https://doi.org/10.1590/1806-9282.20230583

Comments on "Evaluation of functional parameters of the foot and ankle in elderly with sarcopenia"

Cassius Iury Anselmo-e-Silva[1], Leticia Menegalli Santos[1], André Luiz Lopes[2], Erika da Silva Maciel[3], Fernando Rodrigues Peixoto Quaresma[3], Aldair Darlan Santos-de-Araújo[1], André Pontes-Silva[1*]

The paper title does not contain this information[1], but Souza Júnior et al.[1] identified sarcopenic elderly people through the SARC-F score and grip-force strength using a Jamar dynamometer. Traditionally, the Jamar dynamometer is the reference standard tool for grip-force strength evaluations with excellent validity and reliability in the clinic and research[2,3], and many health professionals use it for measuring grip-force strength and recording a single maximal or submaximal grip-force strength value during testing[2,3]. Nevertheless, the Jamar dynamometer is a mechanical measurement tool and only shows instantaneous grip-force strength, which means that it cannot continuously record handgrip force or show changes in the quality of grip-force strength control. The Jamar dynamometer also needs recalibration each year[4], and a study reported that its limited contact area may cause hand pain in subjects, thereby influencing the grip-force measurement when applying higher grip strength[5,6]. Souza Júnior et al.[1] did not report these adjustments.

In the article by Souza Júnior et al., the volunteers' palmar grip was repeated 3× on the right side and 3× on the left side, with an interval of 1 min among repetitions[1]. Afterward, the authors used the highest value obtained on each side. However, due to the variations mentioned above, the best strategy would be to use the median obtained in the evaluations[7,8]. Besides, it is currently necessary to use a novel digital dynamometer with automatic calibration, a larger contact area, automatic grip force data recording, and continuous grip-force strength data collection, which might be more convenient for therapists for measuring the quality of grip-force strength control, such as the MicroFET3 dynamometer[5], an instrument with excellent validity and reliability[9]. Finally, another important variable is the volunteer's positioning. The dynamometer needs to be supported by some object (e.g., a table) to compensate for the weight (force of gravity)[10,11]; otherwise, the volunteers have to make two efforts: one to press the dynamometer and the other to overcome the resistance of gravity (Figure 1)[12].

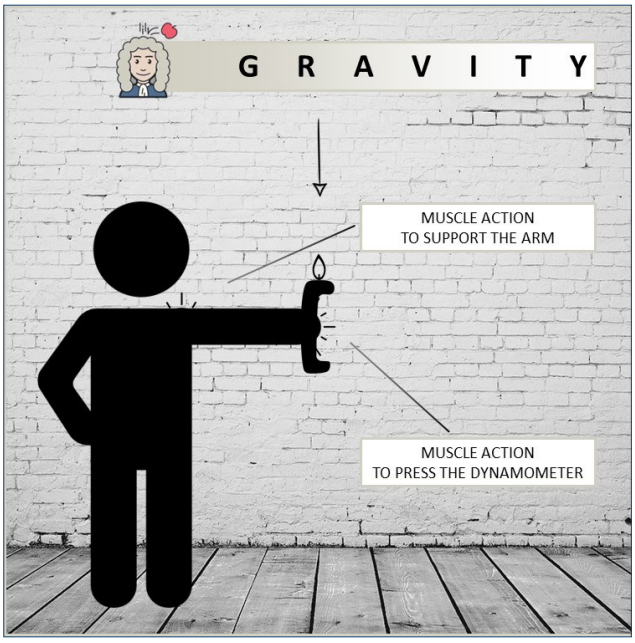

Figure 1. Pressing the dynamometer and overcoming gravity.

[1]Universidade Federal de São Carlos, Department of Physical Therapy – São Carlos (SP), Brazil.
[2]Universidade Federal do Rio Grande do Sul, Human Movement Sciences Post-Graduate Program – Porto Alegre (RS), Brazil.
[3]Universidade Federal do Tocantins, Sciences and Health Teaching Post-Graduate Program – Palmas (TO), Brazil.
*Corresponding author: contato.andrepsilva@gmail.com

Conflicts of interest: the authors declare there is no conflicts of interest. Funding: This study was funded by the São Paulo Research Foundation (FAPESP, grant 2022/08646-6), and partially supported by the Coordination for the Improvement of Higher Education Personnel (CAPES, code 001). The funding source had no role in the study design, collection, analysis, interpretation of data, writing of the report, or in the decision to submit the article for publication.
Received on May 19, 2023. Accepted on May 25, 2023.

ACKNOWLEDGMENTS

I would like to thank the Coordination for the Improvement of Higher Education Personnel (CAPES); National Council for Scientific and Technological Development (CNPq); São Paulo Research Foundation (FAPESP); Federal University of Maranhão (UFMA); Federal University of São Carlos (UFSCar); Almir Vieira Dibai-Filho; Mariana Arias Avila; Maria de Fátima Pontes-Silva.

AUTHORS' CONTRIBUTIONS

CIAS: Validation, Visualization, Writing – original draft, Writing – review & editing. ALL: Validation, Visualization, Writing – original draft, Writing – review & editing. ESM: Validation, Visualization, Writing – original draft, Writing – review & editing. FRPQ: Validation, Visualization, Writing – original draft, Writing – review & editing. ADSA: Validation, Visualization, Writing – original draft, Writing – review & editing. APS: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing.

REFERENCES

1. Souza Júnior EÁ, Terra AMSV, Santos ATS. Evaluation of functional parameters of the foot and ankle in elderly with sarcopenia. Rev Assoc Med Bras (1992). 2023;69(5):e20221638. https://doi.org/10.1590/1806-9282.20221638
2. Mathiowetz V. Comparison of Rolyan and Jamar dynamometers for measuring grip strength. Occup Ther Int. 2002;9(3):201-9. https://doi.org/10.1002/oti.165
3. Gariballa S, Alessa A. Sarcopenia: prevalence and prognostic significance in hospitalized patients. Clin Nutr. 2013;32(5):772-6. https://doi.org/10.1016/j.clnu.2013.01.010
4. Roberts HC, Denison HJ, Martin HJ, Patel HP, Syddall H, Cooper C, et al. A review of the measurement of grip strength in clinical and epidemiological studies: towards a standardised approach. Age Ageing. 2011;40(4):423-9. https://doi.org/10.1093/ageing/afr051
5. Lee SC, Wu LC, Chiang SL, Lu LH, Chen CY, Lin CH, et al. Validating the capability for measuring age-related changes in grip-force strength using a digital hand-held dynamometer in healthy young and elderly adults. Biomed Res Int. 2020;2020:6936879. https://doi.org/10.1155/2020/6936879
6. Mühldorfer-Fodor M, Ziegler S, Harms C, Neumann J, Cristalli A, Kalpen A, et al. Grip force monitoring on the hand: manugraphy system versus Jamar dynamometer. Arch Orthop Trauma Surg. 2014;134(8):1179-88. https://doi.org/10.1007/s00402-014-2027-3
7. Bowden J, Davey Smith G, Haycock PC, Burgess S. Consistent estimation in Mendelian randomization with some invalid instruments using a weighted median estimator. Genet Epidemiol. 2016;40(4):304-14. https://doi.org/10.1002/gepi.21965
8. Hozo SP, Djulbegovic B, Hozo I. Estimating the mean and variance from the median, range, and the size of a sample. BMC Med Res Methodol. 2005;5:13. https://doi.org/10.1186/1471-2288-5-13
9. Wuang YP, Chang JJ, Wang MH, Lin HC. Test-retest reliabilities of hand-held dynamometer for lower-limb muscle strength in intellectual disabilities. Res Dev Disabil. 2013;34(8):2281-90. https://doi.org/10.1016/j.ridd.2013.04.010
10. Schöne H, Parker DE. Inversion of the effect of increased gravity on the subjective vertical. Naturwissenschaften. 1967;54(11):288-9. https://doi.org/10.1007/BF00620896
11. Colenbrander A. Quantitative analysis of the relations between gravity, head position and the subjective plumb-line. Ophthalmologica. 1966;151(6):646-51. https://doi.org/10.1159/000304932
12. Schöne H, Parker DE, Mortag HG. Subjective vertical as a function of body position and gravity magnitude. Naturwissenschaften. 1967;54(11):288. https://doi.org/10.1007/BF00620895