

# 28

QUESTION

## WHAT CRITERIA DO YOU USE TO RETURN AN ATHLETE TO SPORT?

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Determination of when an athlete may return to sport can be difficult, and there are many issues involved. There are 2 main issues that must be addressed prior to returning an athlete to sport. The first is biologic and relates to whether the graft fixation is stable and the graft itself has been reincorporated. This is typically accomplished at 5 to 6 months.<sup>1</sup> Bone-to-bone healing of autografts usually occurs by 6 to 10 weeks, but longer bone-to-bone healing rates of greater than 6 months have been reported due to slower incorporation in allografts.<sup>1,2</sup> There is no evidence that this delay in bone-to-bone healing has any detrimental effect on the strength of the allograft reconstruction. Both autografts and allografts undergo a process of ligamentization, and both initially decrease in strength and then subsequently undergo gradual increases in strength. This entire revascularization process typically occurs over a 5-month period. By 6 months, both grafts resemble normally oriented connective tissue, and histological studies have shown no difference in allograft and autograft bone-patellar tendon-bone grafts at 1 year.<sup>3</sup>

The second issue is the athlete's range of motion, strength, and coordination. This is very subjective and is also influenced by the level at which an athlete wishes to return to play. In general, in order for an athlete to return to sport, they must have regained full and unrestricted motion with strength equal to at least 85% of the contralateral side (Figure 28-1). Returning to sports participation prior to obtaining full and unrestricted range of motion places the affected extremity at a disadvantage mechanically and may increase the risk for further injury. We allow our patients to return to sports at 5 to 6 months post-operatively, provided that they meet the criteria shown in Table 28-1.

In a survey of members of the American Orthopaedic Society of Sports Medicine, most surgeons released their patients to competition at 6 to 7 months.<sup>4</sup> We believe that the graft is reincorporated and most patients have regained their motion and quadriceps strength by this time.

**Figure 28-1.** Complete quadriceps rehabilitation with symmetric tone and girth following bilateral anterior cruciate ligament (ACL) reconstruction.



In order to return to sport, the athlete must progress through a dedicated rehabilitation phase of progressive sport-specific training. Sport-specific training simulates the functional requirements of the specific sport, simultaneously incorporating neuromuscular control and proprioceptive training. The athlete must be able to perform these complex drills prior to return to sport, as it is only through sport-specific training that he or she will develop the high level of reflexive neuromuscular control required to perform during competition.

Many athletes will bring up the question of bracing after anterior cruciate ligament (ACL) reconstruction. There is no definitive study showing any benefit to post-reconstruction ACL bracing. In a survey of members of the American Orthopaedic Society of Sports Medicine, 13% of 284 responders never braced their patients after ACL reconstruction and half braced their patients less frequently than 5 years prior,<sup>5</sup> possibly representing changes in rehabilitation protocols reflecting newer, more reliable fixation. Many surgeons do brace their patients for up to a year for sports; however, we do not feel that this is warranted except in rare cases or where the patients strongly request bracing for other subjective reasons.

Our rehabilitation protocol for return to sport progresses during the time period from 4 to 6 months. Patients progress with flexibility and strengthening and begin functional exercises such as running backwards, cutting, and pivoting. Plyometric exercise programs and sport-specific drills are initiated at this time as well. After 6 months, gradual return to sports participation is allowed and patients continue with a maintenance program for strength and endurance.<sup>6</sup>

In the end, the decision of when to return an athlete to his sport is a subjective one that is made after a thorough clinical evaluation, in conjunction with functional testing and subjective assessment of the athlete's overall progress. In my practice, I have found that presurgery discussions about an athlete's expectations of return to sport can be valuable tools in assisting me with this difficult question. Patients with realistic goals who are educated about the issues involved in returning them to sport can make more informed decisions about when they are ready and, probably more importantly, when they are not.

