

# Allograft Anterior Cruciate Ligament Reconstruction in Patients Younger than 25 Years

Thomas R. Carter, MD<sup>1</sup> Michael T. Rabago, PA<sup>1</sup>

<sup>1</sup> The Orthopedic Clinic Association, TOCA, Phoenix, Arizona

J Knee Surg 2016;29:322–328.

Address for correspondence: Thomas R. Carter, MD, The Orthopedic Clinic Association, TOCA, 2222 E Highland Ave Ste 300, Phoenix, AZ 85016 (e-mail: sargecarter2000@yahoo.com).

## Abstract

**Purpose** The purpose of this study was to evaluate the outcomes for patients younger than 25 years who had anterior cruciate ligament (ACL) reconstructions with allograft tissue.

**Methods** A total of 52 ACL reconstructions performed with fresh-frozen, nonirradiated tibialis or Achilles allografts in active patients younger than 25 years. Outcome evaluations included the International Knee Documentation Committee (IKDC) objective and subjective forms, KT-1000 arthrometry and Lysholm.

**Results** Forty-two patients were available for follow-up at an average follow-up of 65 months (range, 33–99 months). The average age at surgery was 17 years and 7 months (range, 11 years 10 months–24 years 8 months). Objective and subjective data were obtained from 37 patients with 1 requiring revision, and 5 patients had only subjective data. IKDC objective results were 29-A and 5-B. KT-1000 differences were 0 mm for 4 patients, 1 mm for 23, 2 mm for 8, 3 mm for 1, and > 5 mm for 1 patient. The average IKDC subjective score was  $90.2 \pm 15.0$  and average Lysholm score was  $90.0 \pm 11$ .

**Conclusion** The result of our study found that using nonirradiated Achilles or tibialis tendon allografts for ACL reconstructions in active patients younger than 25 years can achieve good outcomes, with a low rate of failure.

## Keywords

- ▶ anterior cruciate ligament
- ▶ anterior cruciate ligament reconstruction
- ▶ allograft

For young active patients who undergo anterior cruciate ligament (ACL) reconstruction, there has been a hesitancy to use allografts for reconstruction because of concerns regarding the increased failure rates compared with autografts. Questions remain because limited clinical data are available for allografts in patients younger than 25 years. Furthermore, only data from recent clinical studies can be evaluated to avoid the use of irradiated allograft tissue, which has demonstrated a greater failure rate than nonirradiated allograft tissue.<sup>1–3</sup> Even low-dose irradiation (< 2.5 mRad) to the allograft tissue may increase the failure rate compared with nonirradiated tissue.<sup>4</sup> Moreover, criteria for appropriate

patient selection (i.e., activity level) for an allograft ACL reconstruction are unclear in the younger age group.

A recent study involving 79 patients 18 years or younger who underwent ACL reconstruction resulted in 35% (7 of 20) of the patients in the allograft group and 3% (2 of 59) of the patients in the autograft group requiring revision ACL surgery.<sup>5</sup> This is an apparent 15-fold increase in failure rate for the allograft; however, five of the seven patients in the allograft group had a failure because of a probable premature return to sports participation. In addition, allografts used in this study were from two sources: one source performed low-dose irradiation and the other did not.

received

February 19, 2015

accepted after revision

March 31, 2015

published online

July 30, 2015

Copyright © 2016 by Thieme Medical Publishers, Inc., 333 Seventh Avenue, New York, NY 10001, USA.  
Tel: +1(212) 584-4662.

DOI <http://dx.doi.org/10.1055/s-0035-1554923>.  
ISSN 1538-8506.