

Measuring hip muscle strength in patients with femoroacetabular impingement and other hip pathologies



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Femoroacetabular impingement is increasingly recognized as a source of significant morbidity.¹⁻¹⁰ Muscle weakness is reported in 34% of patients with femoroacetabular impingement (FAI). Understanding the relationship between FAI and hip muscle weakness could lead to improved diagnosis, targeted treatments, and more accurate assessment of a patient's response to treatment. Mayne et al¹¹ conducted a systematic review of the literature on measurement of muscle strength in patients with FAI and other hip pathologies. A total of 29 studies published between 2000 and 2007 in which hip muscle strength was measured were identified. Only two studies evaluated hip muscle weakness and FAI or hip pain. In total, 26 studies examined methods of strength measurement. On the basis of this review, the authors made recommendations to standardize protocols for hip strength measurement for future studies.¹¹

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Author contributions

- E. Mayne: Wrote the paper, Searched the literature.
- P. Raut: Wrote the manuscript, Searched the literature.
- A. Memarzadeh: Wrote the manuscript, Searched the literature, Made the final corrections.
- A. Arora: Wrote the paper, Searched and analysed the literature, Conducted project support.
- V. Khanduja: Initial idea, Research methodology, Wrote the manuscript.
- E. Mayne and A. Memarzadeh are co-first authors.

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Assessing Muscle Strength in Femoroacetabular Impingement & Other Hip Pathologies

Mayne et al., Bone Joint Res 2017



34% of patients with Femoroacetabular impingement (FAI) report hip muscle weakness

Understanding the relationship between



- Improved diagnosis
- Targeted treatments
- Assessment of response to treatment

Systematic Review



Inclusion Criteria:
published 2000 - present &
hip muscle strength measured



Article Topics Level of Evidence

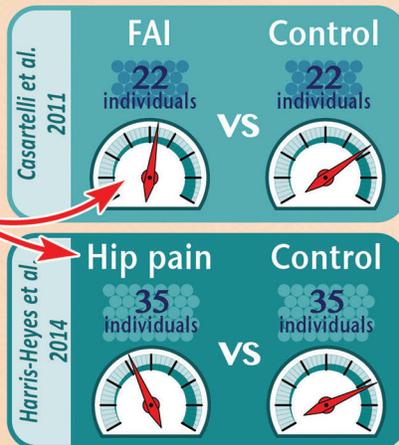
Article Topics	Level of Evidence
2 FAI & hip muscle strength	2 3 4
1 Review: FAI & Range of Motion impairments	1 2 3 4
6 Muscle strength in other pathologies	1 2 3 4
3 Muscle strength in healthy adults	1 2 3 4
5 paediatric muscle strength	1 2 3 4
12 measuring strength Position & test type	1 2 3 4

Results

Only 2 studies evaluate hip muscle weakness and FAI or hip pain.

Weaker Groups

Groups with FAI or hip pain displayed more hip muscle weakness than controls.



26 studies examined methods of strength measurement

- Standardised methods required
- Hand-held & motor-driven dynamometry - both reliable, but former prone to inter-observer error
- Isokinetic and isometric values should be measured
- Measure flexion and extension while standing
- Measure rotation while sitting

Conclusions

Improved and standardised evaluation of hip muscle strength may improve diagnosis, allow for targeted treatment of FAI and hip pain and also help in assessment of response to treatment.