

Tensile Cyclic Testing of Knotless Suture Anchors used for Glenoid Labral Repairs: A Biomechanical Study

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Objective

The objective of this test was to compare the biomechanical performance of two knotless anchors used for glenoid labral repairs. The two anchors tested were the Arthrex 3.5 mm Bio-PushLock and the Mitek BioKnotless.

Methods and Materials

Seven matched pairs of glenoids were dissected of all soft tissue, and potted using fiberglass epoxy resin to facilitate fixation of the glenoid during testing. The two suture anchors were inserted in the glenoid leaving an exposed suture loop. Each anchor was cyclically loaded between 10 and 60 N at 1 Hz for 500 cycles then pulled to failure at 33 mm/sec.

Results

There was no statistical difference in cyclic displacement or ultimate load of the two anchors ($p = 0.441$ and $p = 0.702$ respectively). The results of the testing can be seen graphically in Figures 1 and 2.

Figure 1.

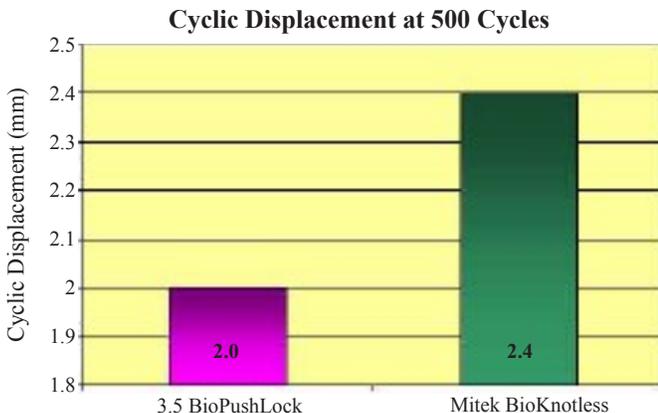
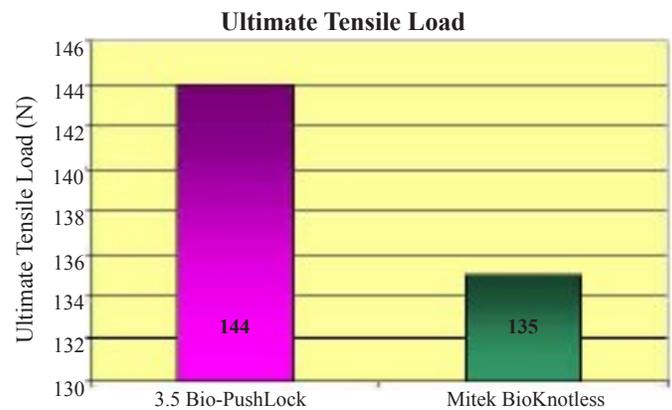


Figure 2.



Conclusion

On average, the Bio-PushLock biomechanically outperforms the BioKnotless anchor; however, no statistical difference existed between the two groups. The Bio-PushLock also provides the additional benefit of allowing a controlled amount of suture tension to be applied at the repair site without the necessity of increasing the insertion depth of the anchor.