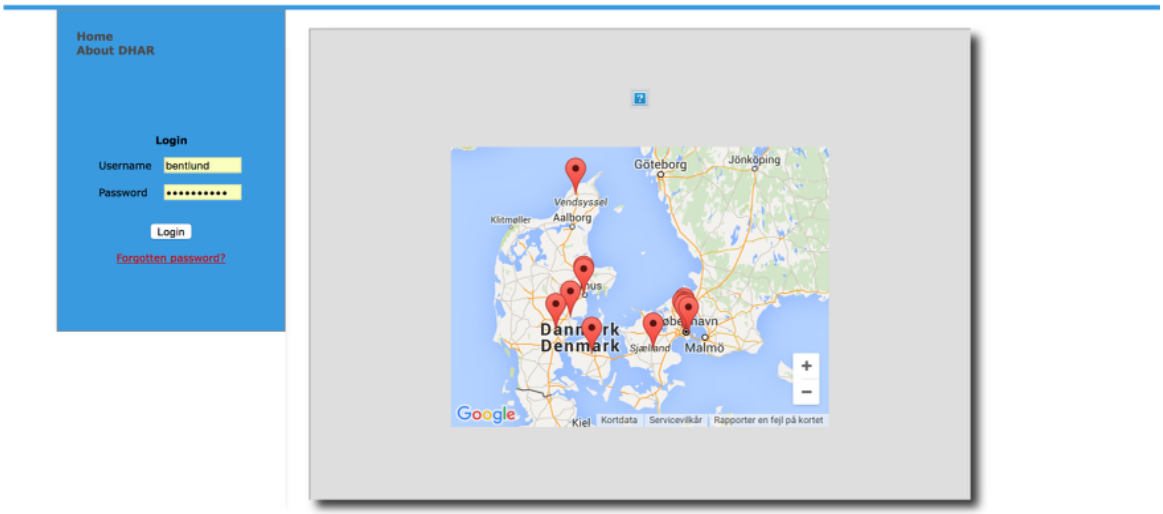
DHAR
Danish Hip Arthroscopy Registry

Annual report 2021

Danish Hip Arthroscopy Registry



Steering committee:
Bent Lund, Horsens Regional Hospital, chairman
Otto Kraemer, Hvidovre Hospital
Per Hölmich, Hvidovre Hospital
Niels Maagaard, Odense University Hospital
Søren Winge, CPH Privathospital
Bjarne Mygind-Klavsen, Aarhus University Hospital
Christian Dippmann, Bispebjerg Hospital

Table of contents

Introduction

Since 2010 hip arthroscopies have only been performed at a limited number of hospitals with specific levels of expertise in Denmark. This was based on a new Health law regulating various treatments. Furthermore, it was demanded that the hospitals and clinics registered the procedures they performed. This gave the inspiration for a national hip arthroscopy registry. The Danish Hip Arthroscopy Registry (DHAR) was initiated in 2012 and the development was funded by a grant from The Danish Society for Arthroscopy and Sportstraumatology (SAKS). The DHAR is one of only two national non-arthroplasty registries existing so far.

Permission was granted for the Registry in 2012 (Region Midt # 1-16-02-215-12)
Data Agreement according to the GDPR-rules was signed in 2019 (# 2012 - 1-16-02-215-12).

DHAR has been open to submissions on-line since the beginning of 2012 and the database structure has been modified several times over the years, mainly because minor flaws and programming errors had to be adjusted and corrected. The Steering Committee meets twice a year and ad-hoc decisions, and data requests are handled pr. e-mail or Web meetings.

In 2016 the first full Annual report was published and since then we have published an annual report. Peer reviewed papers based on data from the DHAR will also be listed here and in fact several have already been published [1–12]. See publication list p. 38.

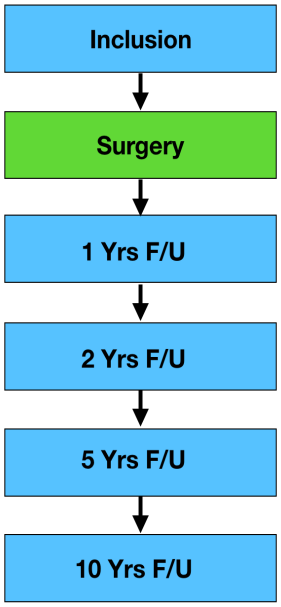
DHAR is run by a voluntary effort among the participating surgeons and the actual database is run by Procordo Inc., a Danish software company hosting a variety of orthopedic registries.

DHAR is solely funded economically by the participating hospitals and private clinics.

Bent Lund
Chairman of the Steering Committee.

DHAR

The Danish Hip Arthroscopy Registry is based on a flowchart, which forms the basic structure and makes it possible to access the various parts of the Registry in the flowchart.



The patients access the Registry through a "kiosk", where they can enter their data on-line and complete the pre-scores in the Patient Related Outcome Measures (PROM). At the time of surgery, the surgeon enters the operative findings and other variables on-line.

When the patients are signed up for hip arthroscopy, they enter the following Patient Related Outcome Measures (PROM) into the registry: HAGOS, iHOT$_{12}$, HSAS, VAS-overall hip function, NRS pain-rest and NRS pain-walk and EQ5D scores.

The surgeons enter the following data at the time of surgery: various radiographic measurements, previous surgery, anesthesia, antibiotics, DVT-prophylaxis, labral tear, cartilage lesions, other injuries, OR-time, traction time, surgical procedures, number of anchors and type, cartilage treatment, bony work, extraarticular surgery and perioperative complications.

The DHAR generates an automatic e-mail notification to the patients at follow-ups 1, 2, 5 and 10 years after surgery with a link to an on-line questionnaire. If they do not respond another e-mail is automatically generated as a reminder.

The registry makes it possible to extract data on the actual patient, but also, on groups of patients or different treatment modalities or types of injuries. All surgeons have access to their own data, but only the steering committee have full access to the data. The database is secure and not open to public access. Data can only be made available on written request and with a research protocol stating the type of request. Permission must be granted by the Danish Data Protection Agency.

Quality indicators

Completeness (surgeon) DHAR/LPR (Danish National Patients Registry) Target 90 %

Table 1. Number of Hip Arthroscopic procedures reported in DHAR and LPR

Completeness	2012	2013	2014	2015	2016	2017	2018*
DHAR	450	709	936	921	803	757	**505**
LPR	576	827	1201	1042	826	880	**571**
DHAR/LPR (%)	78.1	85.7	77.9	88.4	97.2	86.0	**88.4**

***Data included up until September 2018. Due to procedural changes accessing data from the National Patient Registries, data is not yet available after September 2018.**

Completeness of PROMS (patient)/DHAR (surgeon) Pre-op. Target 65%

Table 2. Number of PROMs completed compared to surgical registrations in DHAR

Completeness PROMS (n (%))	2012-2018	2019	2020	2021	Total
Pre	**2936** (55)	**611** (69)	**528** (63)	**423** (58)	**4498** (58)
1 year	**2859** (54)	**469** (53)	**410** (49)	-	**3738** (53)
2 years	**2283** (43)	**382** (40)	-	-	**2665** (43)
5 years	**1173** (32)	-	-	-	**1173** (32)

QoL improvement >25 points 1-year Target 45 %

Table 3. The number of patients reaching an improvement in HAGOS item QoL of more than 25 points at 1, 2 and 5 years

HAGOS QOL (n (%))	2012-2018	2019	2020	2021	Total
1 year	**792** (44)	**177** (45)	**158** (47)	-	**1128** (45)
2 years	**715** (50)	**154** (49)	-	-	**872** (50)
5 years	**385** (56)	-	-	-	**385** (56)

Re-arthroscopies Target 12 %

Table 4. Re-arthroscopies per year

Re-arthroscopies (n (%))	2012-2018	2019	2020	2021	Total
Re-arthroscopies pr. year (n (%))	**631** (12)	**107** (12)	**103** (12)	**95** (13)	**936** (12)

General data

At the end of 2021 there were a total of **7786 arthroscopic hip surgeries** registered in DHAR. Data presented in this annual report is a summation of all the registrations since 2012 and until Dec. 31st, 2021. There are in total **7786 procedures** and **4498 Pre-PROM datasets** from patients.

Table 5. In Denmark **12** public hospitals and clinics have a Regional Function (®) in hip arthroscopy. There are also 4 private clinics operating only on privately insured patients who contributes to the registry. In total **16** hospitals and clinics have reported to the DHAR.

Year	2012-2018	2019	2020	2021	Total
North Region					
Hjørring Regionshospital ®	**445**	**166**	**89**	**49**	**749**
Mid Region					
Aarhus Universitetshospital ®	**359**	**22**	**32**	**20**	**433**
Aleris Hamlet Aarhus ®	**558**	**31**	**54**	**54**	**697**
Horsens Regionshospital ®	**1180**	**183**	**169**	**156**	**1688**
Capio Aarhus	**8**	**3**	**6**	**10**	**27**
South Region					
Odense Universitetshospital OUH ®	**551**	**47**	**46**	**33**	**677**
Privathospitalet Mølholm	**194**	**43**	**52**	**53**	**342**
Capital Region					
Aleris Hamlet København ®	**381**	**147**	**148**	**153**	**829**
AHH Amager Hvidovre Hospital ®	**404**	**74**	**76**	**51**	**605**
Bispebjerg Hospital ®	**237**	**74**	**84**	**65**	**460**
Capio Hellerup ®	**685**	**72**	**18**	**45**	**820**
Gildhøj Privathospital	**78**	**0**	**3**	**0**	**81**
ADEAS Parken ®	**243**	**0**	**0**	**0**	**243**
CPH Privathospital	**0**	**15**	**54**	**45**	**114**
Zealand Region					
Køge Sygehus®	**1**	**4**	**6**	**1**	**12**
Aleris Hamlet Ringsted	**9**	**0**	**0**	**0**	**9**
Total # procedures	**5333**	**881**	**837**	**735**	**7786**

Overall data

Table 6. Demographic data

Demographics	2012-2018	2019	2020	2021	Total
Male	**2258**	**334**	**329**	**306**	**3227**
Female	**3075**	**547**	**508**	**429**	**4559**
Ratio (m/f)	**42/58**	**38/62**	**39/61**	**42/58**	**41/59**
Mean age (year)	**37.7**	**37.2**	**36.5**	**37.0**	**37.4**

Previous surgery

Table 7. Of the 7786 procedures 1577 had a previous surgery in the affected hip. Among these were 416 patients, who were operated with a PAO (Peri-Acetabular Osteotomy) due to congenital dysplasia of the hip. Finally, 49 patients had a previous THR (Total Hip Replacement).

Previous surgery (n)	2012-2018	2019	2020	2021	Total
FAI	631	106	106	97	**940**
Loose bodies /chondromatosis	11	2	1	0	**14**
Lig. teres rupture	5	0	0	0	**5**
Infection	1	1	0	0	**2**
PAO	317	38	34	27	**416**
Osteosynthesis of SCFE	26	4	4	6	**40**
Z-plasty ITB	22	3	0	1	**26**
THR	36	5	2	6	**49**
Other	72	6	4	3	**85**
Total	1121	165	151	140	**1577**

OR time

Table 8. Total OR-time (knife-time) and total traction time

OR time	2012-2018	2019	2020	2021	Total
Total OR-time (min)	**78**	**65**	**64**	**62**	**73**
Total traction time (min)	**45**	**42**	**42**	**40**	**44**

Radiology

Table 9. Radiological parameters

Radiology	2012-2018	2019	2020	2021	Total
LCE-angle (Wiberg) (mean)	**31**	**30**	**29**	**30**	**31**
Alpha angle (mean)	**67**	**66**	**66**	**67**	**67**
Tönnis AI-angle (mean)	**5.5**	**5.5**	**5.5**	**5.2**	**5.5**
Ischial spine sign (n (%))	**1399** (26)	**211** (24)	**189** (23)	**147** (20)	**1946** (25)
Lateral Joint Space Width (n (%))					
<2 mm.	**34** (1)	**1** (0)	**3** (0)	2 (0)	**40** (1)
2,1-3,0 mm.	**223** (4)	**37** (4)	**23** (3)	**33** (5)	**316** (4)
3,1-4,0 mm.	**1656** (31)	**272** (31)	**232** (28)	**240** (33)	**2400** (31)
>4 mm.	**3416** (64)	**566** (65)	**576** (69)	**454** (62)	**5012** (64)

Bony work

Table 10. Relationship between rim-trimming and femoroplasty

Bony work (n (%))	2012-2018	2019	2020	2021	Total
Isolated femoroplasty	**1001** (20)	**137** (17)	**108** (14)	**83** (12)	**1329** (18)
Isolated rimtrimming	**544** (11)	**165** (20)	**151** (19)	**143** (20)	**1003** (14)
Comb. femoroplasty-rimtrimming	**3417** (69)	**519** (63)	**537** (67)	**475** (68)	**4948** (68)

Labral surgery

Table 11. Labral findings and procedures

Labral tear (n (%))	2012-2018	2019	2020	2021	Total
Yes	**4659** (87)	**804** (91)	**792** (95)	**693** (94)	**6948** (89)
No	**674** (13)	**77** (9)	**45** (5)	**42** (6)	**838** (11)
Type of Surgery (n (%))	**2012**	**2019**	**2020**	**2021**	**Total**
Labrum untouched (no treatment)	8 (0)	**2** (0)	**0** (0)	**2** (0)	**12** (0)
Labral remodelling/ partial resection	**561** (12)	**79** (10)	**82** (10)	**70** (10)	**792** (12)
Labral full thickness resection	**231** (5)	**45** (6)	**47** (6)	**60** (9)	**383** (6)
Labral repair	**3706** (79)	**659** (82)	**652** (82)	**547** (79)	**5564** (80)
Labral reconstruction	**22** (1)	**5** (0)	**3** (0)	**0** (0)	**30** (0)
Unknown	**131** (3)	**14** (2)	**8** (2)	**14** (2)	**167** (2)

Cartilage lesions

Table 12. Size and grading of cartilage lesions in the acetabulum and femoral head

Cartilage lesion Acetabulum n (%))	2012-2018	2019	2020	2021	Total
Beck Gr. 0 – Healthy	**90** (2)	**18** (2)	**16** (2)	**23** (4)	**117** (2)
Beck Gr. 1 – Fibrillation	**707** (15)	**113** (15)	**119** (16)	**111** (17)	**1050** (16)
Beck Gr. 2 - Wave sign	**1953** (43)	**350** (47)	**353** (47)	**290** (45)	**2946** (44)
Beck Gr. 3 - Delamination	**1322** (29)	**218** (29)	**202** (27)	**174** (27)	**1916** (28)
Beck Gr. 4 - Exposed bone	**502** (11)	**52** (7)	**63** (8)	**51** (8)	**668** (10)

Acetabular cartilage lesion size (n (%))	2012-2018	2019	2020	2021	Total
0	**104** (2)	**20** (3)	**20** (3)	**25** (4)	**169** (3)
Size < 1 cm^2	**1479** (32)	**291** (39)	**312** (41)	**271** (41)	**2353** (35)
Size 1-2 cm^2	**2343** (52)	**341** (45)	**334** (44)	**283** (44)	**3301** (49)
Size > 2 cm^2	**648** (14)	**99** (13)	**87** (12)	**70** (11)	**904** (13)

Cartilage lesion Head (n (%))	2012-2018	2019	2020	2021	Total
ICRS Gr. 0 – Normal	**3228** (71)	**508** (67)	**485** (65)	**420** (65)	**4641** (69)
ICRS Gr. 1 - Almost normal	**387** (8)	**80** (11)	**84** (11)	**64** (10)	**615** (9)
ICRS Gr. 2 – Abnormal	**595** (13)	**100** (13)	**112** (15)	**93** (14)	**900** (13)
ICRS Gr. 3 - Severely Abnormal	**244** (5)	**42** (6)	**54** (7)	**54** (8)	**394** (6)
ICRS Gr. 4 - Exposed bone	**120** (3)	**21** (3)	**18** (2)	**18** (3)	**177** (3)

Femoral head lesion size (n (%))	2012-2018	2019	2020	2021	Total
0	**3253** (71)	**511** (68)	**491** (66)	**433** (67)	**4688** (70)
Size < 1 cm^2	**413** (9)	**64** (9)	**75** (10)	**63** (10)	**615** (9)
Size 1-2 cm^2	**543** (12)	**107** (14)	**109** (14)	**92** (14)	**851** (13)
Size > 2 cm^2	**365** (8)	**69** (9)	**78** (10)	**61** (9)	**573** (8)

Cartilage surgery

Table 13. Types of cartilage treatment (most patients had a combination of treatments)

Type of cartilage surgery	2012-2018	2019	2020	2021	Total
Cartilage-resection on head	**191** (4)	**20** (3)	**28** (3)	**28** (4)	**267** (4)
Cartilage-resection in acetabulum	**1689** (36)	**171** (21)	**189** (22)	**177** (23)	**2226** (31)
Microfracture on head	**17** (0)	**1** (0)	**1** (0)	**2** (0)	**21** (0)
Microfracture in acetabulum	**203** (4)	**19** (2)	**12** (1)	**18** (2)	**252** (4)
Cartilage-refixation on head	**2** (0)	**1** (0)	**0** (0)	**0** (0)	**2** (0)
Cartilage-refixation in acetabulum	**18** (0)	**4** (0)	**5** (1)	**0** (0)	**27** (0)
Debridement with RF-wand	**2631** (56)	**615** (74)	**642** (73)	**550** (71)	**4437** (61)
Other	**12** (0)	**1** (0)	**1** (0)	**0** (0)	**14** (0)

Extraarticular surgery

Table 14. Additional extraarticular procedures

Type of extraart. proc. (n (%))	2012-2018	2019	2020	2021	Total
Partial AIIS resection	**51** (1)	**4** (0)	**5** (1)	**6** (1)	**66** (1)
Psoas-tenotomy	**294** (6)	**10** (1)	**11** (1)	**14** (2)	**329** (4)
Reinsertion of gluteus medius	**7** (0)	**4** (0)	**2** (0)	**0** (0)	**13** (0)
Z-plasty ITB	**20** (0)	**13** (1)	**5** (1)	**2** (0)	**40** (1)
Resection of trochanteric bursa	**35** (1)	**11** (1)	**4** (0)	**1** (0)	**51** (1)
Capsular closure	**1063** (20)	**339** (39)	**355** (43)	**329** (45)	**2086** (27)
Remov. of hardware (AO-screws)	**52** (1)	7 (1)	**8** (1)	**8** (1)	**75** (1)
Removal of heterotopic ossification	**54** (1)	**2** (0)	**8** (1)	**8** (1)	**72** (1)
Osteosynthesis of os acetabuli	**2** (0)	**3** (0)	**0** (0)	**0** (0)	**5** (0)
Removal of os acetabuli	**41** (1)	**5** (1)	**4** (0)	**9** (1)	**59** (1)
Inforation of bone cyst	**10** (0)	**0** (0)	**3** (0)	**0** (0)	**13** (0)
Other	**51** (1)	**2** (0)	**3** (0)	**3** (0)	**59** (1)
Total	**1300** (28)	**402** (45)	**409** (49)	**380** (51)	**2892** (36)

Types of complications during surgery

Table 15. Complications reported during surgery

Type of complications (n (%))	2012-2018	2019	2020	2021	Total
Labrum cut	**58** (1)	**3** (0)	**4** (0)	**2** (0)	**67** (1)
Anchor pull-out	**102** (2)	**9** (1)	**11** (1)	**13** (2)	**135** (2)
Anchor penetration acetabular surface	**46** (1)	**9** (1)	**3** (0)	**1** (0)	**59** (1)
Suture-defect (break, pull-out, etc.)	**165** (3)	**16** (2)	**12** (2)	**11** (1)	**204** (3)
Broken instrument	**49** (1)	**4** (0)	**4** (0)	**2** (0)	**59** (1)
Loss of traction	**22** (0)	**8** (1)	**6** (1)	**2** (0)	**38** (0)
"Not possible to apply traction"	**33** (1)	**0** (0)	**7** (1)	**9** (1)	**49** (0)
Other	**106** (2)	**12** (1)	**14** (2)	**7** (1)	**140** (2)
Total	**581** (11)	**61** (7)	**61** (7)	**48** (7)	**751** (10)

Antibiotic prophylaxis and DVT prophylaxis

Table 16. Use of antibiotics and DVT prophylaxis. The shift from Dicloxacillin to Cloxacillin in 2020 is due to praxis in the public healthcare medicine assortment.

Antibiotics (n (%))	2012-2018	2019	2020	2021	Total
Dicloxacillin	**1789** (34)	**341** (39)	**101** (12)	**67** (9)	**2298** (30)
Cefuroxim	**3320** (62)	**505** (57)	**513** (61)	**519** (71)	**4857** (62)
Cloxacillin	**0** (0)	**24** (3)	**216** (26)	**148** (20)	**388** (5)
Other	**4** (0)	**0** (0)	**2** (0)	**0** (0)	**6** (0)
Total	**5113** (96)	**870** (99)	**832** (99)	**734** (100)	**7549** (97)
DVT Prophylaxis (n (%))	**2012-2018**	**2019**	**2020**	**2021**	**Total**
Dalteparin (Fragmin)	**58** (1)	**4** (0)	**3** (0)	**3** (0)	**68** (1)
Fondaparinux (Arixtra)	**1** (0)	**0** (0)	**0** (0)	**0** (0)	**1** (0)
Tinzaparin (Innohep)	**188** (4)	**1** (0)	**2** (0)	**0** (0)	**191** (2)
Rivaroxaban (Xarelto)	**751** (14)	**81** (9)	**43** (5)	**42** (6)	**917** (12)
Total	**998** (19)	**86** (10)	**48** (6)	**45** (6)	**1177** (15)

Patient Reported Outcome Measures (PROMs)

Comments to the PROMs:

The data show significant improvements in all PROMs but one.
The improvements in all scales are larger than the MCID (Minimal Clinical Important Difference, defined as SD/2 of the pre-operative values), except for HSAS. This exception is in accordance with the published paper on "Return to sport" [4]. The largest improvement is seen between pre-op and 1-year post-op. Table 23 shows the percentage reaching the MCID. At 5 years the MCID improvement is still between 1.6 and 3.8 times the preoperative value, except for HSAS (Table 25).

Regarding HAGOS the improvements are also significant for PA and QoL (Physical Activity and Quality of Life) between 1 and 2 years and between 2 and 5 years. This late improvement might be explained by a change in patients' expectations over time, because of accepting their hip function as it is, even if it is not at the level of a hip symptom-free control group (*Thorborg K. et al. Patient-Reported Outcomes Within the First Year After Hip Arthroscopy and Rehabilitation for Femoroacetabular Impingement and/or Labral Injury. The Difference Between Getting Better and Getting Back to Normal. Am J Sport Med 2018;46(11):2607–2614*).

Table 17. HAGOS (Copenhagen Hip and Groin Outcome Score)

PROMS pre (n=4498 (58%))	**2012-2018**	**2019**	**2020**	**2021**	**Mean (95% CI)**
HAGOS					
Pain	**49.9**	**49.6**	**48.6**	**48.5**	**49.6 (48.9 - 50.2)**
Symptoms	**48.0**	**47.8**	**46.5**	**47.4**	**47.8 (47.2 - 48.3)**
ADL	**51.3**	**52.3**	**52.1**	**51.9**	**51.6 (50.8 – 52.4)**
Sport & rec	**34.3**	**35.1**	**32.7**	**33.8**	**34.2 (33.4 – 34.9)**
PA	**20.8**	**22.5**	**18.5**	**18.7**	**20.5 (19.8 - 21.3)**
QOL	**29.0**	**28.9**	**28.1**	**27.4**	**28.7 (28.2 - 29.3)**

PROMS 1 year (n=3738 (53%))	**2012-2018**	**2019**	**2020**	**-**	**Mean (95% CI)**
HAGOS					
Pain	**69.3**	**69.6**	**70.1**	-	**69.4 (68.6 - 70.2)**
Symptoms	**65.0**	**65.3**	**65.8**	-	**65.1 (64.4 - 65.9)**
ADL	**71.5**	**73.3**	**74.1**	-	**72.0 (71.1 - 72.9)**
Sport & rec	**56.4**	**56.9**	**59.4**	-	**56.8 (55.7 - 57.8)**
PA	**42.2**	**43.3**	**43.4**	-	**42.5 (41.2 - 43.7)**
QOL	**50.7**	**50.1**	**51.4**	-	**50.7 (49.7 - 51.7)**

PROMS 2 years (n=2665 (43%))	2012-2017	2018	2019	-	Mean (95% CI)
HAGOS					
Pain	**70.4**	**71.3**	**71.0**	-	**70.6 (69.7 - 71.6)**
Symptoms	**65.6**	**66.2**	**66.4**	-	**65.8 (64.9 - 66.7)**
ADL	**72.9**	**73.6**	**74.8**	-	**73.3 (72.2 - 74.3)**
Sport & rec	**58.1**	**58.6**	**59.6**	-	**58.4 (57.2 - 59.7)**
PA	**46.2**	**47.2**	**48.6**	-	**46.7 (45.2 - 48.2)**
QOL	**53.9**	**54.9**	**54.0**	-	**54.0 (52.9 - 55.2)**

PROMS 5 years (n=1173 (32%))	2012-2014	2015	2016	-	Mean (95% CI)
HAGOS					
Pain	**71.4**	**73.7**	**73.7**	-	**73.2 (71.7 - 74.6)**
Symptoms	**66.9**	**68.0**	**68.7**	-	**67.7 (66.3 - 69.1)**
ADL	**74.1**	**75.7**	**76.8**	-	**75.2 (73.7 - 76.8)**
Sport & rec	**59.8**	**61.0**	**63.8**	-	**61.2 (59.3 - 63.1)**
PA	**50.4**	**52.5**	**53.3**	-	**51.8 (49.5 - 54.1)**
QOL	**57.3**	**58.4**	**59.5**	-	**58.2 (56.5 - 60.0)**

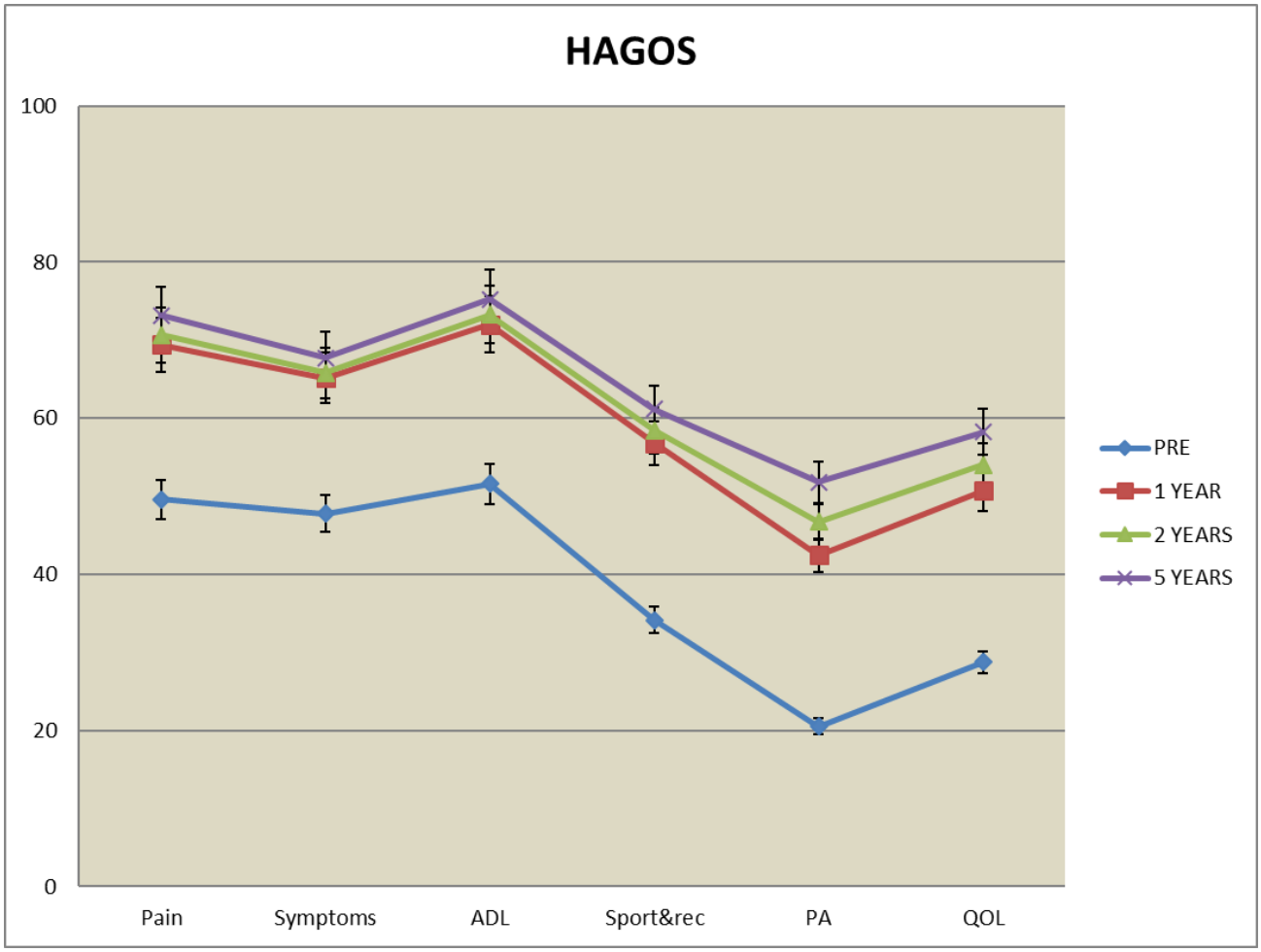


Fig. 1. HAGOS outcomes at 1, 2 and 5 years compared to the pre-scores

iHOT$_{12}$

Table 18. iHOT$_{12}$ data pre-operatively are only valid from 2019 and forward. The data from 2 and 5 years have no pre-op data yet, but they will be included in the coming years

iHOT$_{12}$	2012-2018	2019	2020	2021	Mean (95% CI)
Pre (n=1499)	-	**37.7**	**37.0**	**36.8**	**37.2 (36.1 – 38.3)**
1 year (n=1327)	**62.7**	**61.4**	**63.0**	-	**62.3 (60.7 – 63.9)**
2 years (n=1009)	**63.8**	**64.4**	-	-	**64.0 (62.2 – 65.8)**
5 years (n=853)	**67.9**	-	-	-	**67.9 (65.9 – 69.9)**

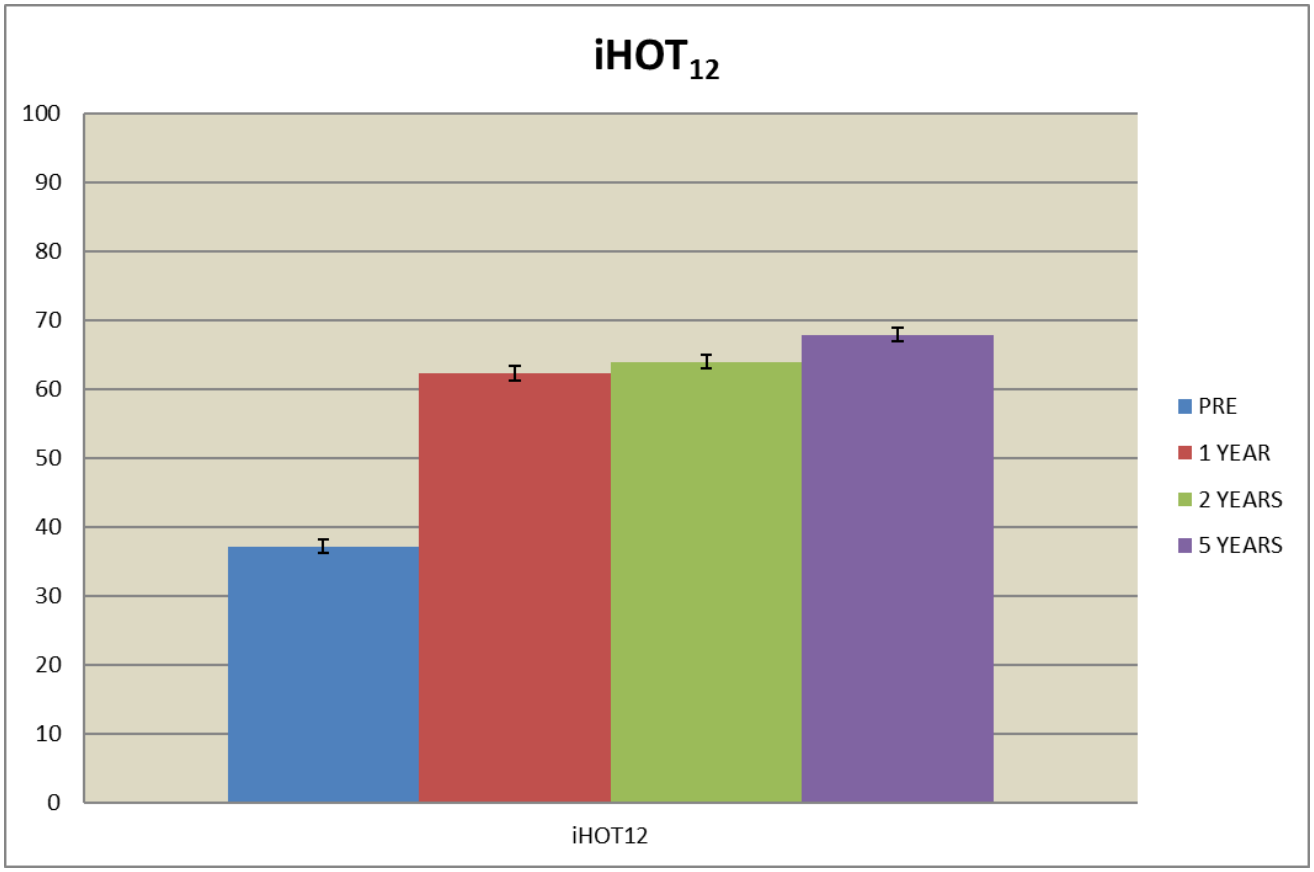


Fig. 2. iHOT$_{12}$ outcomes at 1, 2 and 5 years compared to the pre-scores

NRS scores for pain

Table 19. Numerical Rating Scale for pain at rest and after 15 minutes of walking

NRS Pain - rest	2012-2018	2019	2020	2021	Mean (95% CI)
Pre	**40.2**	**39.8**	**39.7**	**38.9**	**40.0 (39.1 – 40.8)**
1 year	**20.8**	**19.9**	**20.1**	-	**20.6 (19.8 – 21.5)**
2 years	**19.7**	**20.0**	-	-	**19.7 (18.7 – 20.7)**
5 years	**18.2**	-	-	-	**18.2 (16.8 – 19.7)**

NRS pain – walking 15 mins.	2012-2018	2019	2020	2021	Mean (95% CI)
Pre	**51.5**	**50.2**	**50.2**	**49.5**	**51.0 (50.1 – 51.9)**
1 year	**28.3**	**25.9**	**24.7**	-	**27.6 (26.6 – 28.6)**
2 years	**25.4**	**25.5**	-	-	**25.4 (24.2 – 26.5)**
5 years	**21.9**	-	-	-	**21.9 (20.2 – 23.6)**

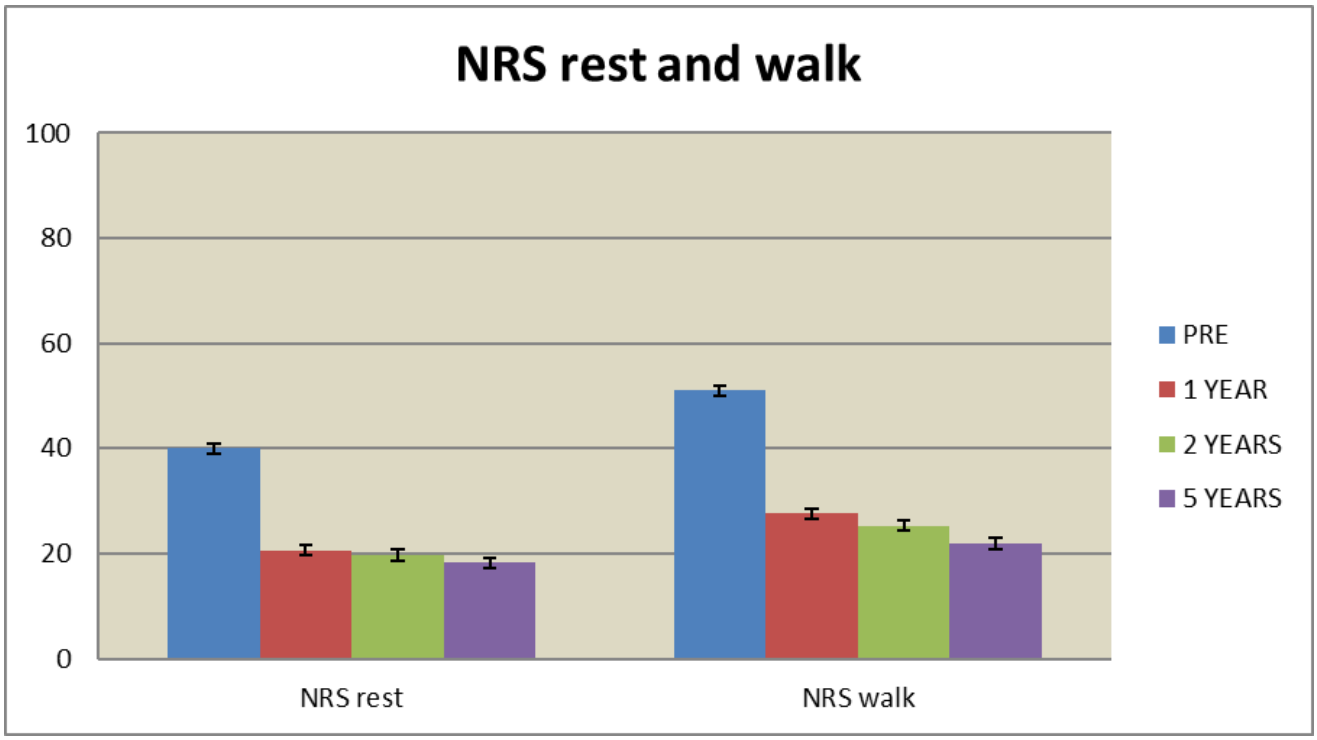


Fig. 3. NRS pain score at rest and after 15 min. walk. Outcome data at 1, 2 and 5 years compared to the pre-scores

Overall hip function

Table 20. The patient's opinion of their overall hip function. 100 is perfect without hip symptoms

VAS – overall hip function	2012-2018	2019	2020	2021	Mean (95% CI)
Pre	**41.2**	**40.6**	**39.2**	**40.4**	**40.8 (40.1 – 41.4)**
1 year	**66.1**	**65.4**	**66.5**	-	**66.0 (65.1 – 67.0)**
2 years	**67.1**	**66.2**	-	-	**67.0 (65.9 – 68.1)**
5 years	**69.7**	-	-	-	**69.7 (68.0 – 71.3)**

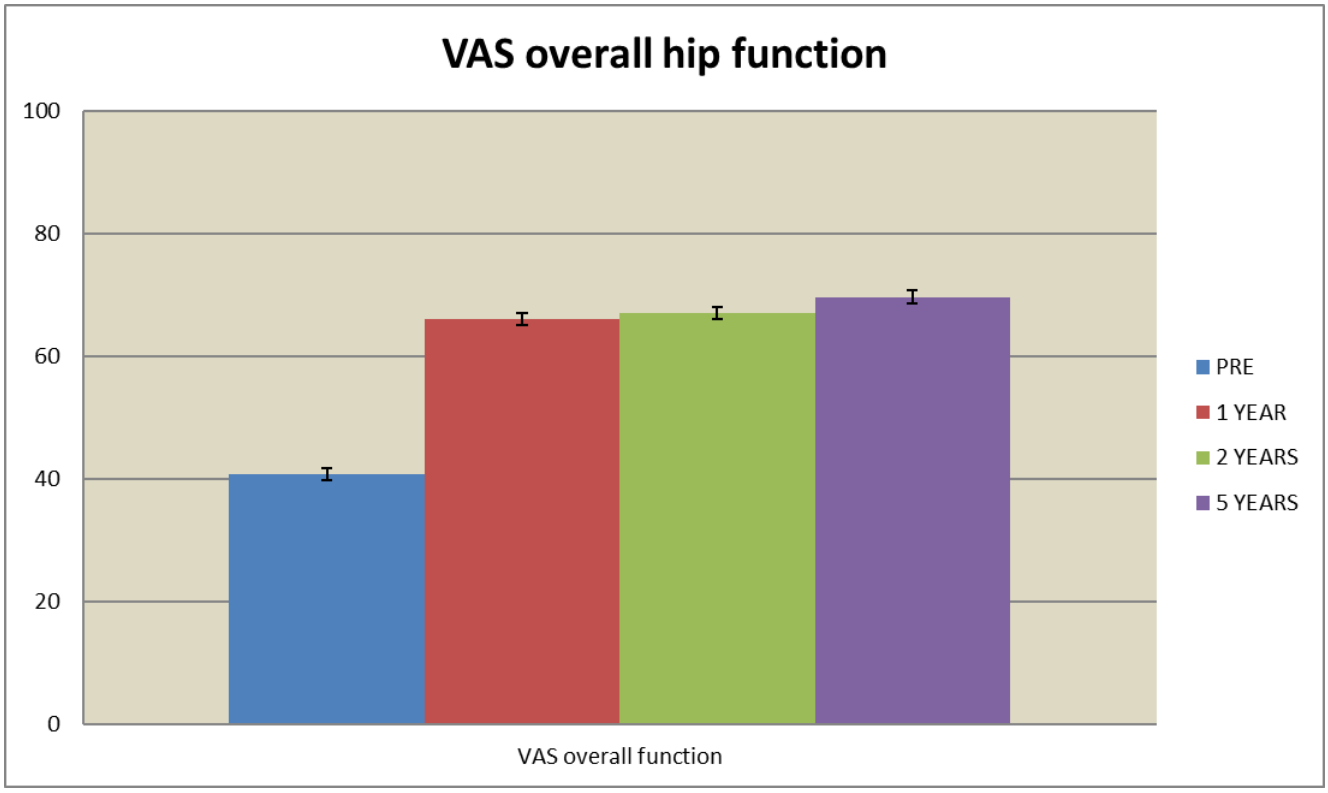


Fig. 4. VAS overall hip function outcome at 1, 2 and 5 years compared to the pre-scores

EQ5D scores

Table 21. Patient assessed general quality of life score

EQ5D	2012-2018	2019	2020	2021	Mean (95% CI)
Pre	**0.64**	**0.64**	**0.63**	**0.64**	**0.64 (0.64 - 0.65)**
1 year	**0.75**	**0.75**	**0.76**	-	**0.75 (0.74 - 0.76)**
2 years	**0.77**	**0.75**	-	-	**0.77 (0.76 - 0.78)**
5 years	**0.79**	-	-	-	**0.79 (0.78 - 0.80)**

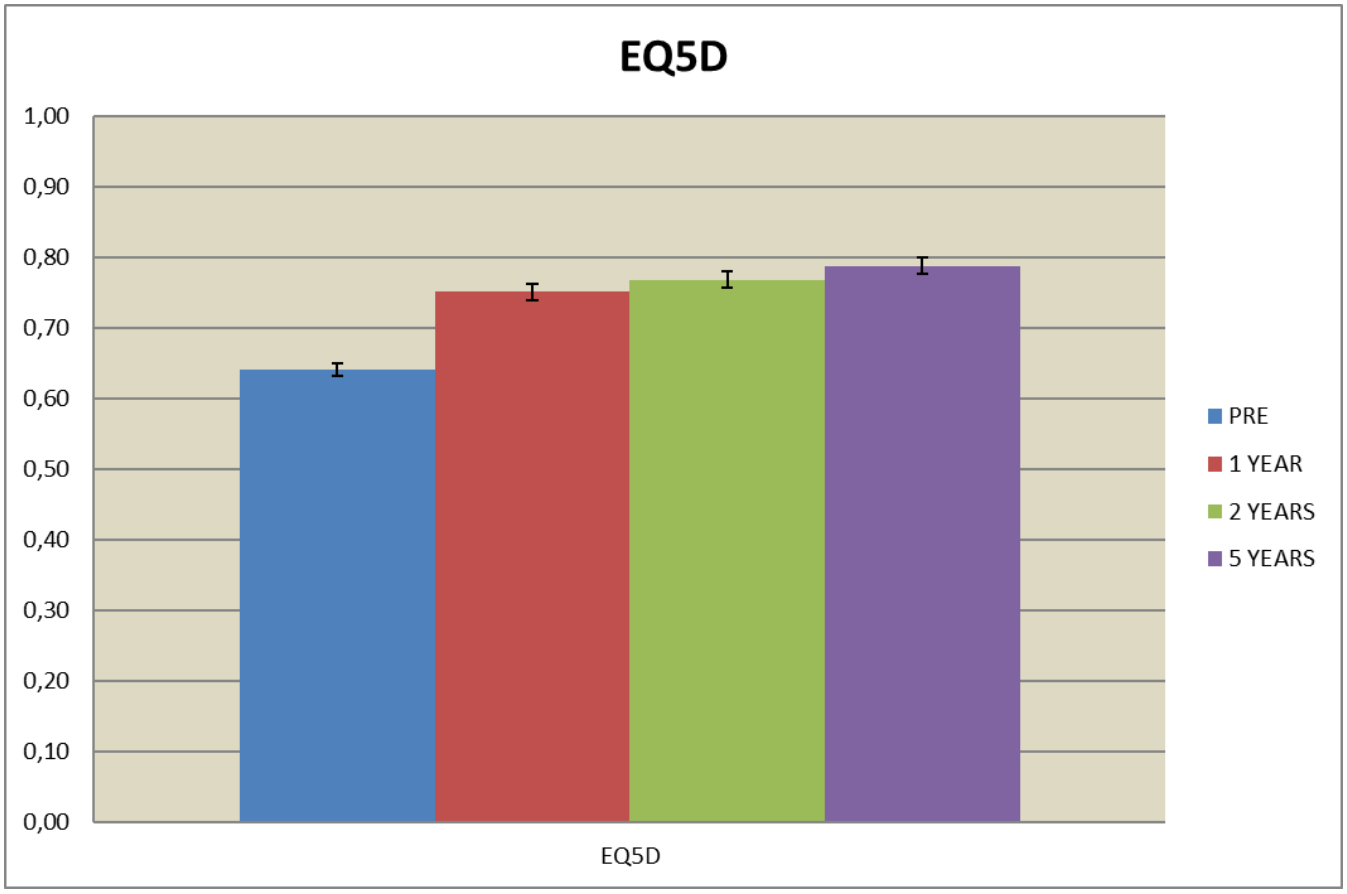


Fig. 5. EQ5D outcome data at 1, 2 and 5 years compared to the pre-scores

HSAS score (Hip Sports Activity Score)

Table 22. Patient assessed sports activity score, specific for hip related activities

HSAS	2012-2018	2019	2020	2021	Mean (95% CI)
Pre	**1.4**	**1.7**	**1.6**	**1.3**	**1.5 (1.41 - 1.54)**
1 year	**2.1**	**2.0**	**1.9**	**-**	**2.0 (1.95 – 2.13)**
2 years	**2.2**	**2.0**	**-**	**-**	**2.2 (2.04 – 2.27)**
5 years	**2.0**	**-**	**-**	**-**	**1.0 (1.88 – 2.11)**

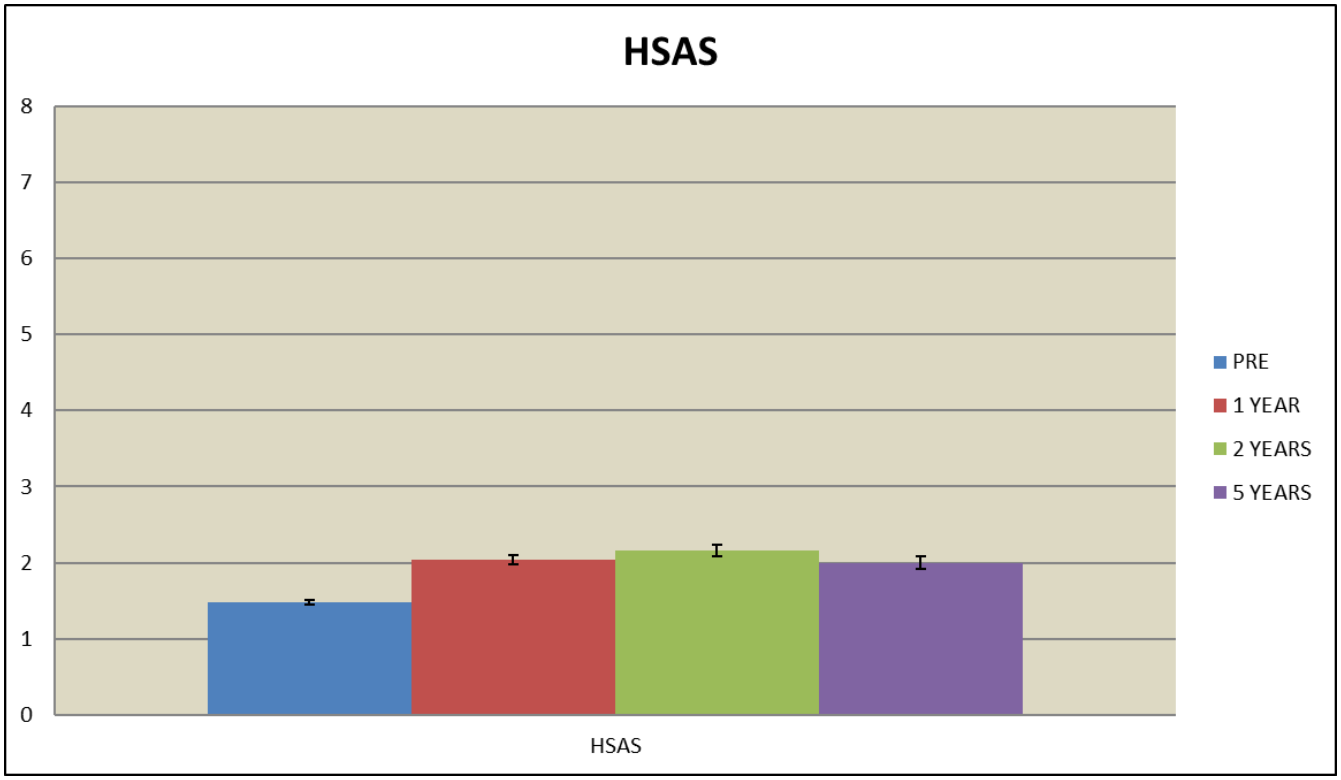


Fig. 6. HSAS outcome data at 1, 2 and 5 years compared to the pre-scores

MCID

Table 23. This shows the percentage of patients that reaches the Minimal Clinical Important Difference (MCID) at follow-ups compared to baseline data. MCID is calculated from baseline data (SD/2)

%	1 Year	2 Years	5 Years
HAGOS			
Pain	62	65	67
Symptoms	64	65	61
ADL	60	62	63
Sport & rec	59	61	64
PA	47	52	57
QOL	60	65	71
NRS – pain rest	58	58	61
NRS – pain walk	59	63	65
VAS – Hip function overall	67	66	68
EQ5D	43	48	52
HSAS	40	42	42
iHOT$_{12}$	66	69	-

Sub analyses on Outcome Data

HAGOS Age Related data

Comments:
Age group related PROM data demonstrated in the previous years in all subjective outcomes a significantly better result in the below 25 years of age group compared to the two older age groups (25-39 years and ≥40 years respectively). However, it seems that the latest results for the young age group are impaired compared to the previous years. We have no explanation for that. We have studied the results at pre-op and 1-year PROMs of the same cohort, and all their results were between 3 and 10 points smaller than the previous years.
When comparing the middle age group (25-39 years) and the oldest age group (≥40 years) it is difficult to explain the lower scores in HAGOS subscores PA, and Sport & rec. in the middle age group. Possible explanations of these findings might be due to the patient's conclusion of education, the beginning of a working career and family planning etc. in this middle age group. The older age group is beyond this period in their life, and their expectations may therefore be reduced compared to the middle age group. [2].

Table 24. Comparison of HAGOS scores for 3 different age groups at 2 years.

Age <25 years (n=497 (39%)) (PROMS 2 years)	**2012-2017**	**2018**	**2019**	**Mean**
HAGOS				
Pain	**74.6**	**66.4**	**71.3**	**73.0 (70.9 – 75.1)**
Symptoms	**65.8**	**60.7**	**63.2**	**64.7 (62.7 – 66.7)**
ADL	**79.1**	**71.7**	**77.5**	**77.8 (75.6 – 80.1)**
Sport & rec	**63.2**	**51.8**	**59.3**	**61.0 (58.3 – 63.8)**
PA	**53.3**	**40.0**	**47.6**	**50.6 (47.0 – 54.1)**
QOL	**57.4**	**48.4**	**51.7**	**55.3 (52.7 – 57.9)**

Age 25-39 years (n=862 (41%)) (PROMS 2 years)	**2012-2017**	**2018**	**2019**	**Mean**
HAGOS				
Pain	**69.0**	**73.0**	**71.3**	**69.8 (68.0 – 71.5)**
Symptoms	**63.5**	**65.1**	**65.9**	**64.0 (62.3 – 65.7)**
ADL	**72.3**	**75.9**	**74.5**	**73.1 (71.1 – 75.0)**
Sport & rec	**56.8**	**59.6**	**56.6**	**57.1 (54.9 – 59.3)**
PA	**42.1**	**47.6**	**43.0**	**42.9 (40.2 – 45.5)**
QOL	**50.9**	**56.0**	**50.3**	**51.4 (49.4 – 53.4)**

Age ≥40 years (n=1310 (46%)) (PROMS 2 years)	2012-2017	2018	2019	Mean
HAGOS				
Pain	**69.9**	**72.1**	**70.8**	**70.3 (68.9 – 71.7)**
Symptoms	**66.9**	**69.0**	**68.0**	**67.4 (66.0 – 68.7)**
ADL	**71.0**	**72.8**	**73.9**	**71.7 (70.1 – 73.2)**
Sport & rec	**57.2**	**60.7**	**61.6**	**58.3 (56.5 – 60.1)**
PA	**46.5**	**49.8**	**52.5**	**47.8 (45.6 – 49.9)**
QOL	**54.6**	**56.7**	**57.2**	**55.3 (53.7 – 56.8)**

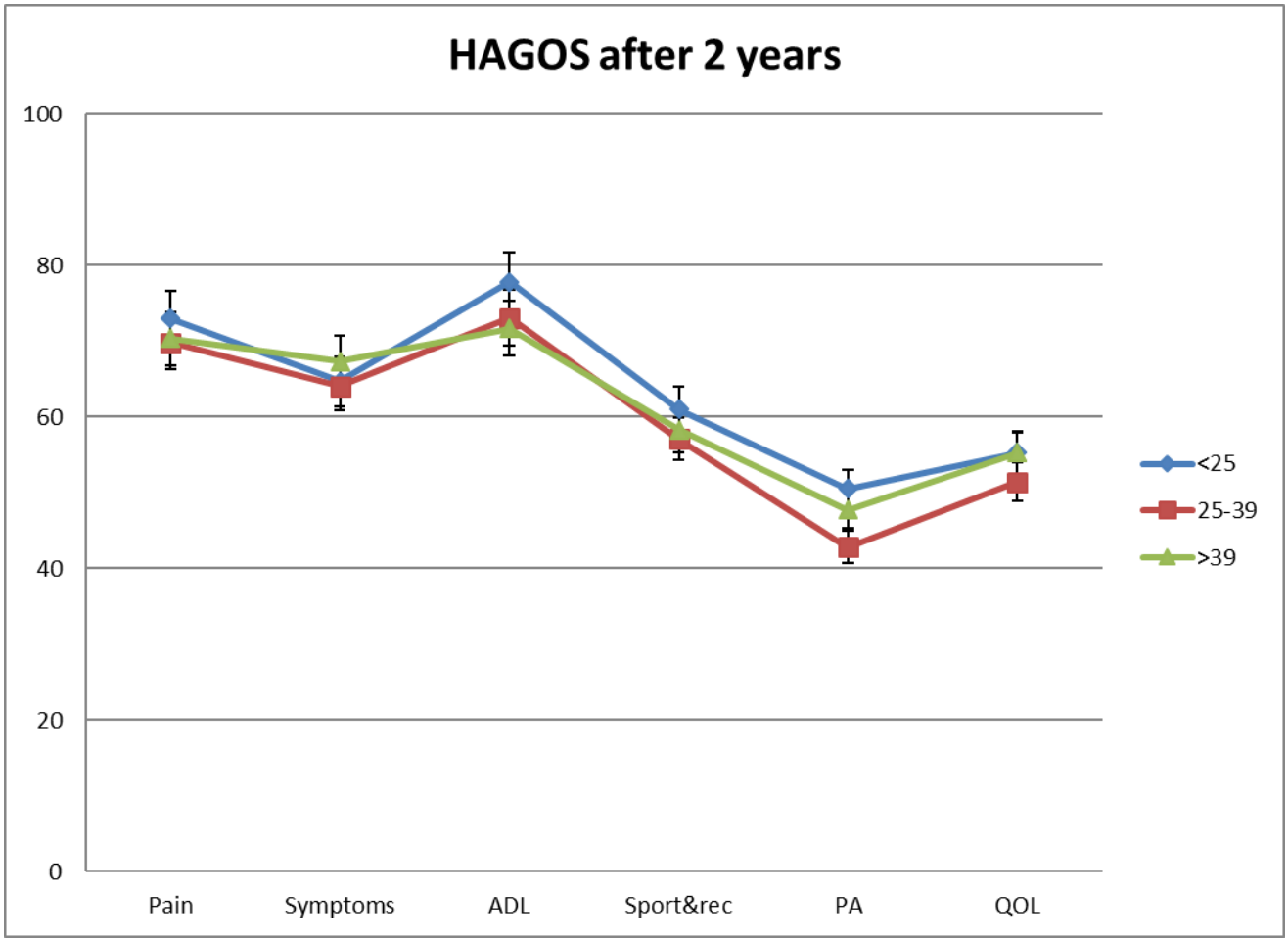


Fig. 7. HAGOS data at 2 years. Comparison of the 3 age groups

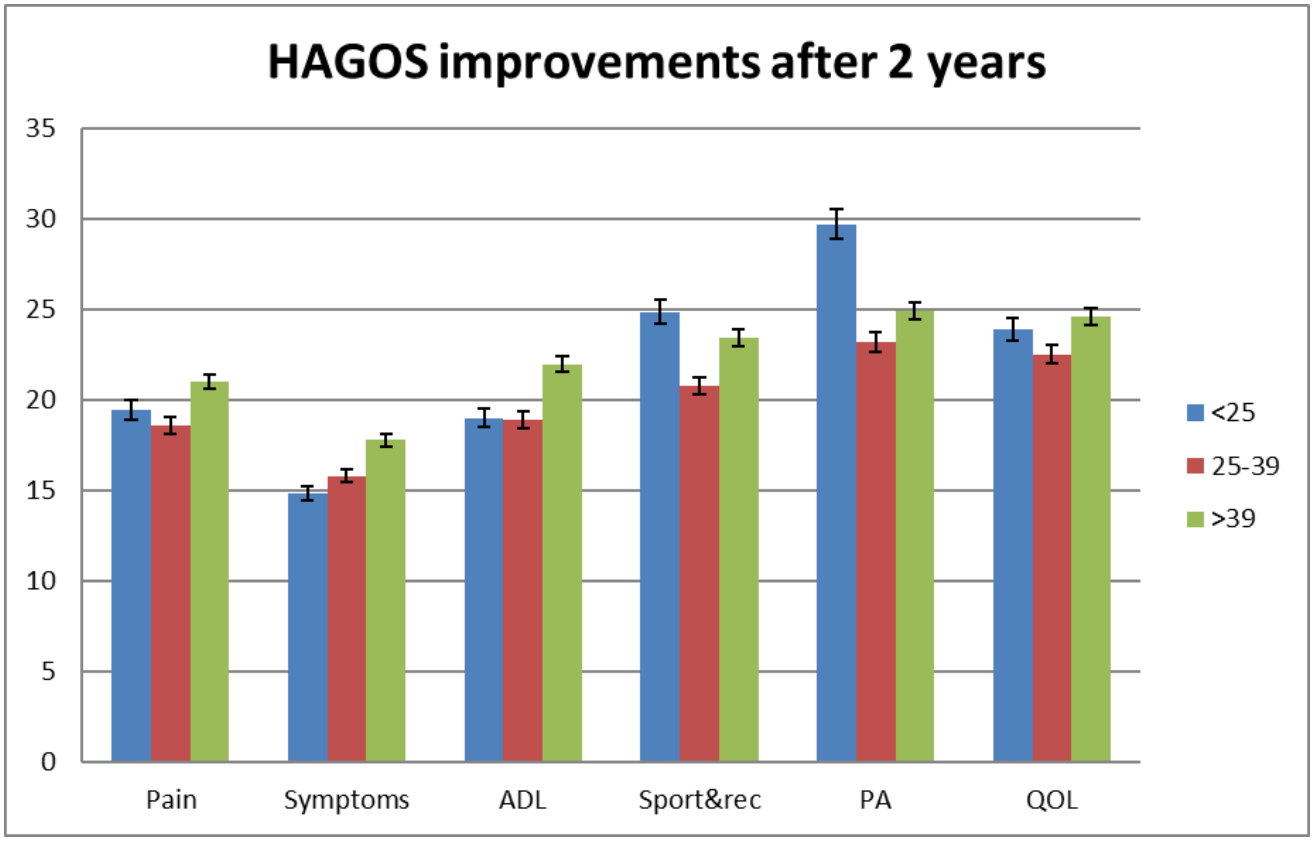


Fig. 8. The improvements in HAGOS points (0-100) from baseline to 2 years postop.

HAGOS data at 2 years related to cartilage lesions found during surgery

Comments:
Because of the small numbers in some of the groups it is not possible to make reliable diagrams that shows combinations of all the different sizes and grades of cartilage lesions. Therefore, we show two simplified diagrams that shows the important tendencies. The grade of acetabular cartilage lesions seen at surgery seems only to be of significance for the large size lesions in the acetabulum on the HAGOS results after 2 years. The size alone seems also to be of significance, since the large size lesions (>2 cm^2) have worse results than all the others, and there is no difference between the small and middle size lesions.
The size of the lesions on the femoral head does not have much significance since any size lesions have impaired results but worse results are seen for the large lesions in the physically demanding items in HAGOS.

Table 25. Comparisons of HAGOS and different grades and sizes of cartilage lesions I the acetabulum.

Beck gr. 2 / 1-2cm² (n=539 (43%))	**2012-2017**	**2018**	**2019**	**Mean**
HAGOS	(n=397)	(n=65)	(n=77)	
Pain	**71.9**	**69.4**	**71.8**	**71.6 (69.4 – 73.8)**
Symptoms	**66.8**	**63.4**	**68.4**	**66.6 (64.6– 68.7)**
ADL	**74.3**	**71.3**	**75.9**	**74.1 (71.8 – 76.5)**
Sport & rec	**61.4**	**57.3**	**61.0**	**60.8 (58.1 – 63.6)**
PA	**48.4**	**48.5**	**51.0**	**48.8 (45.5 – 52.0)**
QOL	**55.7**	**53.4**	**56.4**	**55.5 (53.0 – 58.0)**

Beck gr. 2 / >2cm² (n=35 (32%))	**2012-2017**	**2018**	**2019**	**Mean**
HAGOS	(n=19)	(n=9)	(n=7)	
Pain	**63.8**	**70.3**	**67.9**	**66.3 (55.9 – 76.6)**
Symptoms	**59.6**	**61.1**	**66.3**	**61.3 (52.7 – 70.0)**
ADL	**61.1**	**68.9**	**70.7**	**65.0 (54.1 – 75.9)**
Sport & rec	**49.8**	**49.3**	**56.7**	**51.1 (38.3 – 63.8)**
PA	**45.4**	**41.7**	**35.7**	**42.5 (27.7 – 57.3)**
QOL	**50.0**	**53.3**	**46.4**	**50.1 (40.5 – 59.8)**

Beck gr. 3 / 1-2cm^2 (n=373 (42%))	2012-2017	2018	2019	Mean
HAGOS	(n=285)	(n=44)	(n=44)	
Pain	**72.7**	**73.2**	**76.1**	**73.1 (70.6 – 75.7)**
Symptoms	**68.2**	**65.7**	**67.0**	**67.8 (65.4 – 70.1)**
ADL	**75.2**	**74.0**	**79.8**	**75.6 (72.7 – 78.5)**
Sport & rec	**59.8**	**60.4**	**61.4**	**60.1 (56.8 – 63.4)**
PA	**47.9**	**48.9**	**56.3**	**49.0 (44.8 – 53.2)**
QOL	**55.9**	**57.6**	**58.8**	**56.4 (53.5 – 59.4)**

Beck gr. 3 / >2cm^2 (n=104 (47%))	2012-2017	2018	2019	Mean
HAGOS	(n=63)	(n=17)	(n=24)	
Pain	**67.4**	**74.4**	**71.0**	**69.4 (64.7 – 74.1)**
Symptoms	**62.4**	**67.9**	**61.6**	**63.1 (58.3 – 67.9)**
ADL	**69.2**	**73.5**	**74.6**	**71.2 (66.1 – 76.2)**
Sport & rec	**50.5**	**55.9**	**61.7**	**54.0 (47.7 – 60.2)**
PA	**43.1**	**34.6**	**43.8**	**41.8 (34.2 – 49.4)**
QOL	**48.6**	**55.0**	**50.0**	**50.0 (44.5 – 55.4)**

Beck gr. 4 / 1-2cm^2 (n=98 (45%))	2012-2017	2018	2019	Mean
HAGOS	(n=80)	(n=10)	(n=8)	
Pain	**69.3**	**79.3**	**79.1**	**71.1 (66.0 – 76.3)**
Symptoms	**63.5**	**75.7**	**72.3**	**65.5 (60.3 – 70.7)**
ADL	**73.1**	**83.0**	**84.4**	**75.1 (69.4 – 80.7)**
Sport & rec	**53.1**	**69.4**	**69.9**	**56.2 (49.6 – 62.7)**
PA	**40.5**	**58.8**	**59.4**	**43.9 (35.6 – 52.1)**
QOL	**50.8**	**64.0**	**61.3**	**53.0 (46.9 – 59.1)**

Beck gr. 4 / >2cm^2 (n=109 (40%))	2012-2017	2018	2019	Mean
HAGOS	(n=87)	(n=13)	(n=9)	
Pain	**67.4**	**69.0**	**70.3**	**67.8 (63.3 – 72.3)**
Symptoms	**60.3**	**65.1**	**63.5**	**61.1 (56.7 – 65.5)**
ADL	**68.7**	**68.8**	**72.2**	**69.0 (64.0 – 74.0)**
Sport & rec	**46.7**	**57.2**	**52.8**	**48.4 (42.3 – 54.6)**
PA	**36.4**	**31.7**	**34.7**	**35.7 (28.5 – 42.9)**
QOL	**46.5**	**47.7**	**51.1**	**47.0 (41.8 – 52.2)**

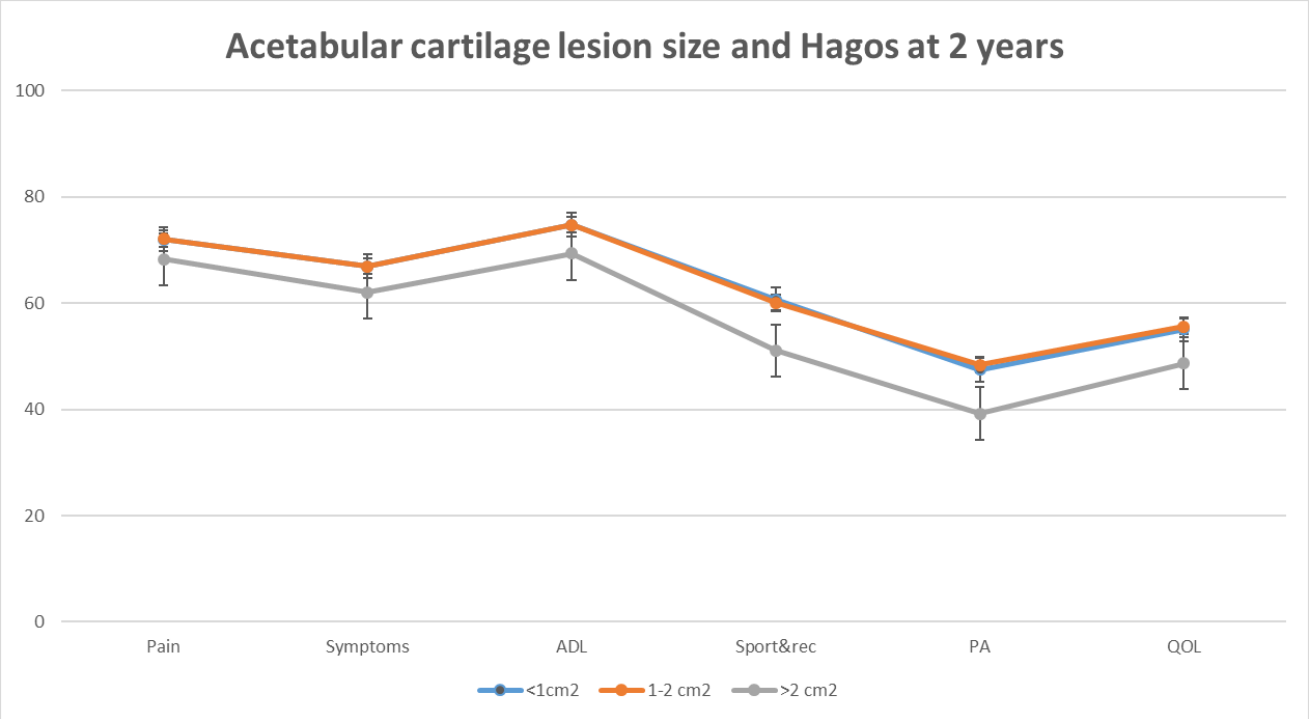


Fig. 9. HAGOS results for Beck grade 2-4 cartilage lesions. Only the large size lesion seems to affect the results.

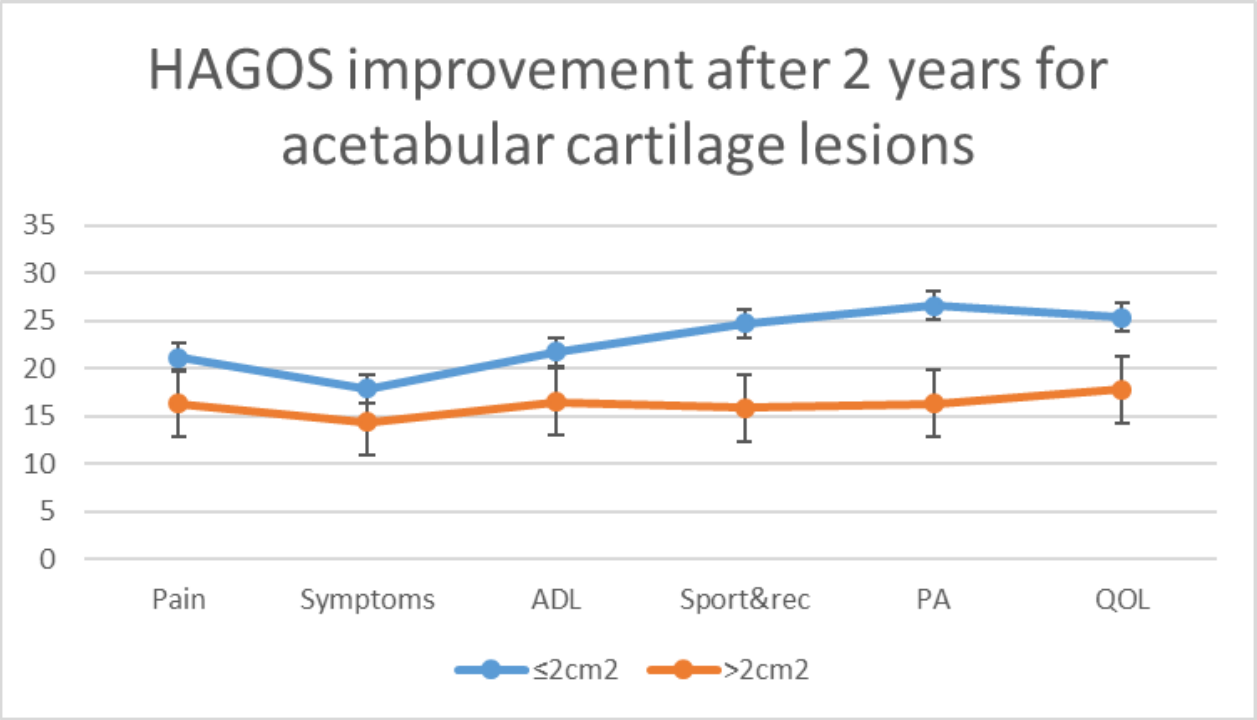


Fig. 10. Difference in HAGOS improvements at 2 years between large and smaller size cartilage lesions in the acetabulum irrespective of the grade. Only the large size lesions seem to differ from the others, and for simplicity all the smaller sizes have been pooled to one line.

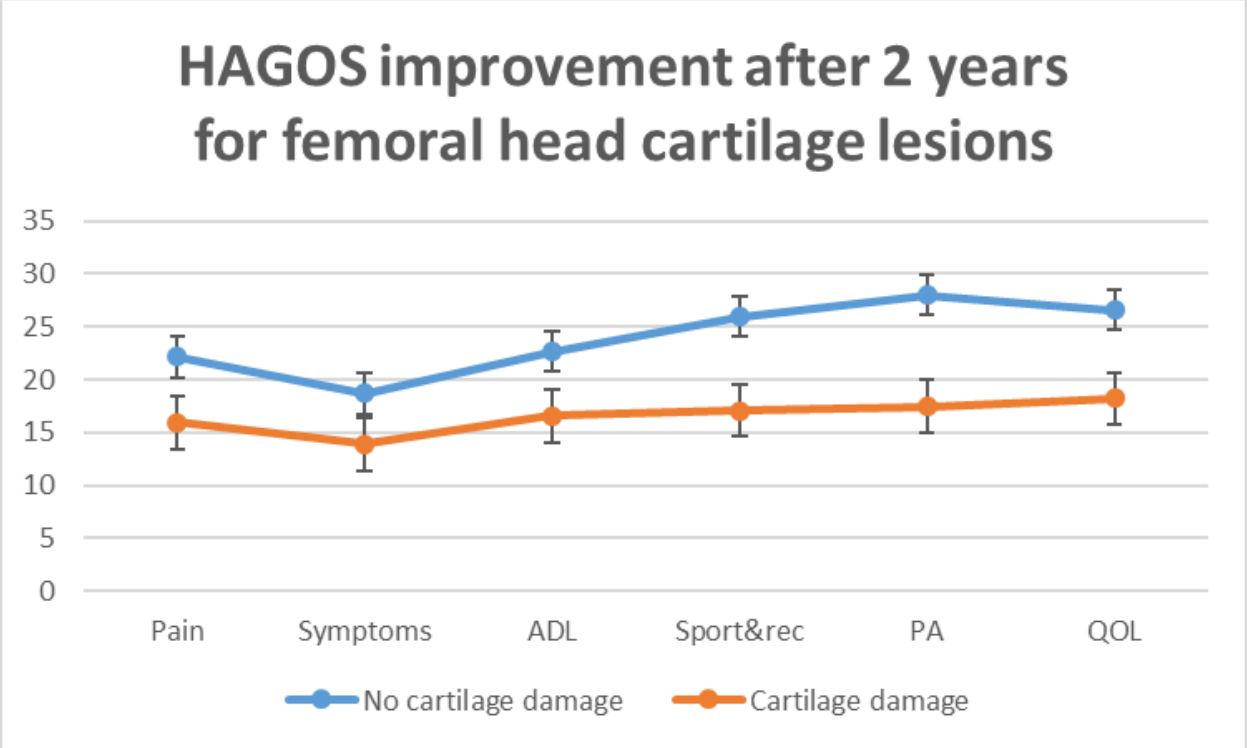


Fig. 11. Difference in HAGOS improvements at 2 years between any size cartilage lesion and no cartilage lesion at all on the femoral head irrespective of the grade. Any cartilage lesion size on the femoral head seem to differ from no lesion.

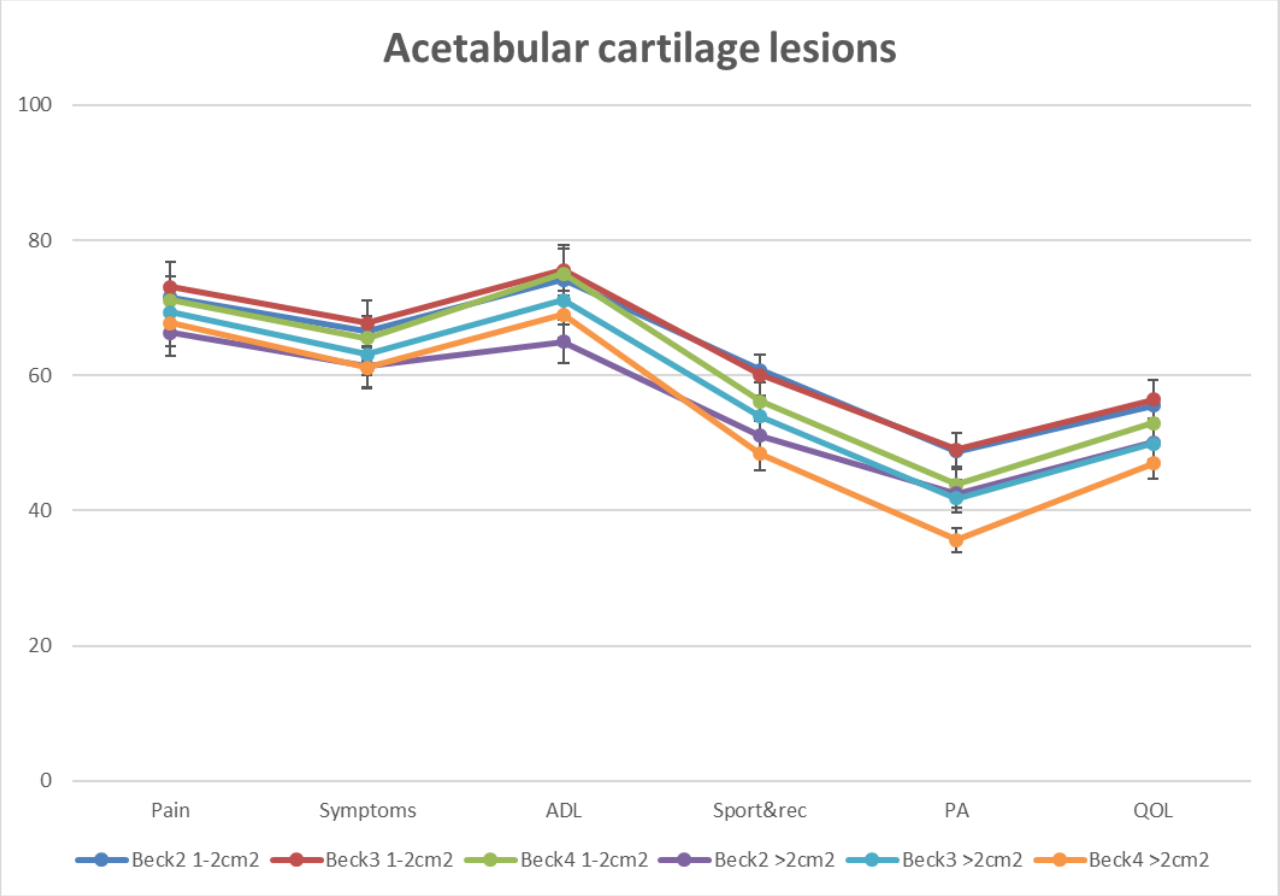


Fig. 12. The medium size grade 2 and 3 lesions have better results than all the large size lesions and the medium size grade 4 lesions. The worst results are seen in the large grade 4 lesions.

Supplementary questions

As a new feature in DHAR we have implemented a series of patient related questions regarding persisting symptoms related to the surgery and satisfaction and willingness to repeat the surgery.

Table 26. How satisfied are you with the result of the operation?

N (%)	1 yr	2 yr	5 yr
Extremely satisfied	**181 (25)**	**163 (25)**	**157 (32)**
Very satisfied	**167 (23)**	**145 (23)**	**110 (23)**
Satisfied	**133 (18)**	**123 (19)**	**77 (16)**
Not quite satisfied	**198 (27)**	**147 (23)**	**104 (21)**
Dissatisfied	**45 (6)**	**66 (10)**	**40 (8)**
Total	**724 (100)**	**644 (100)**	**488 (100)**

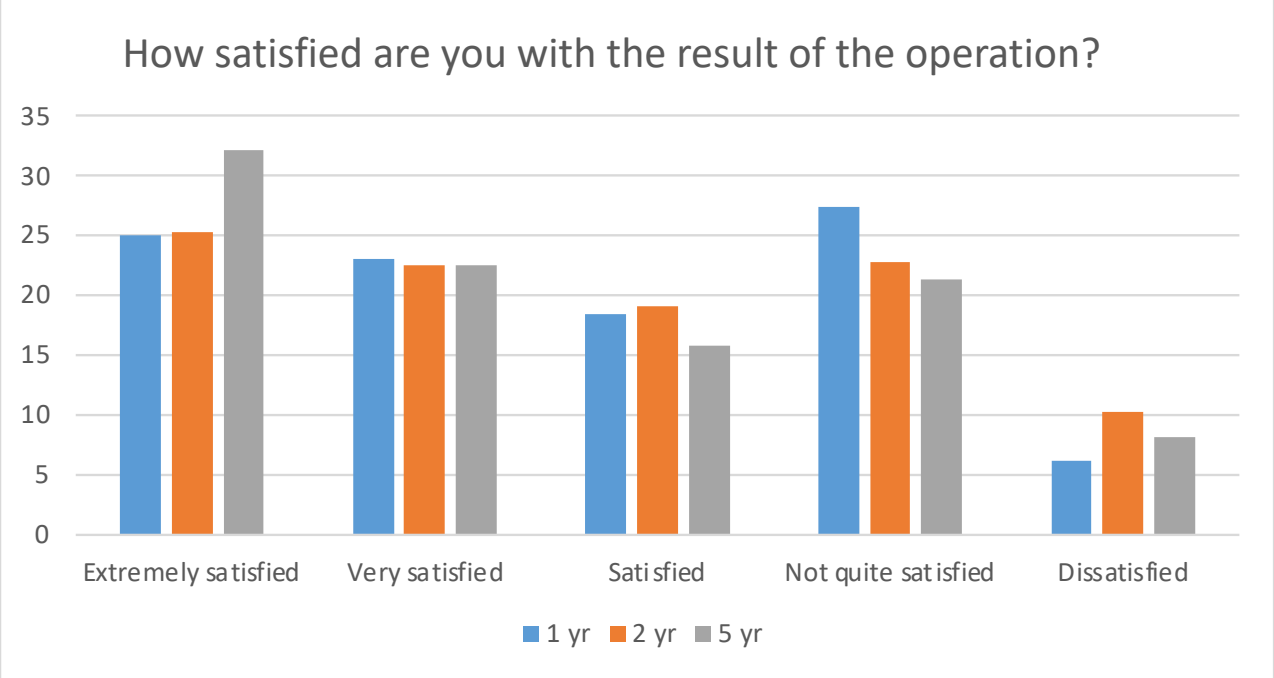


Fig. 13. Overall satisfaction is around 70%.

Table 27. Would you do it again if necessary?

N (%)	1 yr	2 yr	5 yr
Yes	494 (68)	436 (68)	362 (74)
Maybe	173 (24)	148 (23)	92 (19)
No	57 (8)	60 (9)	34 (7)
Total	724 (100)	644 (100)	488 (100)

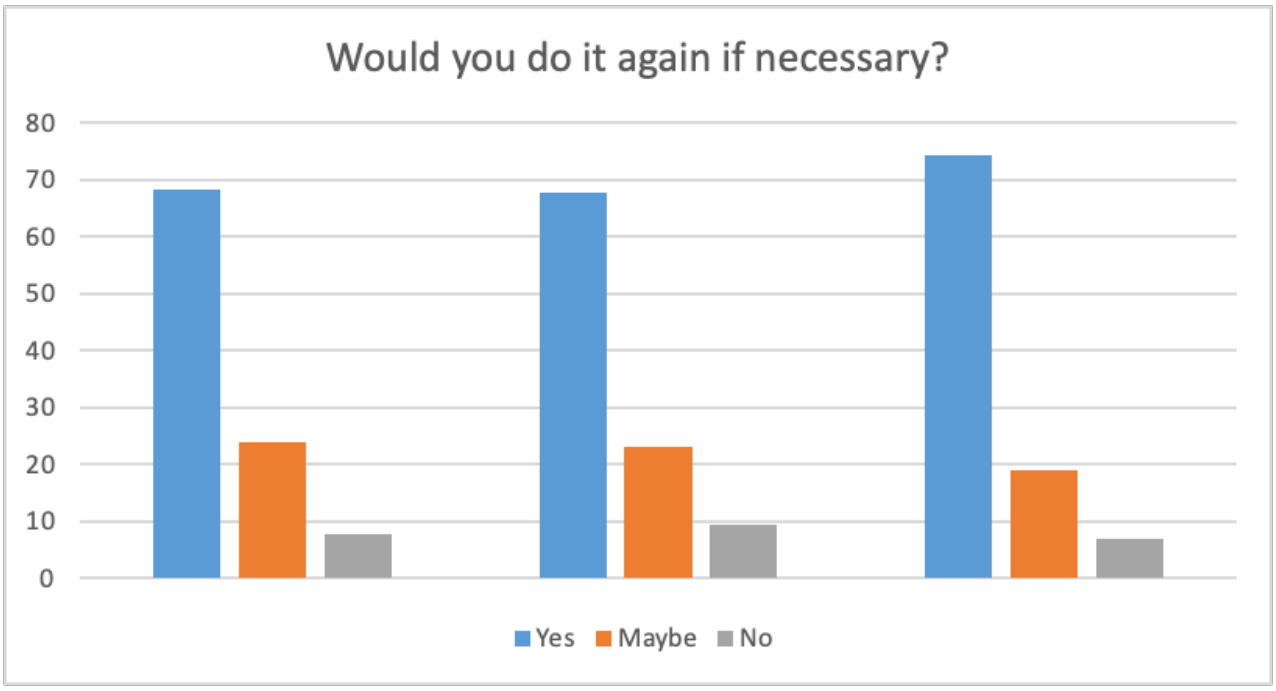


Fig. 14. Willingness to repeat is around 70 %.

Table 28. PASS (Patient Acceptable Symptom State)

"If you think of your hip- and groin pain in the past week and how it affects your daily life, do you then think your symptoms are acceptable as they are now if they stay the same for the rest of your life? If you have pain in both hips, try to answer for the hip that has been operated."

N (%)	1 yr	2 yr	5 yr
Yes	376 (52)	389 (60)	317 (65)
No	348 (48)	255 (40)	171 (35)
Total	724 (100)	644 (100)	488 (100)

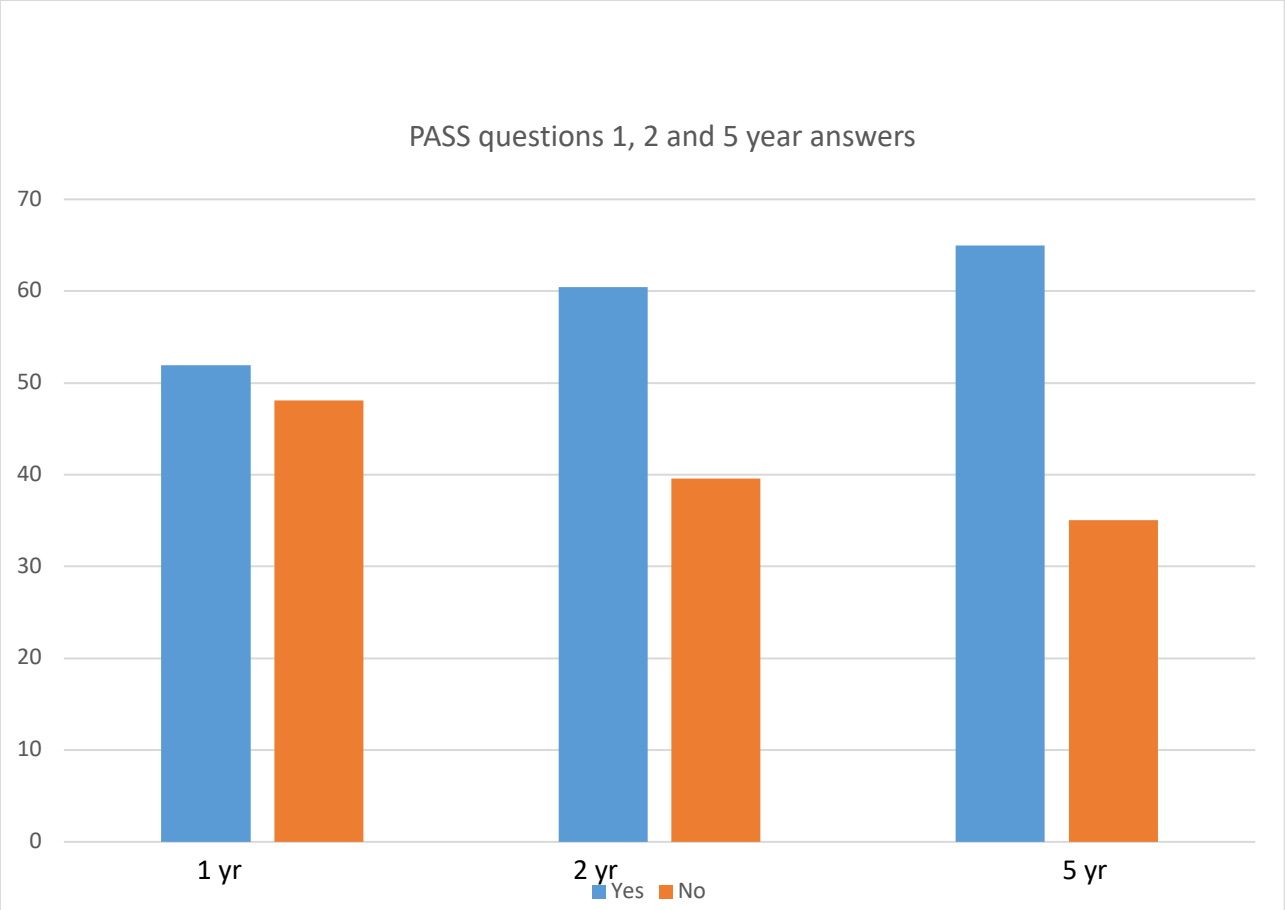


Fig. 15. PASS question.

Table 29. Exercise/physical activity now

N (%)	1 yr	2 yr	5 yr
Higher level than before start of symptoms	81 (11)	60 (9)	49 (10)
Same level as before start of symptoms	140 (19)	113 (18)	91 (19)
Lower level due to the hip	326 (45)	297 (46)	229 (47)
Lower level, but not because of the hip	49 (7)	51 (8)	54 (11)
Stopped with activity because of hip	98 (14)	92 (14)	46 (9)
Stopped with activities, but not because of the hip	14 (2)	12 (2)	11 (2)
Does not exercise/no physical activities	16 (2)	19 (3)	8 (2)
Total	724 (100)	644 (100)	488 (100)

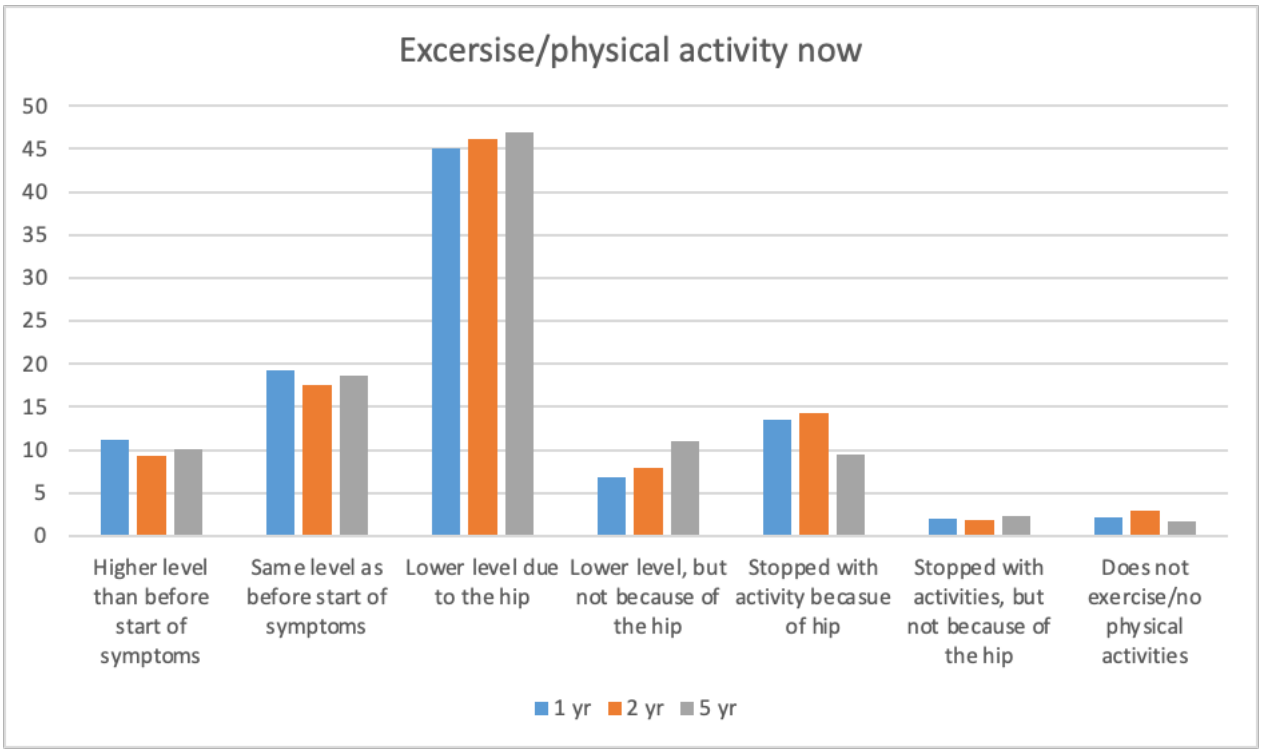


Fig. 16. Activity levels after hip arthroscopy.

Table. 30. Do you take pain medications often or regularly?

N (%)	1 yr	2 yr	5 yr
No	495 (68)	429 (67)	333 (68)
Yes, because of the hip	175 (24)	159 (25)	101 (21)
Yes, but not because of the hip	54 (7)	56 (9)	54 (11)
Total	724 (100)	644 (100)	488 (100)

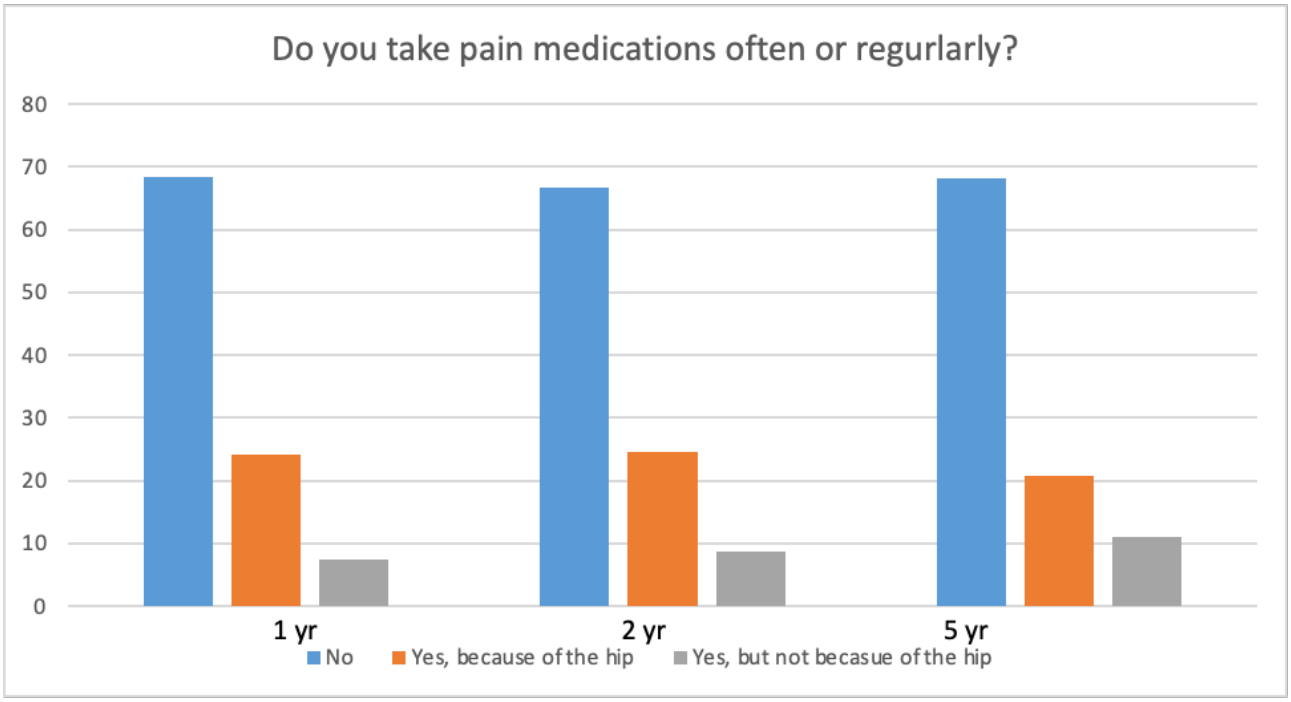


Fig. 17. Around 70% of patients do not take pain medications regularly, due to the hip.

Table 31: Complications.

N (%)	1 yr	2 yr	5 yr
None	405 (56)	360 (56)	289 (59)
Persistent numbness/loss of sensation in the skin on the outside of upper thigh (more than one palm size area)	101 (14)	78 (12)	53 (11)
Persistent numbness/loss of sensation in the perineal area	6 (1)	11 (2)	5 (1)
Persistent numbness/loss of sensation on the foot	24 (3)	14 (2)	13 (3)
Problems with erectile dysfunction after the operation	2 (0)	6 (1)	1 (0)
Venous thrombosis in the legs/lungs	1 (0)	1 (0)	0 (0)
Other (pain, osteoarthritis, severe stiffness)	185 (26)	174 (27)	127 (26)
Total	724 (100)	644 (100)	488 (100)

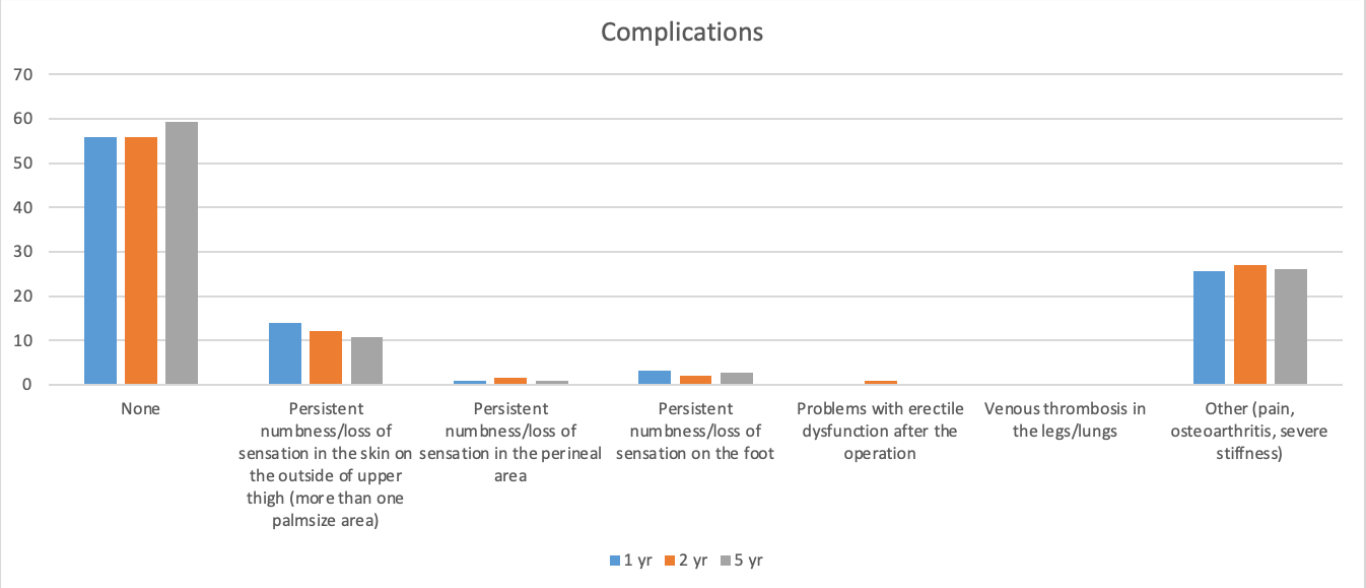


Fig. 18. Approximately 10 % of patients have persistent numbness at the LCFN, and 1 % in the perineal area.

Sport questions.

We have also added questions about type of sports prior to surgery.
So far 2540 patients have entered data on sports.

Table 32. Sport

Sport pre	n= number (%)
Soccer	458 (18)
Running	447 (18)
Cycling	289 (11)
Fitness	223 (9)
Equestrian sport	199 (8)
Team handball	143 (6)
Walking/hiking	96 (4)
Martial arts	98 (4)
Swimming	74 (3)
Badminton	73 (3)
Yoga	64 (2)
Golf	39 (2)
Dancing	53 (2)
Ice hockey	20 (1)
Tennis	17 (1)
Other sports	247 (10)

Revision arthroscopies

PROMs for revision arthroscopies

Comments:
These data show the same improvement tendencies in HAGOS results as for primary hip-arthroscopies, but the improvements are smaller (figure 11). This would be expected, but it has not been shown previously in DHAR.
The negative results seen in figure 12 shows, that the results after re-arthroscopies are less good than after primary arthroscopies. This is most pronounced in the physically demanding activities where the difference is exceeding the MCID for primary arthroscopies. At 5 year there seems to be a markedly improvement in the non-physical activities, but the results are still at a lower level than after primary hip arthroscopies.

Table 33. Development of PROM results over time for revision arthroscopies and the mean results after 1, 2 and 5 years

PROMS pre (n=470 (48%))	2012-2018	2019	2020	2021	Mean (95% CI)
HAGOS					
Pain	**44.7**	**44.6**	**45.6**	**47.0**	**45.0 (43.2 – 46.8)**
Symptoms	**42.3**	**41.9**	**43.3**	**43.0**	**42.5 (40.8 – 44.2)**
ADL	**44.6**	**44.7**	**51.1**	**50.9**	**46.0 (43.7 –48.3)**
Sport & rec	**25.8**	**25.3**	**26.7**	**30.0**	**26.2 (24.1 – 28.3)**
PA	**14.0**	**19.3**	**13.8**	**17.9**	**15.3 (13.1 – 17.4)**
QOL	**24.0**	**23.6**	**25.8**	**22.3**	**24.0 (22.5 – 25.5)**
$iHOT_{12}$	-	**30.8**	**35.4**	**32.6**	**32.7 (29.7 – 35.7)**
NRS Pain - rest	**45.6**	**44.1**	**38.0**	**41.1**	**44.0 (41.3 – 46.6)**
NRS pain – walking 15 mins.	**60.7**	**55.3**	**52.9**	**53.6**	**58.1 (55.4 – 60.8)**
VAS – Hip function overall	**33.9**	**34.6**	**36.9**	**35.5**	**34.6 (32.7 – 36.5)**
EQ5D	**0.58**	**0.59**	**0.64**	**0.60**	**0.59 (0.57 – 0.61)**
HSAS	**0.9**	**1.1**	**1.3**	**1.4**	**1.1 (0.90 – 1.20)**

PROMS 1 Year (n=459 (52%)	2012-2018	2019	2020	2021	Mean (95% CI)
HAGOS					
Pain	**58.8**	**66.6**	**62.4**	**-**	**60.2 (57.9 – 62.5)**
Symptoms	**54.8**	**62.1**	**57.4**	**-**	**56.1 (54.0 – 58.2)**
ADL	**60.8**	**70.3**	**67.3**	**-**	**62.7 (60.0 – 65.5)**
Sport & rec	**40.8**	**50.9**	**48.5**	**-**	**42.9 (40.1 – 45.8)**
PA	**26.0**	**35.8**	**26.8**	**-**	**27.3 (24.2 – 30.4)**
QOL	**37.6**	**44.1**	**39.0**	**-**	**38.6 (36.2 – 41.0)**
$iHOT_{12}$	**51.7**	**58.5**	**51.4**	**-**	**56.6 (53.4 – 59.9)**
NRS Pain - rest	**30.0**	**20.1**	**25.5**	**-**	**28.2 (25.6 – 30.8)**
NRS pain – walking 15 mins.	**40.9**	**31.1**	**35.1**	**-**	**38.9 (35.8 – 42.1)**
VAS – Hip function overall	**54.0**	**59.6**	**59.2**	**-**	**55.3 (52.7 – 57.9)**
EQ5D	**0.69**	**0.72**	**0.73**	**-**	**0.70 (0.68 – 0.72)**
HSAS	**1.3**	**1.6**	**1.4**	**-**	**1,4 (1.20 – 1.51)**

PROMS 2 Year (n=322 (41%))	2012-2018	2019	2020	2021	Mean (95% CI)
HAGOS					
Pain	**61.4**	**63.8**	-	-	**61.8 (58.9 – 64.7)**
Symptoms	**56.2**	**59.4**	-	-	**56.8 (54.1 – 59.4)**
ADL	**64.0**	**65.8**	-	-	**64.3 (61.0 – 67.7)**
Sport & rec	**44.9**	**50.8**	-	-	**45.8 (42.3 – 49.4)**
PA	**31.6**	**37.3**	-	-	**32.6 (28.5 – 36.6)**
QOL	**43.3**	**48.5**	-	-	**44.0 (40.9 – 47.0)**
$iHOT_{12}$	**56.0**	**55.5**	-	-	**55.6 (50.6 – 60.6)**
NRS Pain - rest	**27.6**	**26.6**	-	-	**27.5 (24.3 – 30.6)**
NRS pain – walking 15 mins.	**36.7**	**34.2**	-	-	**36.3 (32.4 – 40.2)**
VAS – Hip function overall	**56.3**	**58.7**	-	-	**56.6 (49.7 – 58.7)**
EQ5D	**0.71**	**0.69**	-	-	**0.71 (0.68 – 0.73)**
HSAS	**1.6**	**1.7**	-	-	**1.6 (1.41 – 1.83)**

PROMS 5 Year (n=108 (24%))	2012-2016				Mean (95% CI)
HAGOS					
Pain	**65.2**	-	-	-	**65.2 (60.2 – 70.2)**
Symptoms	**60.6**	-	-	-	**60.6 (55.4 – 65.8)**
ADL	**69.4**	-	-	-	**69.4 (63.6 – 75.1)**
Sport & rec	**50.6**	-	-	-	**50.6 (44.5 – 56.7)**
PA	**36.6**	-	-	-	**36.6 (29.6 – 43.5)**
QOL	**49.5**	-	-	-	**49.5 (43.9 – 55.1)**
$iHOT_{12}$	**58.9**	-	-	-	**58.9 (51.9 – 65.8)**
NRS Pain - rest	**24.7**	-	-	-	**24.7 (19.3 – 30.1)**
NRS pain – walking 15 mins.	**31.6**	-	-	-	**31.6 (25.3 – 38.0)**
VAS – Hip function overall	**59.0**	-	-	-	**59.0 (53.2 – 64.8)**
EQ5D	**0.73**	-	-	-	**0.73 (0.69 – 0.78)**
HSAS	**1.5**	-	-	-	**1.5 (1.20 – 1.86)**

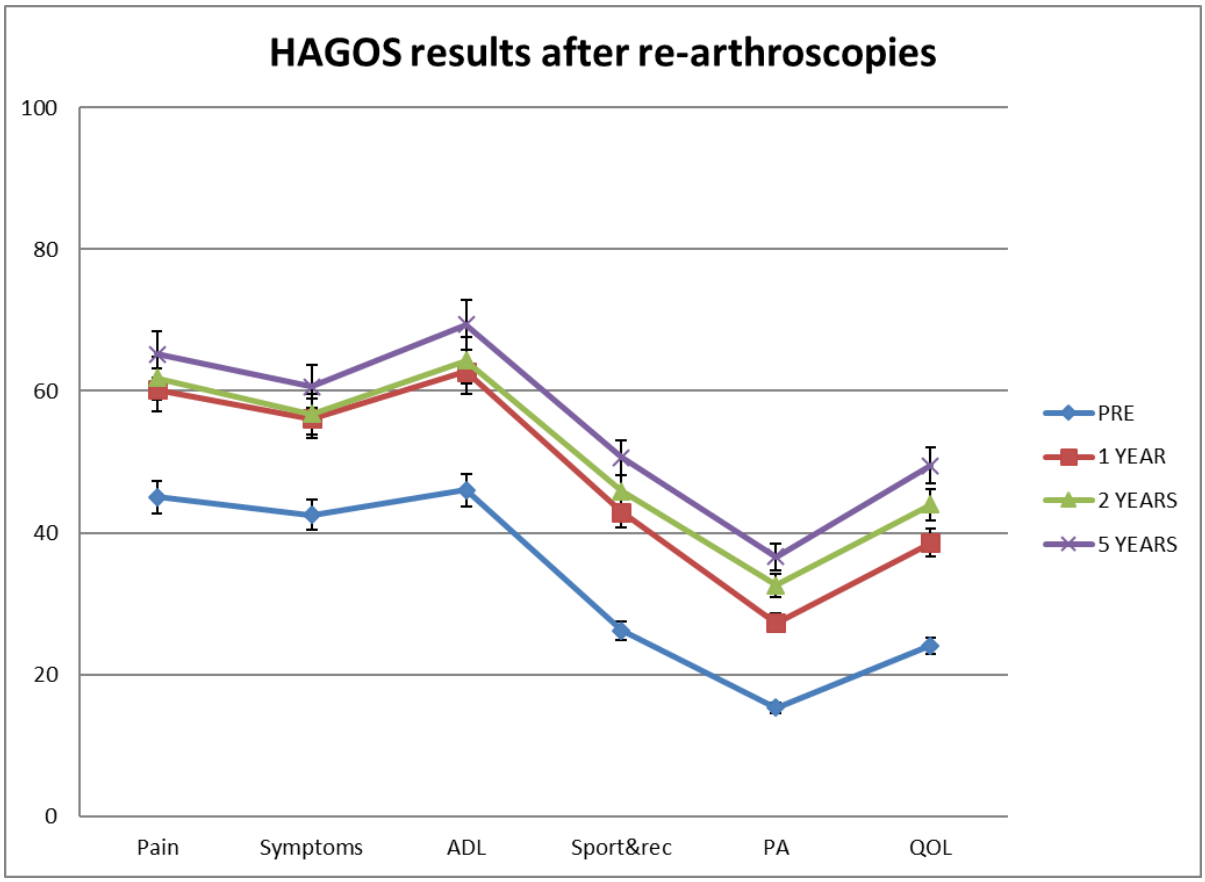


Fig. 19. HAGOS results after re-arthroscopies show the same tendencies, but impaired results compared to primary hip arthroscopies are seen.

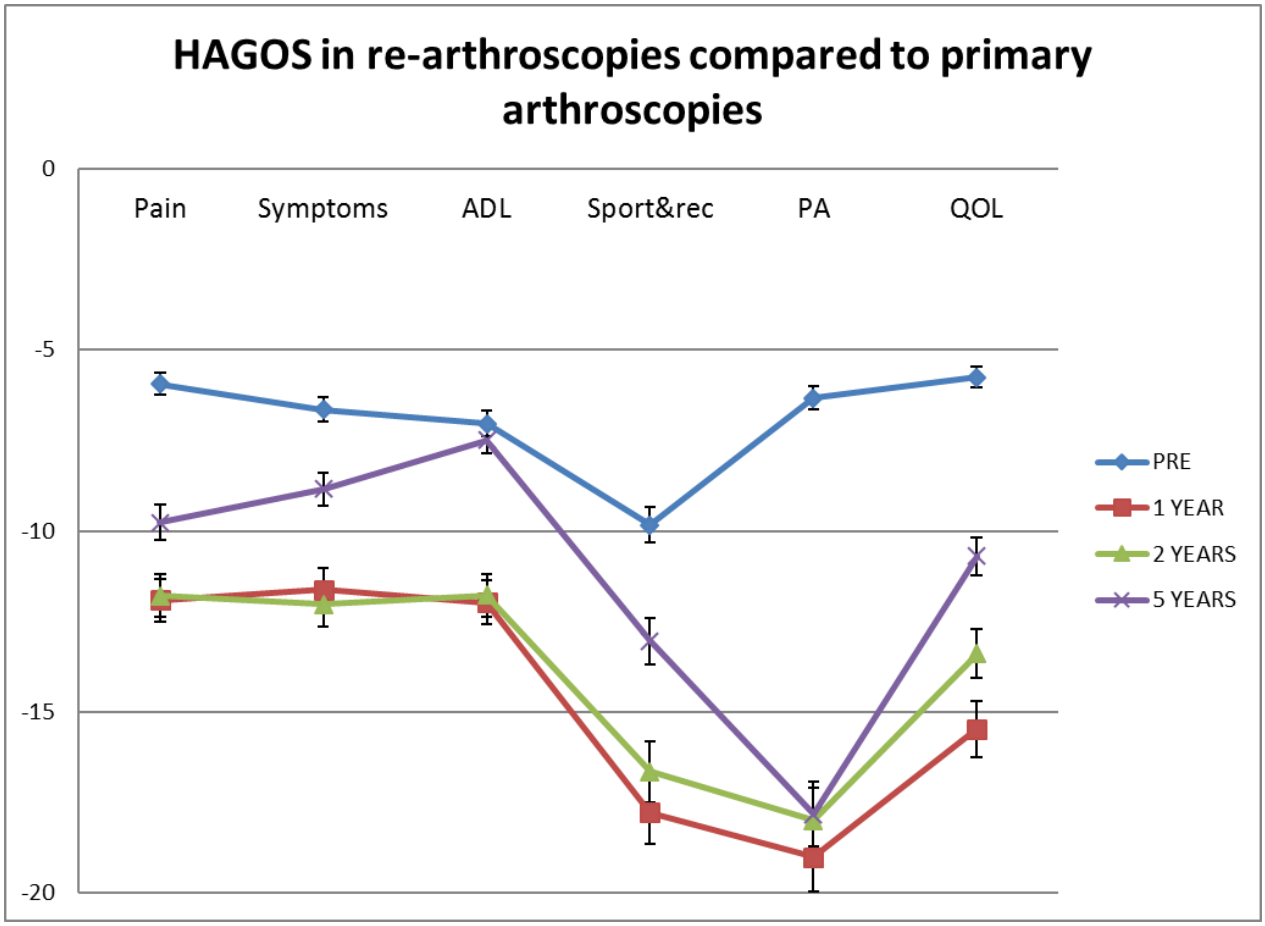


Fig. 20. Shows the difference in mean HAGOS points between primary hip arthroscopies and re-arthroscopies. Data for primary arthroscopies are used as baseline. The negative values shows that the re-arthroscopies have worse results than the primary arthroscopies. There are markedly worse HAGOS results after re-arthroscopies, especially for the physically demanding activities. 5-year results seem to improve a bit except for Physical Activity.

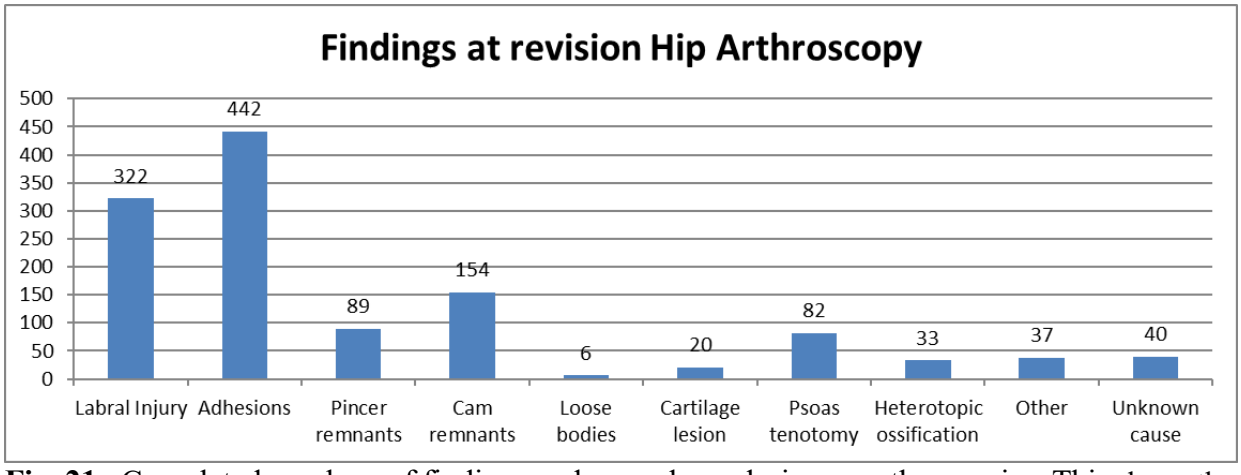


Fig. 21. Cumulated numbers of findings and procedures during re-arthroscopies. This shows the reported findings at revision hip arthroscopy as stated by the surgeons. Most found were adhesions, non-healed labral tears, residual cam, and pincer among others.

Dansk resume

I Danmark er hofteartroskopier reguleret af Sundhedsstyrelsen via Specialeplanen for Ortopædkirurgi og er en såkaldt regionsfunktion. Dvs. kun hospitaler og klinikker med denne tildelte funktion må lave hofteartroskopier på patienter i det offentlige sundhedsvæsen. Aktuelt er der 11 hospitaler og klinikker, der har denne tilladelse.

Siden 2012 har det været muligt at indberette online til Dansk Hofte Artroskopi Register (DHAR). Aktuelt er der 16 hospitaler og privatklinikker, der indberetter. Forsikringspatienter er ikke omfattet af Specialeplanen for Ortopædkirurgi, men der indberettes også fra privatklinikker, der udfører hofteartroskopier på forsikringspatienter.

Patienterne bedes om at udfylde Patient Relaterede Outcome Measures online før operationen og igen efter 1, 2, 5 og 10 år. (VAS-hoftefunktion, NRS-rest (smerte), NRS-walk (smerte), HAGOS, iHOT$_{12}$, EQ5D og HSAS score). Pga. en tidligere manglende dansk version er iHOT-12 først blevet tilgængelig fra 2019.

Ved årsskiftet 2021-2022 var der registreret i alt 7786 hofteartroskopier i DHAR. Der er ved årsskiftet registreret 4498 præoperative inklusion PROMs i registeret. Der er 3738 PROMs registreret efter 1 år og der er i alt registreret 2665 2 års PROMs i DHAR. Endvidere er der ved årsskiftet registreret 1173 PROMs med et follow-up på 5 år.

DHAR Styregruppe, Torsten Grønbech Nielsen (databehandler) og Erik Poulsen (LPR-udtræk).

Bent Lund, Formand, overlæge
Ortopædkirurgisk Afd. Hospitalsenheden i Horsens
bentlund@rm.dk

English summary

In Denmark, hip arthroscopies are regulated by the Danish Health Authorities and only 11 public hospitals have the permission to perform the operation on patients from the Public Healthcare System. In 2012 the Danish Hip Arthroscopy Registry (DHAR) was initiated, and the surgeons started to complete the forms on-line. In total 16 hospitals and clinics are reporting to the DHAR. Most private clinics report to DHAR even though they are not entitled to.

The patients were asked to complete various Patient Related Outcome Measures pre-operatively (HAGOS, iHOT$_{12}$, VAS-hip function, NRS-rest (pain), NRS-walk (pain), EQ5D and the HSAS score). Both the surgeon related, and patient related registrations are web based. Due to lack of a Danish version, iHOT12 was only included from 2019.

At the end of 2021 there are included 7786 hip arthroscopies in the DHAR. There are 4498 pre-op inclusion PROMs included in this report. There are 3738 PROMs included at 1-year and there are 2665 2-year PROMs in the registry. So far, we have 1173 PROMs with a 5-year follow-up.

Bent Lund, Chairman, Chief Surgeon
Dept. of Orthopedic Surgery
Horsens Regional Hospital, Denmark
bentlund@rm.dk

Publications from DHAR:

1. Mygind-Klavsen B, Nielsen TG, Maagaard N *et al.* Danish Hip Arthroscopy Registry: an epidemiologic and perioperative description of the first 2000 procedures. *J Hip Preserv Surg* 2016 Feb 25;3(2):138-45.

2. Lund B, Mygind-Klavsen B, Nielsen TG *et al.* Danish Hip Arthroscopy Registry (DHAR): the outcome of patients with femoroacetabular impingement (FAI). *J Hip Preserv Surg*. 2017 Apr 4;4(2):170-177. doi: 10.1093/jhps/hnx009.

3. Lund B, Nielsen TG, Lind M. Cartilage status in FAI patients – results from the Danish Hip Arthroscopy Registry (DHAR). *SICOT J*. 2017;3:44. doi: 10.1051/sicotj/2017023.

4. Ishøi L, Thorborg K, Kraemer O *et al.* Return to Sport and Performance After Hip Arthroscopy for Femoroacetabular Impingement in 18- to 30-Year-Old Athletes: A Cross-sectional Cohort Study of 189 Athletes. *Am J Sports Med*. 2018 Sep;46(11):2578-2587. doi: 10.1177/0363546518789070.

5. Ishøi L, Thorborg K, Kraemer O *et al.* The association between specific sports activities and sport performance following hip arthroscopy for femoroacetabular impingement syndrome: A secondary analysis of a cross-sectional cohort study including 184 athletes. *J Hip Preserv Surg*. 2019 Jun 5;6(2):124-133. doi: 10.1093/jhps/hnz017.

6. Ishøi L, Thorborg K, Kraemer O *et al.* Demographic and Radiographic Factors Associated With Intra-articular Hip Cartilage Injury: A Cross-sectional Study of 1511 Hip Arthroscopy Procedures. *Am J Sports Med*. 2019 Sep;47(11):2617-2625. doi: 10.1177/0363546519861088.

7. Mygind-Klavsen B, Lund B, Nielsen TG *et al.* Danish Hip Arthroscopy Registry: Predictors of Outcome in Patients with Femoroacetabular Impingement (FAI). *Knee Surg Sports Traumatol Arthrosc.* 2019 Oct;27(10):3110-3120. doi: 10.1007/s00167-018-4941-3

8. Poulsen E, Lund B, Roos EM. The Danish Hip Arthroscopy Registry: Registration Completeness and Patient Characteristics Between Responders and Non-Responders. *Clin Epidemiol*. 2020 Aug 4;12:825-833. doi: 10.2147/CLEP.S264683.

9. Mygind-Klavsen B, Kraemer O, Hölmich P, Lund B. An Updated Description of More Than 5,000 Procedures from the Danish Hip Arthroscopy Registry. *J Bone Joint Surg Am*. 2020 Nov 4;102(Suppl 2):43-50. doi: 10.2106/JBJS.19.01496.

10. Mygind-Klavsen B, Lund B, Nielsen TG, Maagaard N, Kraemer O, Hölmich P, Winge S, Lind M. Capsular closure in patients with femoroacetabular impingement syndrome (FAIS): results of a matched-cohort study from the Danish hip arthroscopy registry. *J Hip Preserv Surg*. 2020 Oct, p. 474-482. hnaa033, https://doi.org/10.1093/jhps/hnaa033

11. Mygind-Klavsen B, Nielsen TG, Lund B, Lind M. Clinical outcomes after revision hip arthroscopy in patients with femoroacetabular impingement syndrome (FAIS) are inferior compared to primary procedures. Results from the Danish Hip Arthroscopy Registry (DHAR). *Knee Surg Sports Traumatol Arthrosc.* 2021 Apr;29(4):1340-1348. doi: 10.1007/s00167-020-06135-w.

12. Ishøi L, Thorborg K, Ørum G, Kemp J, Reiman M P, Hölmich P. How Many Patients Achieve an Acceptable Symptom State After Hip Arthroscopy for Femoroacetabular Impingement Syndrome? A Cross-sectional Study Including PASS Cutoff Values for the HAGOS and iHOT-33. *Orthop J Sports Med.* 2021 Apr 9;9(4):2325967121995267. doi: 10.1177/2325967121995267.