

ACL Allografts vs. Autografts

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Abstract

The athlete is a 19-year-old 1st year collegiate male cheerleader. In April, he tore his ACL during a cheerleading competition. The subject underwent surgery in May, and began ACL rehabilitation in his home town. In August, the athlete moved to a college campus to begin school. The athlete reported to the athletic training room to complete rehabilitation. The athlete presented with noticeable muscular atrophy in the quadriceps and triceps surae, a loss of range of motion, and loss of strength when compared bilaterally. The athlete's surgeon opted for an anterior tibial tendon allograft. Before planning and beginning a rehabilitation program, it is necessary to be familiar with what tissue is being used as the ACL graft, whether it is an allograft or autograft, and the risks and benefits of each. Depending on the surgery and tissue used, both rehabilitation and the time to return to play can be affected. With the knowledge presented, health professionals can ensure an optimal rehabilitation protocol for an athlete with an anterior tibial allograft.

Introduction

The athlete reported to the athletic training room to resume rehabilitation from an ACL surgery 4 months post op. The athlete was required to continue rehabilitation in order to return to play. The athlete's physician selected an ACL Allograft reconstruction. The athlete missed 2 weeks of rehab preparing for college.

Purpose

This case highlights the importance of using current research evidence for ACL reconstruction options for an active young athletic individual. The benefits should outweigh the risks in order to ensure superlative health of the athlete, with the least amount of opportunity for an ACL re-tear.



Clinical Presentations

- Noticeable muscular atrophy in the quadriceps and triceps surae
- Loss of range of motion, (6cm above base of patella) L leg= 46.5cm R leg=49.5
- Loss of strength compared to bilaterally
- AROM Flex: 112° AROM Ext: 1°
- Strength 4+/5 in all motions

Background

- 19 year old male
- 165lbs 6'3
- Collegiate athlete
- No previous injuries to left leg
- ACL reconstruction with anterior tibial tendon Allograft

Differential Diagnosis

- ACL tear
- Fracture of tibia or femur
- Anterior knee instability



Uniqueness

This case is unique because the athlete's surgeon chose to do an anterior tibial tendon Allograft for the ACL reconstruction. This is becoming an uncommon choice due to evidence suggesting the graft becomes lax over a period of time. The athlete was also a unique case in which he had missed 2 weeks of rehab and had lost range of motion during that time. The athlete was compliant during the next few months of rehab but compliancy diminished once implementing strength and conditioning in the weight room. The athlete also began intense activity during his 5th month even when strongly advised against it by many health professionals.

Treatment

The athlete continued rehabilitation immediately to fully regain range of motion and strength compared bilaterally. Treatment also included cross friction massage to break adhesions that had formed on the athlete's scars. Full hip complex PNF stretching was used to maintain flexibility and proprioception exercises began to regain and improve balance.

Conclusion

When the athlete was cleared after 6 months post op, he did not come for further rehabilitation. During the last week he had been in the athletic training room his range of motion had improved in his knee. AROM Flex: 123° AROM Ext: -1° as well as the muscular atrophy in his quads. Measured at 49.5cm bilaterally The calf had improved in muscular size, but was not as large as the R. calf. The athlete returned to play with greater strength in the athlete's left hamstring. The athlete's left quadricep was weaker during endurance activity measured by a Biodex, which is a machine that measures isokinetic movements. However, the athlete gained full strength in the quadriceps when compared bilaterally. Full strength was gained by performing eccentric and concentric contractions by using weights.