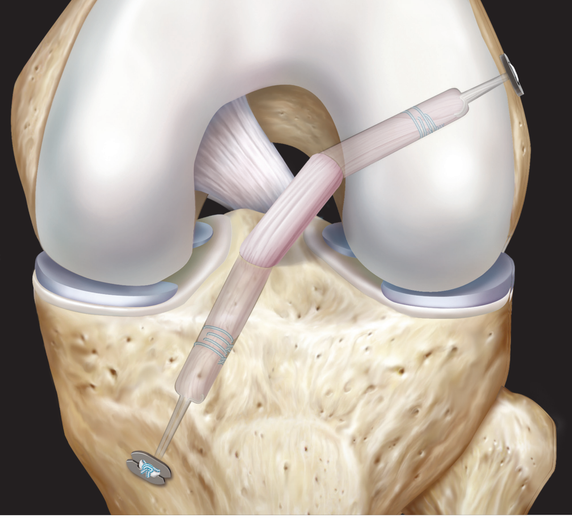


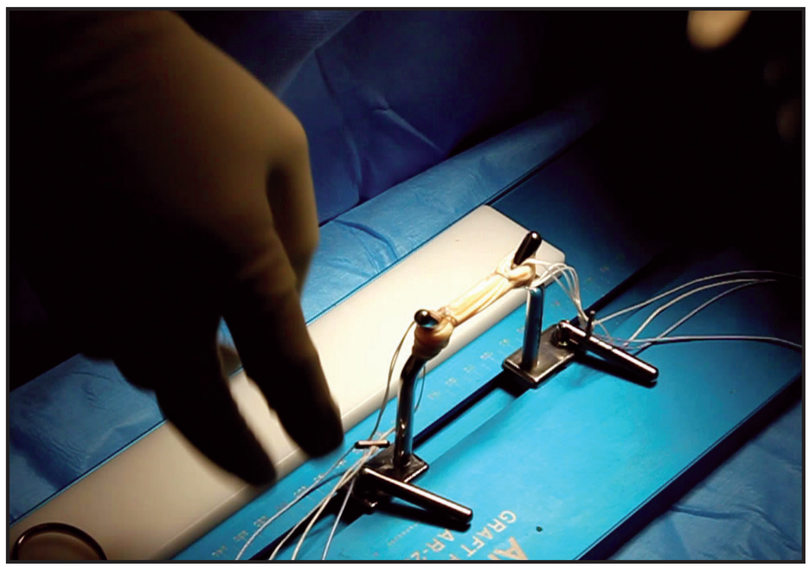
GraftLink™ with ACL TightRope®: Biomechanical Testing

Objective: Determine the biomechanical characteristics of the GraftLink construct when used with an ACL TightRope for femoral fixation during ACL reconstruction, as compared to an ACL TightRope with an unstitched tibialis tendon graft.

Methods: Cadaver tibialis tendons were used for this testing. Half of the tendons were prepared according to the surgical technique guide for the GraftLink (LT0157), as shown in Figure 1, with one ACL TightRope. The remaining samples were sized to a consistent diameter of 9 mm, but were not stitched in any fashion. Porcine femurs, potted in fiberglass resin, were prepared by drilling 20 mm deep sockets, 14 mm in diameter, for the GraftLink samples; and by drilling 30 mm deep sockets, 9 mm in diameter for the unstitched samples.

The graft samples were pulled into the sockets and tightened using the tensioning sutures. The femurs were secured to the materials testing machine using a fixed ngle fixture that allowed the samples to be oriented such that the direction of pull was in the direction of the sockets. The grafts were secured to the cross-head using a custom freeze clamp and dry ice. To remove slack, each sample was precycled between ten and 50 N for 10 cycles at 1 Hz. The samples were then cycled between 50 and 250 N for 500 cycles at 1 Hz, followed by a load-to-failure at 20 mm/min. Load and displacement data were collected at 500 Hz. Displacement of the repairs at the femoral tunnel orifice was determined using digital video and tracking software, and was calculated from the maximum displacement of the first cycle to the position at the end of the 500 cycles.

Figure 1:
GraftLink sample prepared with one ACL TightRope



Results: The ultimate loads and video tracking displacements are shown in Figures 2 and 3, respectively. There were no significant differences found between the two groups in ultimate load ($p = 0.138$) or video tracking displacement ($p = 0.710$).

Figure 2:
The ultimate load results for both constructs were statistically similar, although on average, the GraftLink construct held a greater load

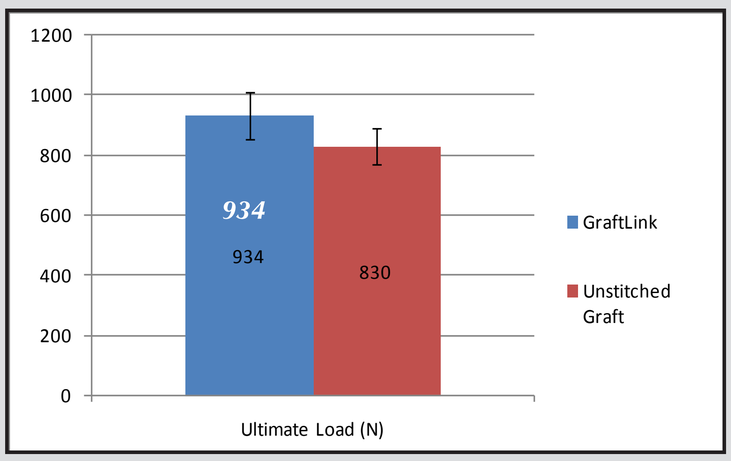
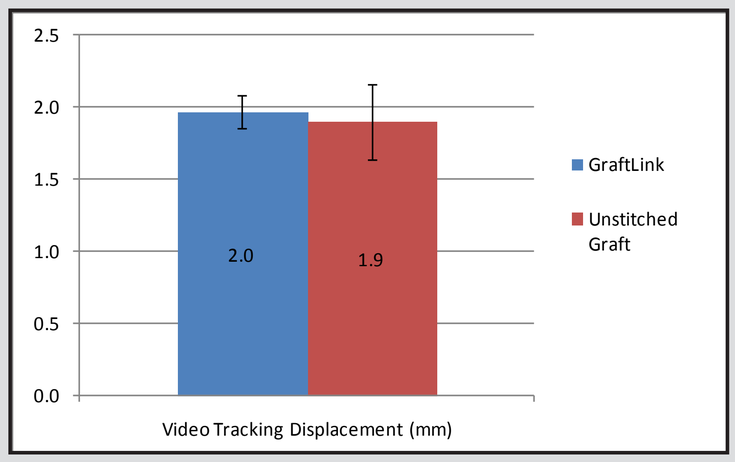


Figure 3:
The cyclic displacement results for both constructs were statistically similar



Conclusions: The results of this testing demonstrate that the ACL TightRope method of ACL reconstructions can be supplemented with the addition of the GraftLink construct without reducing the biomechanical fixation strength.

Scan to view article on Arthrex website