



## Practice Forum

## “A ‘One-piece’ gutter orthosis/strapping alternative”

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*Patients often have difficulty securing and positioning finger orthoses (splints). Using standard strapping materials molded directly into the orthotic device, this author describes an alternative strapping system for these small finger orthoses. —VICTORIA PRIGANC, PhD, OTR, CHT, CLT, Practice Forum Editor*

## Introduction

Custom-molded finger gutter orthoses are commonly used to treat conditions such as digit collateral ligament injuries and mallet finger. Although these orthoses are of simple design and easily fabricated, the main problem is the lack of an adequate strapping solution that prevents slippage and axial rotation. Adhesive tape and coban have both been used as alternative means of securing these types of orthoses but have drawbacks as well. Adhesive tape is contraindicated in those patients with skin sensitivity and can contribute to skin break down with repeated removal and reapplication. Both tape and coban can be a challenge to apply single handedly. Thus, this “one-piece” design was developed to create a secure, single-handed strapping system that can be easily donned.

## Materials

- 1/16" microperforated Orfit Classic or similar uncoated thermoplastic material
  - 2" Velcro Loop
  - 1" self adhesive Velcro Hook
- (all available through Patterson Medical, Germantown, WI).

## Fabrication

1. Cut plastic material approximately 1.5× the width of the involved portion of the digit at its widest part. Length is determined depending on the purpose of the orthosis. For the mallet

finger, the length should be long enough to adequately support the tip of the digit without blocking proximal interphalangeal joint motion. For collateral ligament or other injuries, the orthosis should extend far enough both proximally and distally from the involved joint to adequately support it without blocking uninvolved joint motion (Fig. 1).

2. Cut loop width to approximate plastic material length. Loop length is approximately equal to 1.5–2× digit circumference. Self-adhesive hook length is approximately half that of the loop; then cut in half lengthwise.
3. Heat plastic material in a pan until soft. Working quickly, dab on towel to dry and adhere material to loop side of strap approximately one-third from either end (Fig. 2) by gently pressing together. While still warm, place material on digit and mold to desired position (Fig. 3).

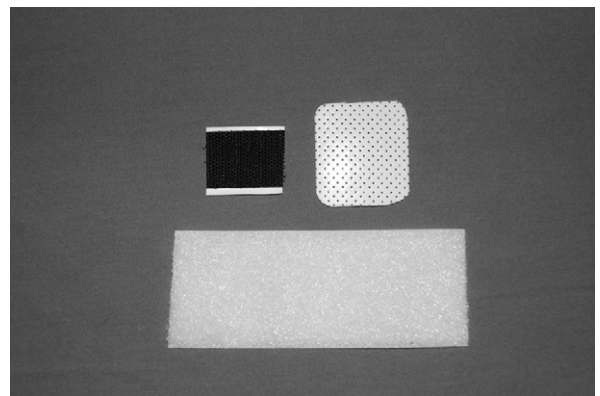
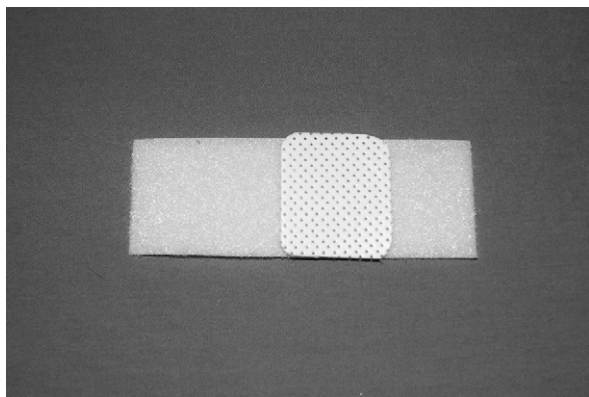
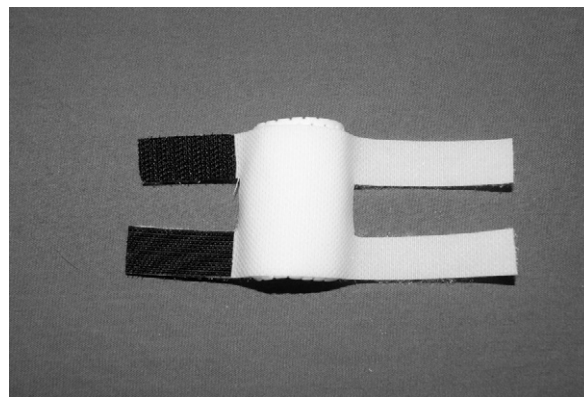


Fig. 1. Approximate sizes of materials needed.

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**Fig. 2.** Positioning of thermoplastic onto loop side of strap.



**Fig. 4.** Appearance of strap with middle third removed and hook applied.



**Fig. 3.** Molding the thermoplastic.

4. Once cooled, cut a strip from the middle of the strap on each end, leaving approximately 1/3 on either side. Loop will now resemble an elongated "H." Once completed, remove the backing from the self-adhesive hook and apply a piece to the smooth side of each of the smaller ends of loop (Fig. 4).
5. Application is completed by placing the finger in the orthosis, wrapping the smaller tabs around so that hook is face-up, and bringing the longer tabs around from the opposite side to firmly catch the hook (Fig. 5).

This "one-piece" method of orthotic fabrication/strapping was found to provide sufficient positioning and support without the



**Fig. 5.** Profile view of completed orthosis.

need for coban or tape to prevent slipping or rotation. It is easy to don/doff it single handedly. As with all orthoses, it should be removed periodically to inspect and clean the skin to prevent maceration and should not be used over an open or draining wound.