Abstract

BACKGROUND: The sit-and-reach test (SRT) used to measure low back and hamstring flexibility is more adequate when combined with hip joint angle (HJA) measurement. It is supposed that shortening of the gastrocnemius muscle could affect the SRT results. OBJECTIVES: The purposes of the study were to investigate the relationship between the HJA and SRT and to verify the influence of the gastrocnemius. METHODS: This is a cross-sectional study on healthy subjects. Two hundred subjects took part in the study: 100 males and 100 females aged 21.2 years (SD=1.7). The materials used were a sit-and-reach box with an adapted door to evaluate the influence of the gastrocnemius and a digital camera. Skin markers were positioned on the anterior superior iliac spine and greater trochanter. Two pictures were taken in the final position of the test, one with the door closed (with ankle dorsiflexed - DF) and the other with the door opened (with ankle plantarflexed - PF). RESULTS: Moderate correlation was found between the HJA and SRT for DF and PF (r=0.48 e 0.44). The HJA with DF and PF were 95.5º±18.6º and 99.7º±18º (P<0.001), respectively. Conclusions: Angular kinematic analysis is a reliable technique to measure the HJA. The results demonstrated the influence of the gastrocnemius; thus we suggest that the SRT be performed with free ankle joint mobility.

Keywords

biomechanics; hip joint; physical examination.