Handgrip Strength Testing: An Underutilized Vital Sign

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3:45 - 4:45pm

This course is designed for physical therapy students, early professional clinicians, and advanced practitioners. Speakers will describe the historical evolution of assessing grip strength with dynamometers. Further evaluation of the literature may suggest that we may need to use dynamometers and evaluate other potential influences, including contextual aspects and biopsychosocial components. Normative data collected may contain design errors that may lead to misrepresentation of information. It becomes essential to examine these possible issues to decrease the potential likelihood of making conclusions based on the foundational literature. Further research is warranted to determine if there is a possible correlation between grip strength, biopsychosocial factors, and other potential variables. Clinicians will learn to recognize potential holistic factors that can be analyzed using dynamometers and other evaluation instruments.

Objectives

1. Participants will be able to understand the development of handgrip dynamometry and its intended utilization in various populations.

2. Participants will be able to analyze literature supporting evidence for normative data, including indications for clinical use.

3. Participants will be able to create a framework and utilize dynamometry to address other factors that may influence patient care.

1. Booth J, Moseley GL, Schiltenwolf M, Cashin A, Davies M, Hübscher M. Exercise for chronic musculoskeletal pain: A biopsychosocial approach. Musculoskeletal Care. 2017: 1-9. http://dx.doi.org/10.1002/msc.1191 https://doi.org/10.1002/msc.1191.

2. Loredo-Aguilera JA, Carmona-Torres JM, Cobo-Cuenca AI, Garcia-Pinillos F, & Latorre-Roman PA. (2019). Handgrip strength associated with psychological functioning, mood, and sleep in women over 65 years. International Journal of Envirnomenal Research and Public Health, 16: 873.

3. Mathiowetz V, Kashman N, Volland G, Weber K, Dowe M, & Rogers Sandra. (1985). Grip and pinch strength: normative data for adults. Arch Phys Med Rehabil, 66:69-74.

4. Nicholas S, & Voboril D. (2017). The Collin dynamometer: history of the development of an instrument for measuring physical and mental strength. Topics in Cognitive psychology, 117: 173-219.

5. Ramirez-Velez R, Correa-Bautista JE, Garcia-Hermoso A, Cano CA, & Izquierdo M. (2019). Reference values for handgrip strength and their association with intrinsic capacity domains among older adults. Journal of Cachexia, Sarcopenia and Muscle, 10: 278-286.

6. Roberts HC, Denison HJ, Martin HJ, Patel HP, Syddall H, Cooper C, & Sayer AA. (2011). A review of the measurement of grip strength in clinical and epidemiological studies: towards a standarised approach. Age and Ageing, 0: 1-7.

7. Sueki DG, Cleland JA, Wainner RS. A regional interdependence model of musculoskeletal dysfunction: research, mechanisms, and clinical implications. Journal of Manual & Manipulative Therapy, 2013;21(2):90–102.

Dr. Eric Trauber received his Doctor of Physical Therapy from Utica College. Eric is a Board-Certified Orthopedic Clinical Specialist through the American Board of Physical Therapy Specialties. He is a Fellow of the American Academy of Orthopaedic Manual Physical Therapists. He is currently the Director of Clinical Education at Fabrication Enterprises. Eric strives to help improve therapeutic alliance, intrinsic motivation, self-efficacy, and assist in the development of aspiring physical therapists.