TACSM Abstract

Relationships between Leg Power, Leg Strength, Knee Valgus and Trunk Endurance with Hip Pain in Dancers

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ABSTRACT

The hip is a common site of pain and injury in dancers. The purpose of this study is to explore the relationships between leg power, leg strength, knee valgus and trunk endurance with anteriolateral hip pain. Nine collegiate-aged dancers currently in a university dance program (age = 20±1 yrs, height = 64.8±4.5 in, weight = 131.2±12.8 lbs) reported, on a Visual Analog Scale, their level of pain at rest and while dancing. The dancers' countermovement jump (CMJ), squat jump (SJ) and anterior, posterior and bi-lateral trunk endurance were then assessed. The CMJ and SJ assessments, as measures of lower body power and strength, respectively, were conducted on a contact mat (Just Jump, Probotics, Huntsville, AL). During the CMJ, knee valgus was evaluated by filming the participant (120 fps) from the frontal view. The CMJ with the highest jump score was used to measure the greatest amount of knee valgus collapse, defined as the angle from the ASIS, middle of the patella and center of the tibiotalar joint. Moderate Pearson's product-moment correlations were observed between age (r = 0.48), posterior trunk endurance (r = -0.48) and the ratio between right lateral and anterior trunk endurance (r = 0.42) with hip pain while resting. Moderate correlations were found between leg power (r = -0.43), leg strength (r = -0.54), the ratio between right and left lateral trunk endurance (r = -0.46), and the ratio between left lateral and posterior trunk endurance (r = 0.46) with hip pain while dancing. Increasing leg power and strength as well as addressing asymmetries, particularly in the trunk musculature, may decrease the pain associated with dancing; further research is needed to explore these relationships.