Risk of femoral tunnels collision combining anterior cruciate ligament reconstruction and anterolateral tenodesis

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I have no financial conflicts to disclose
The burden of the problem

**Anterolateral tenodesis**

- Several techniques described
- Femoral fixation independent from the ACL one
- No superiority about fixation device or technique
- Could a fixation through a femoral tunnel lead to a collision with the ACL tunnel?
Is it a femoral drilling safe?

Is it safe to reconstruct the knee Anterolateral Ligament with a femoral tunnel? Frequency of Lateral Collateral Ligament and Popliteus Tendon injury
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• Only speculate about possibility of collision with ACL tunnel

• Suggested to drill a single tunnel for both reconstruction
**Materials**

**SERIES ANALYZED:**
- 33 patients
- ACL *anatomic* reconstruction with hamstring and cortical suspensory fixation
- EAT fixed in a *tunnel* of 20/25mm of depth
- Starting point 5mm *proximal* and 5mm *ventrally* from the lateral epicondyle
- Aiming a direction *30° ventrally*
Method

**CT SCAN:**
- 3D reconstruction
- 2 observer
- 2 measurement by each observer

**MEASURING:**
- Any collision between the femoral tunnel of ACL and EAT
- Bone bridge in between the 2 tunnels (cut off 5mm)
- Both parameters analysed at cortical level and 1 cm deeper
- Direction of the femoral tunnel of EAT in relation with the transepicondylar axis
Results I

NO COLLISION & BONE BRIDGE > 5mm
18 cases (54.54%)
Coronal pane: range -15.34 / + 28.38°
Axial plane: range +23.15°/ +27.09°

BONE BRIDGE < 5mm:
8 cases (24.24%)
2 cases (6.06%) at the cortical level
6 cases (18.18%) 10 mm deeper
Coronal plane: range -14.39°/26°
Axial plane: range +16.02°/ +24.58°
Results II

COLLISIONS:
7 cases (21.21%)
Coronal plane: range -10.42°/ +26°
Axial plane: range +8.28°/ +19°

SIMULATION:
On axial plane
30° of inclination toward ventrally
NO COLLISION WAS OBSERVED
Conclusion

• Not easy to achieve 30° of inclination with intraoperative landmark

• Drill with 30° of inclination toward ventrally avoid collision with ACL femoral tunnel

• The inclination in the coronal plane seems not to affect the possibility of collision