of magnitude among tissues tested. The purpose of this project is to develop and validate an isotope-labelling liquid chromatography mass spectrometry (LC-MS/MS) method that can be used to accurately quantify H2S in biological matrices such as blood, plasma, and tissues, and to examine the relationship between H2S levels and incident risks for development of cardiovascular disease and its adverse outcomes (heart attack, stroke and death).

011 IS THERE A CONNECTION BETWEEN PLASMA LEVELS OF BILE ACIDS AND DIABETES?

Ibrahim Choucair M.S.[1]; Ina Nemet, Ph.D.; Stanley L. Hazen, M.D.; Valentin Gogonea, Ph.D.[1]
[1]Cleveland State University, Department of Chemistry
[2]Cleveland Clinic, Department of Cellular and Molecular MedicineCleveland, Ohio

Primary bile acids synthesized in the liver are bio-transformed by gut microbial enzymes into secondary bile acids. Bile acids regulate their own synthesis, lipid and glucose metabolism, energy expenditure and inflammation. We investigated the relationship between bile acids and metabolic disease by developing and validating an isotope-labelling liquid chromatography-tandem mass spectrometry (LC-MS/MS) method for the analysis of more than 50 primary and secondary bile acids in human and mouse physiological fluids and tissues. The method was applied to establish the normal ranges of different bile acids in healthy volunteers and to study a cohort of diabetic patients. While higher concentrations of conjugated secondary bile acids showed a lower risk of developing diabetes, increased concentrations of bile acids extensively metabolized by gut bacterial enzymes showed increased risk of developing diabetes. In preliminary studies, concentrations of structurally defined secondary and tertiary bile acids were identified whose levels are associated with the presence of diabetes. Further studies are being performed to validate these findings, and to confirm if they are related to the presence of diabetes, glucose homeostasis measures, and medication use.

012 WHICH MICROBIAL METABOLITES ARE DRIVING NON-ALCOHOLIC STEATOHEPATITIS?

Nisreen Nimer M.S.[1]; Zeneng Wang, Ph.D.[2]; Ina Nemet, Ph.D.[2]; Stanley L. Hazen, M.D.[2]; Valentin Gogonea, Ph.D.[1]
[1]Cleveland State University, Department of Chemistry
[2]Cleveland Clinic, Department of Cellular and Molecular Medicine, Cleveland, Ohio

Nonalcoholic fatty liver disease (NAFLD) is the most common chronic liver condition in the United States. NAFLD is associated with dyslipidemia, cardiovascular disease, obesity, chronic kidney disease, insulin resistance and type II diabetes mellitus. Nonalcoholic steatohepatitis (NASH) is a serious NAFLD phenotype which is characterized by inflammation, necrosis, and may progress from simple steatosis to hepatic fibrosis, cirrhosis, and hepatocellular carcinoma. Histological data from invasive procedure of liver biopsy remains the clinical standard for diagnosis of NASH and simple steatosis. The present work aims to use non-targeted and targeted mass spectrometry (MS)-isolable internal standard based methods to

determine the potential utility of plasma metabolic profiling in defining candidate biomarkers that correlate with liver metabolic pathways and could be useful in differentiation between NASH and simple steatosis. To accomplish this we perform metabolomics analyses for gut microbiota metabolites, bile acids, polyols, carboxylic and amino acids (using ultra-performance liquid chromatography-mass spectrometry, UPLC-MS) on plasma samples from human subjects who underwent a liver biopsy, or from mice (model of NASH that developed fibrosis), and determine which metabolites correlate with the starting of fibrosis and initial stages of chronic hepatic lesion.

013 BRIDGING THE GAP BETWEEN MIDDLE SCHOOL TEACHERS AND SPEECH-LANGUAGE PATHOLOGISTS

Michelle C. Komorowski, B.A.; Emily D. Swank, B.S.; Sue A.Neff, M.A.
School of Health Sciences, Speech & Hearing Program

Literacy continues to be a major concern for our students. The Alliance for Excellent Education (2009) statistics regarding literacy performance: Only 29% of America's 8th-grade public school students meet the National Assessment of Educational Progress (NAEP) standard of reading proficiency for their grade level. Approximately 8 million of the 32.5 million students in 4th through 12th grade read below NAEP's minimum- or basic standards for their grade level. A mere 2% of all eighth grade students read at an advanced level Adolescents with language impairments who demonstrate behavior or social problems are often observed as lazy or noncompliant, rather than individuals with a language impairment. These adolescents will show difficulty in higher-level linguistic tasks, including oral and written narrative comprehension and production (Karasinski, 2011). A number of adolescents continue to present with language deficits, many of which are undiagnosed and have an adverse effect on behavior, social functioning, and academic performance. The role of a speech-language pathologist becomes crucial to improve the image of the adolescent with language impairment. Rather than being recognized as a student with a language impairment, the student is misinterpreted as having a behavior problem. "Approximately two-thirds of children with emotional and behavioral disorders or conduct disorder meet the criteria for language impairment as a concomitant disorder" (Karasinksi, 2011). This leads to language and behavior difficulties into adolescence. Collaboration across disciplines in the school setting has played a significant role in the academic success of the students. Specifically, collaboration between speech-language pathologists and regular education teachers. To demonstrate this need for collaboration, a study was conducted to show the positive effects of disciplines within the middle school setting collaborating. The study is known as Collaborative Language Literacy Laboratory, which demonstrates effectiveness of co-teaching, knowledge sharing, and collaboration for student at the middle school level.

014 ELECTROSTATICS AT THE MOLECULAR LEVEL

Ulrich Zurcher Ph.D.
Department of Physics, Cleveland State University

We discuss electrostatics properties of atoms and small molecules and show they relate to behavior, such as spectroscopic properties (mostly IR and UV-VIS). We discuss hydrogen bonding and use the Kauzmann criterion to find an estimate for the melting temperature of ice.

015 SYNTHETIC MELANIN FILMS AS POTENTIAL INTERFACES FOR PEROXYNITRITE DETECTION

Clara Kay; Ousama Al-Mahoud; Haitham F. Kalil, Ph.D.; Mekki Bayachou;Ph.D.
Cleveland State University, Department of Chemistry

Excessive concentrations of peroxynitrite are associated with several human pathologies, such as arthritis, inflammation and carcinogenesis, as well as aging-associated diseases. Thus, the precise detection of this analyte in biological systems is essential, not only to understand the genesis and causes of ailments at the tissue/cellular level, but also to suggest and design potential therapies.
Melanin is a natural pigment that has many physiologic functions including neutralizing highly reactive oxidative species. Tyrosine and its derivative 5,6-dihydroxyindole (DHI) are some precursors of eumelanin, a black form of melanin that is also photo-stable.

In this project, we examined the chemical interaction between synthesized peroxynitrite and polymerized films of DHI as a model of synthetic melanin. First, we studied the electrochemical characteristics of polymerized 5,6-dihydroxyindole on graphite electrodes, and then monitored the changes after adding aliquots of peroxynitrite. This part of the work reports mainly on chemical changes within the electro-polymerized films of melanin on the electrode. We also studied the rates of chemical decay of peroxynitrite in the presence of the transparent ITO electrodes coated with melanin films using absorbance spectroscopy. Ultraviolet-visible spectroscopy showed a dramatic difference between the decomposition rates of peroxynitrite alone and in the presence of DHI films. Scanning electron microscopy (SEM) has been used to image the change on the synthetic melanin films coated ITO slides before and after exposure to PON.

We will discuss the implication of the changes of the electrochemical signal of DHI films. We will also compare the reactivity of peroxynitrite in the presence and absence of DHI films. Finally, we will explore the possibility of using DHI films as a platform for the quantitative detection of peroxynitrite in solutions.

016 CONSERVED RNA STRUCTURES WITH HETEROGENEOUS SEQUENCES CONTROL TRANSLATIONAL SILENCING OF AN INFLAMMATION RESPONSIVE POST-TRANSCRIPTIONAL OPERON

Abhijit Basu, Ph.D.[1]; Niyati Jain, Ph.D.[2]; Blanton Tolbert, Ph.D.[2], Anton Komar, Ph.D.[1]; Barsanjit Mazumder, Ph.D.[1]
[1]Cleveland State University, Department of Biology, Geology and Environmental Sciences
[2]Case Western Reserve University, Department of Chemistry, Cleveland, Ohio

RNA-Protein interactions with physiological outcomes usually rely on the conservation of sequence within the RNA elements. By contrast, activity of the diverse gamma-interferon-activated inhibitor of translation (GAIT)-elements relies on the conserved RNA folding motifs rather than the conserved sequence motifs. These elements drive the translational silencing of a group of chemokine (CC/CXC) and chemokine receptor (CCR) mRNAs, therefore helping to resolve physiological inflammation. Despite sequence dissimilarity, these elements adopt common structures (as revealed by 1D-1H-NMR spectroscopy), providing a basis for their interaction with the RNA-binding GAIT complex. However, many of these elements (e.g. derived from CCL22, CXCL13, CCR4 and ceruloplasmin (Cp) mRNAs) reveal differential affinities toward GAIT complex. Toeprinting analysis shows that different segments within the overall conserved structural GAIT elements contribute to differential affinities of the GAIT protein complex to RNA. Heterogeneity of the GAIT elements may thus be required for hierarchical fine-tuning of the resolution of inflammation.

017 BIo-COMPATIBILITY IMPROVEMENT OF BLOOD-CONTACTING MEDICAL DEVICES BASED ON NITRIC OXIDE RELEASE [NO]

Shaimaa Maher, B.S.; Leah McCollum, B.S.; Mekki Bayachou, Ph.D.
Cleveland State University, Department of Chemistry

Blood-contacting medical devices, such as vascular grafts, stents, heart valves, and catheters, are often used to treat cardiovascular diseases. These implantable medical devices, even if labeled as biocompatible, can cause serious complications in patients. Thrombus formation and infection are the main causes of failure of these devices. In contrast to the healthy endothelium, which actively resists thrombosis, artificial surfaces promote clotting through a complex series of interconnected processes that include protein adsorption, adhesion of platelet, leukocytes and red blood cells, ending with thrombosis.

Nitric oxide is an important intercellular and intracellular signal molecule that regulates the cardiovascular, nervous, and immune systems. It is generated from L-arginine by a family of enzymes, called nitric oxide synthases. In this regard, NO-releasing films as coatings on blood-contacting devices have shown the potential to be effective in preventing platelet adhesion, activation, and aggregation.. Therefore, NO-releasing coatings have the potential to prolong vascular graft and stent potency.

In this project, we use layer-by-layer thin films building strategy to form layers of polyethyleneimine (PEI) and iNOSoxy as NO-releasing coatings. When discs coated with PEI/iNOSoxy films are exposed to substrate arginine, a source of reducing equivalent, and other required ingredients of the NOS reaction, nitric oxide is formed and released. In this work, we characterize the PEI/iNOSoxy thin films in terms of structure of iNOSoxy within the films as well as the amount of active (iNOSoxy) concentration. Fourier transform infrared (FTIR) spectroscopic analysis was used to characterize structure-activity relationships of these NOS-containing thin films. We used cyclic voltammetry to determine the active catalyst (iNOSoxy) concentration on the modified surfaces, and how this relates to enzymatic activity and resulting NO release fluxes from PEI/NOS-containing thin film. Next, we will conduct platelet adhesion assays to determine if the amount of platelets adsorbed on the PEI/iNOSoxy films is inversely proportional to the amounts of NO released from these coatings.

018 CLOSING THE GAP BETWEEN ELECTRONIC AIDS FOR DAILY LIVING AND INVACARE WHEELCHAIR CONTROLS

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After injury or illness, many individuals face difficulties performing daily activities within the home. Controlling one's home environment can become problematic after loss of function or after becoming wheelchair bound. Cleveland State University's Master of Occupational Therapy Program has collaborated with Invacare, the world's leading manufacturer of wheelchairs, to determine how individuals facing these difficulties can increase function within the home with Electronic Aids for Daily Living (EADLs). EADLs provide individuals with assistance in maintaining independence by affording alternative methods to effectively control and monitor the home environment. Current literature has determined that assistive devices would positively impact individuals with disabilities. The purpose of this project was to discover what devices are available, how and where they are purchased, and what type of connectivity is necessary to assure universal compatibility. Methods included reviewing current literature to better understand the advantages and accessibility of EADLs, rigorous product research, and IT consultations. Meetings with Invacare took place to determine needs and to organize and advance project structure and content. Results of this work produced a comprehensive spreadsheet of 55 safety related devices. We developed a product website with links to each

product in four categories; door/window locks, smoke alarms, garage doors, and integrated systems. Pilot testing of the website will take place during the College of Sciences and Health Professions Research Day to collect data on website usability. Implications for future research include exploration of additional EADLs available on the market, expanding device categories and improving usability of the existing website, EADL usability with Invacare wheelchair controllers, and benefits of online databases for professionals who recommend these products. As advancements in technology take place, additional connectivity options will also need to be explored.

019 WATER QUALITY ON CLEVELAND STATE UNIVERSITY'S CAMPUS

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The purpose of this study is to test different water sources around campus to see if the quality of water differs from one source to the next. Many students think it necessary to go to a filtered water source in order to obtain their drinking water, and we wanted to see if it is indeed beneficial for the student's health to pick one drinking source over another. We used the Baldwin Meadows drinking water test kit and 4 ounce plastic containers to test different components of the water in the Cleveland State University Dining Hall, the Fenn Tower sink, the Student Center filtered water faucet, and the Student Center drinking fountain. Our main focus was on testing the alkalinity, pH, and hardness of these different water samples, but we also tested the different samples for traces of iron, copper, lead, nitrate, nitrite, and chlorine. We tested three samples of water at each location on two different days and during different times of the day. We found variation from source to source on alkalinity, pH, and hardness. Although the water showed variation from one source to another, they were all within government regulated standards, as determined by the Environmental Protection Agency, and none of the sources were deemed contaminated. For students picking water sources on campus, one water source is just as beneficial for your health as the next.

020 THE USE OF CONCEPTUAL VS. PERCEPTUAL IMPLICIT PRIMING IN INDIVIDUALS WITH ALZHEIMER'S DISEASE

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There are many symptoms that come along with Alzheimer's disease (AD), memory loss being one of the first and most characteristic. Although major networks in the memory system are compromised by AD, there are still some memory processes left largely intact. Through the use of implicit, unconscious memory, patients with AD are able to compensate for the disease, such as learning new information utilizing implicit processing and relying on procedural memory for completing day-to-day activities. Research has begun to examine the differences between the two types of implicit memory, conceptual and perceptual. Conceptual memory is subconscious recall or recognition memory whereas perceptual memory relies on the physical appearance of items in memory. To date few studies have investigated the differences between these two implicit memory processes and how these systems could be best utilized by individuals with dementia. The following poster will provide a detailed overview of the research findings to date and propose a study to further investigate the differences between conceptual and perceptual implicit memory processes. Discussion will focus on how such findings may be used to assist individuals maintain current cognitive and functional abilities.

021 HOW DO HOME CARE OCCUPATIONAL THERAPISTS ASSESS HOME SAFETY AS DEFINED BY THE OCCUPATIONAL THERAPY PRACTICE FRAMEWORK?

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The research performed identified current assessments used by home health care occupational therapy practitioners to assess client safety within the home environment. The occupational therapy practitioner knowledge of the Occupational Therapy Practice Framework: Domain and Process (3rd ed.; AOTA, 2014) was also analyzed. A survey, consisting of 18 open-ended and closed-ended questions, was used to elicit data. Participants were recruited using private occupational therapy social media sites and through email invitation. Both qualitative and quantitative methods were used for data analysis. The collected data from occupational therapy practitioners on assessments used to address safety in the home environment, indicates that a wide variety of both commercial and personal approaches are currently being utilized in occupational therapy home health care practice. Additionally, this information allowed for the identification of clinician perceived values of using specific home safety assessment tools in practice. Other trends that emerged include financial barriers to home health care safety and discrepancies between client and practitioner perception of safety needs. This research study established recommendations for future research to enable current and future OT practice to meet evolving demands of healthcare within the home environment.

022 JUNCTION ADHESION MOLECULE-A DEFICIENCY DRIVES SEX-SPECIFIC DIFFERENCES IN GLIOBLASTOMA PROGRESSION VIA DIFFERENTIAL RESPONSES IN THE TUMOR MICROENVIRONMENT

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Glioblastoma (GBM) is the most malignant primary brain tumor in adults with poor prognosis. Despite the male preponderance for developing GBM and better outcomes in females, the current treatment paradigms do not account for sex as a biological variable. JAM-A is a tight junction protein that our laboratory found to be important for GBM cancer stem cell growth. To assess its role in the tumor microenvironment JAM-A knockout (KO) mice were injected with mouse glioma cells intracranially and we observed that JAM-A KO mice exhibit differential survival between males and females. While wild-type males experience poorer survival compared to female wild-type mice, this trend is reversed in JAM-A KO mice. Based on these differences, I hypothesize that JAM-A suppresses tumor growth in females and its deficiency in the tumor microenvironment leads to poor outcomes. Since JAM-A is predominantly expressed by the microglia in the brain, analysis of microglia in normal and tumor bearing mice demonstrated significant differences in microglia number and activation status with the female KOs having more activated microglia upon tumor engraftment. Upon qPCR screening of microglia markers that are responsible for sex specific differences in brain pathologies, we identified that an estrogen regulating protein lipocalin2 (LCN2) is highly upregulated in the female JAM-A KO microglia and tumors. Current experimental approaches are aimed at targeting LCN2 and estrogen expression to delineate JAM-A-LCN2-estrogen signaling axis to improve outcomes in a sex-specific manner. Although, tumor cell intrinsic sex-specific differences have been reported, this study is a first to demonstrate that differences in GBM tumor microenvironment drive sexually dimorphic tumor growth. In conclusion, our findings offer a possible explanation for a poorly understood protective effect seen in female gliomas and uncovers important aspects of sex-hormone signaling for optimizing the care of brain tumor patients.

023 INVOLVEMENT OF THE INDIVIDUAL WITH DEMENTIA IN DAILY DECISION-MAKING: EFFECTS OF INCONGRUENCE BETWEEN CAREGIVE AND CARE RECEIVER VALUES AND PREFERENCES

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The subjective experiences of individuals with dementia have only recently been studied. Kitwood's (1997) work emphasizes the inclusion of IWD into the research process. The majority of quantitative research has been conducted using proxy reports of primary caregiver in order to understand the IWD (Whitlatch, Piiparinen & Feinberg, 2009).

Early diagnosis of dementia provides greater opportunities to engage in the decision making process (Feinberg & Whitlatch, 2001). Studies have found that individuals with mild-moderate cognitive impairment are able to make self-evaluations about their health and their quality of life (Parmelee et, al., 1989). Older adults prefer family involvement in the healthcare decision making process (Roberto, 1999). However, the views of the IWD may not be taken into account even in the mild stages (Menne & Whitlatch, 2007). There is limited research on how accurately caregivers perceive the values and preferences of the individual (Feinberg, Whitlatch & Tucke, 2000). As the IWD progresses in the disease process their caregivers will provide more decisions on their behalf (Elliot et. al., 2009). Understanding the values and preferences of the IWD allows for better communication between caregiver and care receiver and encourages the family and IWD to make important care decisions together (Roberto, 1999).

024 GARDENING USING A HARNESS SYSTEM: PARTICIPATION AND MEANING

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Background: There is a need for research studies to marry the ideas of a dynamic harness system, the therapeutic benefits of gardening, and the successful use of task-based functional occupations to rehabilitate motor learning.

Objective and Methods: This research study was developed through a collaborative effort of the Physical and Occupational Therapy Programs and the Engineering Department at Cleveland State University. Using a mixed methods case study design, researchers aim to explore the feasibility of utilizing a multi-directional harness system within a community garden high tunnel and the meaning of the experiences of participants as they participate in a community garden project. The goals are: 1) to allow individuals with balance impairments the opportunity to safely and confidently return to the meaningful occupation of gardening; 2) to allow more risk taking using the harness system while gardening and thus a higher intensity of practice resulting in improved balance and occupational performance. We aim to identify ways to modify the protocol in order to address a variety of needs and make the system replicable and thus accessible to more individuals for future studies.

Research Questions: 1) Whether the safety provided by the harness allows more risk taking and thus a higher intensity of practice than is afforded by a non-harnessed environment where falls are possible? 2) Whether gardening using the harness system positively improves balance, occupational performance, and satisfaction with performance? 3) How do participants describe their experiences and meaning of these experiences participating in a community gardening project?
Results: Preliminary results will be reported.

025 THE IMPACT OF TRAUMATIC SYMPTOMOLOGY AND SOCIAL SUPPORT ON THE EFFECTIVE MANAGEMENT OF DEATH-RELATED THOUGHT

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Terror management theory (TMT) posits that people function effectively in the world, in part, by relying on social anxiety-buffer systems to protect against death awareness; however, a new extension called anxiety buffer disruption theory (ABDT), posits that traumatic experiences can overwhelm those buffers, leaving people vulnerable to death anxiety and at increased risk for post-traumatic stress disorder (PTSD) symptoms. To test these hypotheses, participants with low and high posttraumatic stress symptoms were identified and recruited using a general population pre-screen, prompted to engage in a relationship threat priming task (vs. control topic), and then asked to complete a standard measure of death anxiety. The present research found that: 1) when posttraumatic stress symptoms were low, death anxiety was low in a control condition but increased following a threat to social relationships (a known death-anxiety buffer); but, 2) when posttraumatic stress symptoms were high, death anxiety was high in both the social threat and control condition, indicating overwhelmed/disrupted normative buffering. The present research could potentially bear new insights for the understanding of posttraumatic stress, how relate to others, to the world around them, and to their own mortality, and could bear practical implications for improving the treatment of PTSD.

026 HOW DOES A COUNTRY'S MATH PISA SCORE 'ADD UP'?

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What factors make a country's students excel on the Math portion of the PISA Test'? The PISA (Programme for International Student Assessment) Exam is part of the OECD (Organization for Economic Co-operation and Development) and is taken every 3 years across OECD partner countries. I looked specifically at the 2015 Math portion of the exam and focused on the 35 OECD member countries.

Out of the over 2000 variables of data available from the PISA surveys that accompany the Exam I chose 6 that I wanted to analyze (standardized testing frequency, teachers salaries, gender gap, time spent in Math class, time spent in pre-primary classes, and ability grouping) along with 2 more variables depicting the country's socio-economic profile (Gini Index and GDP per capita). All of the variables are quantitative. I analyzed the data from a Bayesian perspective using MCMC methods to find the posterior distribution. I did sensitivity analysis on 3 models and used convergence diagnostics to check if the posterior distribution converged.

I concluded that the MCMC procedure was robust and that the model did not show lack of convergence. The final model contains only 2 variables (ability grouping and Gini index) both having a negative association with average mean Math PISA score.

027 MULTIDISCIPLINARY REU SITE AT CLEVELAND STATE UNIVERSITY: SYNTHESIS, ASSEMBLY, AND CHARACTERIZATION OF SOFT MATTER.

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Researchers at Cleveland State University's Department of Physics and Department of Chemical & Biomedical Engineering collaboratively study the unique properties and applications of soft matter materials. In 2017, these departments joined forces to start a new NSF-sponsored Research Experiences for Undergraduates (REU) site. The objective of our site is to involve undergraduate physics and engineering majors in meaningful interdisciplinary research projects within soft matter science and engineering. A primary focus of our site is to encourage students to continue in STEM fields as either graduate students or workforce members. CSU's focus on Engaged Learning has cultivated a strong culture of support for undergraduate research, and REU participants benefit from this culture. Students receive one-on-one mentoring from experienced faculty and participate in a variety of professional development opportunities. This poster will give an overview of the student research accomplishments and program challenges encountered in the first year of our multidisciplinary REU. It will also discuss the benefits of the experience to both students and faculty mentors.
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028 SPEECH DEVELOPMENT AND INTERVENTION IN A 2 YEAR; 5 MONTH OLD CHILD

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This paper presents a clinical case study of a young child, age 2;5 (years; months) with suspected motor speech and expressive language delays. The clinician performed a battery of tests yielding a detailed analysis of speech and language skills including cognition and play. The results of his speech analysis revealed a speech sound delay characterized by a limited repertoire of vowels and consonants as well as a limited range of syllable shapes.

Upon completion of the evaluation portion of the case study, the clinician created goals and initiated therapy. The following research question was addressed: What is the effect of phonological intervention on the production of vowels, glides, and fricatives in the initial position of words with the child? Intervention consisted of three parts. First, the use of Easy Does It For Apraxia to target speech sounds in isolation. Although this approach was designed to increase the participant's speech sound repertoire, the participant was largely uncooperative/ unengaged. Therefore, a new approach was utilized.

Next, the clinician utilized a literacy approach by using the My Sound Box series. This series of books targeted each speech sound in the initial position of simple familiar words (i.e., targeting the "a" in apple). The participant's production of speech sounds in the initial position of words increased across sound classes (i.e., stops, glides, and fricatives). Also, the number of total utterances per session increased. Unfortunately, the participant eventually became uninterested in this literacy/speech production activity. He became reluctant to participate, resulting in fewer speech sound productions.

Finally, the clinician introduced the Kaufman Speech Cards. These cards introduced words in a single syllable and slowly increased in complexity (i.e., from buh to bubble). The child was engaged and attentive during this intervention. The range of sounds in his repertoire increased substantially.

029 AN INTERPROFESSIONAL, PEDIATRIC, EXPERIENTIAL LEARNING ELECTIVE TO FOSTER DEVELOPMENT OF TEAM BASED COMPETENCIES IN HEALTH PROFESSIONAL STUDENTS: A QUALITATIVE ANALYSIS

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Interprofessional education (IPE) is defined as "students from two or more professions learning about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010). When used effectively, IPE programs aid in preparing health professional students to enter the health care field as effective team members, who are knowledgeable in delivering collaborative care. In 2016, an interprofessional education, experiential learning (IPE-EL) elective course was created and implemented at Cleveland State University to promote interprofessional interactions among graduate-level health professional students. Based on an experiential-learning mode of teaching, students were tasked to work in teams to optimize the play of children with sensory and mobility impairments during a series of community-based events.

To determine the effectiveness of this elective course, survey data was collected regarding perceptual changes of graduate, health professional students. This descriptive review provides a qualitative analysis of pre- and post-survey data from six students who were enrolled in the initial IPE-EL elective course. The IPE-EL elective course was open to students in both the Doctor of Physical Therapy and the Master of Speech and Language Pathology programs. Surveys were independently read and then re-read by two investigators. Using an inductive thematic analysis, four main themes were identified. Aligning with a conceptual model highlighting the essential components of IPE, the themes included: learning across a continuum of experiences, recognizing enabling or interfering factors, developing an uni-professional identity, and acknowledging outcomes resulting from team-based practices. Results demonstrate that students perceived that the use of this IPE-EL elective course helped solidify awareness of professional roles, improved understanding of discipline specific responsibilities, and enhanced collaborative behaviors between differing disciplines. By completing this thematic analysis, information gained from this qualitative review can help to inform and enhance future implementation of the IPE-EL model of teaching.

030 ANIMAL-ASSISTED THERAPY IN THE TREATMENT OF COMMUNICATION DISORDERS

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The term Animal-Assisted Therapy (AAT) is a relatively new term; however, animals have been used to help people overcome illness and/or mental disorders for years. It has been reported that physicians in the 17th century began using horses as treatments to improve both physical and mental health issues in their patients. "In the 1940's, the American Red Cross and the Army Air Corps established a farm where veterans could interact with and take care of animals while they were healing from war injuries and illnesses" (2013, Brady, 90). The use of

AAT in treating communication disorders is a growing practice among speech-language pathologists and other therapy professionals. A vast number of individuals in a variety of population sub-groups show great benefit when utilizing animals within a therapy setting. Most research is conducted in the perspective of psychologist, but, findings demonstrate positive carry over into speech and language treatment among those with developmental disabilities as well as those with acquired disabilities. Further research is needed in order to concretely define AAT as evidence-based practice among the speech and hearing world.

031 PARADOXICAL VOCAL FOLD MOTION DISORDER IN THE ELITE ATHLETE

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This paper presents a synthesis of the research regarding paradoxical vocal fold motion disorder (PVMFD). Paradoxical vocal fold motion disorder is an increasingly common disorder found in athletes—most often in female athletes who compete at high levels. Individuals with PVFMD often present with symptoms that include intermittent shortness of breath, wheezing, audible respiration, upper chest/throat tightness, changes in vocal quality, fatigue, throat clearing, and coughing. PVFMD typically goes under-identified or misdiagnosed. Many medical professionals have limited knowledge of the disorder. Consequently, PVMFD often gets misdiagnosed as asthma or recurrent cough because of the similarities between these diagnoses and limited evaluative tools.

The process of evaluation begins with a referral from a medical professional and should include a thorough medical history of all symptoms and associated factors (e.g., allergies, preexisting conditions, GERD). The gold standard for making a differential diagnosis is direct visualization of the vocal folds during an acute episode. This paradoxical movement can best been seen using laryngoscopy. After visualization of a diamond-shaped chink, a diagnosis can be made, and treatment can begin.

Treatment of PVFMD often involves therapy provided by a speech-language pathologist (SLP). An SLP provides the individual with education, calling their attention to contributing factors, and rescue breathing strategies to use during an episode. These techniques are taught at rest and continually increased until the athlete is performing them in a high performance environment. The goal is for these rescue-breathing strategies to become second nature for the athlete and to (a) relieve any and all symptoms of PVFMD and (b) return to competing at a high level without fear of an attack. Speech therapy has been proven to be an effective form of treatment for PVFMD; however, in rare cases where the individual continues to have difficulties, other options can be explored.

032 AN EVALUATION OF UNIONIDAE DIVERSITY IN THE ROCKY RIVER AND HOW POPULATION DENSITY HAS CHANGED OVER TIME IN COMPARISION TO OBSERVATIONS MADE OVER 15 YEARS AGO

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This study was undertaken to determine the changes in freshwater bivalve population since the survey conducted in 2001 in the northern region of the Rocky River, Ohio, USA. During our study, we discovered 69 live specimens and 58 shells most of which were found in two distinct locations near the top and bottom of the area surveyed. Our finds consisted of eight species in comparison to the nine that were seen in the same area of the 2001 study. Our results showed that Leptodea fragilis (LF) populations have decreased in the main stream of the Rocky River since the observation 2001, others species populations such as Lasmigona costata have slightly increased. However, the overall population of unionid mussels in this area have decreased and seeing as mostly older specimens were found, it appears as if they have not been reproducing despite the improvement of the water quality that has been taking place over the past 15 to 16 years.

033 STUDENTS' MAJORS AND PERSONALITY TYPES

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Each person has a different personality, ultimately leading to how they interact with people, what they do, and how they do things differently than others. But are people really that different? In our study we are attempting to find a relation, if any, between certain college majors and personality types. To determine this, we will be conducting surveys that include questions pertaining to their personality of students at Cleveland State University with either a STEMM major: science, technology, engineering, mathematics and medicine, or an arts and humanities major. The results we wish to see are that STEMM majors tend to possess a “Type A” personality, while arts and humanities majors tend to display a “Type B” personality. This conclusion would help faculty and professors teach more effectively, and help people better understand themselves and their interests.

034 DETERMINATION OF LEVELS OF LEAD IN DRY DOG FOOD USING ICP-OES

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Cleveland State University, Department of Chemistry

The industry that produces dry dog food is a large one and heavily unregulated as far as quality goes. This study aims to investigate the presence of lead in dry dog food. The samples in the experiment range from what would be considered a very low quality, bargain brand, to a much higher cost, name brand of dog food. Eight 5g samples will be analyzed by an Inductively Coupled Plasma Optical Emission Spectrometry, or ICP OES. This instrument uses a plasma torch to excite particles of various metals to detect their presence and quantify their amount based on their wavelength. Lead is a toxic metal known to cause a variety of ailments which include, renal and liver difficulties, neurological complications, and even death. The FDA does not readily regulate the quality of dry kibble before or after production which leaves a large question mark on the legitimacy of the food and the long list of ingredients that go into it.

035 DETERMINATION OF THE HEAVY METALS CADMIUM (Cd), LEAD (Pb), AND ARSENIC (As) IN PLAYGROUND SOILS FROM BROOK PARK, OHIO

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Lead, cadmium and arsenic are toxic heavy metals that can cause a variety of disorders from lesions to skin cancer, and renal failure. Due to children's increased metabolic rate for heavy metals, ingestion, inhalation and dermal contact can prove fatal. Previous research suggests that playground soils contain amounts of heavy metals above the limits set by that area's government. It is for this reason that playground soils from Brook Park, Ohio were collected and analyzed. Since this suburb sees less traffic, it is expected that the values of heavy metals for lead, cadmium, and arsenic will be present in small or trace amounts. Once samples were collected, they were heated, underwent acid digestion, filtered and analyzed by inductively coupled plasma- optical emission spectrometry (ICP-OES). The results and percent recoveries showed that trace amounts of lead and arsenic were present, but errors occurred in determining cadmium.

036 DETERMINATION OF THE POTENTIAL PRESENCE OF LITHIUM IN ELECTRONIC CIGARETTE VAPOR

Kevin A. Folk; Kylin Emhoff, B.S.; Anne O'Connor, Ph.D.
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Due to the proximity of a power source, which is commonly a Lithium-ion battery, to the fluid tank, of which its contents become an inhalant, it can be questioned that one may have influence over the other. This experiment examines the possible contamination of e-cigarette vapor by a Lithium-ion power source. This is done in the collection of e-cigarette vapor utilizing a water-assisted gravitational vacuum. Further examination into the differences of the influence on the vapor is performed on an old power source, versus that of a new. This is a relevant study, as Lithium is commonly prescribed in psychiatric medications, and as the presence of Lithium is detected in e-cigarette vapor, frequent usage can lead to a cumulative effect that mirrors the amount that is prescribed by a medical professional.

037 LEACHING OF TRIPHENYL PHOSPHATE FROM INFANT FEEDING BOTTLES MADE WITH TRITAN PLASTIC

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Plastics made without Bisphenol-phosphate A (BPA) have become common in recent years. Exposure to BPA caused by it leaching from plastics into food in drink can cause adverse health effect primarily due to its estrogenic activity (EA). However there is strong evidence that plastics made without BPA may also leach chemicals with EA and thus are no safer. Tritan plastic, one of the most popular BPA-free plastics, has consistently been shown to leach chemicals with EA in-vitro under normal conditions. It has been hypothesized that a main cause of Tritan's EA is leaching of Triphenyl Phosphate (TPP), an additive used in synthesis of Tritan resins. TPP has been shown to have EA and exposure to TPP has been linked with an number of adverse health effects. The present study investigates if TPP leaches from infant feeding bottles made with Tritan plastic under various conditions, and in what quantity. Analysis of standards and samples was performed with GCMS. Analysis of standard solutions indicated that the method could accurately determine concentrations of TPP of at least approximately 1.0 ppm. Four samples were tested with two different aqueous solvents, with and without stress by heat. One bottle was found to leach TPP into solution in an amount that was likely significantly different than zero. The precise quantity that was leached in addition to the conditions that make leaching more likely cannot be concluded with certainty based on the present results. However the results provide further evidence that Tritan plastic does leach chemicals with EA, and strengthens the argument that Tritan and other BPA-free plastics can cause similar health problems to plastics made with BPA.

038 DETECTION OF BISPHENOL-A CONCENTRATION LEVELS RELEASED FROM DENTAL COMPOSITE FILLINGS

Lara Shoukair; Mallorie Boron, B.S.; Anne O'Connor, Ph.D.
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Bisphenol-A (BPA), an industrial chemical used to make plastics and resins, is found in polycarbonate plastics and epoxy resins. BPA and its derivatives have also been found in dental sealants and composites. BPA can present multiple health risks that have been shown to disrupt the endocrine system and human tissues and fluids. This study focuses on the concentration of BPA released into an artificial saliva solution in order to detect the levels of BPA that would be released if the samples were to be in someone's mouth. After multiple extraction methods of BPA in dental composite fillings and the use of the High-performance liquid chromatography (HPLC) instrument, the concentration levels of BPA released in the solvent are able to be detected. BPA concentrations were ambiguous from the results produced, which, with more time, could be retested for clearer results. Levels of detection varied based on the method used, but with more time could possibly be better tested to show a less varied data set.

039 UV/VIS DETERMINATION OF NITRITES IN HOT DOGS

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Foods containing nitrites have become a concern for many as more studies are released revealing their harmless effect on the human body, such as the potential to form carcinogenic nitrosamines when in contact with stomach acid. Despite nitrites' powerful antimicrobial abilities, people are opting to buy organic or uncured meat products. In this research project, three different samples of hot dog products, obtained from a local supermarket, were analysed for their nitrite content. The extracted filtrates were then reacted with naphthylethlyenediamine-sulfanilamide (NEDA-SULFA) solution and analyzed using a UV/VIS spectrophotometer at 539nm.

040 DETECTION OF 1,4-DIOXANE IN SOIL USING UV/VIS SPECTROSCOPY

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The purpose of this research was to detect 1,4-dioxane in soil near industries that have been historically known to use this chemical. Soil samples were analyzed for 1,4-dioxane and analyzed using UV/VIS spectroscopy at 231 nm. Trace amounts of 1,4-dioxane were found in the soil samples.

041 EVENT-RELATED POTENTIALS ASSOCIATED WITH TALKER EFFECTS AND LONG-TERM PRIMING

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The time-course hypothesis provides reconciliation between two opposing theories of spoken word recognition: abstract and episodic representations. Abstract representational theories suggest that episodic details (e.g., talker identity) are not stored in the mental lexicon, while episodic theories of the lexicon posit that lexical representations include episodic details. According to the time-course hypothesis, the mental lexicon includes both types of representations, and abstract representations affect recognition earlier than episodic representations. In the present experiment, I tested the time-course hypothesis using a technique that is particularly well-suited for answering questions about timing: event-related potentials (ERPs). Participants in this long-term repetition priming study heard words spoken by two different talkers in each of two separate blocks. Stimuli in the second block consisted of three different priming conditions, which are described in relation to what participants heard in the first block: new words - unprimed (Control), repeated words spoken by the same talker (Match), and repeated words spoken by a different talker (Mismatch). Consistent with previous research using a different lexical decision task, I predicted faster reaction times (RTs) in the match condition compared to the mismatch condition, indicative of talker specificity effects in priming (consistent with episodic representations). As this is one of the first studies designed to examine physiological responses as a test of the time-course hypothesis, the key element of this study lies in the results of the ERP analyses. I expected amplitude differences between the match and mismatch conditions (talker specificity) to not be present in early components, such as the N200/P200, and instead only observed in later components, such as the N400.

042 METACOGNITION AND THE OVERJUSTIFICATION EFFECT IN UNDERGRADUATES

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An interesting phenomenon happens when an external reward is introduced into an intrinsically rewarding task; once the external reward is removed, intrinsic interest diminishes. This is referred to as the "overjustification effect" (Lepper et al., 1973). Previous research has investigated the role of individual difference variables, such as affect, competence, autonomy, and dialectical thinking, on the emergence of overjustification (Pretty & Seligman, 1984; Arkes, 1979; Hagger & Chatzisarantis, 2011; Li et al., 2015). The current study will investigate an alternative individual difference variable—metacognitive awareness—that may moderate the

overjustification effect. The sample will consist of undergraduate students at Cleveland State University. Participants will first complete a metacognitive awareness questionnaire (MQ-30, specifically the Cognitive Self-Consciousness subscale). Participants will then complete an intrinsically motivating task (i.e., navigating an entertaining/enjoyable website). Once the chosen website is established, an extrinsic incentive (money) will be presented while participants are asked to complete a work-oriented task while navigating the site. After completing the website task, participants will be assessed on their level of intrinsic vs. extrinsic motivation for visiting the preferred website. The researchers expect that those high in metacognitive awareness will maintain their intrinsic interest, while those low in metacognitive awareness will show diminished intrinsic interest due to the newly established association between a preferred activity and an external reward.

043 DIFFERENTIAL EYE MOVEMENTS IN VERBAL AND NONVERBAL SEARCH

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This study sought to probe the mechanisms of visual search for words versus pictures. Participants were presented with a cue (e.g. whisk) and searched through an array of 13 objects to find a thematically related target (e.g. bowl) embedded among distractors. The cue and array were presented as either pictures or words. Participants' gaze was monitored using an eye tracking device. When looking through arrays of words participants tended to use a serial searching strategy, starting in one place and going around the array reading every word until they found the target. However, when looking at arrays of pictures participants tended to engage in long-range saccadic "jumps" between distant non-neighboring objects. Distractor pictures that were from the same category (e.g. both animals) or visually similar to the target were viewed for a greater amount of time. However, these effects were not evident when the cue and array were both words, suggesting that word and picture distractors were handled differently. A regression analysis found that word length and frequency (a measure of how often the word is used in English) predicted how long participants viewed word distractors. This separation in factors influencing gaze and search behavior for words versus pictures helps shed light on the mechanisms of visual search.

044 IMPROVING THE DEVELOPMENT OF THE I-CHART FOR USE IN BIOPHARMACEUTICAL MANUFACTURING OPERATIONS

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The Shewhart control charts are statistical tools used by pharmaceutical companies, as well as chemical and other batch manufacturers, to help detect errors in the manufacturing process and ensure control of product quality. One particular type of control chart is the I-chart. The average run length (ARL) statistic of the I-chart is a key measure indicative of the chart's reliability for identifying atypical process output. The ARL statistic can easily be simulated when the manufacturing process is normally distributed with known population parameters. This paper investigates the impact on the ARL statistic when the I-chart is based on mean and standard deviation estimates obtained from small sample sizes of 50 batches or less. The methodology of Quesenberry (1993) is employed to ascertain the impact of small sample estimation on I-chart performance and provide recommendations for how I-charts should be constructed to account for the uncertainty of using a small number of batches to construct them. In order to do this, two values used in the construction of the width of the confidence limits were examined. The limits are determined by + k x standard deviation. This study varied the values of k and used two different methods to estimate the standard deviation. For samples of size n = 30, 40, and 50, the value of k = 2.75 and the Levey-Jennings method of estimating the standard deviation provide I-chart limits that are better than the industry's current standard. It is too soon to draw any conclusions for smaller sample sizes.

045 TIME FACTORS THAT AFFECT CHOOSE OHIO FIRST SCHOLARS GRADES

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Time Factors That Affect Choose Ohio First Scholars Grades attempts to demonstrate the correlation between how long students spend on schoolwork and how long students spend on outside commitments in relation to how that affects their grade point average. In this project we conducted a short survey of Choose Ohio First scholars in both cohorts asking them to anonymously tell us what their grade point average is, how long they spend on school work, how long they spend on outside commitments, etc. The purpose of this survey/project to show how outside commitments and how much students spend on school work can affect their grade point average. With this information we are expecting to find that the less you spend on school work and/or the more time you spend on outside commitments will negatively impact your grade point average.

046 DOES PLAYING VIOLENT VIDEO GAMES CAUSE AGGRESSIVE BEHAVIOR IN MIDDLE SCHOOL AND HIGH SCHOOL KIDS (AGE 11-18)?

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Over the last three decades it has been observed that violence among youth has been increasing. We are in a day of age were there is a school or mass shooting every couple of months. Furthermore, kids are being recorded in acts of violence higher than ever. This rise in aggression has been going on around the same time that violent video games have risen in popularity in our society. Leaving the question of the effects of playing these violent video games on our youth. This research paper is seeking to answer the question if violent video game play among middle to high school ages kids (11-18) causes aggressive behavior. The paper will provide scientific data and experimental support to show how there is a positive correlation between violent video games and acts of aggression. Understanding how and how much violent video games influences youths behavior can help us understand the types of measures need to reduce aggression in our society.

047 THE CONTRIBUTION OF ACHIEVEMENT-STRIVING AND DUTIFULNESS ON RELATIONSHIP HEALTH IN INTIMATE DYADS

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The purpose of this research is to further our knowledge about the interaction of trait conscientiousness of one's self and one's partner with the health of that couple's relationship. Conscientiousness has been demonstrated to be positively correlated with increased satisfaction in couples, while different facets of conscientiousness have been demonstrated to have differential effects on relational behavior, like achievement-striving and duty's opposing effects on commitment dilemmas. Furthermore, the negative correlation between conscientiousness and deviance, that has been demonstrated by research, suggests that lower levels of conscientiousness in a couple would unilaterally accompany worse relationship health. In this study, individuals in intimate relationships will complete a battery of tests to assess the psychological health of each participant and each participant's perception of the psychological health of his/her intimate partner by using the same. In addition, conscientiousness will be assessed by the NEO-PI-R forms R (observer-report) and S (self-report). Relationship health will be assessed by variables including criminality, victimization, and substance abuse. Finally, data collection will be concluded by a qualitative interview with each participant in each couple. We expect our results to demonstrate that higher levels of dutifulness accompany healthier relationships, with achievement-striving moderating the aforementioned relationship. Of interest in this study is the extent to which the other-centered conscientiousness facet of dutifulness predicts health in both participants in couples and the couple itself, as well as the extent to which the self-centered facet of achievement-striving moderates this effect.

048 THE IMPACT OF ANALYTIC THINKING ON RELIGIOUS BELIEF AMONG MORTALITY AWARE CHRISTIANS

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Terror management theory asserts that when religious people are presented with the thought of death they increase their faith to buffer against the awareness of death. By increasing one's awareness of an afterlife, a God, and other religious phenomena associated with life after death, one's fear of death can be reduced. However, previous research suggests that atheists reject these beliefs, even when reminded of death. That is, prior theoretical and empirical work suggests that religious concepts are cognitively intuitive and available, and that atheists override and reject those otherwise intuitive religious concepts. If correct, this idea would predict that religious believers (e.g., Christians) reminded of mortality would more strongly rely on those intuitive religious ideas (and thus feel more strongly religious), but not if first primed to engage in analytic thinking which may over-ride or derail that intuition. To explore that idea, an experiment is proposed which would recruit a sample of Christians, manipulate their awareness of mortality (vs a control topic), manipulate their awareness of analytic thinking (vs intuitive thinking), and measure strength of religious faith. Strength of faith will be analyzed using 2 (MS vs control) x 2 (priming: analytic vs intuitive) ANOVA statistical methods.

049 MORTALITY SALIENCE AND THE EFFECTS OF AUTONOMY ON DEATH ANXIETY

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According to terror management theory, the awareness of mortality produces a sense of death anxiety that can be detrimental to well-being if left unmanaged. Research has suggested that people defend against the awareness of mortality through the maintenance of cultural worldviews, thwarting the effects of death anxiety and potentiating a variety of positive outcomes. However, recent work based on self-determination theory suggests that the satisfaction of basic psychological needs can also defend against the awareness of death. Specifically, relatedness and competence have been shown to buffer against mortality salience effects. But no prior research has investigated the buffering qualities of autonomy. The proposed study aims to expand this literature by examining the effects of primed autonomy on measured death anxiety following a reminder of mortality. This work will provide an

initial investigation on the potential buffering effects of autonomy in the face of mortality.

050 ACCESS TO SPEECH LANGUAGE SERVICES IN MICHIGAN TRIBAL HEALTHCARE CLINICS

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Native Americans have experienced disparities in healthcare for many years (Artiga et al., 2013). Many Native Americans are either uninsured or underinsured and rely on their local tribal healthcare centers for healthcare. The 11 Federally recognized Native American tribes within Michigan were asked to complete a telephone survey regarding healthcare services provided at the tribal clinics. Seven of the eleven (64 percent) tribes completed the survey. Results indicate that 100 percent of the tribal clinics provide well-visits, mental health services, substance abuse and traditional medicine. Physical therapy was provided at three of the seven clinics (43 percent), occupational therapy was provided at one of the seven clinics (14 percent), however, none of the clinics provided speech language services. Although speech and language services are not provided by the tribal clinics, they are available in a restricted amount within the surrounding communities. However, the availably of services within the community is often restricted by access to a licensed speech language pathologist and the ability to attend therapy sessions. The lack in speech and language services may be the result of reduced of knowledge of the profession, the role of the speech language pathologist and the benefits of receiving services. According to the American Speech-Language-Hearing Association (ASHA), individuals shall honor their responsibility to advocate for the unmet communication and swallowing needs of the public (ASHA, 2015). The severe lack of speech and language services for Native Americans within their communities shows the importance of this research as well as cultural barriers that ultimately reduce the ability for services to be provided.

051 MULTI-DIRECTIONAL GAIT VARIABILITY IN MULTIPLE SCLEROSIS

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Background: Gait impairment and falls are common in individuals with multiple sclerosis (MS). It has already been shown that people with MS (PwMS) have greater gait variability than healthy controls and increased gait variability leads to an increased fall risk. Traditionally, gait variability is investigated in only the anteroposterior direction with limited research focusing on mediolateral parameters including step width and center of pressure (CoP) shifts.

Objective: To investigate the relationship between gait variability parameters and physiological fall risk scores of PwMS.

Methods: Fifty eight individuals with MS (age=54.5±11.8) participated in this study. Participants completed two walking trials were instructed to walk as quickly as possible across a pressure sensitive walkway covering the distance of 25ft. Spatiotemporal gait parameters were measured including step length, step width, single support percentage and double support percentage. Center of pressure movement was also measured as a cyclogram. Cyclograms track CoP movement through each step and as weight is shifted side to side during gait. Participants' fall risk was measured utilizing the physiological profile assessment (PPA). This assessment consists of a series of simple tests that measure vision, proprioception, muscle force, reaction time, and postural sway. Relationships between gait parameters and PPA scores were examined through Spearman Correlations.

Results: There was a significant relationship between gait variability (step length, ρ=0.46, single support %, ρ=0.41, step time, ρ=0.40) and fall risk. CoP movement variability overall was significantly related to the proprioception and postural sway components of the PPA. Additionally, CoP movement variability in the mediolateral direction was significantly related to overall fall risk.

Conclusions: The findings suggest that individuals with proprioceptive issues have more difficulty controlling CoP movement overall. Individuals with higher fall risk have more difficulty controlling mediolateral movement during gait. This is important because mediolateral perturbations are harder to produce postural compensations for.

052 INTERVENTIONS APPROACHES FOR FRONTOTEMPORAL DEMENTIA

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In order to improve function and quality of life in individuals with frontotemporal dementia (FTD), it is crucial that interventions be further researched prior to implementation with patients in order to determine effectiveness. The study is a descriptive, retrospective, single case study design. Information is being obtained through patient documentation and interviews with family and staff from the Lantern Lifestyle. Once all data is gathered, researchers will independently analyze the data collected and utilize a triangulation method when interpreting the results. The proposed study seeks to examine and identify interventions that proved successful with one particular patient, "George," who was previous a resident at Lantern Lifestyle in Chagrin, Ohio. Prior to being admitted

to Lantern, George had been dismissed and rejected from multiple facilities within weeks of admission. His stay at Lantern, however, lasted over a year. His length of stay leads us to hypothesize that the staff at Lantern used unique methods that proved effective with managing George's symptoms. At this point, we have conducted preliminary interviews and reviewed relevant data from his chart. Although data has not yet been interpreted, we have noted the following effective interventions: environmental modifications, sensory-based interventions, medication management, and occupation-based therapies. Prior to interpreting results, we still need to conduct additional interviews and code relevant data to develop a comprehensive picture of interventions that proved successful with George.

053 CHROMATIN ASSOCIATION PROFILE OF TbRAP1

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Trypanosoma brucei brucei is a protozoan parasite that causes fatal human African trypanosomiasis and regularly switches its major surface antigen, VSG, to evade the host immune response. VSGs are exclusively expressed monoallelically from subtelomeric VSG expression sites (ESs) and VSG switching can be transcriptional or DNA recombination-mediated. We identified TbRAP1 as a telomere protein, and have shown that depletion of TbRAP1 led to an increased VSG switching frequency as well as derepression of telomeric silent VSGs. In both yeast and in mammalian cells, RAP1 homologues have been shown to have extra-telomeric functions. In budding yeast, ScRAP1 regulates enzymes and genes involved in glycolysis. In mammalian cells, RAP1 is an I kappa B kinase (IKK) adaptor and regulates NFκB-dependent gene expression. Additionally, both yeast and human RAP1s have been found to associate with chromatin at genomic loci other than the telomere. To explore whether TbRAP1 has similar roles at non-telomere loci, we set out to investigate the chromatin association profile of TbRAP1. Using chromatin immunoprecipitation and high throughput sequencing, we hope to uncover the binding profile of TbRAP1.

054 THE ROLE OF ADIPOSE TRIGLYCERIDE LIPASE IN THE HYPERTHERMIC RESPONSE MEDIATED BY 3, 4-METHYLENEDIOXYMETHAMPHETAMINE (MDMA, Molly)

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3,4-methylenedioxymethamphetamine (MDMA) can induce an acute life-threatening hyperthermia. This hyperthermia has been ostensibly linked to free fatty acid (FFA) mediated uncoupling of oxidative phosphorylation in brown adipose tissue and skeletal muscle. The liberation of FFA from white adipose tissue is associated with heat generation in skeletal muscle. Adipose Triglyceride Lipase (ATGL) is the rate-limiting enzyme for the conversion of triglycerides to FFA in white adipose tissue. Here, the role of ATGL in the hyperthermia mediated by MDMA was examined. The selective ATGL inhibitor, atglistatin (200 μg/kg ip.) was administered to male Sprague-Dawley rats (N = 18) thirty minutes prior to MDMA (20 mg/kg s.c.). MDMA-induced a hyperthermic response 60 and 90 minutes post treatment. Pretreatment with atglistatin significantly attenuated this hyperthermic response. MDMA induced a maximum temperature change (ΔTmax) of 1.68 degrees Celsius compared to a maximum temperature change (ΔTmax) of 1.10 degrees Celsius in the atglistatin/MDMA treatment group. These findings demonstrate that ATGL, contributes to the hyperthermia mediated by MDMA.

055 DETERMINING THE NEED FOR AN AUDITORY AND LANGUAGE ENRICHMENT PROGRAM FOR PRESCHOOL CHILDREN WITH HEARING LOSS

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Children who are born with hearing loss struggle with the development of language and in most areas of academic achievement. The literature reveals an even larger achievement gap when additional factors include ethnicity and low socioeconomic status.

The purpose of this qualitative action research project was to explore the gaps in vocabulary, literacy and language development in preschool children with hearing loss. Additionally we sought to determine the efficacy and effectiveness of a Service Learning Initiative that involved providing direct intervention to preschool children from the described population.

Findings revealed the following themes: Professional fulfillment and improved clinical skills of the student clinicians, a noted improvement in signing and vocabulary skills of the preschoolers, and the development of teamwork among the student clinicians and supervisors. These interventions resulted in an increase of motivation for small group participation, exposure to pre-literacy skills and vocabulary using the total communication approach. Exposure to this population through the service learning initiative was beneficial to developing the skills of student clinicians.

056 SWIMSATIONS: A PEDIATRIC AQUATIC THERAPY PROGRAM FOR CHILDREN WITH SENSORY PROCESSING DISORDERS

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OBJECTIVE: Designed by Master of Occupational Therapy students, the Swimsations Aquatic Therapy program is a play-based program that aims to address sensory dysfunction utilizing occupational therapy interventions through an aquatic environment.

METHOD: Over the course of eight weeks, participants will engage in activities addressing their tactile, proprioceptive, vestibular, body awareness, and oral motor sensory systems, as well as water readiness and safety skills. Swimsations will consist of 6-8 members between the ages of 4-8 with a documented sensory need. The program also promotes age appropriate skills such as social interaction and play skills, following directions, turn taking, and self-efficacy skills. Each session of the program will include a brief land warm up, sensory based intervention, and a social game. Outcomes will be measured through pre/post questionnaires and clinical observations. Through completion of the program, members are predicted to develop or improve upon appropriate coping strategies, social and play skills, school-based skills such as direction following directions, as well as self-esteem and confidence all through sensory input of the water. In addition, families of members will be provided with home recommendations to facilitate carry over of skills, professional guidance, and the opportunity to engage through a supportive environment with fellow guardians.

CONCLUSION: With a limited number of current research studies available pertaining to this area, this program not only influences the field of occupational therapy but also contributes a non-traditional therapeutic approach to sensory dysfunction. With occupational therapists as leading experts in sensory dysfunction, this progressive program aims to pioneer a new avenue for the field of occupation therapy; the beneficial properties of water in combination with this specialized knowledge of sensory processing will address sensory dysfunction in a unique and exciting way.

057 COMMUNITY-BASED SENSORY FRIENDLY TIME PARTNERSHIP: PARENT PERCEPTIONS AND CHILD ENGAGEMENT

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Objective: The aim of this study was to conduct a needs assessment examining the effectiveness of a community-based interprofessional education program by assessing parent perceptions of children's experiences. The study will be used to help improve the effectiveness of the program.

Method: A survey was distributed to parents who attended at least one session of the community-based program. There were 10 participants (n=10) from a convenience sample included in the study. ANOVA was used to analyze the results.

Results: Survey questions were grouped by underlying constructs for analysis. The difference between groupings was statistically significant, ($F7,22 = 3.008$, $p < .05$). Post-hoc comparisons between groups determined the nature of those differences. Two groups showed significant differences ($p < .05$): Child Participation vs. Sensory Activities & Sensory Activities vs. Interactions with Others.

Conclusion: The community-based program, Sensory Friendly Time, is seen as beneficial from the parents who attend and should continued to be offered to the community. The effectiveness of the program should continue to be monitored by communicating with the families who attend.

058 FAMILY MENTAL HEALTH TOOLKIT: STRATEGIES FOR PROMOTING FAMILY MENTAL HEALTH

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Purpose: The purpose of this pilot project was to develop and conduct a preliminary evaluation of a Family Mental Health Toolkit (FMHT). Based on current literature on family mental health, five information sheets were developed: quality family time, promoting positive mental health, meaningful mealtimes, enjoyable family leisure, and ways to relax and refresh. The aim of the toolkit is to educate families about positive mental health and provide strategies for promoting mental health in the home.

Method: Online surveys using Qualtrics were used to obtain feedback from a convenience sample of professionals and parents. The FMHT was sent via email to professional and parent contacts who were asked to review the information sheets before completing the online survey. Each survey was comprised of questions regarding demographic data and 5-point Likert scale questions focusing on the usefulness of the toolkit as a whole as well as individual information sheets. Open-ended

questions allowed participants to comment on strengths, limitations, and suggestions for improvement.

Results: Professionals (n=55) and caregivers (n=10) responded to the survey. Quantitative findings indicate that 76% of professional respondents found the FMHT to be extremely useful, 19% felt it to be moderately, 4% slightly, and 2% neither useful nor useless. Parent surveys indicated that 70% (7) found the information extremely useful, 20% moderately (2), and 10% moderately useless (1). Responses to the open-ended questions indicated that professionals and parents found the information and resources in the toolkit to be useful, particularly, content regarding family meals and leisure time.

Conclusion: Overall, the FMHT was found to be useful by the majority of both professionals and parents with >90% planning to use the FMHT. Preliminary results are promising that the FMHT may be useful in helping families learn about and embed activities to promote positive mental health in the home.

059 REEVALUATING BEHAVIORAL ACTIVATION AS AN EMPIRICALLY-SUPPORTED TREATMENT FOR DEPRESSION

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It has been more than two decades since the criteria for empirically supported treatments (ESTs) for mental health issues were established. In light of improving research methods, the current criteria has been criticized and changes to it were proposed. Through literature review, this poster explores the current and the proposed new criteria for ESTs, and it defines depression — a mental health issue — its prevalence, its typical course, and its effects on a social, economical, and personal level. In particular, this poster aims to reevaluate Behavioral Activation (BA), a "well-established" EST for depression, using the proposed new standards to determine whether it still has strong empirical support.

060 FORGIVING RELIGIOUS OFFENDERS FOR WORKPLACE TRANSGRESSIONS

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Victims of workplace conflict consider many factors when assessing forgiveness, including personality as well as characteristics of the relationship and of the situation. Previous research has found religiosity to be a strong predictor of forgiveness – more religious individuals are more likely to say they will forgive. We expanded on the role of religiosity and examined the relation between victim and offender religiosity in predicting forgiveness. Findings indicate that offender religiosity did not appear to affect forgiveness when the participant reported high religiosity. However, for participants who had low religiosity, the religiosity of the offender had a negative relationship with forgiveness.

061 ANALYSIS AND EVIDENCE BASED PRACTICE OF CICLEVIA EVENT

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Over the last few years, approximately seventy cities across the United States have participated in ciclovias, otherwise known as open street initiatives. These events are mainly held in urban communities that have heavy vehicular traffic, lack of public recreational space, and safety concerns. Ciclovias are meant to encourage these community members to participate in different forms of physical activity. In the city of Cleveland, Ohio, over half of its residents are suffering from being overweight or obese due to a lack of healthy lifestyle choices, such as being physically inactive. As a result of this epidemic occurring in Cleveland, the open street initiative ciCLEvia was brought to West 25th Street during four separate Saturdays over the summer months in 2016, and then again to West 25th Street in June, on Community College Avenue in July, on Detroit Avenue in August, and East 105th Street in September in the summer of 2017. All of these locations were chosen because they are in high risk neighborhoods, and provided the community members with a plethora of different physical activities in a more enjoyable and safe environment. Each event was evaluated by collecting observational qualitative data and quantitative data obtained from paper surveys administered to participants at each event. The surveys collected data concerning the event, physical activity, and demographic information of individuals attending the event. An evidence based practice was implemented to better the success of the event in the future.

062 A TEST OF WHETHER AFRICAN CLAWED FROGS PREFER THE CLOSER STIMULUS WHEN GIVEN TWO LATERAL LINE STIMULI

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The lateral line system allows aquatic African Clawed Frogs (Xenopus laevis) to find prey by sensing the water waves they produce. The main question to be answered was, when presented with two stimuli at different angles and distances, will frogs have preferences. The stimuli were produced using computer-controlled motors to dip plexiglass rods briefly into the water. The four rods could be lowered singly or in pairs with or without a delay. Long delays allowed waves from a far stimulus to arrive together with or after those from a near stimulus. We hypothesized that frogs would prefer the closer

stimulus even if waves from a more distant stimulus arrived first. We also compared response frequency and turn accuracy between single and double stimuli. The data comprise 337 trials with 190 responses from one frog; they include 74 trials with two rods with 54 responses.

063 A COMMUNICATION PROFLE OF HIV-ASSOCIATED NEUROCOGNITIVE DISORDERS

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This paper presents a synthesis of the research regarding evaluation and treatment of HIV-Associated Neurological Disorder (HAND). Human Immunodeficiency Virus (HIV) is a virus that attacks the body's immune system. Without treatment, the HIV infection advances and can lead to the cognitive decline of HIV-Associated Neurological Disorder. Stages of HIV-associated neurocognitive disorders include the following: (a) asymptomatic neurocognitive disorder (ANI), (b) mild neurocognitive disorder (MND), and (c) HIV associated dementia (HAD). New technology involving neuroimaging has increased the ability to further research which parts of the brain are affected by HIV—which areas of the brain are affected and their influence on cognitive and communicative function. Specific cognitive deficits noted with HAND include declines in pragmatics, executive functioning, and memory.

Assessment of cognitive functioning in patients with HIV can be conducted using the Mini-Mental State Examination, International HIV Dementia Scale, The Montreal Cognitive Assessment, and several other common neuropsychological test batteries. These diagnostic tools provide data regarding a patient's deficits and areas should be targeted during intervention. Although there is no cure for HIV associated neurocognitive disorders, some successful treatments include a combination of medication and cognition therapy. These include anti-retroviral therapy, memory recall tasks, spaced-retrieval, spatial/temporal awareness tasks, convergent/divergent naming, and functional tasks involving safety, math, and organization of daily planning.

064 DETERMINING WHETHER ANTAGONISTIC FUNCTIONS OF ECO-1 AND WAPL-1 REGULATE MEIOTIC SISTER CHROMATID COHESION IN C. ELEGANS

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Sister chromatid cohesion (SCC) is mediated by a protein complex called cohesin, which is critical for accurate chromosome segregation during the proliferative mitotic and sequential meiotic cell divisions that reduce genome copy number to form haploid gametes. >30% of human zygotes have abnormal chromosome number. Monosomies and trisomies occur in over 5% of recognized pregnancies. These meiotic defects lead to miscarriages and birth defects We rely on model organisms like C.elegans to study meiosis. Production of haploid gametes from diploid germ cells by meiosis depends on cohesion. A widely conserved tetrameric protein complex that is composed of two long coiled coil subunits called SMC-1 and SMC-3, a non-SMC subunit called SCC-3, and an alpha-kleisin. Meiotic cohesin complexes in C. elegans utilize several variants of the alpha-kleisin, the key ones being REC-8 and COH-3/4. The kleisin subunit determines the mechanisms by which cohesin complexes load onto chromosomes, establish SCC, and dissociate from chromosomes. In mitotically proliferating yeast and mammalian cells, Wapl protein negatively regulates cohesion by binding to and promoting the opening of the Smc3/kleisin interface, preventing SCC establishment by allowing cohesin to dissociate from the chromosomes. The acetyl transferase Eco1 stabilizes SCC during S phase by acetylating the Smc3 subunit of cohesin, which now prevents Wapl binding. Once acetylated, cohesin binds stably to chromosomes (i.e. is triggered to become cohesive) until mitosis, when cohesin is removed from chromosomes. The goal of my research is to determine whether the C.elegans homologs, ECO-1 and WAPL-1, perform conserved roles during meiosis. It is known that COH-3/4 require double strand breaks to become cohesive but REC-8 does not. I want to determine whether ECO-1 and WAPL-1 are involved in regulation of meiosis, and if the region-specific removal of SCC, which is established by REC-8 and COH-3/4, is regulated by a conserved pathway.

065 EXAMINING TABOO AND REPRIMAND EFFECTS IN AUDIO-VISUAL EMOTIONAL STROOP TASKS

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Participants respond less efficiently to emotionally arousing taboo words than neutral words in some tasks (Tuft, Incera, & McLennan, 2016). Moreover, the extent to which taboo words impact performance depends on whether a language was learned first. Tuft et al. (2016) found this taboo effect to be more pronounced in participants' native language. Reprimands are also highly arousing, and were found to be more arousing when presented auditorily compared to visually (Harris, Aycicegi, & Gleason, 2003). In the current study, we attempted to replicate Tuft et al.'s (2016) results. Furthermore, we aimed to determine if this taboo effect extended to reprimands. Participants, 24 native- and 24 non-native speakers of American English, completed two versions of an experimental task, one with taboo words and one with reprimands. Both tasks were completed using computer mouse tracking. During a taboo Stroop task,

participants were randomly presented with taboo and neutral words in colored fonts. During a reprimand Stroop task, participants were randomly presented with reprimanding phrases and neutral phrases, and only the last word in these phrases was in a colored font. All stimuli were simultaneously presented visually and auditorily. Participants were instructed to indicate the font color. We analyzed participants' reaction times and maximum deviation. Participants in both groups responded significantly more slowly to taboo words compared to neutral words. Mouse movements were also more deviated in response to taboo words than neutral words. Although the taboo effect was numerically more pronounced in native speakers, group differences were not statistically significant. Interestingly, participants had significantly faster responses for reprimands compared to neutral phrases. Given participants' early age of acquisition, it is possible that the non-native participants behaved more like native speakers. Consequently, participants with later ages of acquisition should be recruited in future research.

066 CHARACTERIZING THE TURBULENCE IN THE ATMOSPHERIC BOUNDARY LAYER DURING THE GROWTH PHASE AND QUASI-STATIONARY PHASE USING LARGE EDDY SIMULATIONS

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The lowest region of the Troposphere is known as the Atmospheric Boundary Layer (ABL), which experiences boundary effects from being in contact with the ground. When the temperatures of the ground and air differ, this can lead to convection of the air that carries scalar quantities like moisture and temperature throughout the boundary layer. The height of this boundary layer is dynamic throughout the day, and its behavior is dependent on numerous conditions that are difficult to characterize without the assistance of computers. Using high resolution supercomputer simulations called Large Eddy Simulations (LES), the behavior of the boundary layer can be modeled and its statistics can be analyzed. In a comparison with many days of observations over the Department of Energy's Southern Great Plains site, we find that our model is capable of accurately simulating the humidity, temperature, and vertical wind distribution in the ABL. We use LES as a tool to characterize the turbulence in the ABL by normalizing and averaging profiles across ten days to search for trends in the statistics for humidity, temperature, and vertical wind. We see a characteristic transition around 30% into the diurnal cycle, which indicates the ABL top has risen above the surface layer.

067 RECONCILING CHORD LENGTH MEASUREMENTS TO AREA MEASUREMENTS OF CLOUD STRUCTURES

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Common methods for retrieving cloud sizes often rely on single dimensional measurements (chord lengths) sampled from clouds. These methods often result in Cloud Size Distributions (a quantitative representation of the frequency of varying cloud sizes for a given cloud field) that differ greatly from area based measurements. One of the largest causes of this discrepancy is the variability of the cloud shapes. Chord Length Methods tends to sample larger clouds and for each cloud that it does sample, the measurement taken often underestimates the correct cloud size. While each of these has the opposite effect, they tend to not cancel each other out. In order to reconcile the results of Chord Length Methods, a device to translate chord length measurements to match area based measurements is needed.

The correction proposed in this poster begins by analyzing the behavior of chord lengths at a single cloud level and broadening this approach to include a variety of cloud fields generated by a high resolution atmospheric simulation, a Large Eddy Simulation (LES). The results from this analysis create a probability density that can be used to approximate area based measurements from chord lengths.

068 HOW INDIVIDUALS WITH DEMENTIA COPE WITH AND MANAGE THEIR ILLNESS EXPERIENCE

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Researchers have begun to examine the illness experience of living with dementia from the perspective of the individual. However, it is not well-understood how individuals with dementia (IWDs) make meaning of their diagnosis, actively cope with, and manage the myriad of dementia-related symptoms. Additionally, how IWD's cope with and manage their respective symptoms may be related to key psychosocial outcomes, such as depression and quality of life. Using the Stress Process Model for IWDs, this study examines: 1) different types of coping methods and the inter-relatedness among constructs; and 2) which coping methods differentially predict psychological well-being outcomes for IWDs. Using self-report questionnaire methodology, IWDs will be interviewed about their illness experience, including measures of coping, engagement in purposeful activities, self-identity, and psychological well-being outcomes of depression and quality of life. Expected results hypothesize that IWDs utilize a wide range of coping processes, ranging from active to passive coping strategies, and that active coping strategies, engagement in purposeful activities, and positive self- identity will significantly predict lower depressive symptoms and higher quality of life for IWDs. This study adds to our knowledge base

about the illness experience and highlights the importance of personhood for IWDs.

069 ENHANCING THE DIRECT VISUALIZATION OF MICROGELS VIA SCANNING ELECTRON MICROSCOPY

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To gain a greater understanding of the dynamics of microgels in solution, their volume phase transition, and to correlate images of individual particles with Dynamic Light Scattering (DLS) data on their diffusion, two sample preparation techniques were developed to enhance the imaging obtained using scanning electron microscopy (SEM). Microgels are micelles of amphiphilic polymers, making them a viable drug delivery mechanism. Direct visualization of microgels is important in understanding their dynamics and size distribution. Accurate imaging of such systems is challenging as microgels lose water content under the standard high vacuum SEM protocols. To address this issue, a controlled environment chamber was first developed, allowing the microgels to dry over a longer period of time at higher humidity levels than standard room conditions. A humidity sensor in a control loop was used to monitor the environment inside the chamber. The humidity was then set using controlled evaporation from a buffer reservoir. Using the controlled humidity environment allowed microgels to better maintain their original structure for imaging and produced microgel size distributions more consistent with DLS. Another sample preparation method used for microgel imaging was suspending particles in ionic liquid (1-Butyl-3-methylimidazolium Trifluoromethanesulfonate). Lower vapor pressures and higher ionic concentrations of these suspensions allowed the capture of real-time microgel dynamics. Microgels in ionic liquids were observed to be smaller than expected, while maintaining size distribution uniformity observed by DLS. Such observations could be due to charge screening or the increased salt concentration due to the ionic liquid.

070 A META-ANALYSIS OF FAMILY VIOLENCE PREDICTING DATING VIOLENCE

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According to the 2013-2014 National Survey of Children's Exposure to Violence, 15 percent of youth experienced at least one form of child maltreatment. Such maltreatment has been linked to negative outcomes, including dating violence (DV) perpetration and victimization. Bandura's Social Learning Theory (1977) states that people learn through observation, imitation, and modeling, suggesting that children who experience physical abuse may later imitate the violent actions of their parents in their own personal relationships. On the other hand, the experience may lead children to normalize physical violence and accept victimization in subsequent dating relationships. Numerous studies have suggested a relationship between child abuse and DV perpetration and victimization; however, the strength of these relationships have varied across studies. Meta-analysis may be useful to combine information across these studies to better understand whether parent-child physical violence is statistically related to physical perpetration and/or victimization. Thirty empirical studies were identified in PsycInfo and coded for relevant information. Studies were coded for dating violence perpetration and victimization (dependent variables) and parent-child physical violence (independent variable). These studies included samples from adolescents and young adults. A global effect size will be computed based on a random-effects model. A Q statistic will also be calculated to examine for heterogeneity of effect sizes across samples. It is expected that (1) a positive correlation will exist between parent-child physical violence and physical DV perpetration and victimization and (2) the correlation will be stronger for physical DV perpetration than victimization, and (3) the correlation for DV perpetration will be stronger in males, while the correlation for DV victimization will be stronger in females.

071 DOES IDENTITY COMMITMENT REDUCE THE INFLUENCE OF PEER GROUP DELINQUENCY ON ADOLESCENT DEVIANT BEHAVIORS?

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The purpose of the current study is to understand how identity commitment moderates the relationship between peer group delinquency and individual delinquency during adolescence. According to Erikson's Theory of Psychosocial Development (1963), adolescents are faced with an identity crisis; they must decide who they are and on their values, beliefs, and goals. To reach an achieved identity, the adolescent must explore possible identities, reconsider their decisions, and finally, commit. As a way of exploring their identities, adolescents begin to distance themselves from their parents and identify more closely with peer groups. Associations with delinquent peers is one of the most empirically supported explanations for juvenile delinquency; however, there is less research that demonstrates how to reduce the negative influence of peer groups. Recently, researchers have found that juveniles with lower identity commitment participate in more risk behaviors and are more susceptible to peer group pressure (Dumas et al., 2012; Crocetti et al., 2013). In the proposed study, high school students will complete questionnaires to measure peer group delinquency, individual delinquency, and identity exploration, reconsideration, and commitment; these will include the Peer Problem Behavior Scale, Problem Behavior Frequency Scale, and Utrecht-Management of Identity Commitments Scale (Farrell et al., 2016; Farrell et al., 2000; Meeus, 2001). We hypothesize that (1) participants with higher peer group delinquency will also have higher individual delinquency, (2) the correlation between peer group delinquency and individual

delinquency will be stronger in individuals with low identity commitment and weaker in individuals with high identity commitment, and (3) participants with high peer group delinquency and high exploration will experience higher levels of delinquency.

072 TRAUMA SEVERITY AND THE EFFECTIVENESS OF RELATIONSHIPS TO BUFFER DEATH- RELATED ANXIETY CAUSED BY MORTALITY SALIENCE

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According to terror management theory, those with a healthy anxiety-buffering system will seek solace in their relationships in the wake of a traumatic event. Seeking comfort in relationships allows those who have experienced psychologically distressing occurrences to effectively cope with death-related anxiety elicited by mortality salience. Anxiety buffer disruption theory posits that a disturbance in this buffering system results in the manifestation of post-traumatic stress symptoms as maladaptive attempts to cope with the psychological distress caused by the event. As a result, one's social supports may no longer effectively buffer against the awareness of mortality. Prior research has found high levels of trauma exposure predict more severe post-traumatic stress symptomatology, however, no current research has been done to examine the disruption of anxiety-buffer functioning occurring within relationship roles for those with high rates of trauma exposure.

We hypothesize that, among those with low posttraumatic stress, a reminder of a relationship threat (vs a control topic) will undermine this otherwise effectively-functioning death-anxiety buffer and thereby increase death-anxiety. We also predict that, among those with high posttraumatic stress, death-anxiety will be heightened regardless of whether participants are reminded of a relationship threat—reflecting general anxiety-buffer disruption. To examine these predictions, we will screen American participants to determine their level of posttraumatic stress symptom severity using the Posttraumatic Stress Check List Civilian-version (PCL-C) assessment. Participants with high, and with low, symptom severity will then be randomly assigned to a condition which primes either a relationship threat or a control topic. A 14-item survey will then be used to measure death-anxiety. 2 x 2 ANOVA methods will be used to statistically analyze the results.

073 MEIOTIC DRIVE IN C. elegans: A VIOLATION OF MENDEL'S SECOND LAW

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Mendel's first law, the Law of Segregation, states that traits are encoded by pairs of alleles, gametes inherit one of those alleles, and which allele is inherited is determined by chance. One exception to this rule is the phenomenon known as meiotic drive, in which inheritance of "selfish" genetic elements is guided by preferential segregation instead of chance. During oogenesis, this biased segregation increases the probability that a particular allele will be inherited by the ovum rather than a polar body. Mendel's second law, the Law of Independent Assortment, states that alleles determining different traits are inherited independently of each other. We observe effects of meiotic drive that violate Mendel's second law in C. elegans males. Chromosomes containing multicopy integrated DNA arrays segregate away from the single male paternal X chromosome, appearing more frequently in male offspring, which do not inherit a patroclinous X chromosome, than in hermaphrodites, which do. For example, 80% of animals inheriting one such chromosome, called qC1[R], are males and 20% are hermaphrodites rather than the expected 50% of each sex as predicted by Mendel's laws. Previous studies reviewed by Chmátal et al. (2017) proposed descriptive mechanisms for meiotic drive involving differential centromere strength and microtubule density between homologs but did not investigate genes that establish those differences. Our goal is to perform a genetic screen to identify mutations in males containing qC1[R] that shift the frequency of this balancer to 50% males and 50% hermaphrodites, essentially preventing meiotic drive. Identifying genes required for meiotic drive will define mechanisms that underlie non-Mendelian inheritance and drive evolutionary change.

074 SECONDARY DATA ANALYSIS: EFFECTS OF OCULAR MOTOR EXERCISE TRAINING ON READING OUTCOMES OF STUDENTS IN A TITLE I CLASSROOM

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Purpose: The purpose of this study was to analyze patient data to investigate the effects of ocular motor exercise training on reading outcomes of students in a Title I classroom in NorthEast Ohio.

Methods: A secondary data analysis is being conducted using SPSS software to examine de-identified data collected from 13 title I students by The Vision Development Team (VDT), a sensory focused vision therapy facility located in North Royalton, Ohio.
Findings: Preliminary analysis of the data indicates positive results including improved overall scaled scores as well as achieving benchmark goals of the standardized STAR Reading assessment.

Conclusion: Our preliminary findings suggest that occupational therapy practitioners should utilize their knowledge of the visual system and its function when collaborating with a multidisciplinary team including physicians, educators, counselors, and parents to assist in identifying the need and providing referrals for vision therapy intervention.

075 CHOICE OF AFRICAN CLAWED FROGS WHEN GIVEN TWO STIMULI

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Xenopus laevis uses a lateral line system to detect and turn toward water waves made by prey. The present study examined three factors thought to influence a frog's choice between two stimuli: angle, distance, and time of arrival. Frogs were tested and videotaped in a circular aquarium. Under computer control, motors dipped two rods into the water at the same or different times. With a separate computer program, we analyzed the frog's turn angle and swim distance in relation to the angles, distances and arrival times of the two stimuli. Preliminary findings are based on 766 trials with one frog. We predicted that if the difference in wave arrival time was small, the frog would choose the closer of two stimuli, even if its waves arrived later. We also predicted that given two stimuli at nearly the same distance, the frog would choose the more rostral stimulus. These results have implications for how a frog's nervous system processes surface waves.

076 GROUP COMPOSITION EFFECTS ON GROUP-BASED LEARNING IN UNDERGRAUDATE COLLEGE COURSES

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Group-Based Learning (GBL) is an instructional method that involves groups of 5-7 students working together to solve applied problems and promote active learning (Epstein, 2015; Hameed et al., 2017; Rezaee, Moadeb, & Shokrpour, 2016; Wallace, 2015). GBL course benefits include student mastery of more challenging content, better communication skills, more outside class discussion of the material, and better creative and critical student thinking than traditional lecture courses (Doshi, 2017; Harmon & Hills, 2015; Huang et al., 2016; Rezaee, Moadeb, & Shokrpour, 2016).

The purpose of the proposed project is to explore instructor and undergraduate student experiences with and perceptions of GBL in college courses (Study 1) and to investigate the impact of how groups are formed on student learning and student affective reactions to group-based learning (Study 2). Survey instrumentation will be devised for Study 1. Responses from study 1 will be used to identify instructors (N=4-6) who will be invited to participate in Study 2 if they indicate GBL use for a course taught in Fall 2018 or Spring 2019 semesters, and who consent to allow the researchers to assign their course to either the (a) Instructor-assigned group-based learning condition or the (b) Student-selected group-based learning condition. In the Instructor-assigned condition, the instructor will assign group roles to each student participant, as well as assign the individual student participants to each groups. In the Student-selected group-based learning condition, instructors will allow students to create their own groups and define roles within those groups. Study 2 dependent measures will include student performance on academic content probes, student reflections, and student ratings of social and emotional reactions to the GBL experience. Results will be discussed in light of undergraduate student success and engaged learning.

077 DOES THE HAND BACTERIA LEVEL ON COLLEGE CAMPUSES DIFFER FROM THE GENERAL PUBLIC?

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Hygiene and health, specifically in American university settings, are empathized to ensure individual and community health. Because of the close quarters of most universities, many methods including health awareness campaigns, vaccines, etc, are employed to improve health. Hands being the main way people interact with their environments, also leads hands to being the major way people come in contact with pathogens and focus of health campaigns. Compared to the public, college students are exposed to a greater number of methods to maintain and improve health. The necessity of the programs focusing on the density of college campuses and assumed increased bacteria levels. By looking to literature, an average amount and diversity present on the average person's hands are formed from general statistics that are not based on a certain locality. Using these averages, a standard for acceptable bacteria levels can be set to compare to the data collected from other research. Several studies based on university students and bacteria levels will be compared to the generated standard, as well as compared to each other to identify possible causes (i.e. hand washing, sanitizer use, etc,) for differences between the university populations in addition to the general statistics. The results serve as a foundation for future research to determine Cleveland State's average bacteria levels and the differences between those levels and the levels of other universities and the general average.

078 POPULATION HEALTH CONCEPTS WITHIN ENTRY-LEVEL OCCUPATIONAL THERAPY CURRICULUM

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Background: Population health is a growing topic of interest within entry-level occupational therapy (OT) education. The purpose of this study is to determine current and desired coverage of population health content within Accreditation Council for Occupational Therapy Education (ACOTE) accredited occupational therapy programs.

Participants: We surveyed 182 directors of ACOTE-accredited programs. Three days after questionnaire launch,10 (5.49%) had responded and all were associated with master's degree programs.

Methods: A questionnaire was developed using the 23 concepts within the Clinical Prevention and Population Health Curriculum Framework. Program directors were sent an emailed invitation to participate in the study, with the intent to send two follow-up emails to non-respondents. Data collection should be completed by April 13, 2018.

Results: Seventy percent or more of respondents indicated that 15 of 23 concepts were strongly or moderately covered within their current curriculum and strongly agreed or agreed that 21 of 23 should be included in OT curriculums. All respondents indicated that evidence-based practice, implementation of health promotion and disease prevention interventions, and determinants of health were strongly or moderately covered in their curriculums. Gaps between current coverage and desired coverage were largest for preventive medication (50% gap, from 20% current to 70% desired), health policy process (40%, from 60% to 100%), organization of clinical and public health systems (30%, from 60% to 90%), other preventive interventions (30%, 70% to 100%), occupational health (30%, 60% to 90%), and global health issues (30%, 60% to 90%).

Conclusion: Differences exist in the population health concepts that program directors report are currently included within accredited programs and what should be included. All results will be updated as data collection progresses. The results will help OT faculty make decisions about what population health concepts to include within their programs, particularly as they transition to OT doctoral degrees.

079 EXAMINING THE DIFFERENCES BETWEEN CHRISTIANS AND ATHEISTS IN THE EXPRESSION OF THE NEED FOR COGNITION WHEN PRESENTED WITH MORTALITY SALIENCE

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According to terror management theory, religions help manage the awareness of death by promising believers life after death, enshrined in the concepts of God, a soul, and an afterlife. However, previous research suggests that atheists reject these beliefs, even when reminded of death. That is, prior theoretical and empirical work suggests that religious concepts are cognitively intuitive and available, and that atheists override and reject those otherwise intuitive religious concepts. If correct, this idea would predict that religious believers (e.g., Christians) reminded of mortality would score lower than atheists on the need for cognition scale and turn to more intuitive thought, whereas atheists would score higher and would turn to more critical thought and rational thinking when reminded of mortality. To explore this idea, the proposed experiment would recruit a sample of self-reported Christians and a sample of self-reported atheists, manipulate their awareness of mortality (vs a control topic), and measure the participants' need for cognition with the need for cognition scale (Cacioppo, Petty, & Kao, 1984). Data will be analyzed using a 2 (Christian vs atheist) x 2 (MS vs control) ANOVA statistical methods.

080 NATIONAL LAW ENFORCEMENT DISABILITY AWARENESS SURVEY

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According to the Centers for Disease Control and Prevention, 53 million Americans (22%) have some type of disability. Due to the prevalence of disabilities in American society, there is a need for law enforcement officers to be trained to handle situations involving individuals with disabilities. This project aimed to answer three questions: 1. What kind of training (if any) new law enforcement officers received regarding individuals with disabilities? 2. How much training do new law enforcement officers receive pertaining to individuals with disabilities? 3. Do new law enforcement officers receive training about communication disorders? A short survey addressing these questions was sent to the largest police department in each state. Our findings were that a majority of responding police departments required disability training for cadets. Type and intensity of the mandatory training varied between each police department, and no police departments offer training for speech and language disorders.

081 THE ROLE OF BORDERLINE PERSONALITY DISORDER SYMPTOMATOLOGY ON EMOTION REGULATION PREFERENCES

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Emotion regulation difficulties are key to borderline personality disorder (BPD) symptomatology. Recent studies indicate that emotional avoidance, particularly regarding affective states with a social component, is common in BPD. Conversely, adaptive acceptance/reframing of social stressors is less prevalent in BPD. The goal of the current study is to examine whether this discrepancy is observed when individuals reporting high BPD symptomatology are given the choice of a preferred emotion regulation tactic when confronted with a social stressor. The proposed sample is 80 undergraduate women who report low (n = 40) versus high (n = 40) BPD symptomatology as assessed by the Personality Assessment Inventory (BPD subscale: PAI-BOR; Stein et al., 2007). Participants will be instructed on how to use specific emotion regulation strategies reflecting avoidance (i.e., distraction) and reframing (i.e., reappraisal) prior to viewing a series of 30 negatively valenced images (15 low and 15 high intensity) with social content from the International Affective Picture system database (IAPS; Lang et al., 2008). After a brief familiarization with each image, participants will be asked to choose either to "distract from" or "reappraise" the image. Participants will provide pre and post-test affect ratings to determine the relative success of strategy implementation. We predict that the high BPD group will show a general preference for distraction across both intensity levels, whereas the low BPD group will prefer reappraisal for the low intensity but will likely distract in response to the high intensity images. These predicted results could generate insights into emotion regulation interventions targeted at helping individuals with BPD engage in more proactive, rather than avoidant, strategies for alleviating disorder-specific symptomatology.

082 EXAMINING LONG-TERM REPETITION PRIMING EFFECTS IN MOUSE TRACKING

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Long-term repetition priming effects in spoken word recognition have been demonstrated by faster reaction times (RTs) to recognize a spoken word that was previously presented (at least several minutes ago) compared to a condition in which that word had not been previously presented. These results have been obtained by examining RTs to button press responses. In the proposed study, we will examine long-term repetition priming effects using computer mouse tracking. Previous research has found mouse tracking to be a sensitive measure for use in spoken word recognition experiments (Krestar, Incera, & MCLennan, 2013), and we expect that this technique will be effective in detecting long-term repetition priming effects. We will use a hard lexical decision task, in which participants will be instructed to determine on each trial whether the sound they hear is a real word or a nonword. Participants will complete two separate blocks (prime & target) and will be given a math test (as a filler task) in between the two blocks. The target block will contain some of the same words from the prime block (i.e., primed) and completely new words (i.e., unprimed). We predict that participants will be faster - and their mouse movements will be more efficient - when responding to primed words compared to unprimed words. The results are expected to lead to a better understanding of how spoken word recognition processes unfold over time.

083 BIODIVERSITY WITHIN URBAN WEEDSEED BANKS

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As urbanization increases, the extent of metropolitan agriculture has been rapidly expanding. In locations such as Ohio, where commercial agriculture is plentiful, there is a recent trend towards sustainable, urban agriculture. It contributes to the ever-expanding urban revival of cities like Cleveland. Recent research has been done to explore organic urban farming; however, there is very little literature on species diversity and richness within the weed seedbanks in these locations. This study, focuses on the weed seedbank in market (for profit) plots vs community (nonprofit) plots and provides an overview of the plant community biodiversity in urban agriculture. Soil cores were collected, cold stored, and then germinated, enabling the identification of the weeds. We hypothesized that there will be more variability in the weed communities of community-based farms versus market centered farms. The information provided by this research can be used by cultivators to make inferences on the quality of the soil, sustainable weed control practices, and the possible benefits to a diverse weed community for pollination purposes in addition to fostering feasible, informed, urban agriculture that can continue to flourish.

084 SHAME AND CRAVING: EMOTION REGULATION STRATEGIES PREDICT OUTCOMES FOR THOSE IN EARLY RECOVERY FOR SUBSTANCE USE DISORDERS

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People who struggle with drug and alcohol use disorders often experience intense feelings of shame. These feelings have been found to be a roadblock to those in recovery for such disorders, in that they increase reluctance to seek help from others - a key component to recovery both in the short- and long-term. Seeking help from others is a form of Emotion Regulation (ER),

which reflects behavioral, cognitive, and interpersonal responses that alter the form, intensity and frequency of one's emotional state. Emotion regulation can be either adaptive or maladaptive, with adaptive responses usually reducing distress, and maladaptive responses exacerbating it. The use of maladaptive ER is associated with increased cravings to use drugs and alcohol for those in recovery, which is a known common pathway to regular alcohol and drug use. While shame may reduce help-seeking behaviors (interpersonal ER), it is unclear whether shame adversely affects the use non-interpersonal ER responses. This study will examine the relationships between shame, adaptive and maladaptive ER use during times of distress, and drug and alcohol cravings in the daily lives of adults in early recovery for substance use disorders.

085 TRABECULAR BONE STRUCTURAL DIFFERENCES OF THE HUMAN LUMBAR VERTEBRAE BETWEEN AFRICAN AMERICAN AND CAUCASIAN POPULATIONS

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The human vertebrae are composed of an internal, porous network of calcified bone known as cancellous bone. This spongy-looking bone is further composed of tiny columns called trabeculae, which aid in reinforcing the bone against external stressors and applied loading. It is known that bone health differs ultimately in relation to one's lifestyle, nutritional habits, the time period in which they were born, and genetic predisposition for disease. Time period is considered a factor when studying historic versus more modern populations. Nutritional factors are a heavy influence to these findings, and lifestyle is a third factor contributing to bone health, indicated by bone fractures. Cultural and racial differences between groups of individuals can be a determinant of bone health. There are also observed differences in trabecular bone mineralization between individuals who differ in race due to genetics. Evidence indicates that certain environmental factors during gestation and fetal life interfere with the genome. The aim of this study was to conduct a micro-level study of lumbar vertebrae bones from the Cleveland Museum of Natural History's Hamann-Todd collection, dating 1920-1930, and the University of Tennessee's Bass skeletal collection, dating from 1980-present. The goal of the study was to investigate the ability of trabecular bone structure to distinguish among populations based on race ("black" and "white) and demographics (time period, lifestyle, nutrition). Medical imaging and statistical analysis demonstrated that significant differences exist between the bone volume in vertebrae of the Hamann-Todd collection and the Bass skeletal collection. Significant differences between the two collections were also found when comparing bone thickness. Comparison between black and white individuals of the Bass collection yielded significant differences, suggesting a possible genetic effect. Differences were also found between the white individuals of the Hamann-Todd and Bass collections, suggesting an influence of demographics as well.

086 IDEAL CONCUSSION REHABILITATION AND THE SPEECH-LANGUAGE PATHOLOGY PERSPECTIVE

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Increased public awareness to the short- and long-term consequences of concussion has brought this condition to the forefront of neurorehabilitation in recent years. In the United States, the Centers for Disease Control and Prevention (CDC) estimate that 1.6 - 3.8 million concussions occur annually from sport-related concussion alone. Currently, our knowledge of the neuropathology and recovery of concussion is in its preliminary stages. This is reflected through the steadily evolving advancements shared in published articles and the absence of concrete standards for post-concussion rehabilitation. Despite the injury's ability to sometimes resolve with a few weeks of rest and reduced cognitive effort, individuals can experience nagging symptoms, and if they are prematurely cleared to return to baseline activities (including sports) they may be subjected to unnecessary risks of repeated injury and/or long-term problems. This presents a need for operational and effective procedures for the clinical management of concussion, the need for additional clinical care expertise in the science of concussion, and a need for cohesive collaborative dynamic between professionals in a concussion management team. The field of speech-language pathology (SLP) has a history of contributing to the effective clinical management of post-concussive cognitive symptoms. SLPs posses extensive knowledge and training in the evaluation and treatment of cognitive-linguistic disorders from an array of brain conditions. SLPs also offer a unique perspective of the school environment and experience in special education services, which is useful when integrating concussed students back into their school environment. The purpose of this project is to share the most effective methods to date for successful concussion management, to affirm the essential competencies of speech-language pathologists participating in concussion management, and to outline some of the roles of other post-concussion neurorehabilitation team members.

087 THE ROLE OF SELF-REGULATION AND FAMILIAL RELATIONSHIPS IN ADOLESCENT SUBSTANCE USE ENCOUNTERS

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Introduction: Family relationships play a role in predicting the onset of youth substance use. Studies have shown that youth-reported poor familial relations are strongly related to marijuana and alcohol use onset, especially in female

adolescents (Rusby et al., 2018). Adolescents experiencing difficulties in self-regulation, which does not significantly change between the seventh and twelfth grade years, are more likely to participate in risky behaviors such as substance use. Males tend to have lower initial self-regulation and are thus more likely to engage in risky behaviors (Arteaga et al., 2010). With research showing that there is a tendency for self-regulation and parenting behavior to remain stable across time during adolescence, there is also a relationship between negative parenting behaviors and difficulties with self-regulation (Brody et al., 2001). This link between poor parent-child relationships and difficulties in self-regulation could predict early encounters with alcohol or other illegal drugs. This present study seeks to better understand the mediating effect of self-regulation on the relationship between negative familial relationships and early substance use encounters. It also will explore the moderating role of gender on these relationships, as the present research poses mixed results.

Method: Middle schoolers will be asked questions on their perception of the emotional closeness they feel to their parents and how involved they are in family activities. They will also complete measures of overall behavior and emotional experiences (Behavioral and Emotional Screening System) and self-regulation.

Discussion: This study seeks to find a relationship between difficulties in self-regulation and poor familial relationships as predictors of early encounters with substance usage. It also hopes to better understand how gender predicts the strength by which these factors predict adolescent substance encounters. Results and clinical implications will be discussed.

088 PREVALENCE OF SLEEP PROBLEMS IN COLLEGE STUDENTS WITH A HISTORY OF MILD-TO-MODERATE TRAUMATIC BRAIN INJURY AND THOSE WITH NO PRIOR TBI HISTORY.

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Due to the increasing competitive nature of sports, many athletes are suffering mild-to-moderate traumatic brain injuries. Past research has been able to correlate traumatic brain injury with subsequent psychiatric issues, among them sleep. Furthermore research has noticed a decrease in sleep quantity in college students. This research intends to examine the prevalence and nature of sleep problems in traditional college age population subcategorized into TBI and non-TBI populations. The purpose of this research is to gain knowledge as to the nature and prevalence of these issues, and in doing so, laying a foundation for research into potential treatments to eliminate any significant disparities in average sleep quantity and quality between college students with a history of mild traumatic brain injury, and those without a history of TBI. Participants below the age of 18 and above the age of 25 will be excluded from data as sleep abnormalities could be due to other differences than TBI and non-TBI. For example, college students above a particular age are more likely to be in a serious relationship and living with a significant other could contribute to sleep differences. Data will be collected using an electronic survey service called survey monkey. Data will be analyzed using qualtrics. It is hypothesized that there will be disparities in prevalence and severity of sleep problems between TBI and non-TBI groups.

089 ADAPTATIONS OF PLANTS GROWING IN METAL CONTAMINATED SOILS

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Ecological succession occurring on land that was previously home to industrial areas such as factories or mines has brought concern to the ecological consequences of decades of industrialization and abandonment of these areas. Heavy metals accumulated into the soils of these areas are a primary concern to the survival of plant species and the overall health of the environment. However, it has been observed that many plant species have developed adaptations to soils contaminated by heavy metals through multiple means. Currently the most significant observations of evolutionary adaptations in plants for metal contamination resistance are metallicolous plants, metal resistant plant-growth promoting bacteria, and hyperaccumulation plants. Hyperaccumulation plants in particular are quite impressive due to their ability to uptake incredibly high amounts of toxic metals, such as lead, mercury, arsenic, and cadmium, and integrate these metals into organs like leaves to defend themselves from herbivores and can be used for means such as phytoremediation and phytomining. Other observations such as the metal resistant growth-promoting bacteria have shown to This study analyzes some of the current research on display that discusses evolutionary adaptations observed in heavy-metal resistant plants and observes the practicality of these adaptations for purposes such as environmental cleanup.

090 YOGA THERAPY AND ITS EFFECT ON COMMUNICATION

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The world of health and medicine is making constant changes and advances, and thus new methods of treatment in all aspects are being formed. What is especially starting to gain popularity is Holistic Medicine. Holistic Medicine treats the person as a whole, including the mind, body, and spirit. One practice that heals the body in this manner, is yoga. Yoga puts healing in the control of the person itself and can aid in several disorders when

used as a therapy. Although yoga therapy is used as a mind-body medicine and a treatment modality for certain disorders, there is currently a lack of evidence based research of how yoga therapy can aid in the treatment of speech and language related disorders. However, yoga has the ability to relax the mind and body, increase self-esteem, and put an individual more in control of themselves and their body. When one cannot communicate effectively, it has a heavy impact on all aspects of life. Yoga therapy can be used to heal the individual holistically and the current research available shows that it does have a positive correlation with helping to improve speech and language among individuals with various disorders. This research was aimed to discover how yoga can be used as an aid to enhance communication in a variety of related disorders and to discover what specific areas of speech and language can benefit from it. After a comprehensive review of available literature, it can be inferred that yoga can benefit or enhance several aspects of communication when practiced regularly.

091 DEVELOPING LITERACY BOXES FOR ON-THE-GO SPEECH-LANGUAGE THERAPY

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The therapy staff at Cleveland Clinic Therapy Services in Middleburg Heights expressed a need for efficient usage of materials already housed within the clinic. The inefficient use of the plethora of toys and books in the clinic prompted the therapists to seek assistance with developing engaging activities to target various goals in the areas of speech and language. The therapists envisioned the activities and materials be accessible and able to be utilized in any area of the clinic with ease. In addition, the therapists wished to incorporate literacy enrichment as a key component in the creation of the activities. At this particular campus, physical therapists, occupational therapists, and speech language pathologists provide services to children nine months through twelve years of age. This type of environment fosters interprofessional collaborative practice allowing for the provision of optimal services. Nevertheless, the purpose of this service project was to create on-the-go language and literacy boxes for the speech-language pathologists at the Cleveland Clinic Therapy Services, Middleburg Heights campus. Through the experience at Cleveland Clinic creating on-the-go language and literacy boxes, three primary questions were raised:

1. What communication disorders are typically seen in children who are at risk for reading difficulties?
2. What pediatric evidence-based speech-language approaches to therapy are available for children who are at risk for pre-literacy and literacy learning delays and disorders.
3. How does interdisciplinary treatment improve overall language development, cognition, and pre-academic skills?

092 AN INVESTIGATION INTO THE PHYSICAL EFFECTS OF VARIOUS GENRES OF MUSIC

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Music offers many benefits to a person's health. People can use music to provide different environments including those that are relaxing, exhilarating, and neutral. It can also be used to express emotions, concerns, and one's beliefs. Prior to any formal expertise, people may assume the physical effects of music depending on the genre being played. By measuring the heart rate and galvanic skin response of college students at Cleveland State University, ages 18-25, to different genres of music, including classical, country, hard metal, rap, and pop, this research will test these theories. The information gained from this research will provide people with knowledge about how a genre of music affects one's body. This will enable people to make more informed decisions regarding what genre of music one plays when exposed to various environments.With a preliminary analysis of our data, we noticed that the average heart rate increased for all of the genres of music by at least one beat per minute except for classical in which the average heart rate went down almost 3 beats per minute. In terms of arousal, all of the genres had a decrease in arousal with classical having the greatest decrease, and two most popular genres having the smallest decrease.

093 APPLICABILITY OF THE COLOR-WORD CONTINGENCY PARADIGM TO UNFAMILIAR WORDS AND CHARACTERS

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This study will investigate the applicability of the color-word contingency paradigm to characters and words unfamiliar to participants. The color-word contingency paradigm is the general finding that a word and a color form an association with one another by displaying the word in the associated color. For example, the word "stop" is often associated with white and red due to stop signs. Likewise, the colors red and white, specifically red backdrop and white letters, is associated with and will cause people to think of the word "stop." The color scheme and the word have become linked because of color-word contingency. Color-word associations form rapidly and often. They can even form with non-words, which is a string of letters made to look like a word, but isn't in reality. Participants will first complete a standard color-word contingency task in which they classify words according to the color in which they appear. Each of three words will have a high probability of occurring in one color and a low probability of occurring in each of the other two colors; one additional word will occur with equal probability in each of the three colors. Participants will then be asked to repeat the task with words from an uncommon or artificial alphabet. The goal is to determine if the

color-word contingency effect will be observed at all or as strongly when the participant is unfamiliar with the characters that form the stimulus strings. The color-word contingency effect may be as strong as with English words (and with nonwords composed of Roman letters), but may be slower in its onset.

094 THE EFFECTS OF CELL CYCLE POSITION ON THE ABILITY OF SKELETAL MYOBLASTS TO UNDERGO APOPTOSIS OR DIFFERENTIATION

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Programmed cell death (apoptosis) is induced by the same culture conditions as differentiation in skeletal myoblasts, yet these two processes result in mutually exclusive physiologically important endpoints. Dissecting this coordinate regulation of apoptosis and differentiation could enable selective manipulation relevant to the alleviation of diseases associated with muscle degeneration as well as to the effectiveness of regeneration or any treatment utilizing skeletal myoblast transfer. Analysis of asynchronous cultures of skeletal myoblasts in growth media (GM) were determined to have 50% of cells in G1 phase, 30% of cells were in S phase and 20% of cells in G2/M phase. When skeletal myoblasts in (GM) are switched to differentiation media (DM), roughly 70% of cells undergo differentiation after 48 hours and 30% of cells undergo apoptosis after 18 hours. This led us to the hypothesis that the 30% of cells undergoing apoptosis in response to (DM) may also be the 30% of cells in S phase in asynchronous populations of myoblasts. To confirm the potential role of the cell cycle in skeletal myoblasts apoptosis, we began by performing a mitotic- shake off to synchronize cells in M phase. Cells were then monitored for progression in to S phase by BrDU incorporation into newly synthesized DNA. Results show that cells peak in S phase 7 hours after mitotic shake-off. Future studies will investigate the potential for myoblasts in different cell cycle phases to undergo apoptosis in response to (DM).

095 CHEMICAL REACTIVE ANCHORING LIPIDS WITH DIFFERENT PERFORMANCE FOR CELL SURFACE RE-ENGINEERING APPLICATIONS

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Introduction of selectively chemical reactive groups at the cell surface enables for site-specific cell surface labeling and modification opportunity and thus facilitate capability to study the cell surface molecular structure and function and the molecular mechanism it underlies. Further, it offers the opportunity to change or improve a cell's functionality for interest of choice. In this study, two chemical reactive anchor lipids, phosphatidylethanolamine-PEG-dibenzocyclooctyne (DSPE-PEG2000-DBCO) and cholesterol-PEG-dibenzocyclooctyne (CHOL-PEG2000-DBCO) were synthesized and their potential application for cell surface re-engineering via lipid fusion were assessed with RAW 264.7 cells as a model cell. Briefly, RAW 264.7 cells were incubated with anchor lipids under various concentrations and at different incubation times. The successful incorporation of the chemical reactive anchor lipids was confirmed by biotinylation via copper-free click chemistry, followed by streptavidin-FITC binding. In comparison, the cholesterol-based anchor lipid afforded higher cell membrane incorporation efficiency with less internalization than the phospholipid-based anchor lipid. Low cytotoxicity of both anchor lipids upon incorporating into the RAW 264.7 cells was observed. Further, the cell membrane residence time of the cholesterol-based anchor lipid was evaluated with confocal microscopy. This study suggests the potential cell surface re-engineering applications of the chemical reactive anchor lipids.

096 FUNCTIONAL DIVERSITY OF RESTORED MEADOWS

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Throughout Northeast Ohio disturbed and degraded habitats have been restored to re-establish native plant communities. This research assesses the progress of these efforts though plant functional trait diversity. Plant functional traits are morphological, physiological or life history traits of a species. When these traits are used together, along with data on abundance, they provide an index of diversity. Functional traits are a valuable tool for assessing and comparing plant communities because they give insight to how an ecosystem is functioning. Important functions of meadow ecosystems include water regulation, carbon sequestration and pollination services. For this research, meadows in Northeast Ohio that were restored were compared to meadows that were not restored. It is hypothesized that functional diversity in restored areas will have greater functional diversity than those that were not restored. Leaf, height and seed traits were used for functional trait analysis. Traits were collected from the TRY database, an online plant trait database. Vegetation surveys followed the North Carolina Vegetation Survey protocol and we collected data on presence and abundance of species. Preliminary results indicate that percent native cover for restored meadows ranged from 57 - 95%. In meadows that were not restored percent native species cover ranged from 12 - 90%. Although there were no strong trends in native species cover and presence, functional trait analysis will provide information on the patterns and differences between the restored and unrestored sites. Tracking the progress of these restorations will

provide valuable information to natural areas managers when planning restoration activities.

097 ECONOMIC ABUSE AND ITS UNIQUE IMPACT ON VICTIMS' PERSONALITY AND MENTAL HEALTH

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Recently, economic abuse has gained the attention of researchers as a distinct form of intimate partner violence (IPV). Economic abuse is defined as a pattern of behaviors that attempt to control someone's ability to earn, use, and maintain economic resources, thus hindering their economic security and making them dependent on their abuser. This research will examine the impact of economic abuse on the personality and mental health of its victims and compare the results with what we know about physical, psychological, and sexual abuse. Participants will compete various measures to assess forms of abuse that they might have experienced, including the 28-item Scale of Economic Abuse (SEA), how their personality has changed since the abuse began, and the possible mental health outcomes of experiencing abuse. Based on the evidence supporting economic abuse as a distinct form of IPV, we expect to find that it has its own unique impacts. However, because the majority of victims of IPV are victims of multiple forms of abuse, there will be some moderately correlated outcomes.

098 INVESTIGATING HOW THE AGING BODY IMPACTS EMOTION-COGNITION ACROSS ADULTHOOD

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Emotional aging research has primarily investigated mechanisms that explain age-related increases in positive emotionality despite various age-related losses. Increasing importance has been placed on underlying biological influences. Assumptions of weakened mind-body connectivity in older adulthood are contradicted by evidence showing age-similarities (or increases) in cognitive and physiological reactivity to certain emotional states (particularly sadness). Thus, robust physiological-experiential associations may still exist in later life. Notably, whole-body physiology, namely posture, has been linked to affective biases in memory and emotional experiences. The present study addresses how age and posture may interact to produce biased recognition of affective words.

We used a mixed quasi-experimental design with age (2; young, old) and posture (2; upright, stooped) as between-subjects factors and word valence (3; positive, negative, neutral) as a within-subjects factor. Using a sample of 42 younger and 24 older adults, a repeated measures ANOVA revealed that although the 3-way interaction was non-significant ($p > .05$), the interactions between age and posture ($F(1,62) = 4.162$, $p = .046$, $\eta p2 = .063$) as well as age and word valence were significant ($F(2,124) = 6.204$, $p = .003$, $\eta p2 = .091$). Younger adults displayed a positivity bias in both postural conditions; this effect was absent in both older adult groups. Furthermore, older adults performed worse overall and exhibited a negativity bias in stooped postures. Findings will be discussed based on current theoretical work on age-related positivity and mind-body integration in later life.

099 CAN WORKING OUT MAKE YOUR GRADES WORK OUT?

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Living an active and healthy lifestyle is a common goal amongst college students. However, does being active have positive benefits outside of achieving this lifestyle goal? The purpose of this study is to see if there is a correlation between academic performance (measured by GPA) and time spent in the gym/being active. Due to time constraints, this will be a literature study that will help in setting up a long term observational study. This study would look at randomized groups of college students at Cleveland State University, students at the recreation center and students in other campus locations (student center mainly) and will use a series of questions to determine fitness and academic performance. Other questions will be asked to the fitness population to see if there is an influence on GPA based on style/type of activity (weight training, calisthenics, yoga, sport, cardiovascular training). These additional questions for the fitness population are just for extra inference; the main purpose is to compare fit vs unfit college students and their academic performance.

100 PUBLIC DISTRIBUTION OF NALOXONE TO IMPROVE THE SURVIVAL RATE OF OPIATE OVERDOSE VICTIMS

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Naloxone is a medication developed specifically to reverse the effects of an opioid overdose. This drug, being an opioid antagonist, has the ability to bind to opioid receptors without activating them. Thus, blocking opioid agonists such as heroin, oxycodone, or hydrocodone from attaching to the activation sites. During an overdose, breathing becomes dangerously slow, the heart starts to beat at abnormal rhythms, and the lack of oxygen begins to do permanent damage to the brain. Naloxone has the ability to quickly restore respiration, reversing these effects. The study, conducted from 1996 to June 2014, shows a significant need for readily available opioid antagonists such as naloxone.

101 CURRICULUM TO ENHANCE EMERGENT LITERACY SKILLS IN CULTURALLY AND ECONOMICALLY DIVERSE CHILDREN THROUGH THE CLEVELAND STATE UNIVERSITY SPEECH & HEARING PROGRAM

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Children from culturally and economically diverse families are vulnerable to the impact of many social and environmental risk factors that may negatively influence the attainment of emergent literacy skills from ages three to five. Deficits in early literacy skills such as print awareness, oral language, and phonological awareness are dangerous to later success in the classroom, as the stability of children's emergent literacy skill development is highly predictive of middle childhood literacy achievement. Many of the children within this demographic do not have the funds or means to access effective intervention for emergent literacy. This project outlines an evidence-based, emergent literacy program model including insight on activities, materials, locations, and intervention strategies, to be used within the Cleveland State University Speech and Hearing Center. This program would provide literacy intervention experience to graduate students in speech-language pathology and address the needs of at-risk children in the community using research-based strategies to combat economic risk factors.

102 THE USE OF VASP AND AFLOW TO OPTIMIZE SILICON SURFACE RECONSTRUCTIONS

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This project involves learning skills and acquiring knowledge that will lay the groundwork for future experimental data analysis for the modeled relaxation of Silicon crystals and other crystalline materials. The goal is to learn how to create large surface reconstructions of Silicon using the Vienna Ab initio Simulation Package (VASP). This has been done by determining the correct lattice parameter for the Si crystal. The next step is to utilize partially charged H atoms to satisfy the electron requirements of the Si and determining the best combinations of crystal and vacuum widths in order to minimize the calculation time while still getting accurate results. The results are analyzed by utilizing AFLOW to translate the crystals into x-y-z- coordinates which we can plot. This work aims to understand what program features to use to achieve specific goals, how to correctly format inputs, how to understand outputs, as well as the optimization of surface reconstruction details will be documented, so as work carries on in the lab, these problems will not need to be addressed over and over again as new people work on the computational side of crystal structure relaxation.

103 CHILDHOOD OBESITY

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Childhood obesity is an ever-increasing epidemic in the United States, and many legal regulations have already been put in place to help control the issue through school meals. However, these regulations on what children eat in school seem to have no effect, with some data even showing that children's' weights have increased. By compiling data from various other research projects and studies, this project shows that there are several other factors which greatly impact a child's health, that government regulations don't account for. A child's family background has a significant effect on a child's behavioral and eating habits, which may be positive or negative depending on media usage, sleep schedule, income level, medical history, and familial structure (single-parent, nuclear family, etc.). The neighborhood characteristics such as poverty level, level of criminal activity, and traffic density also influences obesity among children. Physical activity amongst children is also a major determinant of childhood obesity rates. It has been shown that the more active a child is, and the less time they spend engaging in sedentary activities, the lower their rates for obesity.

104 CHARACTERIZATION AND SYNTHESIS OPTIMIZATION OF POLYMERIC MICROGELS

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Microgels are spherical particles suspended in solution, comprised of crosslinked polymer chains. Due to the amphiphilic property of the parent polymer, microgels display a temperature dependent volume phase transition (de-swelling), and thus have the potential to be used for drug delivery. Microgels were synthesized using a polysaccharide polymer and cross-linker, in a surfactant solution. Synthesized particles were characterized using dynamic light scattering (DLS) for temperature and angular dependence to study their shape and determine the apparent hydrodynamic radius (Rh) of the swollen and de-swollen states. Previous studies suggest that increasing the concentrations of the chemical cross-linker reduces Rh and the de-swelling ability. Initial microgel synthesis revealed a dependence of Rh on microgel concentration in samples, requiring a correction factor during analysis. Primary experiments focused on the variation of cross-linker concentration ratios. Increasing the ratio from 1 to 30

causes Rh to decrease from 150 - 190 nm at 25oC, and from 65 - 95 nm at 50oC. Ratios from 30 to 50 resulted in swelling from 70 nm at 25oC to 165 nm at 50oC. At a ratio of 60, an apparent bulk gelation occurred.

105 UTILIZING INTERPROFESSIONAL EDUCATION TO ADDRESS THE OPIOID EPIDEMIC

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The purpose of this research study was to examine if participation in a university interprofessional education (IPE) event changes students perceptions of working on an interprofessional team. Students from four disciplines were split up into five teams and engaged in a case study competition focusing on the opioid epidemic. The epidemic of prescription opioid addiction and overdose has become a health care crisis impacting a significant amount of individuals across the United States. Students worked in teams to propose actionable solutions for stakeholders in the surrounding university community. Pre and post surveys were sent out to each of the 24 graduate students who participated in the IPE event. Quantitative and qualitative responses were collected and analyzed for 19 respondents to determine if values and ethics increased for interprofessional practice as well as responsibilities, communication, and teamwork. Students were encouraged to further discuss thoughts and feelings regarding participation. Results suggest that the majority of students found the IPE event to be a positive learning experience. Overall, the experience helped students to gain an understanding about how to effectively collaborate as an interprofessional team in order to address the opioid epidemic and more knowledge about resources available in the community for individuals battling addiction.

106 TEEN PREGNANCY AND THE CORRELATION WITH THE RELATIONSHIP BETWEEN THE TEEN AND HER MOTHER

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Teen pregnancy is a common reality for many teenage girls experiencing the stages of adolescents. This is due to the many teenagers that are sexually active during this time and other factors that play a role leading up to teen pregnancy. The aim of this study is to identify if there is a correlation between teen pregnancy and the relationship of the teen with her mother. Research by Wilson & Koo (2010) examined the communication about sex-oriented discussions between parents and their children whether the child be a boy or a girl, to get a better understanding of how the parent/child relationship differs with gender. The methods used to conduct this study were nationwide online survey with 829 fathers and 1,113 mothers of children aged 10 to 14. The results for this study show that there are gender differences in parent-child communication about sexual topics and that these topics should be discussed among both daughters and sons. Furthermore, these discussions should be emphasized from both parents regardless if the child is a boy or girl. for my study, I will recruit a sample that will include both women that were teen parents and women who were not teen parents. There will be interviews and questionnaires that inquire about the individual participant's thoughts and feelings about the relationship they hold with the perspective parent. The goal is to understand in what ways can teen pregnancy be prevented and if one of those ways can start with the relationship between the teen and their mother. The significance of this study will allow researchers to ultimately understand factors and situations mothers can now provide or avoid in order to create a bond that is healthy in order to be a supportive parent towards their teen daughter.

107 MOVEMENT TRAJECTORY EVOLUTION AND CHANGES IN THE STRUCTURE OF MOVEMENT AMPLITUDE TIME SERIES

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We recently demonstrated that the time-series structure of movement amplitude (MA) values shifted from pink to white noise with increases in the index of difficulty [ID = log2(2A/W)] (Slifkin & Eder, 2014). That result was attributed to increased reliance on closed-loop visual feedback processes as ID increased.

Here, instead of examining the time-series structure of MA values measured at movement termination, we examined the time-series structure of MA values measured at different percentages of time into the movement trajectory. We hypothesized that at all ID levels a pink-noise time-series structure would be seen during the early portions of the movement trajectory, but during later portions of the trajectory an increased whitening of time series structure would emerge only under high ID conditions: That is, it is only under high ID conditions, during the approach of movement termination, that increased engagement of closed-loop visual feedback processes would be needed. The results of our analyses will be presented and discussed.

108 ENVIRONMENTAL CONSTRAINTS ON ZIKA AND ITS SPREAD AND EVOLUTION

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Flaviviruses such as Dengue, Chikungunya, and Zika constitute the main tropical disease portfolio. Further understanding of the

etiology, transmission, and evolution of arboviral infections are key for outbreak containment and prevention. The introduction of Zika Virus (ZIKV) to the Americas in 2014 brought serious attention to public health officials and the scientific community. Spread of the virus was mostly in South America and the Caribbean due to mosquito vectors Aedes ageptii and Aedes albopictus. Researchers then found that ZIKV infection also had neurodevelopmental implications during pregnancy (microcephaly) along with causing Guillain-Barré Syndrome in adults. The purpose of this literary project is to explain possible contributors towards Zika Virus spread and evolution in the Americas. It describes the relationship between the different strains of ZIKV and how it affects humans, especially as it relates to microcephaly. Lastly, it explains how the Brazilian strain of ZIKV differs from other strains and why it is so detrimental to fetal development.

109 TURN DOWN FOR WHAT?!

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Research in the audiological community has established that the prevalence of hearing loss increases with age. This study was conducted to determine the public's perception and awareness of the correlation between hearing loss and headphone use among students in the Choose Ohio First cohort. The student's perception of headphone use and hearing loss was collected by Google Survey with questions including age, major, gender, headphone use (including history,duration, volume, and type of headphone), current hearing status, and opinions on hearing loss as a result of headphone use. This research and literature search was designed to assess the student's perception and understanding of noise-induced hearing loss. Findings revealed that Cleveland State University students were not concerned with the outcome of using personal listening devices at high volumes. In addition, we looked at a study that focused on Korean adolescents hearing thresholds and their daily headphone usage rate. This study revealed that Koreans hearing thresholds increased substantially over several years of listening to music everyday for 1 to 3 hours. We hope this study will paint a clear picture of student's headphone usage rates and their perception on the potential damaging effects of listening to loud music.

110 AUTONOMY AS A PROTECTIVE FACTOR AGAINST DEATH ANXIETY

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The present research investigated a possible point of intersection between terror management theory (TMT) and self-determination theory (SDT). TMT proposes that the awareness of mortality is an abstract existential threat that motivates people to protect themselves by seeking a sense of self-value within a seemingly permanent system of meaning. However, SDT suggests that people are generally oriented toward personal growth, but that certain psychological needs—autonomy, competence, and relatedness—must be satisfied to fuel that growth. The present work suggests that, in addition to fueling growth, these psychological needs may also help function as a defensive/protective buffer against the awareness of mortality. Prior research has demonstrated that relatedness and competence can serve this buffering function, but no prior work has tested whether autonomy might similarly function to protect against death awareness. Therefore, the present research hypothesized that the awareness of mortality (vs control topic) would lead to increased worldview defense, unless participants were primed to recall feelings of autonomy (vs. control topic). To test the hypothesis, American participants will be randomly assigned to be reminded of mortality or a control topic, randomly assigned to be reminded of feeling autonomous or controlled, and then asked to indicate their support for militaristic foreign policy against Syria (often seen as a threat to American interests). Data will be analyzed using a two-way ANOVA technique, and theoretical and practical implications will be discussed.

111 COMMUNITY-BASED SENSORY FRIENDLY TIME PARTNERSHIP: CHILD ENGAGEMENT & RESPONSIVITY

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The profession of occupational therapy has made noteworthy efforts to understand the impact of sensation on a child's ability to engage in age-appropriate play and to develop and maintain social relationships. In spite of growing research substantiating a need in this area, children with atypical responses to sensory stimuli in the environment continue to have limited access to sensory-appropriate community activities alongside their peers. In partnership with the GoBabyGo program at CSU and a local, urban children's museum, this pilot feasibility study aims to explore the ways in which sensory stimulation may enhance or inhibit participation in community-event programming for children with sensory processing and mobility differences. Using direct observation of participation and engagement behaviors of children in a multisensory environment, researchers investigated the relationship between the type and intensity of sensory stimulation of activities and observable behaviors. Observations included level of engagement, affect and responsivity. Results will suggest if the intensity or nature of sensory stimulation incorporated into different activities results in differences in observable behaviors, affect or responsivity for participating children in relationship to the activity's sensory properties. Using a model of environmental enrichment, information gleaned from this study will assist community programmers in creating activities that are indeed sensory-friendly and allow for self-directed engagement in

sensory experiences, challenge children cognitively and facilitate enhanced interactions with family members and peers during community events.

112 PERFORMANCE ACCURACY AND TARGET PERCEPTION

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Recent research has shown that bodily state, performance capacity, and performance quality (success) influences perception, i.e., perception is embodied: For example, wearing a heavy backpack, older age, and fatigue results in increased estimates of degree of hill slant and distance (Witt, 2011), and increased success in hitting baseballs and kicking field goals is related to increased perception of baseball and field goal size, respectively (Witt & Proffitt, 2005). In the current study, the relation between performance success and perceived target size will be examined in more common, everyday action: Participants will perform a targeted manual aiming task, under instructions for movement speed and accuracy, where performance accuracy will be varied by varying target width size, e.g., the number of target hits (accuracy) should increase with increases in target width. Perceptual estimates of target size will be obtained before and after the movement task. It is hypothesized—following the research by Witt and colleagues (2009)— that when actual target widths are small (and accuracy is low) perceptual estimates of target size will be smaller than the actual target widths, but when actual target widths are large (and accuracy is high), perceptual estimates of target size will be larger than the actual target widths.

113 WHERE ARE THE TECTONIC PLATES MOVING TO?

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Introduction: When we talk about tectonic or lithospheric plates, we mean the sections into which the lithosphere is cracked. The surface of the Earth is divided into 7 major and 8 minor plates. The largest plates are the Antarctic, Eurasian, and North American plates. Plates are on average 125km thick, reaching maximum thickness below mountain ranges. Oceanic plates are thinner than the continental plates and even thinner at the ocean ridges where the temperatures are higher. Some plates are large enough to consist of both continental and oceanic crustal portions (e.g. the African or South American plates) whilst the Pacific Plate is almost entirely oceanic.

Purpose: To take the position of the tectonic plates a few decades ago and compare it to the position of the plates currently. This is to predict and hypothesis on the future positions and its implications on communities around the world and how it may effect the environment today.

Methods: Observe geological fit between continents. Research fossil evidence found on continents to trace which has similarities
Research case studies like the San Andreas fault and the origin of the Hawaiian islands. Observe glaciation and its implications.Observe Jigsaw fit and tectonic fit. Research the chemical and mechanical compositions of tectonic plates and its implications.

Results: The plates have moved previously and still are. Implications like land separating from the mainland or uprising of new volcanoes and islands. Jigsaw fit, tectonic fit, geological fit all shows evidence that the plates were previously connecting all of the continents together. Fossil Evidence shows there are correlations of similar ancient species amongst continents. Continents are slowly moving North and South, changing temperatures follow.

Conclusion: The plates are constantly moving very slowly, over thousands of years, you may see a minor shift over time. This will result in pieces of land separating or volcanoes and islands popping up at fault lines. Plate shifts are also what causes extreme earthquakes, especially at the San Andreas fault.

114 EVIDENCE OF PARTICIPATION OF AXIAL ELEMENT PROTEIN IN SISTER CHROMATID COHESION DURING MEIOSIS

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Sister chromatid cohesion (SCC) is mediated by an evolutionarily conserved protein complex called cohesin. The cohesin complex is composed of two proteins of Structural Maintenance of Chromosomes (SMC) family, named Smc1 and Smc3, a non-SMC protein called Scc3, and a fourth subunit known as α-kleisin. Severson et al. (2009) and Severson and Meyer (2014) found that rather than using a single cohesin complex like in yeast, the worms use multiple meiotic cohesin complexes that have different kleisin subunit during meiosis. Altering this subunit has a major impact on cohesin's function. Consequently, each complex plays an explicit role in tethering and then freeing sister chromatids.

Previous research demonstrates that sisters are apart in most pachytene nuclei of meiotic kleisin (rec-8 coh-4 coh-3) triple mutants (55%) and the absence of DSBs in spo-11 rec-8 mutant animals don’t revoke SCC in pachytene nuclei (6.8% lacking SCC), unlike in diakinesis nuclei (90% lacking SCC). However, sister chromatids are apart in ∼70% of pachytene nuclei of him-3 rec-8 mutant animals regardless of whether DSBs are made indicate that the axial element proteins and synaptonemal complex (SC) proteins might mediate the linkages between

sister chromatids. Therefore, based on the discussed data it can be proposed that axial protein HIM-3, or a protein that depends on HIM-3 for its loading, can tether sister chromatids during pachytene, independently of cohesin, thereby accounting, in part, for the SCC in spo-ll rec-8 mutants.

115 I CAN'T HELP BUT NOTICE NOR LOOK AWAY; TESTI NG CONTIBUTIONS OF BIASED ATTENTION PROCESSING AND INFLEXIBILITY TOWARDS SOCIAL ANXIETY DISORDER SYMPTOMS

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Cleveland State University, Department of Psychology

Social anxiety disorder (SAD), or social phobia, is a condition hallmarked by experiencing high levels of distress in response to social situations. This distress may be linked to attentional biases towards social threats that are believed to precipitate and maintain SAD. Recent conceptual works posit that difficulty shifting attention away from threatening stimuli (attention inflexibility) may also be involved in maintaining distress for those with elevated SAD symptoms. However, the relative contribution of biased attention and attention inflexibility for SAD risk is relatively unknown. Elucidating these relationships may provide clinicians with novel treatment targets, and may inform early detection and prevention efforts. The present study examines the relationship between biased attention processing of dysphoric stimuli and attention inflexibility with SAD symptoms in a sample of undergraduate participants.

116 METABOLOMICS ANALYSES OF ANTIVIRAL AND ANTIBACTERIAL CHINESE HERBAL FORMULATIONS "SHUANG HUANG LIAN (双黄连)" BY UPLC-QTOF-MS/MS

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Shuang Huang Lian (SHL) is a Chinese herbal medicine for treatment of fever, cough, sore throat and upper respiratory tract infection. In vitro cell culture studies showed that SHL inhibits the respiratory syncytial virus (RSV), para-influenza I-IV, and 23 kinds of pathogenic bacteria such as Staphylococcus aureus. SHL is comprised of alcohol-water extracts from three medicinal plants, lonicerae japonicae flos, forsythiae fructus, and radix scutellariae, in the ratio of 1:2:1. The analytical methods currently available for SHL are those of targeted analyses for quantitation of a few marker components which may not even be the effective components of the herbal medicine. Since SHL is a complex herbal mixture containing hundreds of compounds, in order to elucidate antiviral and antibacterial components of SHL, we have developed an untargeted metabolomics method based on ultra-performance liquid chromatography and quadrupole time-of-flight tandem mass spectrometry (UPLC-QTOF-MS/MS) technology and bioinformatics for profiling and compound identification.

In this work, we have studied three SHL formulations (i.e., granule, tablet, and oral liquid) using the metabolomic workflow developed in our laboratory and revealed that each formulation consisted of 178 to 216 entities using METLIN AM database. Among the 95 common entities from the three formulations, 47 of them have been identified with chemical names and formulas, including the 5 marker compounds of SHL specified by Chinese Pharmacopoeia and 12 compounds which were reported to have therapeutic effects. We have also performed principal component analysis (PCA), partial least squares discriminant analysis (PLS-DA) to assess the correlations and differences among the three SHL formulations, and the reproducibility of technical and biological repeats.

117 LEXICALITY AFFECTS CLASSIFICATION PERFORMANCE OF TWO-LETTER STRINGS

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To investigate whether two-letter words may be perceived as configurations, experimental participants completed binary response filtering and biconditional classification tasks with the four two-letter stimuli in sets constructed by crossing two vowels with two positions relative to a consonant (e.g., ek, ke, uk, ku; it, ti, ot, to). In each of these tasks, two stimuli are assigned to each of two responses. From the experimenter's perspective, filtering (e.g., ek and ke vs. uk and ku; it and ot vs. , ti and to) may be carried out by attending to one attribute; biconditional classification (e.g, ek and ku vs. uk and ke. or it and to vs. ot and ti) requires attention to both attributes; for the latter stimulus set, lexicality distinguishes the categories, so the task may be treated as lexical decision. To investigate whether the relative difficulty of filtering and biconditional classification depends on whether biconditional classification can be treated as lexical decision, 14 participants completed these classification tasks with each stimulus set. Although for each stimulus set, filtering was faster than biconditional classification, the biconditional disadvantage was significantly smaller for the stimulus set in which lexicality was an emergent property. These results are consistent with the idea that words are perceived more configurally than two-letter strings that are not words.

118 TUBULIN INHIBITORS AS SELECTIVE ANTI-TRYPANOSOMAL AGENTS TARGETING HUMAN AFRICAN TRYPANOSOMIASIS

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Human African trypanosomiasis, known as African sleeping sickness disease, is a vector-borne parasitic disease in sub-Saharan Africa categorized as Neglected tropical diseases (NTD's) with limited medical resources. High toxicity and limited efficacy of trypanocidal drugs contributed to an immediate need for novel drug development for human African trypanosomiasis (HAT). We identified sulfonamide derivative as selective tubulin inhibitors that showed the promise to the treatment of this disease, which was based on the tubulin protein structural difference between mammalian and trypanosome cells. In this study, we developed a synthetic scheme to generate these tubulin inhibitors and characterized all the compounds using NMR spectroscopy and HPLC-MS. Further lead optimization was performed to improve the efficiency of the drug candidates. Cell Proliferative assays were performed using MTS assay for Trypanosoma brucei brucei cells as the parasite model, and MTT assay for human normal kidney cells and mouse macrophage cells as the host model to evaluate the compounds. One new analog showed great potency with an IC50 of 70 nM to inhibit the growth of trypanosome cells and did not affect the viability of mammalian cells. Western blot analyses reveal that the compound decreased tubulin polymerization in T. brucei cells. Hence, I hypothesize that, our compounds showed better selectivity to inhibit the parasite cell growth. Currently, further structural modification of these tubulin inhibitors derivatives to enhance the cellular uptake is being performed in our lab.

119 COLPODELLA SP. AND BODO CAUDATUS TROPHOZOITES AND CYSTS IDENTIFIED USING LIGHT AND ELECTRON MICROSCOPY

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Colpodella sp. and Bodo caudatus were cultured together in a diprotst culture as predator and prey respectively. Both protists are free-living in the environment, form cysts and develop biflagellate trophozoites in their respective life cycles. Colpodella sp are the closest free-living ancestors of the apicomplexan phylum which contains important human pathogens such as Plasmodium sp and Toxoplasma gondii, causative agents of malaria and toxoplasmosis, respectively. In order to distinguish trophozoites and cysts of both protists, we used different staining techniques to identify trophozoites and cysts in light microscopy. Brilliant Cresyl Blue, Geimsa stain, hematoxylin-eosin (H & E), Picro-Sirius Red, Wright's stain and Alum Carmine were used. We compared the clarity of morphological characteristics such as, delineation of flagella, cytoplasmic structures, cyst features and the attachment junction during myzocytosis. Trophozoites and cysts were distinguished by all dyes except Alum Carmine at the concentrations used (0.1% and .05%). Food vacuoles, cytoplasmic inclusions and kinetoplast of B. caudatus were easily observed using Giemsa, H&E and Wright's stain. The extended rostrum of Colpodella sp. at the point of attachment to B. caudatus was observed by all dyes except Alum Carmine. Transmission electron microscopy also showed clear distinctions between the two protists and identified the kinetoplast in B. caudatus. The dyes used in this study will facilitate routine differentiation of Colpodella sp. and B. caudatus in culture and in enriched samples for biochemical analysis.

120 ATHEISTS IN FOXHOLES AND THOUGHT-HOLES: ATHEISM AND THE EFFECTS OF MORTALITY SALIENCE AND LIMITED PROCESSING ON RELIGIOUS FAITH

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There are many who would claim that there are no such things as atheists in foxholes, and that in the face of death atheists would abandon their atheism in order to gain the security that a God is capable of providing. Others would argue to the contrary, and claim that atheists would maintain their atheism when faced with death. According to terror management theory (TMT), humans possess a unique conscious awareness of the inevitability of their own death, and seek to manage the potential anxiety that arises from the awareness of their mortality by seeking a sense of permanence afforded by intuitive religious concepts and afterlife beliefs. Consistent with this idea, research has shown that when religious participants are reminded of their mortality, they increase their expressed religiosity and belief in supernatural agents. However, research also demonstrates that when non-religious participants, particularly atheists, are similarly reminded of their mortality, they do not increase their belief in such supernatural concepts. The present work offers the idea that atheist's resistance to existentially-motivated religious faith is the result of their use of analytical thinking to override otherwise natural religious intuitions. If that were the case, then disrupting that analytic over-ride would clear the way for existential motivation to lead to increased religiosity, even among atheists. Thus, the current research hypothesizes that atheist participants primed with mortality salience will continue to maintain explicit atheism, unless they were incapable of using their analytic regulatory resources such as when they are inhibited by time, such as in a speeded trial – in which case the awareness of death should increase their reported religiosity. A 1 (non-religious) x2 (mortality salience [MS] vs. pain salience) x2 (no un-speeded trial vs. speeded trial) experiment was designed to test these

ideas, results will be reported here, and practical and theoretical implications will be discussed.

121 THEMES RELATED TO STUDENT PERCEPTION OF ALCOHOL USE IN COLLEGE

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The misuse of alcohol on college campuses has become a topic of concern across the United States. According to the National Institute of Alcohol Abuse and Alcoholism (NIAAA) the National Survey on Drug Use and Health (NSDUH, 2015) suggests that nearly 60 percent of college students ages 18-22 have consumed alcohol in the past month, and roughly two out of three are binge drinking during the same timeframe. It is also reported that roughly 25 percent of college students report academic consequences and difficulties due to their drinking behaviors. The NIAAA estimates that nearly 20 percent of college students meet DSM-5 criteria for Alcohol Use Disorder (AUD). Given the nature of this data, the purpose of the current study is to determine the perceptions that current Cleveland State students have on the expectations of drinking alcohol in college. Five focus groups were targeted and systematically interviewed and recorded in order to obtain a diverse representation of student perceptions and expectations regarding the use of alcohol in college. After review of the interviews, a series of themes were found throughout the various focus groups which are to be collaboratively organized and compared with previous research to develop measures for further study. The following poster will present the themes that were found following the review of the focus group interviews as well as introduce future implications and uses of the data.

122 THE EFFECTS OF MORTALITY SALIENCE AND ANALYTICAL THINKING ON CLOSED- VS. OPEN-MINDEDNESS OF RELIGIOUS BELIEFS

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Some form of religious belief is professed by a vast majority of people in the US and around the world, although the numbers of non-religious people are growing (Pew Research Center, 2012, 2015). This landscape of religious and non-religious belief invites questions about the cognitive orientations that help to maintain religious belief, or the lack thereof, in light of the functions such belief may serve. The present work expands on the idea that a core psychological function of religion is to address the human awareness of death (Landau, Greenberg, & Solomon, 2004; Soenke, Landau, & Greenberg, 2015) to investigate whether religious and non-religious individuals engage different cognitive styles and strategies when confronted with the awareness of mortality. As we elaborate below, the present research specifically investigated how the awareness of mortality influences religious belief, analytic thinking, and closed- vs. open-mindedness among the religious and non-religious.

123 THE ROLE OF RELEVANCY AND INTENSITY IN THE RECOVERY FROM NEGATIVE AFFECT

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While research in the psychology of aging suggests that older adults are adept at managing negative affect, emotion regulation efficacy may depend on the discrete emotion elicited. For instance, prior research suggests older adults are more effective at dealing with emotional states that are more age-relevant and lower in intensity (i.e., sadness) relative to less relevant or more intense (i.e., anger). The goal of the present study was to probe this discrete emotion perspective further by addressing the relevance/intensity distinction within a broader set of negative affective states. A sample of older and younger adults will complete an emotion elicitation and recovery task in response to negatively valanced film clips. The film viewing task will include presenting fear, disgust, anger, and sadness eliciting clips. Subsequent to each film, participants will engage in an emotional recovery task. Participants will provide self-report ratings of their affect after each film clip and after each recovery period. Heart rate variability will also be assessed via an electrocardiogram to provide a more objective indicator of emotional reactivity and recovery. Based on prior literature, older adults are expected to demonstrate more effective emotional recovery from the sadness relative to the anger elicitor, while younger adults will be more effective at recovering from the anger elicitor relative to younger adults. In terms of the disgust and fear conditions, there are two age-related possibilities. If fear and disgust maintain their affective relevance into old age, self-report and physiological indices should match what is predicted for the sadness elicitors. Alternatively, if fear and disgust produce more intense negative reactions, as is predicted for anger, older adults would likely demonstrate diminished self-reported and physiological recovery relative to younger adults. Results from this study will hopefully provide further insights into the nuances of emotion regulation competency and well-being profiles across adulthood.

124 HOW DO NEGATIVE STEREOTYPES IMPACT THE MENTAL HEALTH OF ARAB AMERICAN HIGH SCHOOL STUDENTS

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The purpose of this study is to investigate if negative stereotypes of Arab-American high school students generate a pathway to sadness, insecurity, and stress for those individuals. Negative stereotypes are viewed as a fixed image surrounding a group of people in society, assuming that they will act in a distinct way (COBUILD Advanced English Dictionary, HarperCollins Publishers, 2018). Stereotypes of those with Arab heritage has been linked to negative mental health outcomes. The current Syrian refugee crises coupled with the depiction of Arabs in American media have increased the dialogue around Arab heritage individuals, some of which perpetuates and reinforced negative stereotypes of Arabs. The plan for this study is to conduct a focus group at Cleveland State University with 12 Arab-American high school students ages 15 to 18 years old. Focus group questions will focus on understanding experiences associated with stereotypes and the impact on functioning for these youth. I anticipate recording many different experiences from these students but look to compare the similarity in outcomes regarding their emotions associated with sadness, insecurity, and stress. I feel as if my findings will be that those negative emotions create a significant chance of impacting their mental health. The significance of this study will create awareness for the Arab community in society, and to express the importance of being culturally competent to one another.

125 IMPAIRED ATTENTIONAL DISENGAGEMENT IN SOCIAL ANXIETY

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Biased information processing could be key to disease manifestation and maintenance in social anxiety disorder (SAD). Specifically, visual attention biases in response to anxiety-relevant information (particularly problems disengaging attention) may be at the center of disorder-specific symptomology. Given existing research establishing dysfunctional attentional control in relation to ruminative processing in Major Depressive Disorder (MDD), as well as the high comorbidity between MDD and SAD, similar disorder-specific attentional and regulatory mechanisms could help explain the etiology and maintenance of SAD symptomology. The current study examines potential differences in attention biases among individuals reporting low versus high social anxiety symptoms using an eye-tracking paradigm that isolates attentional disengagement patterns in response to social anxiety and depression-relevant stimuli: sad-neutral (depressive), disgust-neutral (social anxiety), and happy-neutral face pairs. Participants also experience a social stressor (TRIER Stressor test; TSST) to assess how attentional biases and ruminative tendencies (via post-event processing: PEP) impact anxiety-relevant stress reactivity and recovery. Preliminary analyses reveal a trend effect suggesting individuals reporting higher levels of social anxiety symptomology are reporting higher levels of nervousness/stress throughout the study protocol, particularly after the TSST recover period. More importantly, an additional trend effect indicates poor attentional flexibility may be related to enhanced PEP during the post-TSST recovery period among individuals reporting high social anxiety symptoms. We discuss these results in terms of a more comprehensive cognitive model of SAD.

126 THE EFFECTS OF TRAUMATIC SYMPTOMOLOGY AND WORLDVIEW-THREAT ON THE EFFECTIVE MANAGEMENT OF DEATH-THOUGHT ACCESSIBILITY

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From a terror management theory standpoint, healthy human functioning involves the effective management of the awareness of mortality by perceiving oneself as an object of value within an ordered and seemingly permanent cultural world. From this perspective, if cultural worldviews and self-esteem do indeed help people cope with the awareness of mortality, then threatening their extant worldview will disrupt these buffers and cause people's death awareness to rise. However, there may be variation in whether individuals' worldviews serve as effective buffers. According to anxiety buffer disruption theory, traumatic experiences may threaten one's assumptions and beliefs about the world, disrupting one's death-denying anxiety buffers—including cultural beliefs and values. Prior research shows that among non-traumatized individuals, worldview threat leads to increased death thought accessibility. The present study introduces a new facet by investigating whether this process also occurs among those with high levels of traumatic stress symptoms. This research hypothesized that worldview-threat would lead to increased death-thought among people with low levels of post-traumatic stress symptoms, but that people with high levels of post-traumatic stress symptoms would be unaffected because their worldview-based buffers had been disrupted. Participants with high and low trauma were randomly assigned to either a worldview-threat or worldview-support prime condition, in the form of immigrant criticism or support for the United States. Death thought accessibility was then measured using a standard word completion task. The hypothesis that worldview-threat would lead to increased death-thought accessibility among people with low, but not high, levels of post-traumatic stress symptoms was supported by the data, suggesting that the high trauma group's worldview anxiety buffer had been disrupted.

127 PROVIDING GUIDANCE TO PATIENTS AND FAMILIES IN AN ACUTE CARE SETTING

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In many cases, when patients and their families in an acute care setting are given a diagnosis, they do not have a clear understanding of what this means. Providing them with information regarding their diagnosis, the care they require, and what resources are available to them can create a more positive experience for both patients and their families. The speech language pathologist should define the diagnosis and provide a basic understanding of how communication and/or swallowing is impacted. In addition, the speech language pathologist can educate patients and their families on the therapy process and the professionals that will be working with them in an acute care setting. Research demonstrates that when speech language pathologists provide this information, patients experience more success in the therapy process. The focus of this research concentrates on these attributes for aphasia, dysphagia, and dementia.

128 CLONING AND CHARACTERIZATION OF TRYPANOSOMA BRUCEI TELOMERASE RNA MUTANTS

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Telomeres are nucleoprotein complexes located at the end of linear chromosomes. They are essential for chromosome stability and genome integrity. Eukaryotes experience telomere shortening due to the end replication problem. Telomerase, a ribonucleoprotein, solves this problem by adding telomeric repeats to the 3' end of the leading strand and is therefore essential for telomere maintenance. Unlike conventional DNA polymerases, telomerase consists of a protein component, TERT, which is a reverse transcriptase and an RNA component, TR, which provides a short template sequence for telomere synthesis. The interaction between TERT and TR is essential for telomerase activity. Trypanosoma brucei is an early branching eukaryotic parasite that is the causative agent of human African trypanosomiasis. The parasite employs antigenic variation to regularly switch its major surface antigen, VSG, thereby evading the host immune response. Characterization of telomerase may provide insights into T. brucei pathogenesis, as short telomeres have been shown to cause an increase in double-stranded DNA breaks at subtelomeres, which in turn increases the frequency of VSG switching. Both components of telomerase have been identified in T. brucei. We have shown that T. brucei TR (TbTR) is trans-spliced and polyadenylated. The secondary structure of TbTR is largely conserved among eukaryotes and consists of a single-stranded template, a pseudoknot, a template boundary element (TBE), and other stem loops, some of which are involved in TERT interaction. Here we have generated various constructs containing deletions of different regions of TbTR in order to determine the key regions for TbTERT-interacting.

129 A SYSTEMATIC LITERATURE REVIEW: EXPLORING COLLEGE TRANSITION PROGRAMS AND THE ROLE OF OT

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This systematic review examined post-secondary transition programs that were designed to address psychosocial challenges and promote positive mental health and well-being for first-year university students. The review was designed using the PRISMA guidelines for conducting systematic reviews. The purpose of this review was to find interventions to support mental health. Articles reviewed were not related to OT but could potentially fall within the scope of OT practice. Inclusion criteria included involvement with transitioning university students, having quantitative and/or mixed methods data, inclusion of an intervention within the study, and inclusion of outcome measures related to mental health (anxiety, depression, coping skills). Upon completion of the review, findings will be reported according to methodology and strength of effectiveness for outcomes related to mental health. We expect to find evidence to support effective methods by which OT can aid in the post-secondary transition process.

130 HOW THE PLACEBO EFFECT AND FRAMING EFFECT RELATE TO HEALTH CARE ETHICS

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Cleveland State University, Choose Ohio First
Cleveland State University, Department of Psychology

The fundamentals of the placebo effect are widely known, as many research studies have been conducted on them, but studies that explore how the placebo effect intersects with the framing effect are conducted far less often. This poster outlines an experimental procedure and explains how it can demonstrate whether there is a connection between the individually understood concepts of the placebo and framing effects. In addition, it continues to question whether or not these psychological principles are prevalent in healthcare, and how the effects could be a healthcare ethics dilemma. The future procedure will involve the use of a non-invasive placebo and will be interested in determining whether it can affect how well an individual can balance. Individuals who participate in the study will be prompted with introductions of varying levels of bias when explaining the placebo and its effects. The experiment will additionally be conducted in settings of varying

formalities. The expected results of the experiment that is outlined should fulfill the inference of what the interaction between the placebo effect and the framing effect will look like.

131 URSOLIC ACID SENSITZES RHTRAIL-RESISTANT TRIPLE NEGATIVE BREAST CANCER BT-20 CELLS TO RHTRAIL-INDUCED APOPTOSIS

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Recombinant human tumor necrosis factor-related apoptosis-inducing ligand (rhTRAIL) possesses the ability to induce apoptosis in cancer cells independent of their p53 status while exhibiting minimal toxicity to normal, non-transformed cells, and thus, it is a promising anti-cancer therapeutic. However, rhTRAIL-induced apoptosis is not as effective in a majority of breast cancers due to the up-regulation of anti-apoptotic proteins, down-regulation of pro-apoptotic proteins, and/or down-regulation of death receptors (DRs) 4 and 5. A combinatorial approach of rhTRAIL with the "mother nature"-derived compound ursolic acid (UA) has been applied to sensitize rhTRAIL-resistant triple negative breast carcinoma. UA is derived from the leaves and berries of various plants and found in the coatings of fruits and does not exhibit toxicity to normal, non-transformed cells. UA has been revealed to possess the ability to up-regulate DR5 and diminish the expression of anti-apoptotic proteins survivin and FLIP in cancer cells and thereby, making UA an encouraging choice to be utilized as a sensitizing agent. The aim of this study was to determine the capacity of UA to sensitize rhTRAIL-resistant triple negative breast cancer (TNBC) BT-20 cells to rhTRAIL-induced apoptosis and elucidate the underlying mechanisms for UA's sensitization. The combinatorial treatment of UA and rhTRAIL augmented the induction of apoptosis when compared to single agent UA and rhTRAIL treatments as detected by Annexin V/PI assays and through the execution of the extrinsic pathway as marked by the activation of caspase 8, activation of the executioner caspases 3 and 7, and eventual PARP cleavage (a hallmark of apoptosis). The underlying mechanisms for UA's sensitization of rhTRAIL-resistant TNBCs were established to be through the down-regulation of the anti-apoptotic protein FLIP and through the up-regulation of DR4 and DR5. Overall, these findings reveal that UA is an efficacious sensitizing agent for rhTRAIL-resistant TNBCs.

132 ATTRIBUTION STYLE AS A MODERATOR IN THE RELATIONSHIP BETWEEN POSTTRAUMATIC STRESS AND RELATIONSHIP SATISFACTION

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Research has shown a negative relationship between posttraumatic stress disorder (PTSD) and relationship satisfaction among veterans of the armed forces (Erbes, Meis, Polusny, & Wadsworth, 2012). Attributional styles (internal vs. external, global vs. specific, and stable vs. unstable) have been associated with both posttraumatic stress (Gonzalo, Kleim, Donaldson, Moorey, & Ehlers, 2012) and with relationship satisfaction (Sümer & Cozzarelli, 2004). The purpose of this study is to further the understanding of the relationship between posttraumatic stress symptoms and relationship satisfaction by exploring attribution styles as a moderator of the relationship. Participants are college students and student veterans of the armed forces who are between the ages of 18 and 30 and are in a romantic relationship of at least four months. Participants completed self-reports on PTSD, attributional style, relationship satisfaction, and depression. Preliminary results will be presented. We expect to see a stronger negative relationship between PTSD symptoms and relationship satisfaction in participants with negative attributional styles (internal, global, and stable) than in participants with positive attributional styles (external, specific, and unstable). The results of this study may facilitate a better understanding of the relationship between PTSD symptoms and relationship satisfaction, and the reintegration of veterans back into their relationship roles.

133 PROPOSAL OF MANUAL FOR TRANSGENDER VOICE AND PRAGMATIC THERAPY TO BE USED BY CLEVELAND STATE UNIVERSITY'S SPEECH AND HEARING CLINIC

Amanda L Rigutto, B.A.; Violet Cox, Ph.D.
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Transgender and Gender Nonconforming individuals have limited access to health care, specifically for those seeking voice and pragmatic language therapy by a licensed Speech-Language Pathologist (SLP). Voice and pragmatic language is the foundation for verbal communication; one's voice instantly orients the listener to the speaker's gender, while body language and nonverbal communication supplement language. Voice therapy and pragmatic language therapy, particularly for the trans individual, is well under the scope of practice for an SLP, however SLPs do not have the knowledge or training of gender, gender identity, trans-related voice therapy, or gendered pragmatic language. Background knowledge on these topics is essential when addressing the needs of those individuals who are seeking to augment their voice and nonverbal communication to better suit their gender identities. This proposed manual for Cleveland State University's Speech and Hearing Clinic gives insight to incorporating gender-related topics in practicum and voice courses while providing therapeutic tools including interview questions, voice assessments and techniques to use when working with trans patients.

134 MUTUALLY EXCLUSIVE AMINO ACID RESIDUES OF L13a REGULATE ITS ROLE IN RIBOSOMAL INCORPORATION AND TRANSCRIPT SPECIFIC TRANSLATIONAL SILENCING

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Ribosomal protein L13a is essential for transcript-specific translational silencing of mRNAs encoding several inflammatory proteins e.g. chemokines and chemokine receptors. Series of studies from our laboratory showed that phosphorylation-dependent release of L13a from 60S ribosomal subunit and its assembly into the IFN-gamma-activated inhibitor of translation (GAIT) complex, which binds to the GAIT element located in the 3' untranslated region (UTR) of target mRNAs, is essential for translational silencing. However, the amino acid residue(s) of L13a essential for translation silencing of GAIT element bearing target mRNAs and the residue(s) important for ribosomal incorporation are still not known. Previous studies in our laboratory showed that arginine at position 68 is essential for the ribosomal incorporation of L13a. Structural homology modeling using crystal structure of prokaryotic L13 as a model showed that eukaryotic L13a possesses an extra helix of 55 amino acids at the C-terminal end. Interestingly, we observed that deletion of this helix impairs the ability of L13a to incorporate into the ribosomes and play its extra-ribosomal function i.e. translational silencing of inflammatory genes. We have identified the amino acids within this helix at position 159(K) and 161(K) that are required for nucleolar import of L13a and incorporation into the ribosome. Also, the amino acids at position 185(V), 189(I) and 196(L) of L13a are involved in an interaction with RPL14 and mutating these residues abrogates the nucleolar import and ribosomal incorporation of L13a. In addition, amino acids at positions 169(R), 170(K) and 171(K) are required for translational silencing activity of L13a. Altering these amino acids fails to silence the translation of GAIT element-bearing mRNA transcripts in an in vitro translational silencing assay. However, these change do not block ribosomal incorporation. Thus showing the presence of mutually exclusive ribosome incorporation and translational silencing domain. Together, these studies provide a comprehensive analysis of the critical amino acid residues essential for ribosome incorporation and translational silencing activity of L13a, a physiological attenuator of inflammation.

135 THE RELATIONSHIP BETWEEN DIGITAL SCREEN TIME USE AND SPEECH-LANGUAGE DEVELOPMENTAL MILESTONES IN 0-6 YEAR OLD CHILDREN

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It is common to see children of all ages using technology whether it be their parent's cell phone at a restaurant, playing on their tablet, or sitting in front of a TV. Recent research reveals that screen time (i.e. cell phone, TV, iPad/tablet) is related to speech and language delays in children. This research has brought awareness to monitoring how much and what kind of material children access. Traditional toys like blocks, cars, puzzles, and books support growing speech and language skills. By researching age appropriate apps, technology can aid in speech and language development too. Children learn language by watching and hearing models. Whether your child is playing with traditional toys or using technology, join in on their play. Interactions build expressive language and social communication skills. This research is pertinent to bring awareness to this phenomenon and help to provide greater speech and language development at a young age. Parents want what is best for their children and bringing awareness can help to model healthy habits for their children.

136 INVESTIGATION OF IRES-MEDIATED TRANSLATION OF PUMA mRNA, INITIATION FACTOR REQUIREMENTS AND SEARCH FOR IRES-TRANS ACTING FACTORS (ITAFs)

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Canonical translation initiation in majority of the cellular mRNAs occurs by a cap-dependent/scanning mechanism, whereby the 43S preinitiation complex binds to the mRNA 5' terminal cap structure and scans the 5'UTR of mRNA in search of the initiation codon. Internal Ribosome Entry Sites (IRESs) are cis-acting elements, located in the 5'UTRs of some viral and cellular mRNAs that facilitate direct recruitment of the 40S ribosomal subunits near the AUG codon. IRES-mediated translation initiation may proceed without the help of many canonical initiation factors but may require additional IRES-trans-acting factors (ITAFs).
The proapoptotic Bcl-2 family member PUMA has been previously shown to contain an IRES element that is active under conditions of eIF2-α phosphorylation and hypophosphorylation of eIF4E-BP that inhibits cap-dependent translation.
We further investigated the mechanism for PUMA mRNA recruitment to the ribosome and found that unlike class III or IV viral IRESs, PUMA IRES is not able to bind 40S ribosomal subunits directly. We also analyzed PUMA IRES initiation factor requirements and found that PUMA IRES requires intact eIF4G and eIF4A for its activity, which is reminiscent of the hepatitis E virus (HEV) IRES requirements. RNA affinity pull down assays using biotin-labeled PUMA IRES and cellular

extracts from 23A2 myoblast cells cultured in differentiating media (DM) for 3 hours (condition leading to PUMA IRES activation) and mass spectrometric analysis identified Hsp70 as one of the proteins that binds PUMA IRES with high affinity. Gel shift assays confirmed that the binding is specific. Further in vitro studies reveal that IRES-mediated translation of PUMA mRNA is enhanced in the presence of Hsp70 protein and depletion of Hsp70 protein from the lysate resulted in reduced PUMA mRNA translation.

137 COMMUNICATIVE COLLABORATION: APPLIED BEHAVIOR ANALYSIS AND SPEECH-LANGUAGE PATHOLOGY

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The purpose of this research was to identify the advantages of implementing Applied Behavior Analysis (ABA) into speech therapy, what collaboration between speech-language pathologist's (SLPs) and board certified behavior analysts (BCBAs) looks like, and the perceptions of ABA therapy within the realm of speech and language. The first phase of the project defined ABA and speech pathology and their roles and importance within the autism community. A collection of presentations, blog entries, journal articles, and information gathered from national organizations was used to present the factors that influence the thoughts and opinions of those who practice ABA and those who practice speech pathology. Similarities and differences between the fields was compared and contrasted to draw conclusions. Further discussion details the benefits and possible limitations of and for expansion of collaborative communication between ABA and speech pathology. Conclusively, communicative collaboration between ABA and speech pathology is left to the discretion and interpretation of the reader.

138 LESSER CELANDINE AND ITS ENDOPHYTIC FUNGAL RELATIONSHIPS

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Lesser celandine (Ranunculus ficaria) is an invasive spring ephemeral in Northeast Ohio. The mechanisms behind its variable success are unknown, and one possible mechanism is the presence of beneficial fungal-root associations. This study focuses on determining the community composition and possible influences of endophytic root fungi colonization on the variable success of lesser celandine. We hypothesized that plant performance will be correlated to community composition of endophytic root fungi. Sites (n = 64) were chosen in Rocky River Metroparks, Ohio, along a 35-meter disturbance gradient from the river. Terminal restriction fragment length polymorphism and cloning were used in conjunction to determine the differences in the community composition of the colonized endophytic fungi. Fungal colonization was then compared to plant biomass and reproductive output to determine differences in plant success across test sites. We determined that lesser celandine that was colonized by fungal communities consisting of parasitic fungal endophytes, ericoid mycorrhizae, and dark septate endophytes had a higher biomass (0.63 g) than plants that were colonized by fungal communities consisting of other groups of general root endophytes (0.29 g) (t-test, df = 60.9, $P < 0.0001$). However, fungal colonization was not associated with higher reproductive output of lesser celandine (t-test, df = 61.8, $P > 0.05$). Further analyses could be conducted to determine if fungal communities present in the soil promote the growth of lesser celandine and inhibit the growth of native spring ephemerals.

139 FOOD WASTE POLICY: EXPLORING SUSTAINABLE REFORM IN CLEVELAND-CUYAHOGA COUNTY

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Food waste is defined as discarding or misusing food that is otherwise safe for human consumption. Food waste has environmental, economic, health, and social impacts. Ohio in particular suffers from the detriments of food waste, ranking 6th nationwide in household food insecurity. Businesses, organizations and consumers in urban areas waste food in part because of regulations that define standards for consumable and donated food, and a general lack of awareness of the drawbacks of food waste. Food waste policies advocated for by associations such as the Cleveland-Cuyahoga County Food Policy Coalition (CCCFPC) have the ability to divert food from landfills and instead be donated, composted, or eaten by the original purchaser. This research explores the development of food disposal practices and policies, both nationally and in Cleveland-Cuyahoga County, in order to propose potential policies that will serve as effective measures to achieve sustainable food waste reform. A systematic review of literature, analysis of notes from CCCFPC community convenings, and quantitative and qualitative evaluation of a CCCFPC survey were used to determine which food waste policies would be most desired by the community and found to be effective in other regions. Policies backing composting initiatives at schools, farmer's markets, and businesses were indicated to be approaches most effective in reducing food waste and had the most support from consumers, business owners, and governing officials. Date labeling standardization and incentives for reducing food waste have also been identified as potentially effective policies. After examining which policies will mitigate adverse environmental, economic, health, and social factors caused by food waste, they must be implemented and measured to determine their success and sustainability. In reviewing these data, this research seeks to help shape the future of food waste policy in Cuyahoga County.

140 MOLECULAR DISTINCTIONS REGULATING THE TEMPORAL EXPRESSION OF MYOD RESPONSIVE GENES

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Skeletal muscle cell death and differentiation are two mutually exclusive biological endpoints that play a role in normal development, as well as diseases such as Muscular Dystrophy and cancer. Both cell death and differentiation can be induced by culture in differentiation media (DM) and are regulated by the muscle specific transcription factor, MyoD. In an asynchronous culture of myoblasts, 30% of cells are in S-phase at any given time. Correlatively, when induced to differentiate, an asynchronous population of cells will show a maximum of 30% apoptosis. With the overall goal of illuminating the molecular distinctions regulating the temporal expression of MyoD responsive genes, namely PUMA, which controls the apoptotic process, and myosin heavy chain, a marker for differentiation, we are examining the role of the cell cycle in determining myoblast fates. Thus far, we have established that non-cycling skeletal myoblasts do not induce PUMA upon culture in DM, yet maintain the ability to express myosin heavy chain. Furthermore, we have shown that cells in G1 do not release cytochrome C from the mitochondria, a harbinger of apoptosis, when cultured in DM, while cells in S-phase show a significant increase in cytochrome C release when cultured in DM. The data indicate that within a narrow time-period between late G1 and early S-phase (possibly just past the G1/S restriction point), skeletal myoblasts are more likely to have released cytochrome C from their mitochondria, indicating that only cells in a specific phase of the cell cycle will choose to undergo apoptosis when cultured in DM. During the G1/S transition, MyoD is phosphorylated at serine 200 by cyclin E. Future experiments will test the ability of MyoDPser200 to mediate the intrinsic apoptosis pathway via upregulation of PUMA expression.

141 DEGREE OF TARGET UTILIZATION INFLUENCES THE LOCATION OF MOVEMENT ENDPOINT DISTRIBUTIONS: A REPLICATION AND EXTENSION OF SLIFKIN AND EDER (2017)

Luke Sim, B.A.; Brian Trinckes, B.A.; Yingge Li, B.A.; Joseph Conti, B.A.; Andrew Slifkin, Ph.D.
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According to theories of motor control, speed and accuracy are optimized when 1) the amount of movement endpoint variability matches the variability permitted by the target and 2) the endpoint distribution center is located at the target center. Slifkin and Eder (2017) tested those predictions when participants made targeted hand movements to each of five target widths (5-80 mm) within each of three movement amplitudes (80-320 mm). According to the results, it was only at very small target widths that the variability produced matched the variability permitted and endpoint distribution centers were located at the target center; as width increased, endpoint variability increasingly underestimated the variability permitted and distribution centers increasingly fell below (undershot) target centers. Further, increases in the difference between the size of the target and the amount of endpoint variability—i.e., the amount of unused target space—strongly predicted the degree of target center undershooting. Those results suggest that participants have precise knowledge of their variability relative to the variability permitted, and such knowledge is used to minimize travel distance to the targets. The current study was an attempt to replicate the main findings of Slifkin and Eder (2017). However, here, we used 16 levels of target width across a 5-80 mm span: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80 mm. As there was only a 5-mm difference between each adjacent target width level, the current study allowed a more fine-grained assessment of the Slifkin and Eder (2017) predictions and results. The results of our analyses will be presented and discussed.

142 PERSONALITY, PERCEIVED EMPLOYABILITY, FINANCIAL WELL-BEING, AND JOB APPLICANTS' REACTIONS TO COMPANY'S SOCIAL MEDIA POLICY

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This research investigates how job applicants' personalities, perceived employability, length of job search and financial well-being impact their reactions toward the hiring company's social media policy. As social media has become a staple in our daily life, employers have been using applicants' social media information to assess the fit between the applicants and the company. This practice has become more prevalent in selection decisions, where the social media content of the applicants may potentially be used against them in the hiring decisions. Different people react to such practices differently. There are variations of the social media policies in the hiring companies. Some companies have strict policies that prohibit anyone involved in the hiring decisions to access applicants' social media content, some companies require applicants to provide usernames and passwords of their social media accounts, and others fall between these two extremes. We hypothesize that job applicants who are high on agreeableness and low in openness are less likely to reject a hiring company's unreasonable social media policy. We also hypothesize that job applicants who have been searching for a job for an extended amount of time will be more likely to accept a company's social media policy even if it is unreasonable. Also, job applicants who are highly qualified will have increased perceived employability, resulting in them rejecting a company's unreasonable social media policy. Highly employable individuals and individuals in good financial standings are more likely to reject unreasonable social media policies. Such applicants will view the access to social media content beyond its original intended purposes as an

invasion of privacy. They will be less likely to apply to open positions, accept interview invitations or job offers in such companies. We also predict that job applicants with high social media usage rates will be more likely to reject a company's social media policy if it is unreasonable.

143 LIGHT SCATTERING CHARACTERIZATION OF ANISOTROPIC PARTICLES

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Depolarized Dynamic Light Scattering (DDLS) enables to measure rotational and translational diffusion of nanoparticles suspended in solution. The particle size, shape, dDanieliffusion, and interactions can then be inferred from the DDLS data using various models of diffusion. Incorporating the technique of DDLS to analyze the dimensions of easily imaged elongated particles, such as Iron (III) oxyhydroxide (FeOOH) Spindles and gold Nanorods, allows testing of the models for rotational and translational diffusion of elongated particles in solution. This, in turn, can help to better interpret DDLS data on hard-to-image anisotropic wet systems such as micelles, microgels, and protein complexes. This study focused on FeOOH Spindles and gold nanorod particles. The light scattering results of spindles using the basic model of non-interacting prolate ellipsoids yielded results within 17% of the SEM measured dimensions. The dimensions of gold nanorod obtained from the straight cylinder model of DDLS data provided results that varied depending on the solvent used and the aspect ratio.

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