

## Paper #14

# A Comparison Of Three Arthroscopic Portals To Create The Anatomic Femoral Tunnel In ACL Reconstruction

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### Summary:

The femoral tunnel created through the transpatellar tendon portal was longer and farther from the tunnel exit to the cartilage than the femoral tunnel drilled through either the anteromedial or accessory anteromedial portal.

### Abstract:

#### INTRODUCTION:

Creating the femoral tunnel using the anteromedial (AM) portal technique in anterior cruciate ligament (ACL) reconstruction allows a more anatomic placement of the femoral socket (1). However, this technique has potential complications such as very short femoral tunnel and posterior tunnel wall blowout. The purpose of this study was to compare the femoral tunnel length and the distance from the tunnel exit to the articular cartilage of the lateral femoral condyle of three femoral tunnels created by different arthroscopic portals.

#### MATERIAL AND METHODS:

Eight fresh-frozen non-paired human cadaveric knees were used in this study. After arthroscopic transection of the ACL, a 2.4-mm tunnel was drilled using a guide wire in the center of the ACL femoral origin through the accessory AM (AAM) portal (2 cm medial to the medial border of the patellar tendon (2)) at 120° of knee flexion. Then, two different tunnels were created in the same fashion in the center of the ACL femoral origin through the standard AM portal (adjacent to the medial edge of the patellar tendon) and through the central transpatellar tendon (TT) portal. Using standard and three-dimensional computed tomography analysis (InSpace Software), the femoral tunnel length and the distance from the tunnel exit to the articular cartilage of the lateral femoral condyle were measured for each tunnel. Repeated measures ANOVA were used, with a .05 significance level.

#### RESULTS:

The femoral tunnel created through the TT portal had significantly the maximum length ( $56.4 \pm 18.9$  mm) and the largest distance from the tunnel exit to the cartilage ( $46.2 \pm 20.2$  mm) ( $P < 0.05$ ). The tunnel created through the AAM portal showed the minimum length ( $31.4 \pm 6.4$  mm) and the shortest distance from the tunnel exit to the cartilage ( $17.4 \pm 7.5$  mm). However, there were no significant differences in length and distance to the cartilage between the tunnels created through the AAM and AM portal ( $P > 0.05$ ). There was no posterior wall blowout.

#### DISCUSSION:

A femoral tunnel drilled through the TT portal produces longer tunnels and larger distance from the tunnel exit to the articular cartilage of the lateral femoral condyle than a tunnel created through either the AAM or AM portal. However, the TT portal has the potential disadvantage to establish an exaggerated oblique tunnel entry.

#### REFERENCES:

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1. Colvin et al. (2009). *Knee Surg Sports Traumatol Arthrosc*, 17, 956-963.
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