Return to sport following hip arthroscopy for femoro-acetabular impingement syndrome: return to sport rates and methodological considerations

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Introduction by the editor Mario Bizzini

Forschungsstudien zum Thema «Return to sport» (oder return to play) sind kürzlich auch auf dem Gebiet der Hüftarthroskopie für das femoroacetabuläre Impingement (FAI) bei Sportlern veröffentlicht worden. Während die meisten Publikationen über case series (tiefe Evidenzstufe) berichten, führten Lasse Ishøi und die Gruppe von K. Thorborg und P. Hölmich (Kopenhagen, Dänemark) eine der ersten prospektiven Kohortenstudien zu diesem Thema durch. Das Papier wurde bereits im AJSM veröffentlicht und die Ergebnisse wurden an der #SportSuisse2018 Konferenz vorgestellt. Einer der wichtigsten methodischen Punkte (bei der Durchführung von Studien): ist die Definition von «Return to sport»: ist es die Rückkehr zu irgendeinem Sport auf irgendeiner Ebene oder die Rückkehr zum Vorverletzungssport auf Vorverletzungsebene? Auch das postoperative sportliche Leistungsniveau der Athleten wird selten dokumentiert. Ziel dieser Studie war es, die Rückkehrrate zum Vorverletzungssport auf Vorverletzungsniveau bei Athleten und die damit verbundene Sportleistung nach der Hüftarthroskopie beim FAI-Syndrom zu untersuchen. Ishoi et al. fanden heraus, dass 57,1% der Athleten nach einer FAI-Operation in den Vorverletzungssport auf Vorverletzungsniveau zurückkehren und 1/3 von ihnen mit einer optimalen Sportleistung rechnen können (das bedeutet ca. 20% aller beteiligten Athleten). Diese Zahlen sind deutlich weniger optimistisch als die zuvor veröffentlichte 74–95%ige Rückkehr zu den Sportraten und zeigen auch, wie wichtig die operative Definition von «Return to sport» ist.

Schlüsselwörter: FAI, Athlet/in, Return to sport, Definition

Research studies on "Return to sport" (or return to play) have been recently published also in the field of hip arthroscopy for femoroacetabular impingement (FAI) in athletes. While most published papers discuss cases series (low level of evidence), Lasse Ishoi and the group of K. Thorborg and P. Hölmich (Copenhagen, Denmark) conducted one of the first prospective cohort studies on this topic. The paper has already been published in AJSM and the results were presented at the #SportSuisse2018 conference. One of the key methodological points is the definition of "Return to sport" when conducting studies: is it return to any sport at any level, or return to preinjury sport at preinjury level? The post-operative sport performance level of the athletes is also rarely reported. The aim of this study was to investigate the rate of return to preinjury sport at preinjury level in athletes and associated sport performance following hip arthroscopy for FAI syndrome. Ishoi et al found that 57.1% of athletes return to preinjury sport at preinjury level after FAI surgery, and 1/3 of these can expect to reach optimal sport performance (which means approx. 20% of all involved athletes). These figures are clearly less optimistic than the previously published 74–95% return to sport rates, and also show how important is the operational definition of "Return to sport".

Keywords: FAI, athlete, return to play, definition

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Introduction

Longstanding groin pain is frequently observed in athletes participating in sports involving explosive activities of change of direction, sprints, and kicking/skating, such as football codes [17,18,24,27,30,34,36], ice hockey [7], basketball [40], and tennis [1]. In recent years, intra-articular hip joint pathology has gained increased recognition as an important differential diagnosis of longstanding groin pain, and is now seen as a common cause of longstanding groin pain in athletes [5,12,35]. In relation to this, the prevalence of injuries caused by intra-articular hip joint pathology in the Australian Football League has increased gradually during a 10-year period (2002–2012) [27]. The most common diagnosis related to intra-articular hip joint pathology is femoroacetabular impingement syndrome (FAIS) defined in the 2016 Warwick Agreement as a motion-related disorder of the hip joint [15]. The diagnosis is based on a combination of symptoms, clinical signs, and radiological findings [15]. FAIS is caused by cam and/or pincer morphology, which may lead to a collision between the femoral head-neck junction and the acetabular rim [14]. Over time this may result in subsequent hip labral pathology and intra-articular cartilage damage [14] increasing the risk of radiographic end-stage osteoarthritis of the hip joint [2, 3].

Surgical treatment

Patients with FAIs often undergo surgical treatment [29] consisting of an arthroscopic procedure in most cases [8]. The purpose of surgical treatment is to correct morphology (cam and/or pincer) associated with FAIS, including treatment of potential co-existing labral and/or cartilage pathology [15]. Several studies have shown promising effect of hip arthroscopy for FAIS regarding self-reported hip and groin function related to pain, quality-of-life, and sport and recreational activities [16,22]. However, despite pre-to-post surgery improvements in self-reported hip and groin function, the majority of patients do not reach normative values in self-reported hip and groin function when compared to a healthy control group without hip and groin pain [33]. Specifically, less than 25% obtain a normal self-reported hip and groin function in relation to sport and recreational activities [33]. Such persistent deficits may likely affect the ability to return to sport following hip arthroscopy for FAIS [9].

Return to sport

For athletes, the ability to return to sport is often the most important parameter when evaluating the effect of a treatment [4]. Return to sport following hip arthroscopy for FAIS has been studied extensively and summarized in several systematic reviews. In a 2015 systematic review based on 18 case-series, 87% returned to sport at a mean follow-up of 2.3 years post-operatively [6]. Such return to sport rate has also been found in subsequent reviews [28].

While these return to sport rates are promising for athletes with intentions to return to sport, the studies included in the systematic reviews contain some methodological limitations, which may limit the interpretation of the return to sport rate.

Methodological considerations on existing return to sport literature

When advising patients with FAIS on the ability to return to sport following hip arthroscopy, it is important to understand if the existing literature can be generalized to hip arthroscopy surgeons and clinics around the world. However, most literature on return to sport following hip arthroscopy for FAIS has been conducted on different high-volume hip arthroscopy centers with single world-renowned surgeons. Consequently, this may likely result in selection bias of surgical candidates and limit the extrapolation of findings to other clinics, hospitals, or surgeons [6].

Another, and very important, limitation is the use of unclear return to sport definitions. As the definition of return to sport determines the treatment outcome as successful or not, a clear definition of return to sport is paramount. In relation to this, the return to sport definition in existing literature range from *return to training activities or return to any sport to return to preinjury level*. However, for athletes, the most important parameter is often to return to their *preinjury sport at preinjury level* [4]. Furthermore, a recent consensus statement on return to sport suggested that *return to preinjury sport at preinjury level* may consists of different phases from *restricted participation to optimal performance* [4]. Thus, it is possible to return to preinjury sport at preinjury level without performing at an optimal level [4] (Figure 1). However, information on sport performance following hip arthroscopy for FAIS is lacking [28].

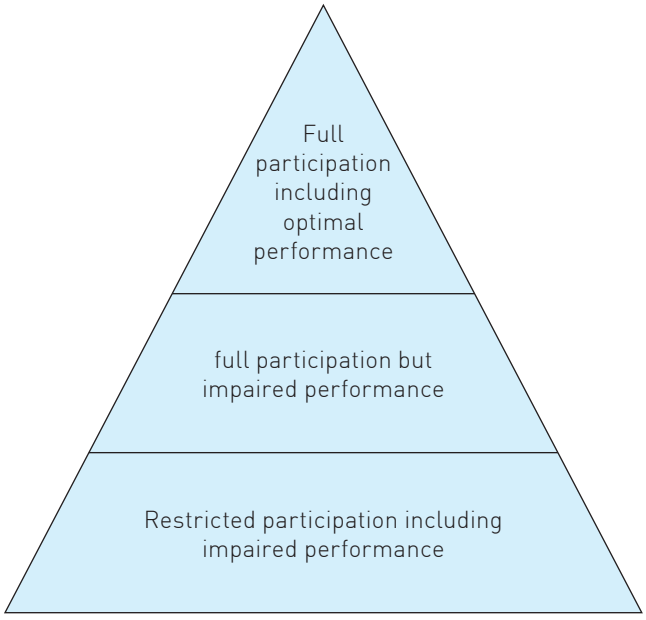

Figure 1: Return to sport continuum. Adapted from [4].

Return to sport and performance using consensus-based definitions

Two recent studies from Scandinavia, published after the latest systematic review [28], have investigated return to sport and performance following hip arthroscopy for FAIS using consensus-based definitions of return to sport and performance [19, 39]. In Ishoi et al. [19] 189 athletes (aged 18-30-years old at the time of surgery) included from the

Danish Hip Arthroscopy Registry, were surveyed using a return to sport questionnaire investigating previous and present sport activities including associated sport performance. All included athletes had an intention to return to their preinjury sport at preinjury level. The results showed that at a mean follow-up of 33 months, 57% of athletes were engaged in their preinjury sport at preinjury level. However, of those only 1 out of 3 athletes, corresponding to 17% of the total study sample, reported optimal sport performance [19]. Similar results were observed in Wörner et al. [39] in a cohort of 127 patients.

Furthermore, Wörner et al. [39] showed that 89% of patients return to some sort of sport, highlighting the importance of the return to sport definition (eg. return to sport vs. return to preinjury sport at preinjury level).

Factors associated with return to sport

Several contextual factors have been proposed to influence the ability to return to sport following hip arthroscopy for FAIS. In studies where the rate of return to sport has been compared between elite and recreational athletes, there seems to be a clear trend toward a higher return to sport rate in elite athletes [6]. However, Ishoi et al. [19] found no statistically significant difference in the rate of return to preinjury sport at preinjury level. The higher return to sport rate in elite athletes observed in some studies has been suggested to be due to factors associated with the elite sport environment, such as better access to training and treatment facilities, prestige, and economics etc. [6].

Beside the level of play (elite versus recreational) some studies indicate a lower return to sport rate in high-impact sports such as running, football etc. [6,26]. In relation to this, Domb et al. [9] observed that athletes who did not return to sport following hip arthroscopy for FAIS reported problems in high-impact sport activities such running and jumping, indicating that the hip joint may be load compromised in some athletes precluding participation in high-impact sports [32].

Another potential important, but often overlooked, factor is presence of extra-articular problems such as adductor- or inguinal-related groin pain, which is usually not addressed during the hip arthroscopy [23,25,31]. Thus, the clinician should be aware of this, and address these factors, during the post-operative rehabilitation period [37].

Post-operative rehabilitation

Despite lack of level 1 evidence, post-operative rehabilitation is considered important for the ability to cope with sport activities and thus for the ability to return to sport following hip arthroscopy for FAIS [38]. Based on expert opinions [10,11] and studies on physical impairments in FAIS patients [13], the rehabilitation should focus on restoring muscle function around the hip joint as peak muscle strength has been positively correlated to self-reported hip and groin function [20,21]. Furthermore, as the load-bearing capacity of the hip joint seems to be impaired in FAIS patients [32], restoration of force absorption capacity of the hip joint complex should be prioritized to increase the likelihood of returning to sport [9].

Summary

Hip arthroscopy is a widely adopted procedure to treat athletes with femoroacetabular impingement syndrome. Several studies yield beneficial effect on self-reported hip and groin function including the ability to return to sport. However, recent, and more detailed, studies have shown that the majority the patients do not reach normative values of self-reported sport and recreational function 12-months following hip arthroscopy for FAIS. This deficit in self-reported hip and groin function seems to be reflected in the return to sport rates, where around 50–60% of athletes return to their preinjury sport at preinjury level, and around 20% of athletes return to optimal performance.

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