

in our approach. This symposium will bring together academic and industry leaders from the National Science Foundation's Centers for Health Organization Transformation (CHOT) to share with our membership an industry-academic partnership model that has benefited industry-focused research across more than 50 disciplines. As the ESPO representatives for the SRPP division, we believe that our membership would benefit from a symposium of this nature. This symposium would also reflect this year's conference is "Harnessing the Power of Networks." The SRPP section has the strongest commitment to practice and research on practice such as ways to improve the delivery of services to an increasingly diverse older population. A model of industry partnership holds tremendous value for all those involved; however, it is incredibly valuable for junior researchers who are just beginning their careers. The CHOT model provides opportunities and funding for researchers to develop collaborative relationships; engage in research; access new sources of data; disseminate findings directly to a broader audience, and have the ability to address some of health care's wicked problems.

CHOT LEADERSHIP

Thomas Ferris¹, *1. Texas A&M University, Texas A&M, Texas, United States*

The first speaker is Dr. Thomas Ferris the Center Director of the NSF Center for Health Organization Transformation (CHOT). Dr. Ferris will provide a high-level overview of CHOT and provide the audience with a greater understanding of its history, funding, partners, and accomplishments. In this section, the mission, annual research model, and the I/UCRC planning integration framework will be reviewed and discussed. The NSF CHOT is the only Industry-University Cooperative Research Center (I/UCRC) focused on innovations in healthcare delivery in the nation. CHOT researchers work alongside the Industry Advisory Board (IAB) to conduct research that supports the implementation of evidence-based transformational strategies within the healthcare sector. During this symposium, Dr. Ferris will discuss some of the challenges and opportunities that can arise from these partnerships. More importantly, in this section will speak to how value is created through these collaborative efforts and how ultimately this can improve health outcomes.

CHOT ACADEMIC PARTNER

Robert Weech-Maldonado¹, *1. University of Alabama at Birmingham, Birmingham, Alabama, United States*

The second speaker will be Dr. Robert Weech-Maldonado, an academic representative and CHOT Site Director at the University of Alabama at Birmingham. Dr. Weech-Maldonado will share what got UAB involved in CHOT; the process to get involved; what it means to be a CHOT partner, and the pros/cons of this program from the academic side. During this symposium, we will explore why this model needs to be expanded to the field of gerontology and the impact it can have on the aging population. Relating to the academic experience, Dr. Maldonado will speak to how CHOT can result in financial support to the academic institution; provide access to unique data sets / populations; outcomes, such as, publications, and how this program can further academics careers. We will also explore some of the struggles related to working with an industry partner as it relates to deliverables and expectations.

GSA 2019 Annual Scientific Meeting

CHOT STUDENT REPRESENTATIVE

Neeraj Puro¹, *1. University of Alabama at Birmingham, UAB, Alabama, United States*

As the Senior Student Representative for the Social Research, Policy, and Practice Section for GSA one of the goals is to organize a symposium that would be beneficial for students and junior researchers. In this section, we will have a student who was involved in CHOT to speak about his experience. Neeraj Puro is a doctoral candidate who has been involved in several CHOT projects during his academic career. The CHOT has helped fund his doctoral work and allowed him to travel and present at more conferences. The projects that he was involved in helped him with early publications and assisted when he was out in the career market. He will speak about his experience; what he learned, and his opinion about the process. He will reflect on this program from a student/junior researcher's perspective and how it has influenced his doctoral journey and the beginning of his career.

CHOT INDUSTRY PARTNER

Kenneth Cochran¹, *1. University of Alabama at Birmingham, UAB, Alabama, United States*

The third speaker will be the industry partner representative, Kenneth Cochran, President and CEO of Opelousas General Health System. Here we will hear from industry partners about what drew them to this program of inter-collaboration; the benefits they have received, and what was required of them to participate. This will be helpful as it will provide an opportunity to have a first-hand account about the value that practitioners find in this program as it relates to testing interventions, developing new systems, and improving financial performance and/or quality. Kenneth will speak to a particular project at Opelousas and describe entire process. Kenneth will highlight the challenges and opportunities that come from partnering with an academic institution. Also, how CHOT brings together industry partners who are facing the same challenges and how they learn and adopt best practices from each other. This should further illustrate the value that academic/industry collaboration can bring.

SESSION 2190 (SYMPOSIUM)

CORRECTING GLUTATHIONE DEFICIENCY IN AGING: IMPACT ON MITOCHONDRIA, STRENGTH, INFLAMMATION AND METABOLIC DEFECTS

Chair: Rajagopal Sekhar, *Baylor College of Medicine, Houston, Texas, United States*

Co-Chair: George E. Taffet, *Baylor College of Medicine, Houston, Texas, United States*

Discussant: Roger Fielding, *Tufts University, Boston, Massachusetts, United States*

Aging is associated with deficiency of Glutathione, the most abundant, intracellular, antioxidant protein, but underlying mechanisms are unknown and interventions limited. This symposium is primarily focused on the results of placebo-controlled, double-blind randomized clinical-trial (RCT) on the impact of correcting Glutathione deficiency in older humans on mitochondrial impairment, oxidative stress, strength, inflammation, and insulin resistance. Dr. Jahoor's presentation will serve as an introduction by

discussing mechanisms underlying Glutathione deficiency and validation of a novel nutritional intervention based on supplementing glycine and N-acetylcysteine (GlyNAC) to correct Glutathione deficiency in older-humans. Dr. Sekhar will present the results of a pilot 16-week randomized, placebo-controlled, double-blind clinical trial in older humans investigating the effect of supplementing GlyNAC (vs. placebo) to improve Glutathione levels and oxidative-stress in 24 older-humans and 12 young-humans on impaired mitochondrial fuel-oxidation (MFO) and other defects. The trial met its primary objective that that GlyNAC supplementation (and not placebo) significantly improved Glutathione deficiency and corrected impaired MFO (and defects in its molecular regulation), and also significantly improved gait-speed (increased 19% increase to match young-humans), muscle-strength, exercise-capacity, and lowered oxidative-stress (80%) inflammation (IL-6 83%, TNF-alpha 58%), and insulin-resistance (68%). Dr. Taffet will discuss age-induced diastolic heart failure, and the effect of supplementing GlyNAC (vs. NAC alone) in aged 24-month old mice with diastolic heart-failure, impaired myocardial MFO and cardiac-inflammation. Collectively this symposium on Glutathione and Aging will highlight the discovery that supplementing GlyNAC to correct Glutathione deficiency in older-humans has significant health benefits, and could be a novel nutritional-intervention in aging.

GLUTATHIONE DEFICIENCY AND OXIDATIVE STRESS IN AGING: METABOLIC MECHANISM AND TARGETED INTERVENTION

Farook Jahoor,¹ George E. Taffet,¹ and Rajagopal V. Sekhar¹, 1. *Baylor College of Medicine, Houston, Texas, United States*

The free-radical theory of aging suggests that age-related functional decline is mediated by increases in free-radical induced oxidative-stress. Cells normally depend on antioxidants for protection against oxidative-stress. Glutathione is the most abundant endogenous intracellular antioxidant protein composed of 3 amino-acids, cysteine, glycine and glutamic-acid, and is known to be deficient in older-humans. We investigated Glutathione kinetics in older humans using a stable-isotope tracer-based approach, and found that compared to younger humans, older-humans had severe Glutathione deficiency as a result of decreased synthesis caused by limited availability of glycine and cysteine, and associated with elevated oxidative-stress. Orally supplementing glycine and cysteine (provided as N-acetylcysteine) at doses of 1.33mmol/kg/d and 0.81mmol/kg/d respectively for 2-weeks corrected their intracellular deficiency, normalized Glutathione synthesis rates and lowered oxidative-stress to levels in younger controls. These results suggest that short-term supplementation of GlyNAC at these doses can successfully correct intracellular Glutathione deficiency in older-humans.

CORRECTING GLUTATHIONE DEFICIENCY AND MITOCHONDRIAL DYSFUNCTION IN OLDER HUMANS: A RANDOMIZED CLINICAL TRIAL

Rajagopal V. Sekhar,¹ Premranjan Kumar,¹ Jean W. Hsu,¹ James Suliburk,¹ George E. Taffet,¹ Charles G. Minard,¹ Farook Jahoor,¹ and Chun Liu¹, 1. *Baylor College of Medicine, Houston, Texas, United States*

Aging is associated with impaired mitochondrial fatty-acid oxidation (MFO) due to unknown mechanisms, and interventions are lacking. We hypothesized that impaired MFO in aging occurs due to Glutathione-deficiency and tested this in a randomized, placebo-controlled double-blind clinical-trial in 24 older-humans (71.1y) and 12 young-controls (25.5y) using calorimetry, muscle-biopsy and tracer-protocols. Older-humans received either GlyNAC (Glycine 1.33mmol/kg/d and N-acetylcysteine 0.83mmol/kg/d as Glutathione precursors) or isonitrogenous-placebo for 16-weeks; young-controls received GlyNAC for 2-weeks. Compared to young-controls, older humans had significantly lower Glutathione, impaired MFO, lower gait-speed and physical-function, and higher oxidative-stress, inflammation and insulin-resistance. GlyNAC supplementation in older-humans significantly improved and restored MFO; increased gait-speed (19%), and physical-function; and decreased oxidative-stress (TBARS 80%), inflammation (IL-6 83%; TNF-alpha 58%), and insulin-resistance (HOMA-IR 68%), but young-controls were unaffected. These data provide proof-of-concept that GlyNAC supplementation could improve the health of older-humans by correcting Glutathione-deficiency and mitochondrial-defects to improve gait-speed, oxidative-stress, inflammation and insulin-resistance.

GLUTATHIONE, INFLAMMATION, MITOCHONDRIAL FAT OXIDATION AND DIASTOLIC HEART FUNCTION IN OLD MICE

George E. Taffet,¹ K A. Cieslik,¹ R V. Sekhar,¹ Celia A. Pena Heredia,² Dale J. Hamilton,² and Mark L. Entman¹, 1. *Baylor College of Medicine, Houston, Texas, United States*, 2. *Houston Methodist Hospital, Houston, Texas, United States*

Impaired diastolic function is a risk factor for diastolic heart failure, may limit exercise performance, and is common in aging in both people and animals. This diastolic dysfunction seems to be associated with cardiac inflammation, fibrosis and impaired mitochondrial fatty acid metabolism. Old (24-28 m) mice fed a GlyNAC supplemented diet for 8 weeks were compared to those on control diet, and had dramatic improvement in all these parameters. For example, ATP generation from fatty acids with five-fold higher in the GlyNAC supplemented mice. In vitro studies compared NAC with GlyNAC and demonstrated the benefits only with supplementing both amino acids as compared to NAC alone. These data suggest that GlyNAC may have a role in improving cardiac function thus improving exercise tolerance and quality of life for older people.

SESSION 2200 (SYMPOSIUM)

CREATIVITY IN LATER LIFE: PERSPECTIVES ON ITS FORMS AND MEANINGS

Chair: Carolyn E. Adams-Price, *Department of Psychology Mississippi State University, Starkville, Mississippi, United States*

Discussant: Danielle K. Nadorff, *Mississippi State University, Starkville, Mississippi, United States*

Over the past 15 years, gerontologists have become increasingly interested in identifying activities that increase