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Practice Forum

## Therapeutic taping for soft tissue–based digit malrotation



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*Patients with soft-tissue based digit malrotation often report scissoring with digit flexion, limiting functional grasp capability. This author has successfully utilized a taping technique to improve function for these patients. — VICTORIA PRIGANC, PhD, OTR, CHT, CLT, Practice Forum Editor*

Literature regarding treatment of digit malrotation due to fractures is abundant, but little is available for this deformity with soft tissue origin. One study found that malrotation of small finger could be elicited by injection of saline into the space between the fourth and fifth digits, suggesting rotational deformities could be related to soft tissue injury even without a fracture.<sup>1</sup> We have successfully treated finger malrotation caused by soft tissue injury using elastic therapeutic taping. Literature related to elastic therapeutic taping is limited, particularly in conditions of the hand,<sup>2,3</sup> requiring therapists to rely on best evidence and clinical judgment. Original indications for Kinesiotape (Kinesio USA Corporation, Ltd. Albuquerque, NM) included correction of muscle function, improving circulation, pain management, and joint positioning.<sup>4</sup> No studies are found related to the utilization of taping for finger malrotation.

### Description of the treatment technique

1. A lifting technique is used over the dorsal metacarpal heads, for scar and/or edema management, in a “star” shape using a 1-inch-wide tape cut into 2-inch strips. The first piece is applied over the metacarpal head using full tension in the center (Fig. 1); then the edges are placed down with no tension to prevent skin shearing. This is repeated with 2 more pieces in a “star” pattern (Fig. 2).
2. A one-inch-wide tape cut into a 10-inch strip is applied with 25% tension either at the mid-dorsal or at the lateral proximal phalanx of the middle finger, depending on the amount of pull required to correct the malrotation. The tape is pulled from that point around the digit either radially or ulnarly, depending on

the direction of malrotation, using a recoil technique (near-full tension) to the metacarpal (Fig. 3), then with 25% tension to the ulnar or radial wrist (Fig. 4).

3. This can be repeated on other digits if needed (Fig. 5). Small half-inch strips can be applied with no tension around P1 after

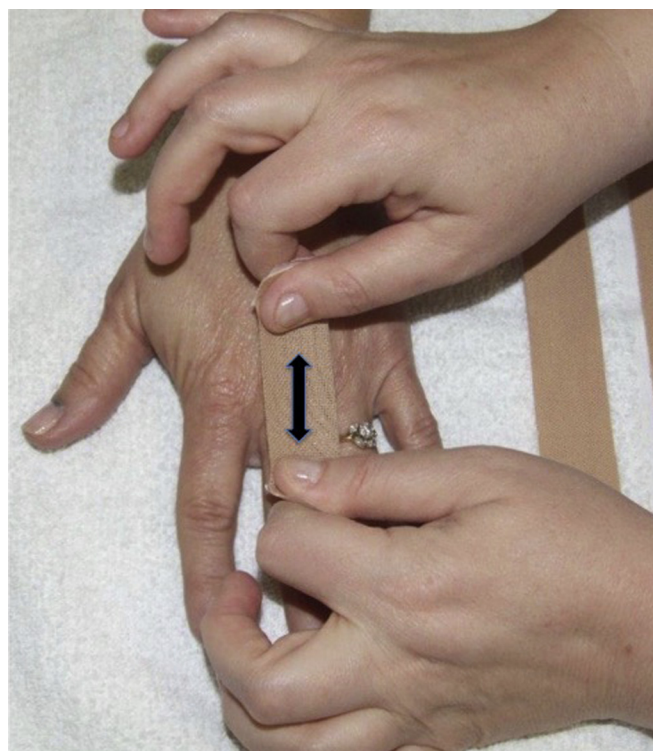


Fig. 1. Application of first piece over metacarpal head.

Conflict of interest: The author has no financial relationship with any products presented in this article.

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Fig. 2. Completed star pattern.

completion, if needed, to help the tape stay in place (see Figs. 6 and 7).

**Clinical cases**

Patient 1 sustained ring and middle finger hyperextension injuries and dorsal interosseous sprains. Six weeks after the injury, she complained of persistent edema, malrotation of middle and ring fingers, and scissoring. She was instructed on Kinesio-tape self-application, performed independently, with skin checks and reapplication every 3-4 days as recommended by Kase et al<sup>4</sup> (Figs. 6 and 7). At 1 month, she demonstrated decreased rotation of the middle and ring fingers and resolution of scissoring deformity. She was able to wean from taping over the next week and had not had any regression of malrotation at 2 months after cessation of taping.

Patient 2 sustained traumatic amputation of the small finger when his glove was caught in a mining drill. The long flexor and

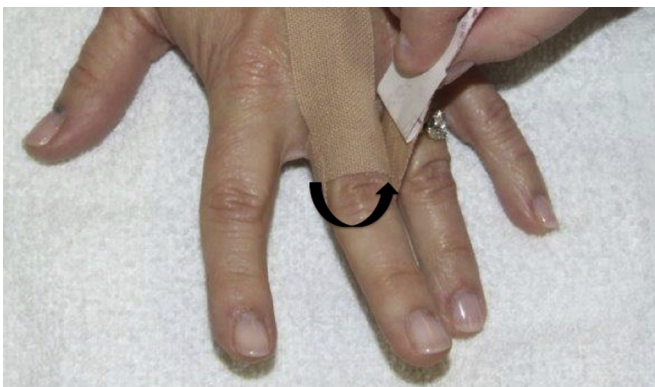


Fig. 3. Rotational pull of the tape with recoil technique.



Fig. 4. Rotational pull of the tape from metacarpal to wrist with 25% tension.

extensor tendons of the small finger were avulsed from muscle bellies, and intrinsic muscles were avulsed from origins and insertions. The ring finger sustained traction injuries. He was referred



Fig. 5. Example of taping technique on multiple digits.

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