

the three Fraboni Scale of Ageism factors. Significant differences between men and women were only obtained across the Avoidance factor ( $F(1, 470) = 12.187, p = .001$ ) with endorsing higher avoidance scores than women. Taken together these results show differential effects across three ASD factors between men and women while men demonstrated higher scores on the FSA Avoidance scale.

#### QUALITY OF CONTACT WITH OLDER ADULTS AND KNOWLEDGE ABOUT AGING ARE ASSOCIATED WITH LOWER AGEISM AMONG YOUNG ADULTS

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Ageism refers to stereotypes about and prejudice against individuals on the basis of age. Ageism among young adults may be different than other forms of intolerance simply because age changes; that is, young adults will grow older, and they will eventually become a member of what is presently an outgroup (i.e., older adults). The purpose of this study was to investigate whether ageism among young adults ( $N = 623$ ) is more closely associated with future-oriented variables (i.e., optimism and fear of death) or whether ageism more closely resembles an outgroup attitude, which like other outgroup attitudes is mitigated by knowledge about and quality of contact with those outgroup members. Bivariate correlations found that knowledge of aging, quality of contact with older adults, and optimism were associated with lower ageism. In a multiple regression analysis, only knowledge about aging and quality of contact with older adults were associated with lower ageism. Overall, the results suggest that ageism represents more of an outgroup attitude rather than a future-oriented attitude. These results support the contact hypothesis in that knowledge of aging and quality of contact with older adults were associated with lower ageism among young adults. Education about aging and quality contact with older adults may be effective ways to reduce ageism among young adults.

#### WHEN GRANDPA SAYS SOMETHING RACIST: THE ROLE OF AGEISM IN YOUNG ADULT RESPONSES

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Previous research has found that older adults endorse higher levels of racist attitudes than younger adults. However, little extant research has explored how young adults may respond to an older adult expressing racist views. One factor that may drive young adults' responses is ageism, particularly stereotypes that older adults cannot handle disagreement or are incapable of changing their views. The purpose of this study was to investigate the relationships between ageism and young adults' likely responses to an older adult relative making a racist statement. College students ( $N = 110$ ; 75.8% female) completed an online survey in which they were given a scenario in which an older adult relative makes a racist statement and rated how likely they would be to respond in different ways. Factor analysis of the likely response items

found four facets: confront, agree, avoid, and leave. Bivariate correlations found that ageism was associated with higher likelihood of agreeing or avoiding, and lower likelihood of confronting the older adult relative. There was no association between ageism and likelihood of leaving the situation. Young adults higher in ageism may be more likely to agree or avoid because of ageist stereotypes that older adults cannot handle disagreement or are incapable of change, and they may be more likely to agree with the racist statement because they may have higher levels of intolerance toward both older adults and other ethnic groups. Ageism may play a role in how young adults respond to older adults expressing intolerant views.

#### ATTACHMENT SECURITY AND VIEWS TOWARD AGING IN OLDER COUPLES: A DYADIC PERSPECTIVE

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Research has shown that attachment security—feelings of emotional safety from interpersonal closeness and responsiveness—is associated with better appraisal of stressful situations. Individuals' views toward aging could be one avenue such appraisals are expressed that in turn contribute to better health in late life. However, no studies to our knowledge have examined the dyadic associations between attachment security and views towards aging in the context of close relationships. We hypothesized that attachment insecurity would be associated with individuals' own and partners' negative views toward aging in older married couples. The study sample was comprised of 77 older persons with a self-reported musculoskeletal condition and their caregiving spouses. The Experiences in Close Relationships Scale and the open-ended Image of Aging questions were used to measure attachment security and views toward aging. Data were analyzed with SPSS mixed models using the Actor Partner Interdependence Model. Mean age of care-recipients were 65.9 and 64.8 for their spouses. Contrary to our hypothesis, results showed no significant associations between each individual's attachment security and their own views toward aging. However, care-recipients reported particularly positive views toward aging when caregivers had low attachment anxiety ( $p=.03$ ), and caregivers reported more negative views toward aging when care-recipients had low attachment avoidance ( $p=.02$ ). Findings suggest that having a close partner who is securely attached may be protective of one's own views of aging, which may in turn have positive effects on health.

### SESSION 820 (POSTER)

#### BIOLOGY OF AGING I

##### DIFFERENTIAL EFFECTS OF VARYING DOSES OF DIETARY NITRATE ON MUSCLE FUNCTION AND BLOOD PRESSURE IN OLDER SUBJECTS

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We have recently demonstrated that dietary nitrate, a source of nitric oxide via the enterosalivary pathway, can improve muscle contractile function in healthy older men and women. Nitrate ingestion has also been shown to reduce blood pressure in older individuals. However, the optimal dose for eliciting these beneficial effects is unknown. We therefore performed a randomized, double-blind, crossover study to determine the effects of ingesting 3.3 mL/kg of beetroot juice (BRJ) containing 0, 212, or 425  $\mu\text{mol/kg}$  of nitrate in six healthy older (age  $69 \pm 3$  y) subjects. Maximal knee extensor speed ( $V_{\text{max}}$ ) and power ( $P_{\text{max}}$ ) were measured 2 h after BRJ ingestion using isokinetic dynamometry; blood pressure was monitored periodically throughout each study. Mean arterial pressure (in mmHg) was lower ( $P < 0.05$ ) after the high ( $80 \pm 4$ ) vs. the low ( $84 \pm 3$ ) or placebo ( $88 \pm 2$ ) doses.  $V_{\text{max}}$  (in rad/s), however, was higher ( $P < 0.05$ ) after the low dose ( $11.7 \pm 0.8$ ), but not the high dose ( $10.8 \pm 1.0$ ), compared to the placebo ( $10.5 \pm 1.0$ ).  $P_{\text{max}}$  (in W/kg) also tended to be higher ( $P = 0.11$ ) in the low ( $3.9 \pm 0.5$ ) compared to the placebo ( $3.7 \pm 0.5$ ) or high ( $3.7 \pm 0.5$ ) trials. Five out of six subjects achieved a higher  $V_{\text{max}}$  and  $P_{\text{max}}$  after the low vs. the high dose. We conclude that dietary nitrate has differential effects on muscle function and blood pressure in older individuals. A high dose of nitrate intake further lowers blood pressure but does not enhance muscle contractility as much as a lower dose. Supported by Indiana University Purdue University Indianapolis and by the NIA (R21 AG053606)

#### AGE-RELATED CHANGES TO MACROPHAGES AFFECT FRACTURE HEALING

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Fracture healing follows a strict temporal sequence characterized by an initial inflammatory phase. Perturbation of the inflammatory phase may be responsible for the poorer fracture healing outcomes in older adults. Herein, we examine age-related changes to the macrophage during fracture healing. Macrophages regulate inflammation through pro-inflammatory (M1) and anti-inflammatory (M2) phenotypes. Anti-inflammatory activity is promoted via activation of triggering receptor expressed on myeloid cells 2 (TREM2). Tibia fractures were made in old (24 months) and young (3 months) mice. Immune cells from the fracture callus were analyzed via RNAseq and FACS, and fracture healing was evaluated histologically. Old mice demonstrated significantly delayed fracture healing compared to young ( $p < 0.05$ ). The quantity of infiltrating macrophages into the fracture callus was similar in young and old mice. However, 1222 genes were significantly differentially regulated ( $\text{FDR} < 0.1$ ) in callus macrophages from old mice compared to young, and old macrophages demonstrated a more pro-inflammatory phenotype. TREM2 expression was increased in macrophages after fracture in both groups but was significantly less in old mice compared to young via RNAseq and FACS ( $\text{FDR} < 0.1$ ,  $p < 0.05$ ). TREM2<sup>-/-</sup> mice demonstrated increased pro-inflammatory cytokine expression within the callus with resulting significant delays in fracture healing compared to age-matched controls ( $p < 0.05$ ). Inhibition of macrophage infiltration into the fracture callus significantly improved fracture healing in old mice compared to age-matched controls.

Age-related changes to macrophages, including increased pro-inflammatory cytokine expression and dysregulated TREM2 expression, may explain fracture healing deficits observed in older adults. Therapeutically targeting macrophages may improve management of fractures in older adults.

#### THE ROLE OF PERCEIVED SOCIAL SUPPORT AND PRUDENT DIET INTAKE ON ALLOSTATIC LOAD AMONG OLDER ADULTS

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Allostatic load (AL), an index of multisystem physiological dysregulation due to chronic stress, has been identified as a predictor of poor health outcomes in late life. Research suggests that perceived social support (PSS) improves health outcomes by buffering the negative effects of stress on wellbeing and increasing health promoting behaviours including consumption of a healthy prudent diet (i.e., fruits, vegetables, lean meats, nuts, and seeds). Research to date has independently demonstrated that higher PSS and prudent diet intake have an effect on AL. A paucity of research, however, has examined how dietary consumption and PSS interact to effect AL in older adults. The objective of this study was to examine the interaction between PSS and prudent diet pattern on AL in 164 non-demented, community-dwelling older adults (Age =  $68.5(.52)$ , 64% female). PSS and diet intake were measured using the Perceived Social Support Scale and the EPIC-Norfolk Food Frequency Questionnaire, respectively. AL was composed of 16 biomarkers stemming from neuroendocrine, metabolic, inflammatory, and cardiovascular systems, stratified by sex. Controlling for age and usual daily energy intake, higher prudent diet consumption ( $B = -2.04$ ,  $p = .001$ ), but not PSS, was associated with lower AL. Moderation analysis revealed that higher prudent diet intake was associated with lower AL only for those with low PSS ( $B = -.83$ ,  $p = .0006$ ) and mean level of PSS ( $B = -.43$ ,  $p = .02$ ). These findings suggest that chronic biological stress may be mitigated by consuming a healthy diet specifically for older adults with lower social support and may further inform intervention strategies to promote healthy aging.

#### METABOLOMICS IN MEN WITH DISTINCT INFLAMMATION TRAJECTORIES FOLLOWING HIP FRACTURE REVEAL RESPONSE MECHANISMS

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Introduction: Following hip fracture, men exhibit different trajectories of inflammation: high (HiInf) vs. low (LoInf). The purpose of this analyses was to compare metabolomics Between these groups. Methods: Seven men with HiInf and 7 with LoInf were randomly selected to quantify serum metabolites at baseline, 2, and 6 months following hip fracture in Baltimore Hip Study-7. We performed analysis of variance and mixed effects models. A  $p < 0.05$  was considered significant. Results: At baseline, men with HiInf had higher oxidative stress, lipid-related inflammatory markers, and antioxidant compounds compared to