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Response to the letter to the Editor entitled, ''The (un)standardized use of handheld dynamometers on the evaluation of muscle force output.''

The authors allude to a possible misconception of basic biomechanics, when muscle strength evaluation does not consider the lever arm distance to calculate torque as the main muscle force output.[1] They cite our article from 2018 entitled, ''Isometric muscle strength in children and adolescents using handheld dynamometry: reliability and normative data for the Brazilian population'', as an example of using such misconception.[2]

We agree that torque values allow for better individual comparisons because the measurement includes consideration of the individuals' lever arms. Although this is the correct concept for muscle strength assessment, articles in the literature show some ''flexibility'' regarding the presentation and use of strength data. The following are a few papers that have used the handheld dynamometer (HHD) in different clinical and methodological contexts for children and adolescents. Beenakker et al.[3] and Ervin et al.[4] published normative values in units of force for typical children and adolescents. McLaine et al.[5] similarly reported weight-normalized force values for adolescent swimmers. A recent normative study by McKay et al.,[6] using HHD with children and adolescents, transformed the force measured in N into torque values in Nm and provided an anthropometric correction table. Recent clinical studies about chronic diseases, in children and adolescents, provide force values: Bos et al.,[7] Kennedy et al.,[8] as well as force values transformed into Z scores: Burns et al.,[9] Lin et al.[10] While Hébert et al.[11] provide muscle torque, obtained from measured force and lever arm analysis.

It is challenging to work with children and adolescents and to perform muscle strength assessments. Thus, instruments such as the HHD are reliable, even when testing larger muscles. The primary aim of our study was to test the reliability of the HHD in typical children and adolescents. The use of absolute muscle strength data meets the needs of the paper. Moreover, the authors were careful to refer to muscle strength data and never muscle torque. Second, the paper presented the data considering differences in age groups. Participants' age-appropriate body mass index (BMI) was assumed, based on the absence of statistical difference between anthropometric data within a specific age. This ensures that muscle strength data are representative of a given age. Unfortunately, we did not highlight that muscle torque data would technically represent the best output variable.

While our data present isometric muscle force data and not muscle torque data, we remain convinced of the study's contribution to the field of Physical Therapy.

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