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Outpatient Suture Button Suspensionplasty (SBS) Procedure for Thumb Arthritis Shortens Recovery Time

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Orthopaedic surgeons at Stanford Health Care thrive on the forefront of innovation, seeking out advances that benefit patients. One of these advancements, suture button suspensionplasty (SBS), has emerged as an effective technique for thumb carpometacarpal (CMC) joint osteoarthritis. It is an outpatient procedure notable for its rapid recovery time.



INCIDENCE OF THUMB CMC JOINT OSTEOARTHRITIS

[Jeffrey Yao, MD](#), hand and upper extremity surgeon, notes that over 60% of people over age 50 have some degree of thumb CMC arthritis (also called basal joint arthritis). It is the second most common type of arthritis in the upper limb and occurs much more frequently in women.

“It’s not really well understood why women are prone to developing thumb arthritis, but we don’t believe that it’s solely related to use,” Dr. Yao says. “The question is whether or not there is some physiologic reason. This is being studied by a number of people around the country. The thought is that hormones may play a role.”

Dr. Yao treats patients with basal joint arthritis from age 40 to 90, with a majority being women ages 50 to 70. Many are gardeners, fitness enthusiasts, golfers, and tennis players. He also sees younger patients who are active in sports like boxing or mixed martial arts (MMA).

Dr. Yao only considers surgery when nonsurgical measures fail. Suture button suspensionplasty becomes an option if splinting, anti-inflammatory medications, hand therapy, and injections do not provide the relief patients need.

SUTURE BUTTON SUSPENSIONPLASTY (SBS) FOR BASAL JOINT ARTHRITIS

Dr. Yao collaborated to develop a “suture-and-button” implant. After years of biomechanical, safety, and durability studies performed in concert with the manufacturer and his peers, Dr. Yao has perfected the SBS technique using this device.

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JEFFREY YAO, MD



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Surgery begins like all thumb CMC joint arthritis procedures, with the surgeon removing the trapezium bone. But that's where the SBS technique diverges. The remaining thumb metacarpal bone is then "suspended" or kept in its normal place by using the implant that remains underneath the skin.

The implant suspends the thumb above the space where the trapezium was, anchoring the thumb and second metacarpal to one another. A button on each of the metacarpals is attached to either end of the suture to secure the bones in the correct position.

The device stabilizes the joint and helps to avoid any potential sinking or caving. "It's like having a boat tethered to a dock," Dr. Yao explains. "The suture holds the thumb in place by attaching it to the stable, immovable object which is the adjacent metacarpal. The space previously occupied by the trapezium ultimately fills with scar tissue, which further cushions and supports the thumb metacarpal."

RAPID RECOVERY IS A CLEAR ADVANTAGE OF THE SBS TECHNIQUE

The key benefit to using suture button suspensionplasty is the accelerated pace of recovery. The entire procedure takes about 30 minutes in an outpatient setting under regional anesthesia. Patients remain in a splint for about five days, after which their dressing comes off. They can begin therapy and start using their hand again immediately.

With traditional thumb arthritis surgeries, patients can be in a cast for one month or longer. The majority of Dr. Yao's patients get back to normal activity by the three-month mark, if not sooner. Other surgical methods can have double the recovery time, up to six months in some cases.

"Mobility and regaining range of motion happens very quickly and is very predictable with SBS," says Dr. Yao. "Same thing with pain relief. Those are the things that are most important for patients. That's why I adopted this technique—because I felt there was room for improvement."

SAFETY AND DURABILITY OF SBS OVER TIME

Dr. Yao conducted the [Mean 5-Year Follow-up for Suture Button Suspensionplasty in the Treatment of Thumb Carpometacarpal Joint Osteoarthritis](#) study in 2017.

The patients in this study were in preoperative Eaton stages of III and IV (moderate to severe), based on their X-rays. Dr. Yao, however, makes it clear that the experience of thumb arthritis is different for everyone, regardless of stage.

"We don't treat X-rays," he says. "We treat patients. We occasionally have patients in the early stages who we can't get to feel better with nonsurgical treatment. No matter what their stage is, we tend to recommend surgery for people in unrelenting pain."

Dr. Yao found durable and consistent SBS results in pinch strength, grip strength, range of motion, and metacarpal subsidence among study participants. Specific measures from the study's abstract indicate:

- Mean QuickDASH (Disabilities of the Arm, Shoulder & Hand) score improvement of 58.2 points
- Mean palmar abduction of 105%
- Mean radial abduction of 97%

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- Kapandji scores (measuring opposition of the thumb) of 9 or 10
- Mean trapezial space height of 71%
- Pinch strength of 107%
- Grip strength of 102%

THE FUTURE OF SBS FOR CMC JOINT OA

There are at least a dozen surgeries described for thumb arthritis, with SBS being among the newest. The procedure has been readily adopted in Asia, South America, and Europe and is growing in popularity in the United States.

Dr. Yao cautions that while the technique is not difficult to learn, orthopaedic surgeons must be fastidious about each step to get the desired results. A number of his colleagues at Stanford Health Care are now also using the procedure with positive outcomes.

Referring patients with thumb arthritis to Stanford Health Care

Patients come from across the country to Stanford Health Care for suture button suspensionplasty. Learn more about the [Hand and Upper Limb Center](#) and our innovations in treating patients with hand, wrist, elbow, and shoulder conditions. To make a patient referral, please call **1-866-742-4811**, Monday – Friday, 8:30 a.m. – 5 p.m.

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