

Presented by Allison Kellish PT,DPT,MPA,PhD, Elke Schaumberg, MSPT,DPT,PhD, and Patrick Kellish PT, DPT, Orthopedic Residency Trained

This presentation will provide evidence-based guidelines for exercise prescription, designed to optimize power, strength and endurance needed for physical activity. Underdosing exercise places the older adult for risk for falls, frailty, and failure to maintain functional independence. This presentation will discuss the positive adaptations for weight lifting and functional training that fosters safe, effective and efficient movements to achieve optimal exercise dosing that transition into daily functional mobility and tasks of ambulation, transfers, standing, pushing or pulling a door open, carrying, reaching all levels and directions and more.

Objectives:

Identify the normal physiological changes that occur across all systems with aging that potentially can impact exercise dosing in the older adult.

Identify central factors contributing to falls, frailty and loss of functional independence mobility in designing exercise strategies across neurological and musculoskeletal systems.

Describe determinate of appropriate intensity and progression to improve muscle performance for the older adult based on their capacity for adaptive weight lifting and functional movement.

Determine appropriate intensity, modification, and progression of weight lifting training movements and functional movement interventions to improve essential and leisure mobility, ambulation and enhanced lifestyle activity based on individual's response to exercise and performance.

Allison Kellish

Dr. Kellish earned her Bachelor degree in Physical Therapy from University of New England in 1987. She continued her education earning a Master's degree in 1996, Public Administration in 2005, a transitional Doctorate in physical therapy in and a Doctor of Philosophy from Seton Hall University in 2015. She is a certified specialist for Graston and a Certified Adaptive Trainer. She is a member of the American Physical Therapy Association and the Academies of Orthopedic, Health and Administration, Education and Geriatrics. Her clinical practice includes in-patient neurological setting, orthopedic outpatient setting, and the homecare settings treating individuals with orthopedic disorders, neurological disorders and the medically complex disorders. She has been in academia for over 20 years. Currently, she is an Associate Professor at Franklin Pierce University in Manchester, NH. She has been a presenter on both the national and international level for PT topics.

Elke Schaumberg

Dr. Elke Schaumberg earned her Bachelor of Science in Kinesiology, from University of Colorado – Boulder in 1991; her Master of Science in Physical Therapy at the University of Colorado-Denver in 1995; her transitional Doctorate in Physical Therapy at Simmons University in Boston in 2011; and her Doctor of Philosophy in Physical Therapy from Texas Women's University - Houston in 2020. Dr. Schaumberg's interest in the rehabilitation of individuals with chronic pain inspired her dissertation study which investigated the psychosocial history-taking practices of physical therapists in the United States when

evaluating adults with chronic pain. She worked at various outpatient orthopedic clinics and practiced in California, Colorado and Rhode Island. She is a member of the International Association of the Study of Pain and an active member of APTA Education, Orthopedic and Pain Special Interest Groups. Currently, Dr. Schaumberg is an Assistant Professor in the Doctor of Physical Therapy program at Franklin Pierce University in Manchester, New Hampshire. She teaches the Physiology of Health and Disease, Pharmacology, Pain Science, Psychosocial Issues of Healthcare, Motor Control, and works with students as they complete their research-based Capstone projects.

Patrick Kellish

Dr Kellish earned his Bachelor of Arts in Business Administration and his Doctorate in Physical Therapy from Misericordia University. He has completed a postgraduate orthopedic residency program through Professional Physical Therapy. His clinical practice includes outpatient orthopedic and sport medicine.

References:

Bean JF, Herman S, Kiely DK, et al. Increased Velocity Exercise Specific to Task (InVEST) training: a pilot study exploring effects on leg power, balance, and mobility in community-dwelling older women. *Journal of the American Geriatrics Society*. 2004;52(5):799-804. doi:10.1111/j.1532-5415.2004.52222.x

Fragala M.S., Cadore E.L., Dorgo S., Izquierdo M., Kraemer W.J., Peterson M.D., Ryan E.D. Resistance Training for Older Adults: Position Statement From the National Strength and Conditioning Association. *J. Strength Cond. Res*. 2019;33:2019–2052. doi: 10.1519/JSC.0000000000003230.

Huang WY, Wu CE. Interventions to Improve Body Composition, Upper and Lower Extremity Muscle Strength, and Balance Ability of Older Female Adults: An Intervention Study. *Int J Environ Res Public Health*. 2022;19(8):4765. Published 2022 Apr 14. doi:10.3390/ijerph19084765

Jozo G, Alessandro G, Orazem J, Filip S, Schoenfeld BJ, Zeljko P. Effects of resistance training on muscle size and strength in very elderly adults: A systematic review and meta-analysis of randomized controlled trials. *Sports Medicine - Open*. 2020;50(11):1983-1999.

<http://ezproxy.franklinpierce.edu/login?url=https://www.proquest.com/scholarly-journals/effects-resistance-training-on-muscle-size/docview/2471524225/se-2>. doi: <https://doi.org/10.1007/s40279-020-01331-7>.

Kötteritzsch, A., Koch, M., Lemân, F. (2014). Adaptive Training for Older Adults Based on Dynamic Diagnosis of Mild Cognitive Impairments and Dementia. In: Pecchia, L., Chen, L.L., Nugent, C., Bravo, J. (eds) *Ambient Assisted Living and Daily Activities*. IWAAL 2014. Lecture Notes in Computer Science, vol 8868. Springer, Cham. https://doi.org/10.1007/978-3-319-13105-4_52

Lee PG, Jackson EA, Richardson CR. Exercise Prescriptions in Older Adults. *Am Fam Physician*. 2017;95(7):425-432.

Oddy K, Rich K. Weight training for older adults with osteoporosis and early stage dementia using homemade weights. *Activities Directors' Quarterly for Alzheimer's & Other Dementia Patients*. 2012;13(3):43-48. Accessed June 3, 2022. <https://search-ebshost->

com.ezproxy.franklinpierce.edu/login.aspx?direct=true&db=ccm&AN=108090599&login.asp&site=ehost-live&scope=site

Raymond MJ, Bramley-Tzerefos RE, Jeffs KJ, Winter A, Holland AE. Systematic Review of High-Intensity Progressive Resistance Strength Training of the Lower Limb Compared With Other Intensities of Strength Training in Older Adults. *Archives of Physical Medicine & Rehabilitation*. 2013;94(8):1458-1472. doi:10.1016/j.apmr.2013.02.022

Schwenk M, Bergquist R, Boulton E, et al. The Adapted Lifestyle-Integrated Functional Exercise Program for Preventing Functional Decline in Young Seniors: Development and Initial Evaluation. *Gerontology*. 2019;65(4):362-374. doi:10.1159/000499962