P1-638 THE ASSOCIATION OF PHYSICAL ACTIVITY WITH COGNITIVE IMPAIRMENT

Ziad Hindosh[1], Faissal Stipho[1], Coco Victoria Gomez Tirambulo[1], Caroline Sutherland Mills[1], Alexandra Sween[1], Todd Rabkin Golden[1], Jane Mohler[2], Nima Toosizadeh[2], *[1]Arizona Center on Aging, University of Arizona, Tucson, AZ, USA; [2]University of Arizona Center on Aging, Tucson, AZ, USA. Contact e-mail: zhindosh@gmail.com*

Background: Physical activity (PA) and cognitive performance are associated, especially among the elderly. Although the role of PA in cognitive impairments is unclear, recent studies suggest it facilitates neuroplasticity and cognitive function. We investigated the association of PA on cognitive health as measured by the validated, modified Minnesota Leisure-time Physical Activity Questionnaire and the Montreal Cognitive Assessment (MoCA) among older adults. **Methods:** We performed the MoCA and administered the Fried Frailty assessment in the NIH-funded Arizona Frailty Cohort of community-dwelling adults aged >65 years. The Minnesota Leisure-time Physical Activity Questionnaire was used to assess physical activity, using the guidelines for moderate-intense activities and beneficial exercise set by the Centers for Disease Control and Prevention (CDC). Moderate-intense activities including walking, moderately strenuous household chores, gardening, biking, exercise cycle, aerobic exercise, general exercise, and dancing were assessed. The total minutes of PA within a two-week duration was calculated for each participant, and the total minutes of PA > 300 minutes was used to identify beneficial physical activity, as defined by the CDC physical activity guidelines. A MoCa cut-off score <25 (range: 0-30) was used to identify participants with mild cognitive impairments. Using total minutes of PA as the independent variable and MoCA scores as the dependent variable, a linear regression (adjusted with age, gender, and BMI) was used to assess the association between PA and cognition. **Results:** Eighty-five older adults (mean age: 79.3+7.7, range: 65-95), 58% female were assessed, among which 43 (51%, mean age: 81.5+7.7) were cognitively impaired. Overall, cognitive score and physical activity were significantly associated ($p<0.035$, adjusted for age, gender, and BMI). This association differed between males ($p<0.003$) and females ($p>0.54$). **Conclusions:** Increased physical activity was associated with the absence of cognitive impairment. An understanding of this relationship between physical activity and cognition can help inform clinical screening practices, management, and interventions. Older adults with decreased physical activity are at an increased risk of having cognitive impairment, and should be routinely screened for cognitive impairment in primary care.

P1-639 BEHAVIORAL RANDOMIZED CONTROLLED TRIAL (RCT) USING INTERNET-BASED SOCIAL INTERACTIONS AS A TOOL TO ENHANCE COGNITIVE RESERVE

Hiroko H. Dodge[1,2,3,4,5], Benjamin M. Hampstead[4], Kathleen Potempa[6], Laura Struble[6], Jacob Lindsley[5], William D. Rooney[3], Meysam Asgari[3], Lisa C. Silbert[5], Jeffrey A. Kaye[5], Katherine Wild[5], Raina Croff[5], Elena Goodrich[3], *[1]Oregon Center for Aging & Technology (ORCATECH), Portland, OR, USA; [2]University of Michigan, Ann Arbor, MI, USA; [3]Oregon Health & Science University, Portland, OR, USA; [4]Michigan Alzheimer's Disease Center, Ann Arbor, MI, USA; [5]Layton Aging and Alzheimer's Disease Center, Portland, OR, USA; [6]School of Nursing, University of Michigan, Ann Arbor, MI, USA. Contact e-mail: dodgeh@ohsu.edu*

Background: Past epidemiological studies have demonstrated that larger social networks or more frequent social interactions may have protective effects against cognitive decline and the incidence of dementia. Therefore, increasing social interaction could be a promising intervention for improving the cognitive well-being of the socially isolated elderly. However, only a few intervention studies have attempted to increase social interaction in an older population, largely due to several challenges, including: (1) selection bias in RCT participants (difficult to identify and recruit the socially isolated); (2) standardizing social interactions and delivering the interactions in standardized ways; (3) selecting or constructing outcomes sensitive enough to capture the efficacy; and (4) showing ecologically valid translational effects in daily living (not limited to efficacy in practiced areas). **Methods:** Based on our previous pilot project and to address the above challenges, we developed a multi-center RCT to examine whether conversation-based cognitive stimulation has a positive effect on general and domain-specific cognitive functions among socially isolated older adults with either normal cognition or MCI. **Results:** Operationally defined socially isolated elderly aged 80 and older will be mainly recruited from the local Meals on Wheels program in Portland, Oregon and in Detroit, Michigan, the latter targeting African American subjects. Frequent face-to-face communication through internet with trained interviewers will be conducted for one year, with the sustainability being assessed at 18 months from the baseline. Targeted sample size is 280 (1:1 control/experimental). Dual primary outcomes are cognitive functions in memory and executive functions and secondary outcome is the change in objective assessment of instrumental activities of daily living (IADL) including an electronic pillbox (MedTracker) that monitor medication adherence. Exploratory outcomes include changes in language characteristics and brain structure using MRI/fMRI. Standardization of interviewers will be aided by assessing pre-post changes in participants' affect and language analyses will be conducted using novel automatic speech recognition software applied to audio recordings of conversations. **Conclusions:** User-friendly Internet communication programs may improve the feasibility and cost-effective execution of social-interaction-based prevention trials. Carefully considered outcomes and standardization approaches were developed in this trial. The protocol could serve as a future reference for similar behavioral interventions.

P1-640 COGNITIVE DEFICITS EMERGING DURING ACUTE NICOTINE WITHDRAWAL BY AGE IN VARENICLINE USERS

Tae Hui Kim, *Yonsei University Wonju Severance Christian Hospital, Wonju, Republic of South Korea. Contact e-mail: gooddr@hanmail.net*

Background: Although smoking is known to be a risk factor for dementia, smoking cessation is very difficult. Chronic smokers experience cognitive withdrawal symptoms as well as physiological and affective withdrawal symptoms that peak within the first few days of cessation. These cognitive deficits are a hallmark of nicotine withdrawal that may promote smoking relapse. The evidence from clinical trials suggests that varenicline increases cognitive performance during smoking abstinence. We aimed to identify the acute nicotine withdrawal-related cognitive deficits and to investigate the difference between the age groups in treatment-seeking smokers taking varenicline. **Methods:** Twenty-six participants aged 30 to less than 50, forty-three participants aged 50