

**Background:** Thumb CMC joint Ligament Reconstruction Tendon Interposition Arthroplasty (LRTI) was first described by Burton in 1986 combining the trapeziectomy of Gervis, the fascial interposition of Froimson and the stabilizing ligament reconstruction of Eaton and Littler. It soon became the “gold standard” of thumb CMC reconstruction as it provided predictable pain relief with low morbidity.

Drawbacks though include:

1. Sacrificing of the FCR tendon with negative kinematic consequences, wrist flexion strength loss and a secondary donor site.
2. The devascularized necrotic tendon graft is of questionable reliability as a strong support for the proximally migrating metacarpal or survival as an interpositional graft.
3. The attempted transverse ligament reconstruction actually creates a vertical pendulum since, without the trapezium, the FCR insertion is too proximal and ulnar to recreate the normal metacarpal stabilizing ligaments.

Addressing the first two problems, Upton in 2005 described the first real improvement on the LRTI using suture anchor suspension and fascia lata interposition. However, the anchor used is weak and the fascia lata graft was shown to disappear.

In this presentation, the author will describe the Trapeziectomy-Homograft-Interposition-Suture-Suspension (THISS), a new variation on Upton's arthroplasty with a stronger, more anatomic suture suspension and a more reliable interposition graft.

**Methods:** Twenty-one consecutive patients who underwent twenty-four thumb carpometacarpal joint arthroplasties were analyzed retrospectively. All patients underwent total trapeziectomy followed by GII Mitek anchor suspension transversely. Two layers of acellular dermal homograft were interposed between the bases of the metacarpals and used to resurface the trapezoid and scaphoid articular surfaces.

**Results:** Twenty one patients were treated, (all with advanced Eaton stage III or IV osteoarthritis). At thirty-one weeks (average) postoperatively, grip strength increased 32% ( $p < 0.005$ ) and abduction increased 17% ( $p < 0.005$ ). There were no complications but there were two reoperations for ongoing pain. In both cases radiographically insignificant spurring of the ulnar metacarpal base was found with complete pain relief after resection (now a routine part of the THISS arthroplasty).

**Conclusions:** THISS thumb basilar joint arthroplasty using transversely oriented maximum strength suture suspension and ADM interposition is a reliable, effective, and technically straight forward technique. THISS preserves the FCR tendon, gives equal or better results in less time, requires less postoperative immobilization, and anatomically addresses the underlying pathomechanics.