

nerve function (Lee, Ward) and relationship of unique components of MP (velocity, force) vs. strength with mobility will be presented from epidemiologic studies (Osteoporotic Fractures in Men Study, InCHI-ANTI Study). Finally, a strength and power training intervention associated with improvements in lean recovery will be described (Dr. Marsh). The discussion led by Dr. Fielding will critically review current research, focusing on important issues for future research to defining the role of MP in muscle function and disability among older adults.

LONGITUDINAL CHANGES IN MUSCLE POWER OUTPUT AMONG HEALTHY OLDER AND MOBILITY-LIMITED OLDER ADULTS: PHYSIOLOGICAL DETERMINANTS

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This longitudinal study examined the major physiological determinants of leg extensor muscle power output among two distinct groups: healthy older adults (70-85yrs, n=21) and mobility-limited older adults (70-85yrs, n=14). After 2.8 years of follow-up, significant deficits in peak muscle power were evident in healthy older (-26.2%, p<0.001) and mobility-limited elders (-18.9%, p<0.001). While the overall magnitude of muscle power loss was similar between groups (p>0.8), mobility-limited elders had greater reductions in muscle mass (-6.4%, p<0.01) and muscle strength (-12.3%, p<0.02) compared to healthy older participants (-1.4%, p>0.8 and -3.0%, p>0.07, respectively). Both groups exhibited significant declines in specific peak muscle power (p<0.006), however, rate of vastus lateralis neuromuscular activation was significantly impaired within healthy older participants (-27.8%, p<0.05) but not in mobility-limited participants (-5.5%, p>0.3). These data suggest that divergent physiological mechanisms contribute to lower extremity muscle power decrements with advancing age among healthy older adults and elders with overt mobility limitations.

COMBINED CHANGES IN MUSCLE AND FAT ASSOCIATED WITH LOSS IN POWER

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Older adults with sarcopenic obesity have greater disability. We examined age-related, combined changes in lean (LM) and fat mass (FM) (by quintiles) over 4.6±0.4 years in 4364 men (ages 65-93) from the Osteoporotic Fractures in Men study. With increasing age, the most common change in body composition shifted from the greatest combined increase in LM and FM (ages 65-69) to the greatest combined decrease in LM and FM (ages ≥75). In 2782 men, the average change in leg power (LP) was computed for quintile combinations of LM and FM change. Compared to men with median combined changes, men with the most LM loss had greater LP loss that worsened with concurrent decreases in FM (p-value for trend<0.05); whereas men with the greatest concurrent gain in LM and FM had attenuated LP loss (p<0.05). Aging men experience concurrent LM and FM loss – a combination associated with the greatest decline in LP.

PERIPHERAL NERVE FUNCTION AND LOWER EXTREMITY MUSCLE POWER IN OLDER MEN

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Decline in muscle power with age may be partly due to lower peripheral nerve (PN) function, particularly number and firing rate of motor units. We assessed cross-sectional relationships between maximal power/kg body weight (Nottingham power rig) and sensorimotor nerve function (peroneal/sural nerve conduction, monofilament testing, symptoms) in 568 men (mean age=77.2±5.1, BMI=28.2±4.0, power=1.87±0.6watts/kg) from the Osteoporotic Fractures in Men (MrOS) Study in Pittsburgh, PA. Covariates included age, body composition, comorbidities (e.g. diabetes, ankle arm index), lifestyle factors (e.g. physical activity), and grip strength. Higher compound muscle action potential (CMAP) and detection of 1.4g monofilament were associated with greater power/kg (both p<0.05). Having >2 PN symptoms (numbness/tingling, stabbing/burning/pain, open/persistent sores/gangrene) was associated with lower power/kg (p<0.01). Sural nerve conduction and motor latency were not associated with power/kg after adjustment. In these older men, CMAP, monofilament detection and PN symptoms were related to power/kg and may identify muscle function problems.

THE RELEVANCE OF LEG SPEED, LEG STRENGTH AND OTHER PHYSICAL ATTRIBUTES TO SUCCESSFUL WALKING SKILLS

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Many physical attributes including leg speed and leg strength, the components of leg muscle power, are considered important within the rehabilitative care of older adults with mobility problems. We aimed to identify which attributes are most important for optimal mobility. We conducted an analysis of baseline data from the InCHIANTI study among (n=723) participants that completed a battery of 10 physiologic tests that could be easily administered in rehabilitative care settings. Among multivariable logistic regression models predicting self-reported ability to walk 400 meters, kyphosis, leg speed, leg strength and unipedal balance were significant predictors (p<.001, c = .86). In another model substituting, leg power for leg speed and strength the findings were not substantially different (p<.001, c = .83). Kyphosis, balance, and both components of leg power (leg strength, leg speed) are important attributes relevant to walking ability.

POWER AND STRENGTH TRAINING TO IMPROVE THE ABILITY TO RECOVER IN A FORWARD AND LATERAL LEANING TASK IN OLDER ADULTS

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Improving muscle strength and power may mitigate the effects of sarcopenia and improve one's ability to recover from postural perturbations. We used a forward leaning task and a lateral leaning task and quantified maximum recoverable lean angle (Forward Leanmax, Lateral Leanmax) in 20 older adults (age: 70.8±4.4 yrs, BMI: 30.4±4.4

ABSTRACTS

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Abstracts are arranged numerically by session and in the order of presentation within each session.

SESSION 5 (PAPER)

INEQUALITIES AND HEALTH: EXPLORATIONS OF GENDER, RACE, AND EDUCATION

GENDERED HEALTH AND ITS LONG TERM CONSEQUENCES IN SOUTH ASIAN REGIONS

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How social, cultural, and economic factors influence long term health of men and women in south Asian regions? A growing body of literature argues that men and women face differential challenges of health disparity in south Asian countries. In the south Asian context women experience heavier burdens of social, cultural and economic discrimination compared to men. Several other factors such as biological differences between men and women, socially defined gender roles, attitudes, and beliefs also contribute to discrimination in defining health disparity across gender. Unequal impact of various factors renders a cumulative effect on men's and women's health overtime. Based on life course perspective, this study, therefore addresses implications of social, cultural, economic and socio-biological factors contributing to health disparity across gender in South Asia. For this study, we choose to compare two south Asian nations, India and Nepal that are very similar in beliefs, attitudes, and role expectations for men and women. World Health Organization data will be analyzed for assessing men and women mortality rate to measure the nature of health outcomes existing between genders, in these two nations. World Health Organization maintains a longitudinal data set of mortality rate separately for men and women of different age groups. Our analysis of a longitudinal data set would help in understanding long term consequences of the factors influencing health disparity. In addition to knowledge expansion in the fields of Sociology and Gerontology at large, this study will also be useful to policy makers in public health and health care access.

HEALTH STATUS IN LATER LIFE: CAN YOUR ADULT CHILD'S EDUCATION BUY YOU BETTER HEALTH?

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Intergenerational transfers of time and money have well-documented relationships with a number of later life outcomes including health. Less is known about whether the social attainment of adult children translates into better health of the parents. Over the last several decades, the younger generation has experienced widespread gains in educational attainment that may benefit not only their life chances, but the life chances of the older parent generation. Scholars have referred to this as adult children being an "asset." This paper examines the hypothesis that adult children's education will have direct benefits on health status in later life, net of own education. Longitudinal data from the Health and Retirement Study (age 50+) are used to model the relationship between the educational attainment of the most educated adult child and later life health status of the parent. Findings from multivariate growth curve models suggest that the higher adult children's education the better one's own self-rated health in later life. This finding is robust net of other

sociodemographic characteristics (including own education). Both women and men benefit from having a more educated adult child. Also, when adult children have completed more education than the parents, parents' health is better. The paper outlines several theoretical mechanisms linking parents' later life health to the education of their adult children.

THE EFFECT OF EDUCATIONAL ATTAINMENT ON ALLOSTATIC LOAD: DOES THE SOCIAL GRADIENT IN HEALTH VARY BY AGE?

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Extensive literature has established a social gradient in health demonstrating that people in higher socioeconomic strata experience better health compared to their mid- and lower socioeconomic counterparts. Yet there have been inconsistent findings about whether there are age-based patterns to the social gradient in health. Some find that education contributes to a steeper health gradient in late life relative to midlife, while others find the health gradient by education remains steady or becomes less steep in older adulthood. Using the National Health and Nutrition Examination Survey (2005–2008), we examine two questions: (1) Is there an educational gradient in allostatic load, net of other social and health factors? (2) Is there an age-based pattern to the extent of that gradient? Our Tobit models indicate that allostatic load, a summated indicator of physiologic dysregulation, tends to increase with age but there are distinctive gradient patterns by education level (<high school, high school, > high school). Within each age group, there is, on average, a difference of 0.4 between the lowest and the highest education group. This gradient, however, systematically increases across age groups, peaking for adults ages 60 to 69. There is not only a slight decrease in overall allostatic load for adults ages 70+ but an attenuation of the educational gradient. This distinctive age-based and gradient-based pattern to allostatic load informs the literature on both life course accumulative processes (stratified opportunities; selective mortality) and cohort dynamics (e.g., changing importance of a given education level). We discuss implications for both literatures.

CHILDHOOD CONDITIONS, EDUCATIONAL ATTAINMENT, AND ADULT HEALTH: WHO BENEFITS THE MOST FROM COLLEGE?

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College-educated adults are able to age more successfully than other people in the United States, but selection bias complicates the understanding of how education affects health. This article focuses on the possibility that the health benefits of college may vary according to people's propensity to attain a college degree in the first place. Several perspectives from life course sociology offer competing hypotheses as to whether the most or the least advantaged gain the most from educational attainment. The authors use a national survey of middle- and older-age American adults to assess risk of three serious health problems and