to the knee (11.0%) and unspecified or otherwise poor knee function (10.2%). Among knee related reasons for failure to return, the most frequently cited included unspecified knee problems/poor function (28.4%), pain (24.3%), and weakness (11.9%). Evidence for potential publication bias and study heterogeneity was present. Conclusion: Multiple systematic reviews and meta-analyses have reported in detail the rate of return to sport after ACL reconstruction. However, the data reported in these studies often fails to provide insight as to the specific reasons for why an athlete fails to return to sport after this procedure. This study aims to address this gap in literature and provide the specific reasons for why an athlete fails to return to sport after ACL reconstruction. This study estimates the rate of failure to return to sports after ACL reconstruction to be 25.5%, with one-third of athletes citing fear of reinjury as the major deterrent for returning to sports. We highlight how factors independent of direct surgical outcomes may impact an athlete’s ability to return to play given that the predominant reason for not returning to sport after ACL reconstruction was unrelated to the knee.

Category: Knee - ACL

**Rates and Levels Of Elite Sport Participation at 5 Years After Revision ACL Reconstruction**

Abstract ID# 22370
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Summary:
Elite athletes achieved high initial RTP rates after revision ACL-R with the majority returning to pre-operative levels of competition; however, significant decreases in RTP level were noted at 2 and 5 years post-operatively. Data:
Introduction The aim of this study was to determine the rate of return to play (RTP) and competition levels at 2 and 5 years post revision ACL-R in elite / professional athletes. The secondary objectives were to assess the association between meniscal and chondral pathologies at the time of revision surgery on RTP and competition level. Methodology A retrospective review of a consecutive series of all revision ACL-R undertaken by the senior author between 2009 and 2019 was carried out. Patients were included if they were elite athletes aged 17 years or older who underwent revision ACL-R a minimum of 2 years previously. Cases of combined-ligament injury and cases which required high tibial osteotomy (HTO), either concurrently or previously were excluded. Outcome measures used were RTP rates, time to return to play and competition level. Statistical Analysis Chi square or Fisher’s exact tests were used to determine whether RTP rates and competition level differed or not with age, sport, having a medial or lateral meniscus lesion and the presence and extent of chondral damage at revision ACL surgery. Kaplan–Meier curves were generated to illustrate RTP rates and maintenance of pre-injury competition levels survival at 2 and 5 years after revision ACL-R. Results Forty-nine knees in 48 elite athletes met the inclusion criteria. After revision ACL-R 43 (87.8%) elite athletes achieved RTP, of which 75.5% were at the same level. At 2 years post-surgery, 39 (79.6%) were still playing, 25 (51%) at the same level; and at 5 years post-surgery 20 (44.4%) were still playing, 9 (20%) at the same level. Elite athletes with <50% thickness or no articular cartilage lesions were more likely to RTP (94.6% versus 66.7%, p = 0.026), as well as maintain the same competition level (83.8% versus 50%, p = 0.047) compared to those with >50% thickness chondral lesions. Those without medial meniscus pathology were more likely to RTP at the same level after revision surgery (94.4% versus 64.5%, p = 0.036). The median time elite athletes continued to play after revision ACL-R was 73 months (67 months) (95% CI, 43.4 to 102.6), 23 months at the same level (95% CI, 13.6 to 32.4). The probability of still playing at 5 years post-surgery was 55.9% with 22.5% chance of maintaining pre-injury competition level. Conclusion In elite athletes, RTP rates and competition level decreased over time after revision ACL-R. The presence of >50% thickness chondal pathology was associated with lower RTP rates and competition level at RTP time, while medial meniscus pathology was associated with lower competition level at RTP.

Category: Knee - ACL

**The Impact of Covid-19’s Social Isolation Policies on Functional Outcomes after Anterior Cruciate Ligament Reconstruction: A Retrospective Cohort Study**

Abstract ID# 23141
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Summary: COVID-19 related policy measures were associated with lower quadriceps strength and a lower probability of achieving the threshold for returning to sport-related functional activities after ACLR.

Data:
Introduction The coronavirus 2019 (COVID-19) pandemic resulted in policies that limited access to health care resources, including rehabilitation services following elective surgery. This study aimed to assess the impact of these COVID-19 measures on functional outcomes after anterior cruciate ligament reconstruction (ACLR). Methods Our institution shut down all in-person services in March 2020. Patients who underwent ACLR within the previous nine months (6/11/2019-3/11/2020) were defined as having their rehabilitation interrupted due to COVID-19 (COVID-I). Patients with ACLR done the year prior (6/11/2018-3/11/2019) were the comparative cohort. Multi-ligament reconstruction, physical sparing ACLR, and lack of 1-year follow-up excluded patients. Dependent functional outcomes included: isokinetic quadriceps testing at 60 deg/sec and 240 deg/sec, vertical 4-hop, horizontal hop, and 4-cross-over hop distances. A linear mixed-effects regression model was used to estimate group differences for isokinetic quadriceps testing. A reverse Kaplan-Meier analysis assessed the probability of achieving >90% limb symmetry index (LSI) for all functional outcomes and isokinetic quadriceps strength at 60 deg/sec at 1-year postoperative. Results A total of 176 patients, 80 Non-COVID patients and 96 COVID-I patients, were included. Twenty-nine patients (16.4%) were excluded. Baseline characteristics were similar between groups. The rate of achieving >90% LSI for all functional tests at 1-year postoperative was significantly less for COVID-I patients. Similarly, the rate of achieving an isokinetic strength at 60 deg/sec of >90% LSI at 1-year postoperative was significantly less for COVID-I patients. Controlling for postoperative time, sex, BMI, and age, patients in the Non-COVID group had a 2.96% (95% CI: -1.66 to 7.60) greater isokinetic quadriceps strength LSI at 60 deg/sec compared to the COVID-I group (p-value = 0.215). Similarly, patients in the Non-COVID group had a 4.69% (95% CI: 1.08 to 8.31) greater isokinetic quadriceps strength LSI at 240 deg/sec compared to the COVID-I group (p-value = 0.013). Conclusion COVID-19 related policy measures were associated with lower quadriceps strength and a lower probability of achieving the threshold for returning to sport-related functional activities after ACLR.

Category: Knee - ACL

**Nationwide Incidence of ACL-R in Professional Athletes in Sweden**

Abstract ID# 21425
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Summary:
The incidence rate of ACL-R per 1000 athlete events is 2 to 5 times higher in female professional athletes compared to male professional athletes in Sweden.

Data:
Introduction Few studies have looked at the nationwide incidence rate (IR) of anterior cruciate ligament reconstruction (ACL-R) in higher level athletes in different sports simultaneously. To better understand the nature of ACL-R within different sports in Sweden, we aimed to study the IR of ACL-R in high-performance athletes in the six of the most common sports in the Swedish National Knee Ligament Registry (SNKLR) : soccer, ice hockey, basketball, handball, floorball, and alpine sports. Methods Patient data from the SNKLR, between January 2005 and December 2020, was linked to team rosters and event data of the two highest divisions of soccer, ice hockey, basketball, handball, floorball,