

**COMPARISON OF LATERAL ROW ANCHORS
FOR ROTATOR CUFF REPAIR**



**DEPUY MITEK R&D
JANUARY 2012**

OBJECTIVE

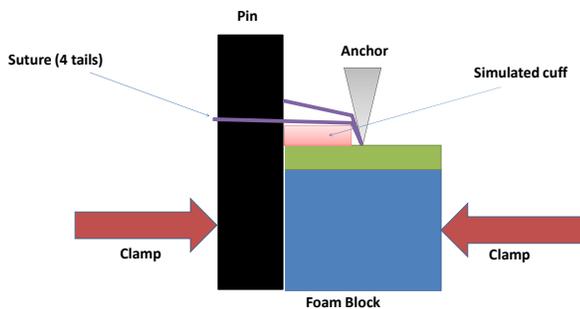
The purpose of this study is to examine the performance of different lateral row anchors for rotator cuff repair – HEALIX KNOTLESS™ BR, Biocomposite PushLock® 4.5mmx24mm, and Biocomposite SwiveLock® SP 4.75mmx24.5mm Self Punching, Vented.

TEST METHOD

The following testing was conducted using rigid closed cell foam to represent the nominal bone condition expected for a lateral row placement. The foam has the benefit of offering consistent material properties compared to cadaveric bone which removes potential noise from a comparative study.

Holes were created in the foam blocks (using appropriate awls) and filled with saline. The anchor systems were threaded with 4 suture tails (ORTHOCORD®) and then deployed into the foam simulating lateral row placement including spanning to the medial row. The sutures that would lead to the medial row were then pulled (recording force and displacement) until an ultimate failure was observed or a displacement of 5mm was reached. A gap of 5mm is viewed as a failure of the repair.

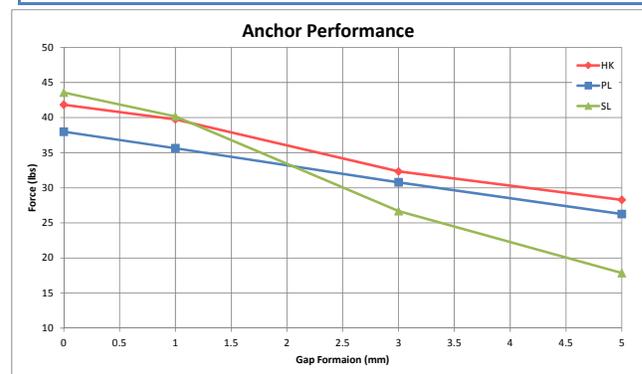
Forces, displacements, foam hardness, failure mode, and observations were recorded for each sample.



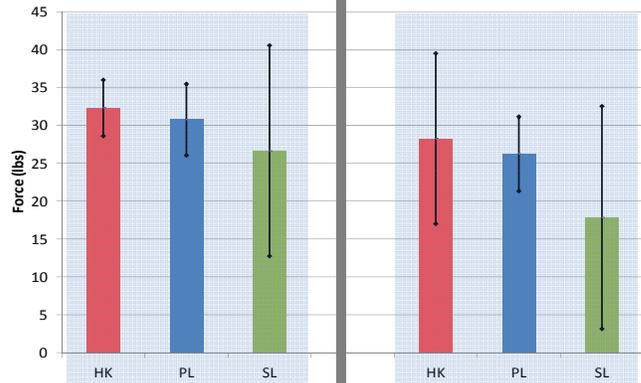
RESULTS

A total of n=9 of each anchor were tested. In addition to the forces, the failure modes were recorded for each anchor and were divided into 2 possibilities – suture slide and anchor pullout. Suture slide results when the suture starts to slide under load (gap formation) while the anchor remains firmly in place. Anchor pullout results when the suture starts to move evulsing the anchor from the foam.

Anchor	Failure Force	Failure Mode
HEALIX KNOTLESS™ BR	41.83 lbf	9 Suture Slide/0 Pull Out
Biocomposite PushLock®	37.99 lbf	1 Suture Slide/8 Pull Out
Biocomposite SwiveLock®	43.57 lbf	1 Suture Slide/8 Pull Out



Force vs Gap Formation with $\pm 2\sigma$ Error Bars



CONCLUSIONS

The HEALIX KNOTLESS™ BR anchor provided equivalent initial fixation forces when compared to PushLock® and SwiveLock® and better resistance to gap formation. In addition, the failure mode of the HEALIX KNOTLESS™ BR anchor was consistently suture slide while the other anchors had approximately a 90% chance of anchor pullout (whether partial or full). Suture slide is preferable as the anchor remains fully seated in the bone.

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