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Practice Forum

## A novel way of treating mallet finger injuries

Dershnee Devan BOcc (UKZN), Dip in Hand Therapy (UP)\*

Occupational Therapy Department, University of Witwatersrand, 7 York Rd., Parktown, South Africa



*Standard treatment protocols following a mallet finger injury involve lengthy periods of immobilization in an effort to ensure the terminal extensor tendon is able to maintain the distal interphalangeal joint in extension. This author describes a technique that utilizes a combination of an orthosis and kinesiotape, thereby creating a treatment protocol that shortens the immobilization phase for these patients. — VICTORIA PRIGANC, PhD, OTR, CHT, CLT, Practice Forum Editor*

### Introduction

Mallet finger injuries are commonly sustained during sport activities and minor incidents. Various orthotic interventions and techniques have been researched in the field of mallet finger rehabilitation.<sup>1–4</sup> A study conducted in 2011<sup>1</sup> concluded that the orthosis had to be robust, not cause complications, and that favorable outcomes correlated with compliance with orthotic intervention.

Patient compliance in mallet finger injuries is often problematic due to the discomfort of wearing an orthosis continuously and the complicated procedure of orthosis application and removal.<sup>3</sup> This is due to the danger of extensor tendon compromise if the orthosis is not removed in a particular manner to ensure the distal interphalangeal joint (DIPJ) remains extended at all times.

The treatment method proposed in this manuscript was first devised by the Kinesiotaping (KT) Association and published in 2003,<sup>5</sup> and recommended for use in mallet finger injuries not requiring surgery or for use post surgically or post orthotic intervention. The technique was advocated to limit flexion of the distal interphalangeal joint.

This author adapted the original method by the KT Association by excluding DIPJ flexion as a step in the technique. This adaptation was done to avoid further compromise of the injured tendon. The protocol for application and mobilization was developed subsequently.

### Treatment

The treatment method uses elastic taping with a thermoplastic orthosis for four weeks of DIPJ immobilization. Graded protective mobilization is started at week 4 with the elastic taping in situ for a further two weeks. During this time, a night orthosis is worn. At week 6, the taping is discontinued while the active range of motion and light activities of daily living are continued. Heavy activities and sport are resumed after week 8 if full active range of motion is attained.

The following steps are followed when applying the elastic tape to the affected finger. Please note that any kind of elastic tape that is similar to kinesiotape can be used. It is not necessary to use kinesiotape specifically; however, the author has used kinesiotape with all of the patients treated.

Step 1 (refer to Fig. 1)

- Cut one piece of elastic tape measuring 15–20 cm by 1.5 cm and two pieces measuring 5 cm by 1.5 cm.
- The length of the longer piece is usually 1.5 cm by 15 cm. If working with a larger hand, increase the length to 1.5 cm by 20 cm.

Step 2 (refer to Fig. 2)

- Remove the backing from the tape and apply the end of first piece of elastic tape (1.5 cm by 15 cm) to the volar aspect of the finger.
- Ensure that the end of the tape (1.5 cm by 15 cm) is secured midway between the proximal and distal interphalangeal joints on the volar surface.
- Allow this piece to hang while applying the smaller piece (5 cm by 1.5 cm) of tape securing the lower end of the longer piece on the volar aspect as shown in Fig. 2.

Step 3 (refer to Fig. 3)

\* Corresponding author. Tel.: +27 824179391, +27 117173701.

E-mail addresses: [dershnee.devan@wits.ac.za](mailto:dershnee.devan@wits.ac.za), [ddevanocctherapy@gmail.com](mailto:ddevanocctherapy@gmail.com).

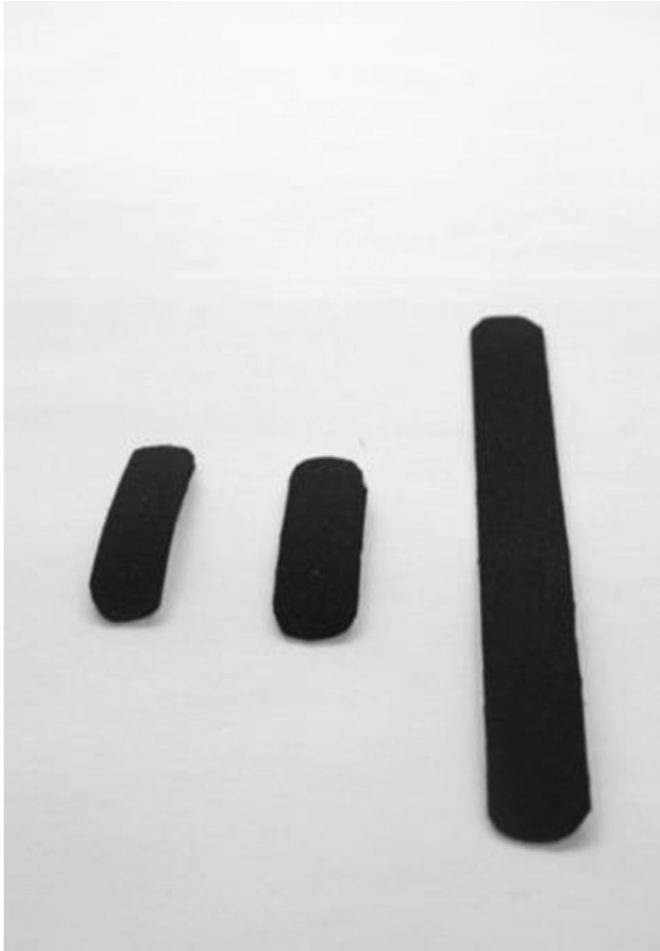


Fig. 1. Three pieces of elastic tape.

- Turn the hand so that the finger rests on the table.
- Remove the backing from the middle section of the tape (1.5 cm by 15 cm).
- Hold the distal end of the tape in one hand while positioning the finger in 20°–30° degrees of hyperextension at the metacarpal phalangeal joint.
- Keep the distal and proximal interphalangeal joints extended at all times.



Fig. 2. Application of the elastic tape to the volar aspect of the finger.



Fig. 3. Positioning of finger and application of tape dorsally.

- Apply the elastic tape to the dorsum of the finger in line with the extensor tendon.
  - Step 4 (refer to Fig. 4)
- The tape should extend to distal crease of the wrist.
- Ensure that the tape is secured by rubbing against the tape once it is applied to the skin on both volar and dorsal surfaces.
  - Step 5 (refer to Fig. 5)
- Apply the second smaller piece of the tape to anchor the tape over the dorsal aspect of the wrist.
- The patient must be taught how to reapply the elastic tape every 3–5 days.
  - Step 6 (refer to Figs. 5 and 6)
- A custom made thermoplastic orthosis which immobilizes the affected DIPJ and allows full range of motion of the PIPJ is applied.
- The patient should be educated on the necessity of wearing the thermoplastic orthosis at all times, excluding self care, for the first 4 weeks, then at night only for a further 2–4 weeks depending on the progress.

#### Clinical data

The author has been collecting data on 16 patients treated with the technique described. Informed consent was obtained and the rights of all participants were protected.

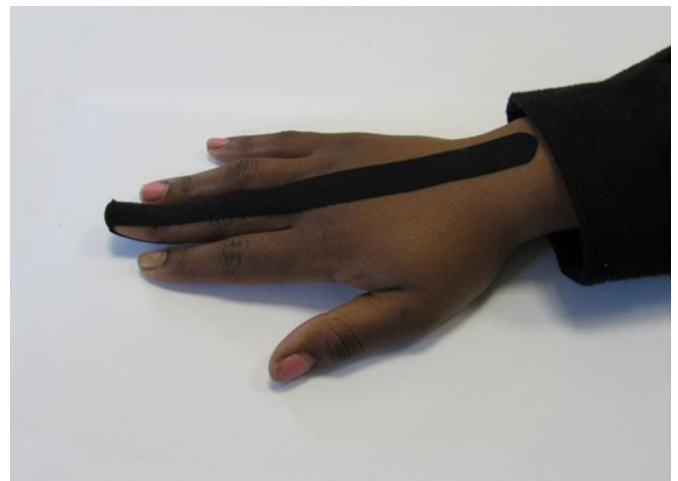


Fig. 4. Application of the elastic tape to the dorsum of the finger.

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