the FRéLE longitudinal study, consisting of 1643 Canadian community-dwelling older adults aged 65 years and over. Multivariate regression analysis was performed to examine the interaction between social isolation and frailty on health, controlling for socioeconomic characteristics and life habits. Social isolation was measured through social participation, social networks and support for different social ties namely, friends, children, extended family, and partner. In contrast to Berkman's theory on the impact of social isolation on health, we found that frailty had no modifying role on the effects of social isolation on health. Frailty was significantly associated with all adverse outcomes. Less social participation was associated with ADLs, IADLs, depression and cognitive decline. The absence of friends was associated with depression and cognitive decline. Less support from children and having no children were associated with ADLs, comorbidity and depression. Fewer contact with extended family and having no family members were notably associated with ADLs and IADLs. Those who received less support from a partner or had no partner were more depressed and had more difficulties in performing IADLs. This study suggests that older adults who participate in social activities and have social ties, feel better with respect to physical health than those who feel isolated.

FRAILTY COMPONENT TRAJECTORIES AFTER RESTORATION OF KIDNEY FUNCTION AMONG KIDNEY TRANSPLANT RECIPIENTS

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Frailty is associated with decreased access to kidney transplantation (KT) and poor post-KT outcomes. Little is known about how an acute stressor, like KT, can impact the five physical frailty phenotype (PFP) criteria. We conducted a two-center prospective cohort study (2009-2019) of adult patients undergoing KT. PFP criteria were measured at KT admission, 1 month, 3 months, 6 months, 1 year, and annually thereafter post-KT. We used adjusted mixed effects models with fixed and random effects for person and time to describe repeated measures of continuous criteria components (weight, gait speed, grip strength, activity). We used an adjusted generalized estimating equation to quantify longitudinal, binomial response patterns of exhaustion. Among 1,410 KT recipients (mean age=53) followed for a mean of 1.9 years (IQR=0.1-3.2), 46.8% had low activity, 46.7% weakness, 29.0% exhaustion, 16.1% slowness, and 14.3% unintentional weight loss at KT admission. Among continuous components, weight worsened (0.3lb/month, 95%CI:0.2,0.4), while grip strength (0.09kg/month, 95%CI: 0.07,0.11) and activity (5.8Kcal/month, 95%CI: 3.3, 8.2) improved post-KT; gait speed remained stable (-0.0004s/month, 95%CI: -0.01, 0.0005). Additionally, likelihood of transitioning from being exhausted did not change (OR=1.0, 95%CI: -0.01, 0.0005). Trajectories differed by age, such that improvements were observed among younger recipients (<65 years), but not among older recipients (≥65 years) (p-interactions<0.05). After undergoing a common surgical stressor, KT recipients demonstrated weight gain as well as improvements in strength and activity. Despite benefits of restoration of kidney function, clinicians should consider monitoring KT recipients for persistent weight gain, exhaustion, and slowness post-KT, particularly among older adults.

FRAILTY MODIFIES EFFECTS OF CHAIR YOGA ON CHRONIC PAIN IN OLDER ADULTS WITH OSTEOARTHRITIS

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As a secondary analysis, this study used data from our previous 8-week chair yoga (CY) intervention trial with two-arm, access-blinded randomized controlled trial to examine modifying effect of baseline frailty on intervention effects of CY on pain and pain interference (i.e., consequences of pain on relevant aspects of life). Using the cumulative frailty index (FI) approach, we constructed the FI using 82 comprehensive deficits, including physical function, balance, fatigue, emotional well-being, and social activity. We calculated FI at baseline, 4 weeks, and 8 weeks. A linear mixed-effects model with random intercept was used, adjusting for research sites, cohort effect, and time. To test for potential modifying effects of baseline FI on the intervention effect by CY, we added a three-way interaction term: intervention (CY vs. Health Education Program), time, and baseline FI. A total of 112 participants (M = 75.3[7.5] years; 76% female, 40% White, 46% Hispanic) completed the study. Each 0.01 increment in baseline FI was associated with higher pain ($\beta = 0.28$, $p < .001$) and pain interference ($\beta = 0.51$, $p < .001$). There was a significant interaction effect among intervention, time, and baseline FI ($p = .02$ for pain, $p = .01$ for pain interference), indicating that participants with higher levels of baseline FI had greater declines in pain and pain interference. Frailty modified the intervention effect of CY on pain in older adults with lower extremity osteoarthritis, underscoring the importance of assessing frailty to improve management of pain in the population.

SESSION 2926 (PAPER)

FRAILTY AND SARCOPENIA II

AIR POLLUTION AND GERONTOLOGICAL CONSTRUCTS AMONG PATIENTS WITH END-STAGE KIDNEY DISEASE

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Frailty is triggered by inflammatory pathways among patients with end-stage kidney disease (ESKD). Exposure to air pollution is associated with increased inflammation and as such may be a determinant of frailty in patients with ESKD. Therefore, we sought to estimate the impact of household-level exposure to fine particulate matter (particles <2.5μm in diameter [PM2.5]) on frailty and other gerontological constructs among patients with ESKD. We leveraged a prospective, two-center cohort study of 1,482 adults with ESKD

(2014-2019) from 40 US states. The physical frailty phenotype (PFP), SPPB, ADL/IADL dependence and 3MS global cognitive impairment were assessed at transplant evaluation. Household-level air pollution was estimated as annual average PM2.5 concentrations at each participant's address using SEDAC national air pollution data. We estimated the odds of these gerontologic constructs using adjusted logistic regression by quartiles of PM2.5 concentrations accounting for confounders including socioeconomic status. Compared to patients with PM2.5 concentrations in the lowest quartile (<9.3μg/m3), those with exposure to the 3rd quartile (10.0-11.1μg/m3) had 1.50-fold (95%CI:1.04-2.17) increased odds of frailty. However, exposure to PM2.5 concentrations in the second (9.3-10.0μg/m3) and fourth quartiles (>11.1μg/m3) were not significant. Those with PM2.5 in the 3rd (OR=1.60, 95%CI:1.19-2.16) or 4th (OR=1.61, 95%CI:1.20-2.16) quartile had an increased risk of having dependence in ADLs or IADLs. PM2.5 was not associated with SPPB or cognitive impairment. Among ESKD patients, fine particulate matter was associated with greater frailty and dependence burden, although these association may not be linear. Further study of the role of inflammation on these associations are needed.

BIDIRECTIONAL RELATIONSHIP BETWEEN SUBJECTIVE AGE AND FRAILTY: FINDINGS FROM THE NHATS

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Frailty is a clinical syndrome that becomes increasingly common as people age. Subjective age refers to how young or old individuals experience themselves to be. It is associated with many risk factors of frailty, such as increased depression, worse cognitive function, and poorer psychological wellbeing. In this study, we examined the relationship between subjective age and frailty using the 2011-2015 waves of the National Health and Aging Trends Study. Participants were community-dwelling older adults without frailty in the initial wave (N=1,165). Subjective age was measured by asking participants, "What age do you feel most of the time?" Based on the Fried five phenotypic criteria: exhaustion, unintentional weight loss, low physical activity, slow gait, and weak grip strength, frailty was categorized into robust=0, pre-frail=1 or 2; frail=3 or more criteria met. Participants were, on average, 74.1±6.5 years old, female (52%), and non-Hispanic White (81%). Eighty-five percent of the participants felt younger, and 3% felt older than their chronological age, but 41% of them were pre-frail/frail. Generalized estimating equations revealed that an "older" subjective age predicted a higher likelihood of pre-frailty and frailty (OR, 95%CI= 1.01, 1.01-1.02). In contrast, frailty predicted an "older" subjective age (OR, 95%CI= 2.97, 1.65-5.35) adjusting for demographics and health conditions. These findings suggest a bidirectional relationship between subjective age and frailty. Older people who feel younger than their chronological age are at reduced risk of becoming pre-frail/frail. Intervention programs to delay frailty progression should include strategies that may help older adults perceive a younger subjective age.

DIFFERENCES IN CAUSE-SPECIFIC MORTALITY BETWEEN FRAIL MEN AND WOMEN IN THE UNITED STATES

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While frailty is associated with risk of numerous adverse health outcomes including mortality, little is known about the most common specific causes of death among frail older adults or how these causes might differ by gender. This information may be important to understanding the frailty syndrome and to informing screening and treatment. We used linked data from the Health and Retirement Study (2004 – 2012) and the National Death Index (NDI). We analyzed data from HRS participants age 65 and older who completed a general health interview and physiological measures (n=10,490). Frailty was operationalized using the phenotype criteria – low weight, low energy expenditure, exhaustion, slow gait, and weakness. Causes of death were determined using International Classification of Diseases (v10) codes from death certificates. We used Cox proportional hazards to compare incidence of cause-specific mortality by frailty status and gender. The attributable risk of mortality due to frailty in the sample was 16.6% among women and 17.3% among men. Overall, frail older adults had greater risk of death from heart disease (hazard ratio (HR): 2.97; 95% CI: 2.18, 4.04), cancer (HR: 2.81; 95% CI: 2.01, 3.93), and dementia 2.86 (95% CI: 1.46, 5.58) but not cerebrovascular disease or accidents. Frail women were more approximately 29% more likely to die from heart disease than frail men. Findings suggest that frailty is a significant risk factor for mortality from several different causes, especially among women. Findings may help inform screening and treatment decisions for older adults at risk for frailty.

INTERSECTION OF SEX AND FRAILTY IN HUMORAL IMMUNE RESPONSES TO INFLUENZA VACCINE IN COMMUNITY-DWELLING OLDER ADULTS

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Older adults bear the highest burden of severe disease and complications associated with seasonal influenza, with annual vaccination serving as the best option for protection. Variability in vaccine efficacy exists, yet the host factors that affect immune responses to inactivated influenza vaccines (IIV) are incompletely understood. We hypothesized that sex and frailty interact to affect vaccine-induced humoral responses among older adults. To test this hypothesis, community-dwelling adults above 75 years of age were recruited yearly, assessed for frailty (as defined by the Cardiovascular Health Study criteria), and vaccinated with the high-dose trivalent IIV. Humoral immune responses were evaluated via hemagglutination inhibition titers. The study began during the 2014-2015 influenza season, with yearly cohorts ranging from 76-163 individuals. A total of 617 vaccinations were delivered from 2014-2019. In preliminary analyses, the outcome of interest was seroconversion, defined