

1 **Standardising muscle strength measurement protocols in femoroacetabular impingement**

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3 **RE: Kierkegaard, S., Mechlenburg, I., Lund, B., Søballe, K., & Dalgas, U. (2017). Impaired**
4 **hip muscle strength in patients with femoroacetabular impingement syndrome. *Journal of***
5 ***Science and Medicine in Sport.***

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7 Dear Sir,

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9 We read with interest the article entitled “Impaired hip muscle strength in patients with
10 femoroacetabular impingement syndrome” Kierkegaard, S and his colleagues. It is certainly
11 an interesting article and shows reduced muscle strength in the affected as well as the
12 unaffected hips in those suffering with femoroacetabular impingement (FAI).

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14 However, despite being a well-designed study, there were no power calculations included;
15 and the methods left some unanswered questions regarding the details of how the
16 measurements were performed. The position of the hip was not determined during strength
17 testing, nor were rotational values recorded.

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19 Our recent review on this subject ⁽¹⁾ has identified the parameters, which would result in
20 accurate and reliable strength testing in patients with FAI. A protocol was created, which if
21 used, would create comparable values across studies. Based on this, the positive aspects of
22 your published article’s protocol were using a single tester, standardising their testing
23 protocol and using both isometric and isokinetic tests.

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25 However, it is not clear whether the patients were stabilised during the movements. The
26 position of the hip when testing specific movements is also unclear. Hip flexion should
27 ideally be measured in the standing or supine position, whereas hip extension strength is
28 best performed supine or standing; indeed prone testing of hip extension is not
29 recommended. In addition, internal and external rotation of the hip are ideally performed in
30 flexion, but this was not performed in the study.

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32 Given the enormous degrees of variability in measuring hip muscle strength, future studies
33 should ideally follow these guidelines to ensure that results can be standardised. This will
34 enable meta-analyses to combine these results and improve our collective understanding of
35 this complex pathology called FAI.

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37 References:

- 38 1. Measuring hip muscle strength in patients with femoroacetabular impingement and
39 other hip pathologies: a systematic review
40 *Mayne E, Memarzadeh A (joint first author), Raut A, Arora A, Khanduja V. Bone Joint Res*
41 *(2016) 5:1–7. DOI: 10.1302/2046-3758.512*

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