

**Hip Arthroscopy compared with Physiotherapy and Activity Modification for the Treatment of Symptomatic Femoroacetabular Impingement: A Multi-Center Randomized Controlled Trial**

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**Declarations:**

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## **Introduction:**

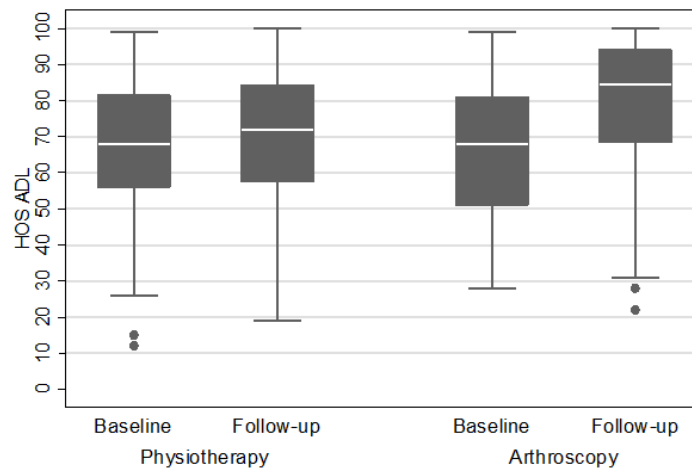
Femoroacetabular Impingement (FAI) describes abutment of the femoral neck against the acetabular rim due to morphological abnormalities of the hip. FAI can cause hip pain and stiffness, and is a salient risk factor for osteoarthritis. The number of arthroscopic hip procedures performed to treat this condition is rapidly increasing despite limited evidence of benefit over non-operative measures. This trial compares hip arthroscopy with physiotherapy and activity modification for improving patient reported outcome measures in symptomatic FAI.

## **Methods:**

We report a two-group parallel assessor-blinded pragmatic randomised controlled study with patient recruitment from seven NHS England sites. Participants were aged 18 to 60 years with symptomatic FAI confirmed clinically and radiologically. Exclusion criteria included previous surgery, completion of a physiotherapy programme targeting FAI within the preceding 12 months, established osteoarthritis (Kellgren-Lawrence  $\geq 2$ ), and hip dysplasia (centre-edge angle  $< 20$  degrees). 222 Participants were randomised (1:1) to receive hip arthroscopy with excision of the abutting bone ( $n = 112$ ) or goal-based physiotherapy and activity modification ( $n = 110$ ). The primary outcome measure was the Hip Outcome Score Activities of Daily Living (HOS ADL) at eight months post randomisation (intention to treat analysis). The trial was registered at ClinicalTrials.gov NCT01893034.

## **Results:**

At eight months post-randomisation, data was available for 100 patients in the arthroscopy group (89%) and 88 patients in the physiotherapy and activity modification group (80%). Mean HOS ADL was 10.0 points higher in the arthroscopy group ( $n = 100$ ) compared with the physiotherapy and activity modification group (95% CI 6.4-13.6,  $p < 0.001$ ), exceeding the minimally clinical important difference. No serious adverse events were reported in either group. Study conclusions were unchanged after sensitivity analyses for missing data.



**Box and Whisker Plot for HOS ADL at baseline and eight months post randomisation follow up (mITT).**

#### **Discussion:**

Patients with symptomatic FAI referred to specialist care achieve superior outcomes with hip arthroscopy compared with non-operative measures. Further research is required to identify patients most likely to benefit from intervention and to assess long-term outcomes. It remains unclear whether arthroscopic hip surgery can prevent the development of osteoarthritis.

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