

# FEMOROACETABULAR IMPINGEMENT SYNDROME

## Trends and outcomes after arthroscopic treatment in the general and athlete population

Akademisk avhandling

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av Ida Lindman

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### Avhandlingen baseras på följande delarbeten

- I. Lindman I, Öhlin A, Desai N, Samuelsson K, Ayeni OR, Hamrin Senorski E, Sansone M. Five-Year Outcomes After Arthroscopic Surgery for Femoroacetabular Impingement Syndrome in Elite Athletes. *Am J Sports Med.* 2020;48(6):1416-1422.
- II. Lindman I, Olsson H, Öhlin A, Hamrin Senorski E, Stålmán A, Ayeni OR, Sansone M. Loss to follow-up: initial non-responders do not differ from responders in terms of 2-year outcome in a hip arthroscopy registry. *J Hip Preserv Surg.* 2020;6;7(2):281-287.
- III. Lindman I, Abrahamsson J, Öhlin A, Wörner T, Eek F, Ayeni OR, Hamrin Senorski E, Sansone M. Improvements After Arthroscopic Treatment for Femoroacetabular Impingement Syndrome in High-Level Ice Hockey Players: 2-Year Outcomes by Player Position. *Orthop J Sports Med.* 2021;18;9(3); doi: 10.1177/2325967120981687.
- IV. Lindman I, Nätman J, Öhlin A, Svensson Malchau K, Karlsson L, Mohaddes M, Rolfson O, Sansone M. Prior hip arthroscopy does not affect 1-year patient-reported outcomes following total hip arthroplasty: a register-based matched case-control study of 675 patients. *Acta Orthop.* 2021; 10:1-5.
- V. Lindman I, Nikou S, Öhlin A, Hamrin Senorski E, Ayeni OR, Karlsson J, Sansone M. Evaluation of outcome reporting trends for femoroacetabular impingement syndrome - a systematic review. *J Exp Orthop.* 2021;8(1):33; doi: 10.1186/s40634-021-00351-0

**SAHLGRENKA AKADEMIN**  
**INSTITUTIONEN FÖR KLINISKA VETENSKAPER**



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## Trends and outcomes after arthroscopic treatment in the general and athlete population

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### Abstract

Femoroacetabular impingement syndrome (FAIS) is a common cause of hip pain in the young and athletic population. The diagnosis - FAIS - is based on a triad of symptoms, clinical evaluation and radiographic signs. The impingement is caused by an abnormal morphology of the femoral head (cam) and/or the acetabulum (pincer). It is proposed and widely accepted that the abnormal morphology of cam in particular develops due to repetitive motion and a heavy load on the hip joint during adolescence, and is more common in sports imposing high demands on the hip joint. Moreover, it has been proposed that FAIS contributes to the development of osteoarthritis of the hip joint. Current evidence has acknowledged promising outcomes after arthroscopic hip surgery aiming to correct the abnormal morphology to reduce pain and increase range of motion. Despite rapid improvements in diagnosis, treatment and scientific research in terms of FAIS, several unresolved issues remain. The purpose of this thesis was to examine the midterm outcomes for patients undergoing hip arthroscopy for FAIS for the general population, and with the emphasis on the results for elite athletes, including high-level ice hockey players. Moreover, to investigate the influence of loss to follow-up in studies of hip arthroscopy and the impact of a prior hip arthroscopy with a subsequent total hip arthroplasty. **Study I** is a prospective case-series study evaluating the five-year outcomes after hip arthroscopy in 64 elite athletes. The outcomes showed both statistically significant and clinically relevant improvements in symptoms, hip function, quality of life and pain reduction. Over 90% of the elite athletes reported satisfaction with the surgery. The study reveals that elite athletes experience good results after hip arthroscopy for FAIS. **Study II** is a registry-based study evaluating the impact of the loss to follow-up in studies related to hip arthroscopy. It concluded that there are no differences between patients lost to follow-up compared with those included in the follow-up in terms of validated patient-reported outcome measures. The study suggests that loss to follow-up has little effect on conclusions drawn from similar studies evaluating hip arthroscopy. **Study III** is a prospective case-series study evaluating the two-year outcomes after hip arthroscopy in 172 high-level ice hockey players. It revealed both statistically significant and clinically relevant improvements in patient-reported outcomes for both goalkeepers, forwards and defensemen. No relationship was found with the affected hip and stick handedness. The study reveals that ice hockey players experience good results after hip arthroscopy for FAIS regardless of player position. **Study IV** is a propensity-score matched study appraising the consequence of a prior hip arthroscopy on a subsequent total hip arthroplasty. No inferior outcomes in patients with a prior hip arthroscopy were detected compared with patients who had not undergone previous hip arthroscopic surgery. It is reassuring that patients in need of a hip arthroscopy are able to undergo an intervention of this kind, without risk of compromising the results of a potential future hip arthroplasty. **Study V** is a systematic review where the trends in the literature related to studies evaluating surgery for FAIS with the emphasis on PROMs are studied. It comprised 196 studies and displayed a continuous and almost explosive growth in the scientific publications with the vast majority exploring arthroscopic treatment.

**Keywords:** femoroacetabular impingement syndrome, FAIS, hip arthroscopy, athletes, ice hockey, cam, pincer, osteoarthritis, total hip arthroplasty, hip pain

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