

# MARKET SNAPSHOT

## An Update on Rotator Cuff Repair Procedures and New Anchor Designs

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In a recent issue of *Arthroscopy: The Journal of Arthroscopic & Related Surgery* the authors of an article titled “Biomechanical Analysis of Pullout Strengths of Rotator Cuff and Glenoid Anchors: 2011 Update,” performed research to evaluate the biomechanical and design characteristics of suture anchor designs that have been recently introduced.<sup>1</sup>

### Why this is Important

New materials are used to improve the de-

sign of medical devices, but often may be the source of new failure modes. According to the study’s authors, recent innovations include the use of polyetheretherketone (PEEK) in anchors, a strong, radiolucent material that can be drilled if revision surgery is necessary. Other new materials include the use of bioabsorbable materials for shoulder anchors. Many designs incorporate multiple high-strength sutures, made partially or fully with ultra-high molecular weight polyethylene (UHMWPE).

### Shoulder Anchors and the Market for Arthroscopy Devices

In the arthroscopy device market, the value of the shoulder anchor segment is the largest of all arthroscopy devices (estimated at \$575 million in 2011) and is one of the top three rapid growth markets, with a compound annual growth rate (CAGR) of 10.5 percent in 2011. Compare this to rotator cuff repair grafts and meniscal repair devices, which had 2011 CAGRs of 13.6 percent and 12.5 percent, respectively.<sup>2</sup>

### Drivers to Procedure Rates for Shoulder Fixation

Rotator cuff and glenohumeral repair procedures are projected to increase, driven by the aging U.S. population; a growing market of active baby boomers, with corresponding increases in injury rates; and adoption of products with claims of higher performance, at premium prices.<sup>3</sup>

### Trends in Shoulder Anchor Design

From the data, the authors concluded that there is a trend toward non-metallic, higher strength anchors, especially for rotator cuff repair. High-strength sutures containing UHMWPE may be replacing braided polyester sutures. Newer anchor designs impact load-to-failure strength complications centered on suture strength and suture eyelet design. Anchor pullout was seen less frequently in this research, making anchor eyelet design more important. However, the authors were careful to note that the

cost common failure mode, even with anchors with high failure-to-load strength is in the rotator cuff tendon/suture interface.<sup>4</sup>

### Final Analysis

In most cases, shoulder fixation surgery is elective and annual procedure rates for shoulder are still recovering since the recession in 2009. However, the shoulder and elbow surgery market is one where new materials, design and technology make a difference, and the opportunity for medical device innovation continues. ♦

### References:

1. Barber, et. al., *Arthroscopy*, Vol. 27, No.7, 2011: pp 895-905
2. Millennium Research, *U.S. Markets for Arthroscopy Devices*, 2009
3. Charousset C, et al, *Arthroscopic repair of full thickness rotator cuff tears: Is there tendon healing in patients aged 65 or older?* *Arthroscopy* 2010; 26:302-309

4. Tasjian, et. al., *Initial fixation strength of massive rotator cuff repairs: In vitro comparison of single-row suture anchor and transosseous tunnel constructs.* *Arthroscopy* 2007; 23:710-716.

*Author’s note:* Readers are invited to submit market data and trend questions to Maria Shepherd. Periodically, selected questions will be presented in this column, with answers from Maria. Send your questions to [mshepherd@ddecisiongroup.com](mailto:mshepherd@ddecisiongroup.com).

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Chart 1

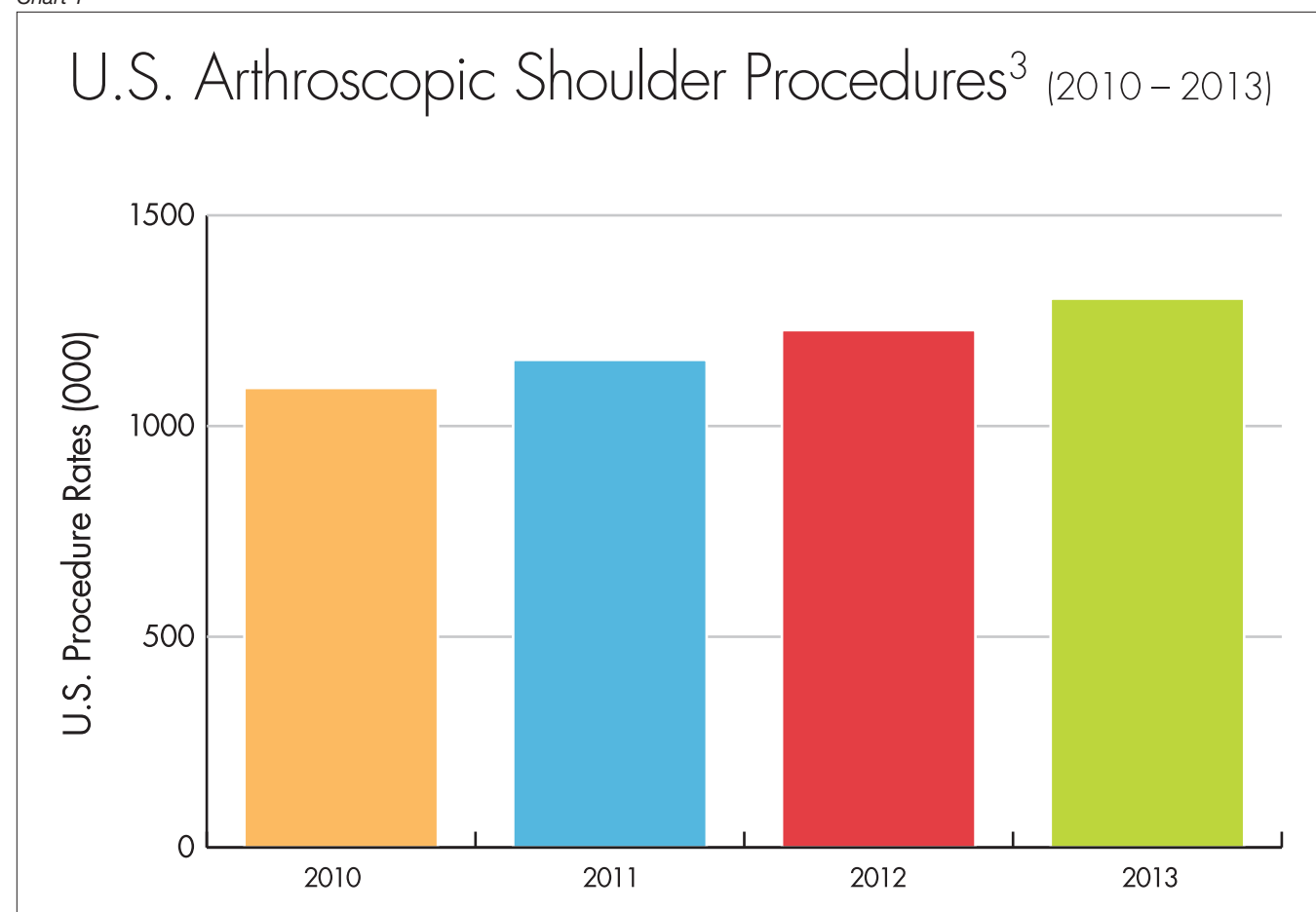


Chart 2

