COMPARING USE OF A GONIOMETER AND FUNCTIONAL FOOTPRINT TO MEASURE HIP EXTERNAL & INTERNAL ROTATION IN COLLEGIATE DANCE MAJORS

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INTRODUCTION

Background and Purpose:

The amount of hip mobility is very important to a dancer’s success and musculoskeletal health. Pre-participation screens are used to identify the potential risk for injury1. It is important that pre-participation screens for dance include dance specific positions, such as hip internal and external rotation1-4. The purpose of this study was to examine the relationship between two different methods of measuring hip mobility (internal and external rotation). The first method uses a goniometer, which is a commonly used tool in Physical Therapy practice to measure joint mobility. The second method is a Functional Footprint®, which is a device created by a Physical Therapist to measure hip internal and external rotation5. Research has shown that when used appropriately a goniometer provides accurate range of motion measurements1-3. Further research is needed to support or refute the validity and accuracy of the Functional Footprint® device when measuring hip mobility.

RESULTS and OUTCOMES

One of the limitations of this study is inter-rater reliability. Because this study spanned over multiple years and there was an increased quantity of dancers to be measured, multiple physical therapy students had to record measurements, which could have led to different measurements between participants. Another possible limitation resulting in different measurements between the two methods of measurement is that goniometer measurements utilized passive hip range of motion, while the Functional Footprint® utilized active hip range of motion. Strength deficits could have contributed to decreased range of motion among the Functional Footprint® range of motion measurements.

DISCUSSION

Research has shown that limited hip rotation, specifically hip internal rotation, is correlated with ACL injury in other sports, such as football and soccer2-4. Given the risks associated with limited hip rotation, it would be beneficial to gather dancers’ hip rotation measurements in order to prevent injury. There is no statistically significant correlation between the goniometer and Functional Footprint® measurement for Left Hip External Rotation (ER), Right Hip ER, Left Hip Internal Rotation (IR) or Right Hip IR. In addition, the difference between the goniometer and Functional Footprint® measurements are statistically significantly different for Left Hip ER, Right Hip ER, Left Hip IR, and Right Hip IR. According to the p values obtained for the correlation and difference between the two forms of measurement, the Functional Footprint® would not be considered a reliable predictor of hip rotation and should therefore not be used in place of goniometry measurements. We recommend measuring hip rotation using traditional goniometry, or in conjunction with the Functional Footprint®, however not relying solely on the Functional Footprint® for hip mobility measurements.

REFERENCES


