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Protocol of ultrasound detection of multifidus in the lumbar spine tract

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A correct morphological analysis is strictly related to the modalities of acquisition. A protocol to standardize cross-sectional ultrasound scans of lumbar multifidus (LM) was set, aiming to correct and complete information (1). Three authors of the study took turns as subject and operator mutually, repeating the scans until definite, correct, and complete images were obtained for each of the lumbar levels investigated. The convex probe (5.0Mhz emission) of a LogiqE (Ge Medical Systems, Milwaukee, WI, USA) in B-mode Real Time modality was used. During each scan, the setting of the machine was fixed for all planes. The gain was set at 82, parameters of depth control at 7cm, focal frequency at 31Hz with the implementation of bifocal setting. Each scan conducted on the posterior aspect of the lumbar vertebra produced characteristic shapes that were indicative of the level at which the scan was performed. For a complete and correct definition of the area and section of interest of LM, the recognition of the lateral side of the osteofibrous space was particularly critical (2). Once the optimal plane to scan LM had been defined, three different morphologies, characteristic of the vertebral recesses corresponding to vertebrae L5-L4, L3, L2-L1, were identified (3). To guarantee uniformity in data collection, in the communication and individualization of the parameters characterizing the clinical pictures, the protocol of acquisition had to be repeatable, reliable, and it had to reduce the operator dependence (1,2,3). In conclusion, a correct and complete image is subject to qualitative and quantitative evaluation in the area of interest of LM. This undeniably favours communication between different diagnostic centres and the detection of morphological modifications that characterize both function and pathology.

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Keywords
Spine; ultrasound; lumbar multifidus; reliability; diagnostic imagine.