

Accelerated Return to Play Following Osteochondral Autograft Plug Transfer (OATS)

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Objectives: Chondral lesions about the knee are a challenging clinical entity particularly among high performance athletes whose return to play is dependant on the quality and durability of chondral repair. At our institution, we favor osteochondral autograft plug transfer (OATs) when lesion size and location allow, as we believe it results in the most durable cartilage repair currently available due to the transfer of autogenous hyaline cartilage into the area of injury. We further postulate that OATs may allow a more rapid return to play in the athlete population, as the release to full activity is predicated only on adequate time for bony healing and appropriate clinical progress. We investigated the time for return to play in a cohort of competitive athletes who had undergone OATs followed by an accelerated return to play protocol and compared this to previously published timelines for chondral repair procedures.

Methods: This was a retrospective chart review of an overall institutional cohort of 152 osteochondral autograft transfer surgeries performed by 4 fellowship trained orthopaedic surgeons over the past 12 years. We identified 20 competitive athletes (average age of 21.6 years) who had undergone isolated OATs procedures of the knee, followed by a physician-directed accelerated progression and return to sports. Athletes were evaluated for clinical outcomes, and time until full return to their prior level of athletic competition.

Results: In this cohort, osteochondral autograft transfer was carried out to address femoral condylar lesions in all 20 patients. The donor site was either the superolateral portion of the lateral condyle or the intercondylar notch. The average lesion size was 134mm² (36-280mm²). The average number of plugs per lesion was 2.15, with a maximum of 4 plugs and 6 patients receiving more than 2. Our bias is to use fewer, larger plugs when possible. All patients were kept partial weight bearing initially, and released to normal ambulation as early as 2 weeks for single plugs and by week 6 for multiple plugs and then advanced as tolerated. The average time until release to play in this cohort was 88.4 days (39-185), with successful resumption of sports in all patients. There were no clinical failures in this cohort and no patient required a revision surgery. Four patients did develop a joint effusion at one point along their recovery course and required aspiration and intra-articular injection.

Conclusion: Based on our findings, we assert that an accelerated return to play protocol following osteochondral autograft transfer will allow for a predictable and more rapid return to sports. This has resulted in a substantially reduced time to pre-injury activity levels in our elite athlete population when compared to the currently available literature. The majority of our patients in this cohort (80%) were cleared to resume athletics by 3 months post OATs procedure. When compared to the current literature on return to play after chondral surgery of the knee¹, this represents a greater than 50% more rapid return to full activities in these patients.

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