

## Rapid Custom Intra-Articular Ligament Reconstruction Guide

**R**esearchers at the University of South Florida have developed a custom surgical guide for ligament reconstruction based on patients' unique anatomies.

Intra-articular ligament reconstruction tunnels are currently placed using landmark recognition and computer navigation. The former requires a constant anatomical landmark to orient placement of a guide. Frequently, placement of these tunnels are too anterior resulting in small surgical tunnels, uneven bone plug reconstruction and delayed graft failure. Multiple studies show that the state-of-the-art techniques assume similar patient anatomy with respect to the patient's bones and ligaments. This could result in inaccurate placement and therefore non-anatomic restoration of knee kinematics.

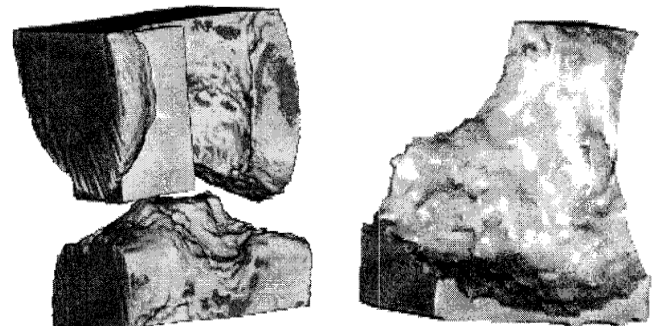
Our inventors have created a custom guide based on the patient's unique anatomy. The device is constructed using pre-operative MRI, which visualizes the anatomy of each patient. The images are filtered to generate computerized three dimensional ligament models to ensure that the device uniquely conforms to the bone in the region of the desired tunnel. It can be introduced through the portal and applied to the bone denuded of soft tissue.

### ADVANTAGES:

- Custom surgical guide created from MRI to suit each patient's anatomy
- Quick and accurate intra-operative application without navigation
- Accurate placement facilitates better restoration of knee kinematics
- Conformation to the bone in the tunnel region

*Navigation-Free, Anatomy Based*

*Custom Surgical Guide*



*Left: Generated reverse contour of femoral face  
Right: Generated face contour of the femoral ACL attachment point*

**Tech ID # 08A060**

**Patent #: [8,808,301](#) / [9,700,259](#)**

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