Movement Screening in Young Academy Footballers: Altered Movement Patterns Compared to the Benchmark

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Introduction
Hip and groin pain are common in footballers, accounting for 5-15% of injuries (1). It is suggested that Femoroacetabular Impingement (FAI) is a major cause of this pain. Physical demands placed on hip joints during critical stages of development place young people at risk of abnormalities consistent with FAI (2), a precursor of hip osteoarthritis (OA) (3,4).

A high percentage (72%) of footballers have FAI morphological changes, which are not always associated with pain. Abnormal movement patterns of hip flexion and medial rotation were observed in footballers with hip/groin pain (5). Poor hip flexion control was observed as the trunk leaning forwards and 44% with anterior pelvic tilt. Further evidence of poor hip flexion was seen in the deep squat test (Figure 3), with 75% presenting with the trunk leaning forwards and 44% with anterior pelvic tilt.

Methods
A Hip and Lower Limb Movement Screening tool was developed to assess movement patterns. The investigator observes movements during the tests and grades movement control against benchmark criteria. The screen includes seven tests:

1) A small knee bend (SKB)
2) SKB with trunk rotation
3) Deep squat
4) Standing hip flexion to 110°
5) Sitting hip flexion to 110°
6) Hip abduction with lateral rotation
7) Hip abduction with medial rotation

Results
Altered movement patterns were observed during all seven tests compared to the benchmark but were most marked during the SKB test (Figure 2) were: trunk leaning forwards (56% of footballers demonstrated this fault bilaterally) and anterior pelvic tilt (44% on right side; 53% left). The hip abduction with lateral rotation test, showed abnormal movements of backward pelvic rotation (75% right; 69% left) and hip flexion (78% right; 64% left).

Results (continued)
The movement faults indicated poor hip flexion control during the SKB test (Figure 2) were: trunk leaning forwards (56% of footballers demonstrated this fault bilaterally) and anterior pelvic tilt (44% on right side; 53% left). Further evidence of poor hip flexion was seen in the deep squat test (Figure 3), with 75% presenting with the trunk leaning forwards and 44% with anterior pelvic tilt.

Conclusion
Young academy footballers showed altered movement patterns on all seven tests but most noticeably during the SKB, deep squat and hip abduction with lateral rotation tests.

Although altered movements were marked in three of the seven tests, further research is needed to establish the relationships between tests and whether all seven are needed to screen footballers.

Identifying movement patterns may inform exercise interventions and correcting movement abnormalities in footballers may be key to prevent and manage hip and groin symptoms effectively.

References

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