

fitness confirm the potential benefits and niche for remote fitness assessment used to generate personalized exercise programs. Future research is required to confirm the benefits among specific patient groups, such as those with frailty, deconditioning, cognitive and functional impairment.

RELIABILITY OF GRIP STRENGTH AS A PREDICTOR OF HAND LIMITATION AMONG U.S. OLDER ADULTS: HOW GOOD IS GRIP STRENGTH?

Rachel Logue, Susan Brown, Rebecca Hasson, and Matthew Davis, *University of Michigan, Ann Arbor, Michigan, United States*

Grip strength is commonly used to assess hand function in older adults and is associated with health outcomes including muscle strength, cognition, and mortality. However, the degree to which grip strength predicts an actual hand limitation is unknown. This study evaluated grip strength as a predictor of hand limitations associated with activities of daily living. Using the 2011-14 National Health and Nutrition Examination Survey (NHANES), we selected five self-reported hand-related functional limitations to classify older adults reporting one or more limitations versus those with no limitations. We identified 2,064 older adults (age \geq 65), 31% of whom reported a hand-related limitation. Odds ratios were used to assess the association between grip strength quartile and the likelihood of a hand limitation while controlling for sex, race/ethnicity, education level, income, and pain. Receiver operator curves were used to evaluate the degree to which grip strength discriminates between those with limitations versus those without. Older adults with very low grip strength (lowest quartile) were more likely to have at least one limitation (OR:6.1, 95% CI:3.2,11.8) than those with high grip strength (highest quartile). However, receiver operator curves suggested grip strength only modestly discriminated hand limitations (area under curve:0.71). While self-reported hand limitations were associated with lower grip strength, it was a relatively poor predictor of hand impairments among older adults. This study suggests grip strength may not predict hand function as well as previously thought. Better assessments are needed to adequately evaluate upper extremity impairments to help older adults maintain functional independence.

RESISTANCE TRAINING IMPROVES MOBILITY DISABILITY IN COMMUNITY-DWELLING OLDER ADULTS: A META-ANALYSIS

Christina Prevett,¹ Kevin Moncion,² Stuart Phillips,² Julie Richardson,² and Ada Tang,² 1. *McMaster University, Concord, North Carolina, United States*, 2. *McMaster University, McMaster University, Ontario, Canada*

Mobility disability is the impairment in function that affects the performance of daily tasks due to declines in physical function. Exercise interventions, particular resistance training, may have a positive impact on mobility disability, but the evidence for the effects of resistance training in older adults with mobility disability has not been previously systematically reviewed. This study was a systematic review of evidence related to resistance training on physical function for adults over 65 years of age with mobility disability. Four databases (PEDro, MedLine, Ovid, Web of Science) were searched from inception to February 2, 2021 for randomized

controlled trials. Twenty-four articles from 22 studies (3,656 participants) were included in the review. Mean participant age ranged from 63-87 years and exercise interventions ranged from 10 weeks to 12 months in duration. Greater changes in 6-minute Walk Test (6MWT) distance (n=638, $p<0.0001$; mean difference (MD) 16.1 metres; 95%CI 12.3-19.9), lower extremity strength (n=785, $p<0.0001$; standard MD 2.01; 95%CI 1.27-2.75) and usual gait speed (n=2,106, $p<0.001$; MD 0.05 metres/second, 95%CI 0.03-0.07) were seen with resistance training as compared to control. These results were maintained if resistance training was a sole intervention or a component of a multi-component program. Sensitivity analysis based on risk of bias concerns did not change results. This review demonstrates that resistance training improves walking capacity, strength and walking speed in community-dwelling older adults and may facilitate aging in place. Since improvements in strength and gait speed contribute to independence, our results indicate highly beneficial outcomes for older persons.

SEX DIFFERENCES IN POWER DECREMENT IDENTIFIED ACROSS THE LIFESPAN

Anthony Campitelli,¹ Sally Paulson,² Jennifer Vincenzo,³ Jordan Glenn,⁴ Megan Jones,¹ Melissa Powers,⁵ Joshua Gills,¹ and Michelle Gray,¹ 1. *University of Arkansas at Fayetteville, Fayetteville, Arkansas, United States*, 2. *University of Arkansas at Fayetteville, Cincinnati, Ohio, United States*, 3. *University of Arkansas for Medical Science, Fayetteville, Arkansas, United States*, 4. *Neurotrack Technologies, Redwood City, California, United States*, 5. *University of Central Oklahoma, Edmond, Oklahoma, United States*

Muscular power has been shown to be a significant predictor of physical function in older adults, but assessments of power have traditionally been performed in movements not specific to activities of daily living (ADLs). Recent research examined power in the context of ADL-specific movements, but it is unclear how ADL-specific lower-body power differs over lifespan in males and females. This investigation sought to describe ADL-specific power decline across the lifespan and analyze differences between the sexes. Adults (n = 557) aged 18-89 volunteered and were divided into age cohorts (18-30, 50-59, 60-69, 70-79, and 80-89 years). Participants performed a sit-to-stand (STS) task with as much velocity as possible while connected to a linear position transducer (LPT). The LPT calculated average and peak power. The average result of 5 individual STS trials was analyzed for each of the power variables. The first significant decrement in average STS power ($p < .01$) was observed at an earlier age cohort in males than females (60-69 in males vs. 70-79 in females). The per decade magnitude of power decrement after age 60 was larger in males than females in both absolute magnitude and percent decrease (11.74 vs. 10.09% decrease per decade). As power and physical function are correlated, this may have implications for the rate and age of functional decline in males. Additionally, understanding the differences in ADL-specific power decline between males and females gives clinicians and health professionals valuable information for developing preventative fitness paradigms specific to members of a given sex.