Recently, while mountain biking, my husband sustained a grade II ulnar collateral ligament (UCL) injury (partial ligament tear with non-displaced avulsion fracture) to his right dominant thumb MCP joint. When he opted for non-surgical treatment he asked, "How much do we really need to immobilize my thumb?"

Traditional designs for thumb MCP joint immobilization are either a thumb spica cast or a removable custom-fitted thumb spica orthosis, both of which immobilize the wrist and the thumb CMC joint in addition to the thumb MCP joint. See image 1. Although the thumb spica orthosis allows for some thumb IP joint motion, it often limits full IP joint flexion when the material is brought along the full length of the proximal phalanx to adequately protect the thumb MCP joint from lateral stress. This design severely limits functional use of the thumb.

In a recent cadaver study by Gil et. al., a radial-based thumb MCP orthosis designed to leave the thumb IP and CMC joints free limited thumb abduction which reduced the strain on the thumb UCL when loads were applied. (1) See image 2. Other studies indicate that a less restrictive orthosis leads to greater patient satisfaction and adherence to wearing schedule. (2,3,4)

Reviewing these considerations, I offered my husband, who is a meticulous engineer, a custom-fitted radial hand-based orthosis that excluded the wrist, thumb CMC, and IP joints. See Image 2. He wore this orthosis full time for three weeks. When an adjustment was needed at two weeks to accommodate decreased swelling, we ordered a pre-fabricated Push® sports thumb MCP orthosis, which he then wore full time for an additional three weeks. See Image 3. Initially I recommended the
custom fabricated orthosis for the first three weeks as I felt it would offer more rigid protection when he used his hand tools. He preferred the sports orthosis, however, as he felt the strap around his thumb provided more security than the custom orthosis, the fabric material was more comfortable, and the design left more of his palm open to allow better gripping. Full-time use of the pre-fabricated sports thumb MCP orthosis was discontinued when lateral stress applied to the thumb MCP joint no longer elicited discomfort at about 6 weeks. He continues to wear the sports orthosis (over his biking glove) for protection when mountain biking. See image 4.

Recent advances in surgical techniques assure greater strength of UCL ligament repairs, thereby potentially decreasing the length of post-surgery immobilization. Suture tape augmentation offers greater strength during the initial healing period, allowing early active motion of the MCP joint (typically three days post-op) with early return to sport at 5-6 weeks. (5,6) The wide-awake procedure for UCL repairs asks the patient to voluntarily move the thumb and pinch during surgery to confirm the tension and the strength of the reconstructed ligament. (7)

For individuals who undergo surgical repair of the thumb MCP UCL with internal bracing or wide-awake surgery, a pre-fabricated sports thumb orthosis may be the only protection needed postoperatively (6,7)!


