

# Indications for Two-Incision (Outside-In) Anterior Cruciate Ligament Reconstruction

Barton R. Branam, MD<sup>\*</sup>, Christopher J. Utz, MD

## KEYWORDS

- Anterior cruciate ligament • Reconstruction • Two-incision • Knee instability
- Outside-in

## KEY POINTS

- Two-incision reconstruction of the anterior cruciate ligament (ACL) is a skill that should be mastered by knee reconstructive surgeons.
- Indications include revision surgery, reconstruction in a skeletally immature patient, and when a patient is unable to hyperflex the knee or a long patellar tendon graft would likely result in graft tunnel mismatch.
- The outcomes and complications are similar for single-incision and 2-incision ACL reconstruction.

## INTRODUCTION: NATURE OF THE PROBLEM

Anterior cruciate ligament (ACL) reconstruction has experienced numerous changes in the past 30 years evolving from an open technique to primarily arthroscopic techniques. One of the initial arthroscopic assisted techniques was performed with separate incisions for outside-in drilling of both the tibial and femoral tunnels. Over time, inside-out arthroscopic techniques for drilling the femoral tunnel were developed and refined. This advance eliminated the need for a second proximal incision in most ACL reconstruction techniques.<sup>1</sup> Although some surgeons continue to use an outside-in technique for primary ACL reconstructions, the majority of ACL reconstructions are performed using either a transtibial technique or some form of medial portal drilling.<sup>2</sup> There are some cases, however, where use of a 2-incision, outside-in technique can be beneficial and the skilled surgeon should be familiar with its application. This article

---

Commercial or Financial Conflicts of Interest for Authors: None.

Division of Sports Medicine, Department of Orthopaedic Surgery, College of Medicine, University of Cincinnati, 1103 Holmes Hospital, Mail Loc-0212, Cincinnati, OH 45267, USA

\* Corresponding author.

E-mail address: [branambr@ucmail.uc.edu](mailto:branambr@ucmail.uc.edu)

Clin Sports Med ■ (2016) ■-■  
<http://dx.doi.org/10.1016/j.csm.2016.08.004>

[sportsmed.theclinics.com](http://sportsmed.theclinics.com)

0278-5919/16/© 2016 Elsevier Inc. All rights reserved.

reviews the indications and technical pearls for performing a 2-incision, outside-in ACL reconstruction.

## INDICATIONS AND CONTRAINDICATIONS

The 2-incision approach for femoral tunnel creation is a reproducible method that can be used with standard primary ACL reconstructions.<sup>1</sup> There are some unique situations, however, where this technique is advantageous and may be considered as the procedure of choice to address specific technical challenges associated with ACL reconstruction. **Box 1** lists the indications and contraindications for this approach.

### *Skeletally Immature Patients*

ACL injuries are diagnosed with increasing frequency in skeletally immature athletes. This is likely owing to a combination of increased participation, increased competitiveness at younger ages, and improved recognition by pediatricians and athletic trainers.<sup>3,4</sup> Owing to the transphyseal nature of traditional ACL reconstruction techniques, there is an increased risk of growth disturbances in pediatric patients with significant remaining growth and ACL ruptures. Thus, these injuries were historically treated nonoperatively to avoid the potential for iatrogenic growth arrest. Natural history studies, however, have documented poor outcomes from nonoperative treatment.<sup>3,5</sup> As a result, pediatric ACL injuries are increasingly being treated operatively. Traditional endoscopic techniques for pediatric ACL reconstruction are often modified to minimize physeal injury, and can result in nonanatomic tunnel placement.<sup>3,6</sup> With the use of fluoroscopy, an outside-in technique allows the surgeon to create a femoral tunnel from the anatomic ACL footprint that remains completely within the femoral epiphysis, thus sparing the physis.<sup>3,4,7</sup> This minimizes the risk of growth disturbances owing to ACL reconstruction in the young adolescent patient with open physes and significant remaining growth.

### *Patients with Long Bone–Patella Tendon–Bone Autografts*

One of the theoretic benefits of bone–patella tendon–bone autografts is the improved fixation achieved with bone-to-bone healing through the use of interference fixation. Long bone–patella tendon–bone autografts (tendon length >45 mm) can result in problems with graft tunnel mismatch, which creates technical difficulties for tibial fixation of

#### **Box 1**

#### **Indications and contraindications for 2-incision (outside-in) ACL reconstruction**

##### *Indications*

- Skeletally immature patients
- Patients with long bone-patella tendon-bone autografts
- Revision ACL reconstructions
- Patients unable to achieve knee hyperflexion.<sup>1,3</sup>

##### *Contraindications*

- Significant previous femoral tunnel osteolysis requiring bone grafting in revisions

*Abbreviation:* ACL, anterior cruciate ligament.

Download English Version:

<https://daneshyari.com/en/article/5707097>

Download Persian Version:

<https://daneshyari.com/article/5707097>

[Daneshyari.com](https://daneshyari.com)