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# Prevalence of Hip and Groin Pain Across Eras Amongst Former Elite Gaelic Footballers and Hurlers

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**Abstract**

***Introduction***

Gaelic football and hurling are the most commonly played amateur sports in Ireland with elite level athletes participating at inter-county level. Over time, the intensity and frequency of inter-county training has approached levels of professional sports. Previous studies have not assessed differences in hip and groin injury between eras. We aimed to examine differences in hip and groin injury, incidence of surgery and Hip and Groin Outcome Scores between elite GAA players of different eras and duration of intercountry career.

***Methods***

Members of the squads from the 1976, 1986, 1996 and 2006 hurling and football All-Ireland Finals provided data on age starting intercounty career and previous hip and groin injury and surgery. 372 players were surveyed in total. The hip and groin outcome score (HAGOS), a validated questionnaire assessing hip and groin problems suffered was also assessed.

***Results***

There were significant differences in four of the six HAGOS categories between eras with lower scores in 2006 group and in those who were younger starting their intercounty career. In addition, those with younger start and those who played in more recent times had higher rates of groin surgery (23.9% of 2006 cohort, N = 17). As expected, older players had higher rates of total hip replacement (19.7% of the 1976 cohort, N = 12).

***Conclusion***

This study highlights the influence of early playing career at elite level on hip and groin injury and that those playing in more modern times had higher incidence of groin surgery and lower HAGOS scores.

## Introduction

Hurling & Gaelic Football are amateur sports, with the most elite players playing at inter-county level. In recent years, these sports have undergone a major transformation in their approach to both matches and training, particularly at the inter-county level. These changes have come about because of the frequency and intensity of inter county players' training approaching professional standards.[1] The intensity of the sport results in a high incidence of player injury, with GAA players suffering 4.04 injuries per 1000 hours of training and 61.86 injuries per 1000 hours of match play.[2] This is a substantially higher rate than that of professional soccer players (2.8 per 1000 hours of training & 32.8 per 1000 hours of match play).[3]

Hip and groin injuries have been shown to be the third most common injury suffered by GAA players [4] however this incidence and its trajectory has not been tracked over time. Groin pain is commonly chronic in nature, and players are often able to train and play matches, despite having symptoms. This results in its incidence being underestimated in literature.[5] A decreased range of movement, particularly of internal rotation, due to hip joint pathology is a major risk factor for placing increased stress of the groin area leading to dysfunction and injury.[6-8] Furthermore, chronic groin pain in the athlete has been shown to be a strong indicator for the development of hip osteoarthritis in later life [9] and the rate of development of osteoarthritis in elite athletes may be as high as 15% (2 to 4.5 times higher than that in the normal population).[10]

To date, there has been no research investigating the effects an elite inter-county GAA career may have on a player, post-retirement. Additionally, there has been no research investigating whether the increasing training intensity of elite GAA players over time might result in difference in post-retirement hip and/or groin pain across eras. In recent years, self-report questionnaires measuring aspects of pain, sporting function, and activity for a more detailed description of hip and groin injury and severity have been developed.[11] The Copenhagen Hip and Groin Outcome Score (HAGOS) has been validated in athletes with and without hip and/or groin pain.

We aimed to conduct a pilot study examining the difference in HAGOS scores across elite GAA players from different eras. We also aimed to report incidence of hip and groin surgery, total hip replacement, and compare these by era.

## Methods

Ethical approval for this research was granted by the Clinical Research Ethics Committee of Cork teaching hospitals.

Players were comprised of four groups, those who participated in the 1976, 1986, 1996 and 2006 All-Ireland Gaelic Football and Hurling Finals. This was done to ensure that the level of player, and the duration of his playing season was kept as close as possible across all four groups. We included players involved in the final of the championship season only. Contact was initially made with a team "lead", who provided phone numbers for other members of his panel.

The players were contacted by telephone and provided consent, prior to completing a questionnaire of two sections. The first section of the questionnaire assessed player demographics: age, the sport (Football or Hurling) played, year of participation, the duration of their senior playing career, the age at which they first participated in an elite programme, any history of hip/groin injury, and lastly any history of hip/groin surgery. We aimed to collect data on each member of all sixteen panels. In total 271 players completed the questionnaire (71% completion rate). Data was collected from June-November 2016.

The second section of the questionnaire aimed to assess the level of hip and/or groin problems currently experienced by the player. We used the Copenhagen Hip and Groin Outcome Score (HAGOS), a patient-reported outcome measure, employing five-item Likert scales. It determines the level of impact a person's hip and/or groin has on their overall life by assessing six categories: Pain, symptoms, activities of daily living, sports and recreational activities, physical activities, and impact on daily life. The questions apply only to current symptoms (within the last week). The six scores are calculated as the sum of the items included. Raw scores are then transformed to a 0-100 scale, with zero representing extreme hip and/or groin problems and 100 representing no hip and/or groin problems.

We used the Statistical Package for Social Scientists (SPSS) version 23 for analysis. Descriptive statistics, frequencies and graphs were produced. Chi squared tests were used to assess differences in injury and surgery prevalence between different cohorts. Kruskal-Wallis scores were used to examine whether any cohort's HAGOS scores differed from a comparable group in any way. Statistical significance was defined by a $p<.05$.

**Results**

In total we surveyed 271 players, 132 Footballers and 139 Hurlers, in this research, Table 1 summarises the population characteristics based on the year in which the players participated in their All-Ireland Final. See table 1 for a breakdown of demographics.

| **Year of Final participated in** | **Football** | **Hurling** | **Current Age** | **Age at 1st inter-county involvement** | **Senior inter-county career duration** |
|---|---|---|---|---|---|
| **1976** Mean (Std. Deviation) **n=61** | 34 | 27 | 65 (3.5) | 17 (2.2) | 11 (3.1) |
| **1986** Mean (Std. Deviation) **n=67** | 30 | 30 | 56 (3.6) | 16 (1) | 11 (3.2) |
| **1996** Mean (Std. Deviation) **n=72** | 34 | 38 | 46 (4.4) | 16 (1) | 11 (3.7) |
| **2006** Mean (Std. Deviation) **n=71** | 34 | 37 | 36 (3.2) | 15 (1.9) | 11 (3.3) |
| **Total** Mean (Std. Deviation) **n=271** | **132** | **139** | **50 (11.4)** | **16 (1.8)** | **11 (3.4)** |

***Table 1:*** *Population characteristics based on year of All-Ireland Final participation.*

More modern players and those who began their inter-county careers at a younger age were more likely to have had undergone hip and groin surgery (p<.05). The data shows that players who played in more recent times and had earlier exposure to intense inter-county training sessions, were more likely to suffer from a groin injury, and undergo a groin surgery during their playing career (p<.001).

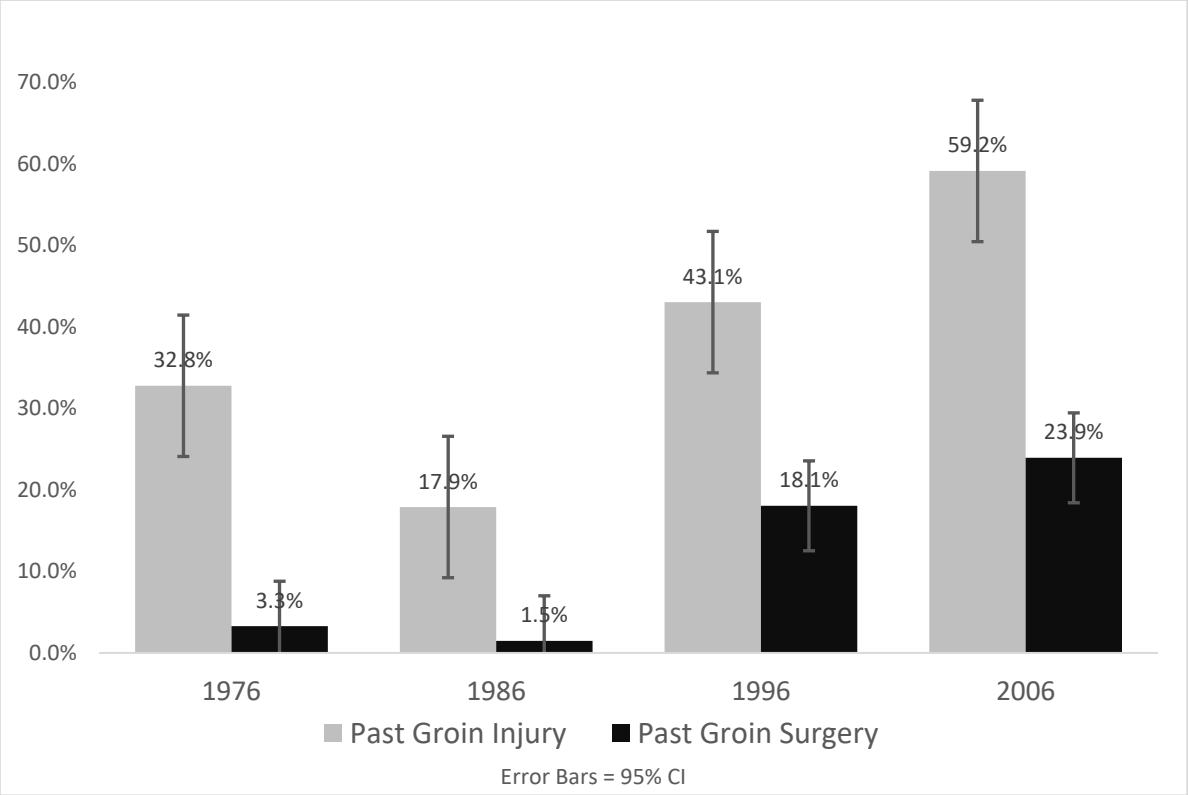



***Figure 1:*** *History of Groin surgery/injury based on Year of All Ireland Final participation.*

The incidence of total hip replacement was similar in the two different sports. 8.3% (n=11) of footballers and 7.9% (n=11) of hurlers have had at least one THR. This appeared to be associated with the age of the participants at the time of the study, as expected. 19.7% (n=12) of the 1976 group, 9% (n=6) of the 1986 group, 2.8% (n=2) of the 1996 group, and 4.2% (n=3) of the 2006 group have undergone at least 1 THR.

A more recent playing history was associated with lower HAGOS scores. There were significant findings (p <.05) in 4 of the 6 categories, namely symptoms, sports and recreation, physical activities, and quality of life (Figure 1). Age of first involvement at inter county level offers similar results, with players who started their inter-county careers at a younger age having statistically significant lower scores in the same 4 scores (Figure 2).

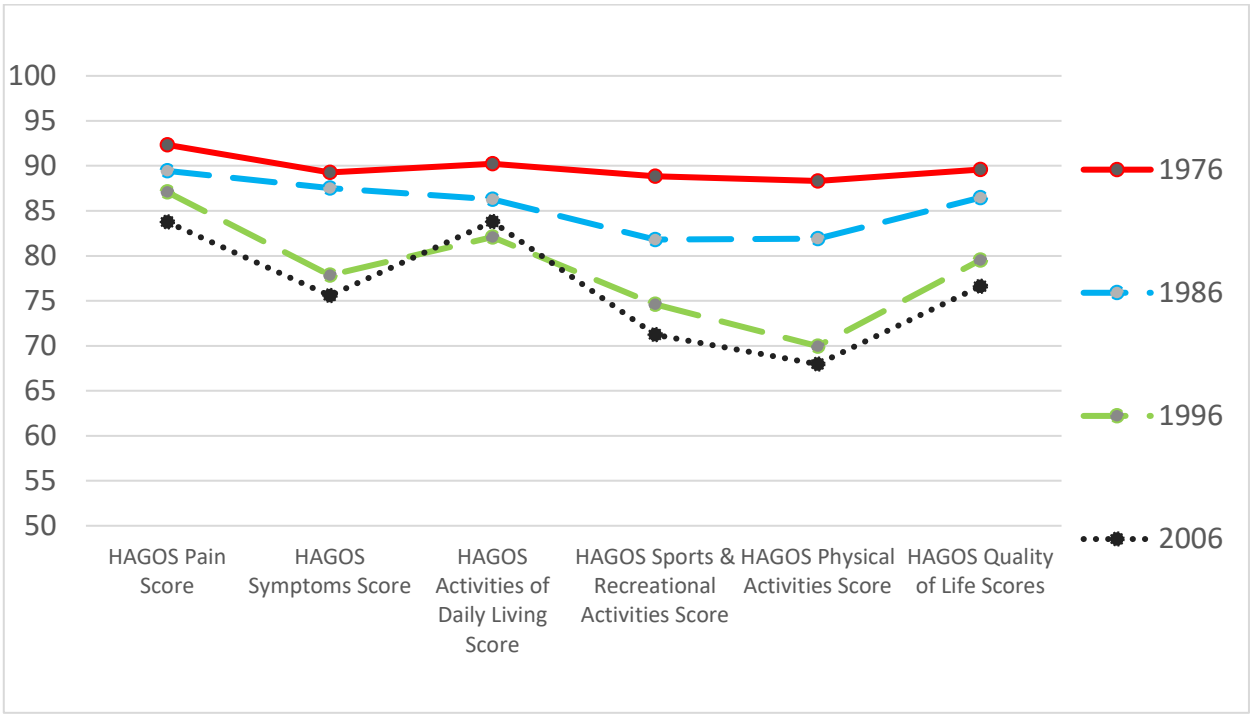



***Figure 2:*** *HAGOS scores based on year of All-Ireland Final participation.*

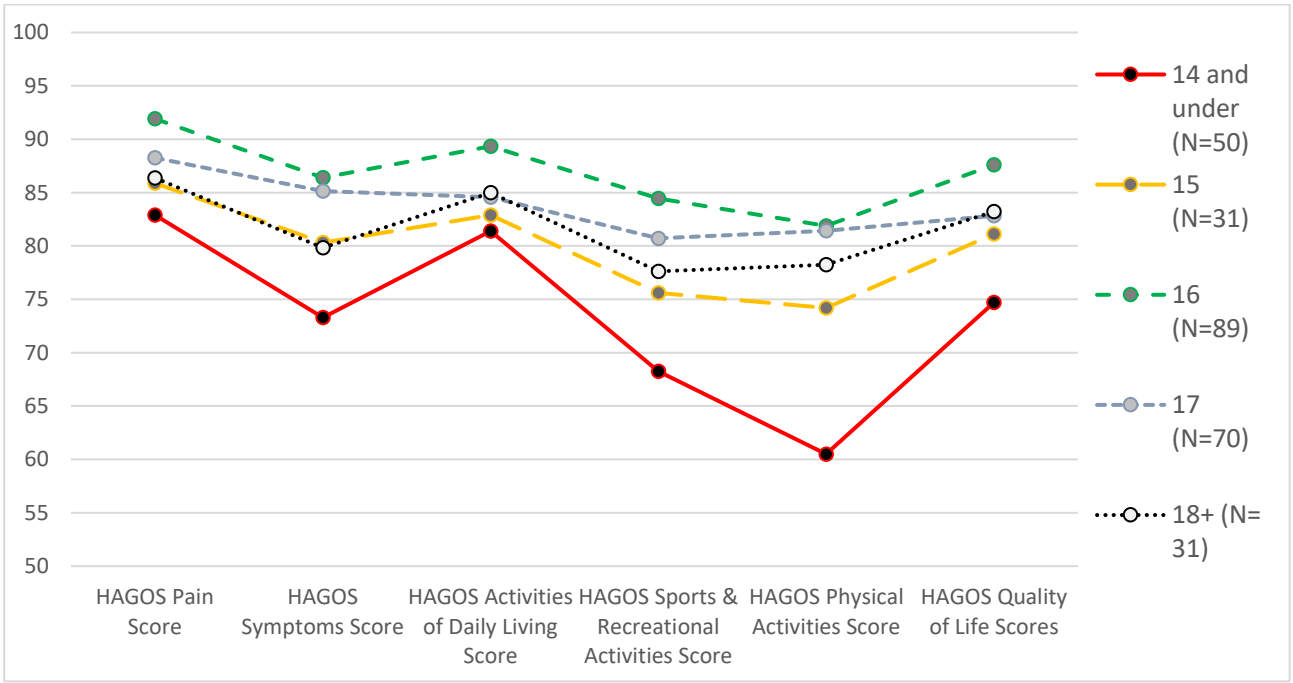



***Figure 3:*** *HAGOS scores based on age at Inter-County debut.*

Kruskal-Wallis tests showed that players who incurred a groin injury during their career lower HAGOS scores in all 6 categories with significant differences ($p<.01$),

**Discussion**

This study reports the incidence of hip and groin surgery, total hip replacement and HAGOS scores across a subsection of elite GAA players across multiple eras. Modern players were more likely to have incurred groin injuries and surgeries during their career, and post-retirement were more likely to have ongoing problems with hip and/or groin pain and function. Taking into consideration that those who debuted at inter-county level at a younger age also had worse hip problems post-retirement, it is difficult to determine the exact cause of this increase in severity. Any player who had a prolonged exposure to a higher intensity of training, also dealt with the more physically demanding training sessions and matches and subsequent increased load through the hip and groin.

A paper by Gabbe et. al [12] supports the theory that the additional intense training sessions young players undergo in GAA today may be the cause of worsening problems for the player both during and after their career. Their findings in an Australian Rules football, a sport similar to GAA, showed that players who suffered injuries in their junior football years were far more likely to suffer from injuries during their career. This risk of reaggravating a previous injury is found to be especially true for groin injuries.[13] Thus, by putting themselves at a high risk of developing groin injuries, these young players are putting themselves at greater risk of developing arthritis of the hip in later life. Injuries during an athletic career leading to post-retirement pain and poor function is well established in the literature.[14]

There is currently a lack of research analysing the incidence of surgeries in retired, contact sport athletes. Research has focused on currently active players and the success of surgery in returning the athlete to full fitness. This is especially true of Total Hip Replacement, a surgery very rarely, if ever, found in active elite athletes. However, when compared to the general population, we see that the incidence of THR in the players involved in this study is higher than the general population across comparative age groups. Research by Maradit et. al[15] shows a prevalence of THR in 0.91% of the general population in the age group 50-59, and 2.12% in the age group 60-69. The comparative figures from our study in these age groups is 6.25% and 23.63% respectively. This increased prevalence of hip replacement, along with the low HAGOS scores, supports the literature linking involvement in contact and field sports to hip osteoarthritis.[16, 17]

The study cohort is small in number relative to the number of players at each era reducing the generalisability of the results to all players of the time. In addition, given the long-time frames since playing retirement increases the issues relating to recall bias. Players were not asked to list a specific injury they may have had and therefore the difference in any reported groin injury could have been hugely significant. Players may have had differing opinions on what constitutes a “groin injury”. Players may have forgotten that they ever suffered a groin injury or could have believed that their groin pain did not constitute a true injury.

This study is the first to look at differences in hip and groin injury incidence and burden in elite GAA players who have retired from the game. The findings highlight that those whose elite career started earlier had greater hip and groin pain issues and that those in more modern times had lower HAGOS scores than those from earlier eras. Further research can explore these differences in larger cohorts and identify causative factors which can be targeted to reduce the injury burden after elite GAA careers.

**Declaration of Conflicts of Interest:**
The authors declare no conflicts of interest.

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**References:**

1. Cromwell F, Walsh J, Gormley J. A pilot study examining injuries in elite gaelic footballers. British Journal of Sports Medicine. 2000;34(2):104-8
2. Murphy JC, O'Malley E, Gissane C, Blake C. Incidence of injury in Gaelic football: a 4-year prospective study. Am J Sports Med. 2012;40(9):2113-20.
3. Stubbe JH, van Beijsterveldt AM, van der Knaap S, Stege J, Verhagen EA, van Mechelen W, et al. Injuries in professional male soccer players in the Netherlands: a prospective cohort study. J Athl Train. 2015;50(2):211-6.
4. Wilson F, Caffrey S, King E, Casey K, Gissane C. A 6-month prospective study of injury in Gaelic football. British journal of sports medicine. 2007;41(5):317-21
5. Ekstrand J, Hilding J. The incidence and differential diagnosis of acute groin injuries in male soccer players. Scandinavian journal of medicine & science in sports. 1999;9(2):98-103
6. Munegato D, Bigoni M, Gridavilla G, Olmi S, Cesana G, Zatti G. Sports hernia and femoroacetabular impingement in athletes: A systematic review. World Journal of Clinical Cases: WJCC. 2015;3(9):823.
7. Verrall GM, Slavotinek JP, Barnes PG, Esterman A, Oakeshott RD, Spriggins AJ. Hip joint range of motion restriction precedes athletic chronic groin injury. Journal of Science and Medicine in Sport. 2007;10(6):463-6.
8. Williams J. Limitation of hip joint movement as a factor in traumatic osteitis pubis. British journal of sports medicine. 1978;12(3):129-33.
9. Gosvig KK, Jacobsen S, Sonne-Holm S, Palm H, Troelsen A. Prevalence of malformations of the hip joint and their relationship to sex, groin pain, and risk of osteoarthritis. J Bone Joint Surg Am. 2010;92(5):1162-9.
10. Vingård E, Alfredsson L, Goldie I, Hogstedt C. Sports and osteoarthrosis of the hip An epidemiologic study. The American Journal of Sports Medicine. 1993;21(2):195-200
11. horborg K, Hölmich P, Christensen R, Petersen J, Roos EM. The Copenhagen Hip and Groin Outcome Score (HAGOS): development and validation according to the COSMIN checklist. British journal of sports medicine. 2011;45(6):478-91

12. Gabbe BJ, Bailey M, Cook JL, Makdissi M, Scase E, Ames N, et al. The association between hip and groin injuries in the elite junior football years and injuries sustained during elite senior competition. British journal of sports medicine. 2009:bjsports62554
13. Arnason A, Sigurdsson SB, Gudmundsson A, Holme I, Engebretsen L, Bahr R. Risk Factors for Injuries in Football. The American Journal of Sports Medicine. 2004;32(1_suppl):5S-16S.
14. Gosvig KK, Jacobsen S, Sonne-Holm S, Palm H, Troelsen A. Prevalence of malformations of the hip joint and their relationship to sex, groin pain, and risk of osteoarthritis. J Bone Joint Surg Am. 2010;92(5):1162-9
15. Maradit Kremers H, Larson DR, Crowson CS, Kremers WK, Washington RE, Steiner CA, et al. Prevalence of total hip and knee replacement in the united states. The Journal of bone and joint surgery American volume. 2015;97(17):1386-97
16. Vingård E, Alfredsson L, Goldie I, Hogstedt C. Sports and osteoarthrosis of the hip An epidemiologic study. The American Journal of Sports Medicine. 1993;21(2):195-200.
17. Shepard G, Banks A, Ryan W. Ex-professional association footballers have an increased prevalence of osteoarthritis of the hip compared with age matched controls despite not having sustained notable hip injuries. British journal of sports medicine. 2003;37(1):80-1