

## **Bioresorbable Interpositional Wick for Rotator Cuff Repair**

Kevin J Cronin, Raahil S Patel<sup>1</sup>

<sup>1</sup>USF Morsani College of Medicine, Orthopaedic Surgery

Mechanical fixation of rotator cuff repairs has advanced, but the bone-tendon interface remains a weak link due to low cellularity, disordered collagen fibers, and limited blood supply. Despite improvements, rotator cuff repairs continue to experience high failure rates. A bioabsorbable interpositional nanofiber scaffold has been developed to address these issues. Studies using sheep models compared results at 6 and 12 weeks, showing reformation of Sharpey's fibers at the interface and a 74% higher ultimate breaking strength than controls. Clinical studies in humans also showed lower radiographic failure rates for repairs with the scaffold compared to those without: 7% versus 50% for medium-large tears and 3% versus 36% for small-medium tears.

The scaffold, which is FDA-approved, promotes better tendon healing at the enthesis and resorbs over 3 to 4 months. We retrospectively reviewed 36 patients, 57.6 years old (range: 36.9-70.5) with follow up of 9.79 months (range: 5.7-14.7), who underwent arthroscopic rotator cuff repair with the scaffold. There were no reoperations or adverse outcomes to date. The scaffold's microporous structure and synthetic materials help reduce inflammation and fibrosis. Placing the scaffold at the bone-tendon interface may enhance cell migration and adhesion, potentially reducing failure rates and the need for revision surgeries in the future.

To aid in the understanding and application of this innovative scaffold, we are providing a technique video. This video will demonstrate the scaffold's properties, its surgical application, and tips for optimal results. While initial findings are promising, further long-term clinical and radiographic studies, including a prospective multicenter trial, are necessary to confirm these results and evaluate the scaffold's efficacy in larger tears.