

An Investigation of the Relationship between Diagnosis and Objective Tests in the Assessment of Athletic Groin Pain

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Introduction

Athletic groin pain (AGP) is a common condition accounting for 2-5% of all sport related pain.¹ AGP is most often chronic in nature and is therefore associated with extended absences from participation in sport. Epidemiological studies have found that AGP is only behind fractures and injuries to the anterior and posterior cruciate ligaments in term of time lost from sport.^{2,3}

An insidious onset and a non-specific presentation of symptoms frequently observed among individuals with AGP create a challenge in the management of such athletes. Objective tests and a clear diagnosis are therefore integral to the successful management of AGP.⁴

Hip range of motion, the adductor squeeze test and the crossover test are widely used objective measures in the assessment of athletes with AGP.⁵ However, there is a dearth of research surrounding the significance of the aforementioned clinical indicators relative to specific diagnoses.

Aim: To determine the relationship, if any, between the presenting diagnosis and the objective findings of hip internal and external range of motion, the adductor squeeze test and the crossover test in males with a history of AGP

Methods

Forty male athletes (mean \pm SD: age 27.8 \pm 6.2 years; height 180.16 \pm 6.1cm; mass 83.0 \pm 10.7kg) with a history of groin pain were included in this study. Subjects were from a variety of sporting backgrounds including; Gaelic Football (n = 24), Hurling (n = 7), Soccer (n = 4), Rugby (n = 3), Hockey (n = 1) and Tennis (n = 1).

The study cohort were grouped according to their diagnosis given by a sports medicine consultant; Anterior Plate (n = 26), Hip (FAI/CAM) (n = 7) and Anterior Plate and Hip (n = 7) and also by their symptomatic side; right (n = 18), left (n = 17), bilateral (n = 5). Passive hip internal rotation (Figure 1) and external rotation, the adductor squeeze test at 0, 45 and 90 degrees (Figure 2 A-C) using a sphygmomanometer and the crossover test (Figure 3) were carried out by an experienced physiotherapist.

Results

A significant difference in hip internal rotation was found both for subjects with right sided pain and subjects with left sided pain and their contra lateral non-symptomatic side ($p < 0.001$) (mean 5.28 SD \pm 4.99, mean 6.76 SD \pm 7.06). No significant difference between right and left hip internal rotation was found in subjects with bilateral groin pain ($p > 0.05$) (mean 1.00 SD \pm 2.24).



Figure 1. Hip Internal Rotation



Figure 2A. Adductor Squeeze Test - 0 degrees



Figure 2B. Adductor Squeeze Test - 45 degrees



Figure 2C. Adductor Squeeze Test - 90 degrees



Figure 3. Crossover Test

The range of motion of hip internal rotation or external rotation were not found to be correlated with the crossover test. However the crossover test was found to be significantly correlated with the squeeze test at 45 degrees. ($p = 0.05$) but not at 0 or 90 degrees ($p > 0.05$). No correlation was found between diagnosis, the adductor squeeze test at either 0, 45 or 90 degrees or the crossover test.

Discussion

The results of this study highlight the presence of loss of hip internal rotation in individuals with AGP. This is demonstrated by the significant asymmetry in range of motion between the symptomatic and asymptomatic side.

The adductor squeeze test at 45 degrees may be the most sensitive position in which to assess pain provocation as suggested by its correlation with the crossover test. Subjects who had a positive crossover test (i.e. pain was reproduced on the opposite side to that being tested) had significantly lower adductor squeeze test values measured to the onset of groin pain than subjects who had a negative crossover test ($p = 0.05$). The crossover test is often used as a clinical indicator of irritability of groin pain, with a positive test suggesting a poorer prognosis. As such, the results of this study suggest that adductor squeeze values at 45 degrees may also be an indication of irritability of symptoms in individuals with groin pain, as well as being a reliable measure of adductor muscle strength⁶. This could potentially prove useful in monitoring the severity of symptoms and the readiness for returning to sport.

Considering the absence of a correlation between diagnosis and either the crossover test and the adductor squeeze tests (0, 45 or 90 degrees), they may be best used as pain provocation tests rather than diagnostic tests.

References

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