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Standardization of muscle palpation-methodological considerations.

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Abstract

Objectives: To compare test-retest variability of palpation between a new palpometer and manual palpation using (1) right or left hand, (2) index or middle finger, (3) randomized or fixed sequence of force levels, (4) palpation on soft or hard surface, and (5) palpation for 2 or 10 seconds.

Methods: Twelve clinicians were instructed to target 0.5, 1.0, and 2.0 kg on a force meter using a palpometer (adjustable spring-coil with a small pin touching the examiner's hand when the correct pressure is achieved) and manual palpation with right or left hand, index or middle finger, randomized or fixed sequence of force levels, on hard or soft surface, and for 2 or 10 seconds. During all experiments, 10 force measures were taken and variability was determined as coefficient of variation (CV) and compared with analyses of variance.

Results: In all experiments, the palpometer had lower variability compared with manual palpation ($P<0.001$). There were no differences between the CVs of right and left hand ($P=0.122$), index and middle finger ($P=0.240$), and soft and hard surface ($P=0.240$). Random sequence of force levels had higher CVs than fixed sequence with manual palpation ($P=0.004$), but not with palpometer ($P=0.856$). CVs for 2 seconds palpation were higher than 10 seconds ($P=0.002$).

Conclusions: The palpometer had low test-retest variability and provided a more accurate and reproducible pressure stimulus than manual palpation. The findings of this study may help to standardize palpation of human muscles required for accurate and reliable diagnosis of musculoskeletal pain conditions.