and support, participation in activities, feelings of being valued by others, barriers to supports and services, and the overall isolation experienced by older adults. The responses from 1,719 urban and rural older adults indicate that 24.1% of respondents felt that they lack support, 17.2% feel less connected to family and friends, and 16.8% of respondents do not feel valued by their friends and family. Overall, almost one-quarter (23.9%) of the survey respondents score ‘high’ or ‘medium’ on a Social Isolation Index. One-third of respondents report they experience barriers to participation in activities outside the home. Several key categories of barriers were identified: health, personal, environmental, social, transportation and systemic. Respondents identified accommodation, services, practices, and activities as areas where their community could assist in participation of community activities outside of the home. Social isolation can have serious health consequences for older adults. The results of this survey highlight several key areas that older adults identify as important for reducing their feelings of isolation and enhancing their overall health and well-being.

THE EFFECTIVENESS OF A PEER-BASED INTERVENTION ON SOCIALLY ISOLATED OLDER CHINESE IMMIGRANTS IN CANADA

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Objectives: This study aimed to examine the effectiveness of a peer-based intervention in reducing older Chinese immigrants’ loneliness and social isolation to improve their psychosocial well-being. Method: A randomized controlled trial design was adopted. A sample of 60 community-dwelling older Chinese immigrants aged 65 and above were randomly assigned to the intervention group (n=30) and the control group (n=30). Intervention group participants received an eight-week peer support intervention. 25 volunteers aged 48 to 76 were recruited and trained to provide one-to-one peer support services through home visits and telephone. The services included multiple activities such as providing emotional support, assisting in problem-solving, and community resources sharing. Different types of activities were consecutively executed throughout the eight weeks in accordance with the service protocol. Standardized assessments including loneliness, social support, social participation, and other psychosocial outcomes such as life satisfaction, happiness, depression, and resilience at baseline and after intervention were measured. Results: After the intervention, as compared to control group participants, intervention group participants reported a significant decrease in loneliness, fewer barriers in social participation, and a significant increase in resilience. They also reported fewer depressive symptoms, increased life satisfaction, and happiness, but no such improvements were observed in the control group. Discussion: The study findings illustrate the need to further examine the use of peer-based interventions for both program effectiveness and delivery efficiency. In the era of population aging, baby boomers can be trained to take up more volunteer roles to serve older adults in distress via peer-based intervention approaches.

WEALTH AND HEALTH IN PREDICTING ELDERS’ SOCIAL CAPABILITIES IN CHINA: MEDIATING ROLE OF SOCIAL NETWORK

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Despite an established positive link between social wealth, health, and social capability among older adults, the effect and mechanisms among these factors are understudied. This paper uses the WHO Study on Global Ageing and Adult Health (SAGE) data and a mediation analysis method, combing social capital theory and a social capabilities approach, to provide new evidence on the effects of financial resource, physical function, and cognitive function on the social capabilities of older adults (aged 55 and above) in China and the possible mediating role of social network in this relationship. The descriptive analysis results show that urban older adults (n=5,274), on average, had lower freedom of expression, lower sense of living safety, and less frequent community participation, while having better self-perceived health, higher physical and cognitive functions, more household income, and higher educational background than their rural peers (n=5,270). The Baron and Kenny’s mediation analysis results show that social networks accounted for a substantial proportion of the effects of wealth and health on social capabilities, but wealth and health still had strong, positive direct effects of its own. Higher mediating effects of social networks were found in the association between functions and social capabilities of freedom of expression (9.46%) and sense of safety (36.33%) among rural older adults. Results of this study urge for further social policies and intervention programs to enhance older adults’ social capabilities, including social cohesion, sense of trust and safety, physical and mental functioning, and subjective well-being.

SESSION 1520 (SYMPOSIUM)

TARGETING THE MTOR NETWORK TO MAXIMIZE HEALTHSPAN

Chair: Viviana I. Perez, Linus Pauling Institute, Oregon State University, Corvallis, Oregon, United States

The mechanistic target of rapamycin (mTOR) is a key nutrient and growth factor-responsive pathway that has emerged as a central regulator of aging. Inhibition of mTOR complex I in particular has been found to increase lifespan and improve functional declines during aging in yeast, worms, flies, and mice. Recently clinical studies have provided the first evidence that similar effects may be achievable in pet dogs and in elderly people. This session will focus on new discoveries related to mTOR signaling and aging.

MECHANISMS OF NEUROPROTECTION BY MTOR INHIBITORS

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The mammalian/mechanistic target-of-rapamycin (mTOR) inhibitor rapamycin, that delays aging in mice, halts and even reverses memory deficits, and restores cerebral blood flow (CBF), neuronal activation, and neurovascular coupling in
models of Alzheimer's disease (AD), cognitive dysfunction of atherosclerosis, and normative aging. Genetic reduction of TORC1 in neurons to levels similar to those achieved by rapamycin, promoted synaptic bouton remodeling, enhanced memory, and increased brain glucose metabolism. In AD mice, the restoration of CBF and neurovascular coupling by mTOR attenuation was dependent on the activation of both constitutive nitric oxide synthase (NOS) isoforms, possibly due to stabilization of their mRNAs. The mechanisms by which mTOR attenuation preserves brain healthspan may be common to different models of age-associated neurological disease. We singled out (a) ablation of NOS activity, and (b) synaptic bouton loss as key mechanisms by which TOR drives brain aging and contributes to the pathogenesis of dementias modeled in mice.

**SEX AND TISSUE SPECIFIC ROLES OF MTORC2 IN HEALTHSPAN, METABOLISM, AND SURVIVAL**

Dudley W. Lamming, 1. University of Wisconsin-Madison, Madison, Wisconsin, United States

Genetic and pharmacological inhibition of the mechanistic Target Of Rapamycin Complex 1 (mTORC1) promotes health and longevity in organisms ranging from yeast to mice, and may also have rejuvenative effects in dogs and humans. A potential barrier to the translation of rapamycin-based therapies to the clinic are the side effects of rapamycin, which include metabolic disruption. We and others have demonstrated that many of these side effects are mediated not by inhibition of mTORC1, but by “off-target” inhibition of a second mTOR complex, mTORC2. However, the effect of inhibiting mTORC2 on the healthspan and longevity of mammals has been largely unaddressed. Here, we will discuss our research exploring the contribution of mTORC2 signaling in three different tissues to the healthspan, metabolism, and longevity of mice.

**ANTI-CELL SENESCENT EFFECTS OF RAPAMYCIN AND THEIR ROLE IN DISEASES, INCLUDING ALZHEIMER’S**

Viviana I. Perez, 1. Linus Pauling Institute, Oregon State University, Corvallis, Oregon, United States

Senescent cells contribute to age-related pathology and loss of function, and their selective removal improves physiology and extends longevity. We have shown that deficiency in Nrf2 in young Nrf2KO mice leads to an increase in senescent cells, with increased levels of pro-inflammatory cytokines in various tissues, including the brain. Both the cellular senescence and SASP decrease significantly when these mice are treated with rapamycin. Our current work focuses on determining whether cellular senescence contributes to premature AD-like pathogenesis in mouse models of AD. Indeed, it has been shown that Nrf2 deficiency in mouse models for AD leads to exacerbated pathology, suggesting that increased inflammation, due in part to the increased SASP-producing senescent cells, might be contribute to this phenotype. We are testing whether the burden of senescent cells in the brain on mouse models of AD can be reverted by rapamycin.

**LOW TRANSLATION DOWNSTREAM OF TOR ACTIVATES MYOGENE EXPRESSION AND ENHANCES HEALTH OF BODY MUSCLE IN C. ELEGANS**

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Previous studies reported that DR or low nutrient signaling reduces translation and extends lifespan, while attenuating growth and reproduction. In this study using C. elegans as a model organism, we found that reduced translation in neurons or germ tissues increases survival and primes the HSR against unfolded protein stress in adult animals. Surprisingly, lowering translation in these tissues significantly upregulates transcription of several key muscle maintenance genes, including those encoding the myogenic response factor HLH-1 and heavy myosin chain factor UNC-54 and MYO-3. It also improves muscle maintenance according to motility assays. However, reduced translation in muscle tissue does not activate the same level of myogenic gene expression. Instead, lowering translation in striated body muscle results in increased reproduction and accelerated development. To further investigate, we examined maintenance of muscle health via deconvolution fluorescent microscopy and immunostaining. Using computational analyses involving Fiji ImageJ and MATLAB program, we discovered that lowering translation delays decrepitude in body muscle structure, resulting in improved mitochondrial morphology and increased thermostolerance. Here we report that, combining physiological, molecular, and microscopic technique, muscle is protected during low translation, low TOR signaling, or DR. We hypothesize that results reflect evolutionary responses that preserve function required for foraging during nutrient scarcity and accelerate development during times low energy usage and high nutrient abundance.

**SESSION 1525 (SYMPOSIUM)**

**TECHNOLOGY-BASED HOME MONITORING TO ASSESS AND IMPROVE THE HEALTH AND WELL-BEING OF OLDER ADULTS**

Chair: Walter R. Boot, Florida State University, Tallahassee, Florida, United States

Technology, including in-home sensors, monitoring systems, and wearables, holds great promise with respect to being able to help manage chronic conditions, improve older adults’ health, support their safety, prolong independence, and collect data for healthcare and research purposes. This symposium will introduce novel ways in which these systems are being deployed, and also important challenges to their implementation that could decrease their potential benefits. This technology will only be successful if it addresses key issues of adherence and privacy, and considers users’ preferences. The first talk in this session will explore the novel use of GPS-based wearable sensors to capture the concept of life-space mobility, a measure critically related to quality of life and independence. The next talk focuses on a mobile health cardiovascular system and smartphone application, and finds that such systems can successfully transmit meaningful mHealth data while maintaining reasonable protocol adherence. Next, issues of user preference are discussed, including the types of data older adults and their children are willing to share, and the tradeoffs between values of privacy.