Abstract

BACKGROUND: The need for early identification of postural abnormalities without exposing patients to constant radiation has stimulated the development of instruments aiming to measure the spinal curvatures. OBJECTIVE: To verify the validity, repeatability and reproducibility of angular measures of sagittal curvatures of the spine obtained using an adapted arcometer, by comparing them with Cobb angles of the respective curvatures obtained by using X-rays. METHODS: 52 participants were submitted to two procedures designed to evaluate the thoracic and lumbar curvatures: (1) X-ray examination from which the Cobb angles (CA) of both curvatures were obtained, and (2) measuring the angles with the arcometer (AA). Two evaluators collected the data using the arcometer, with the rods placed at T1, T12, L1 and L5 spinous processes levels in a way as to permit linear measurements which, with aid of trigonometry, supplied the AA. RESULTS: There was a very strong and significant correlation between AA and CA (r=0.94; p<0.01), with no-significant difference (p=0.32), for the thoracic curvature. There was a strong and significant correlation for the lumbar curvature (r=0.71; p<0.01) between AA and CA, with no-significant difference (p=0.30). There is a very strong correlation between intra-evaluator and inter-evaluator AA. CONCLUSION: It was possible to quantify reliably the thoracic and lumbar curvatures with the arcometer and it can thus be considered valid and reliable and for use in evaluating spinal curvatures in the sagittal plane.

Keywords
Evaluation, spine, X-rays, validity of tests, physical therapy.