**Clinical Problem**

Biceps tendonitis involves the swelling and inflammation of a tendon in the arm, causing pain, swelling, and limited movement.

In serious cases, biceps tenodesis (BT) surgery is needed in which the damaged part of the tendon is removed and the healthy part is reattached to the humerus.

**Arthroscopic BT**

- Smaller Incision
- Less Scarring
- Quicker Recovery

**Our 3 Step Approach**

1. **Insert**
   - Better Maneuverability

2. **Expand**
   - Increased Visualization

3. **Operate**
   - Decreased Learning Curve

**Tight Surgical Space + Bulky Tools = Low Adoption of Arthroscopic BT**

Surgeons often invest significant time in adjusting tools, even resorting to smaller tools designed for other procedures, in an effort to enhance visualization and maneuverability within the surgical space.

Orthopedic surgeons need an arthroscopic biceps tenodesis system that increases the surgical space in order to improve visualization and access to the tendon in the subdeltoid space.

ABT requires between 18–21 N of force to create enough operating space. These images were taken in a cadaver shoulder by pulling back on the tissue externally.

**References:**

**Acknowledgements:**
We would like to thank our mentors Dr. John Wilckens, Dr. Mohit Gilotra, and Dr. Edward McFarland for their clinical insights and Dr. Christopher Stiles and Mr. George Coles from APL for their engineering insights on our project.

**Revised by:**
Sneha Raj, Eric Simon, Nikhil Choudhary, Sofia Arboleda, Sandhya Ganesh, Ansh Goyal, Rishi Koneru, and Veatriki Benou

**Advisors:** Dr. Matthew Best (Clinical Mentor), Michelle Zwernemann (Faculty Advisor), and Sandhya Tiku (Teaching Assistant)