



## Splints: hand osteoarthritis (OA)

### Intervention

Prefabricated or custom-made splints.

### Indication

Hand OA mainly affects women and often starts around the time of menopause.

Patients with mild to moderate pain from OA of the first carpometacarpal joint (CMC-1) at the base of the thumb.

Other hand joints commonly affected by OA are the distal interphalangeal joints and the proximal interphalangeal joints; however, the majority of evidence relates to splints for OA at the base of the thumb.

### Availability

Neoprene prefabricated splints are available from pharmacies, sports stores, mobility equipment centres and online. Neoprene hand splints are priced from around \$50.

Custom-made splints, usually constructed from thermoplastic material, can be fabricated by hand therapists (occupational therapist or physiotherapist). These start at around \$100; however, prices vary with materials and design. (See Australian Hand Therapists Australia or Occupational Therapy Australia in Consumer resources)

### Description

A hand splint may be worn at night or during the day (either all day or during specific activities) to support or immobilise the affected joint(s). Timing of wear will depend on when the patient feels pain (i.e. during activity, at rest, or both), daily activities and patient preferences.

A rigid 'resting' splint, made from thermoplastic material, can be worn during the night or for periods during the day. More flexible prefabricated neoprene splints (or 'working splints') are often preferred for daytime use to reduce the pain of activities.

Splints should support the affected joint(s): splints for CMC pain have concentrated support around the base of the thumb. Longer splints that also support the wrist are available too.

Figure 1. Prefabricated neoprene splints

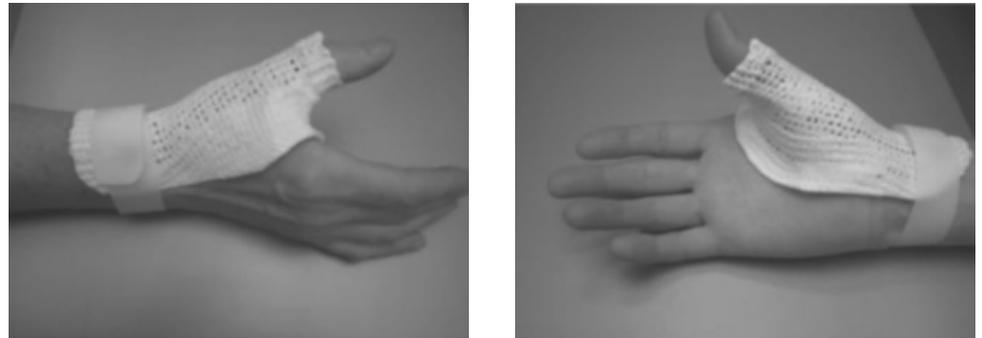


Comfort Cool™ splint



## Description

Figure 2. Custom-made thermoplastic night splint



Reproduced with permission from the Annals of Internal Medicine from Rannou F, Dimet J, Boutron I et al. Splint for base-of-thumb osteoarthritis: a randomized trial. *Ann Intern Med* 2009;150:661–9.

Figure 3. Custom-made thermoplastic day splint



Reproduced with permission from the Journal of Rehabilitation Medicine from Gomes Carreira AC, Jones A, Natour J. Assessment of the effectiveness of a functional splint for osteoarthritis of the trapeziometacarpal joint of the dominant hand: a randomized controlled study. *J Rehabil Med* 2010;42(5):469–74.



## Tips and challenges

Patient preference and purpose of splinting (i.e. stability versus mobility) determine splint selection. Many patients find prefabricated neoprene splints more acceptable; therefore these may wish to be trialled first.

If adequate pain reduction is not achieved with a neoprene splint, the patient may wish to be referred to a hand therapist for assessment of suitability for a custom-made splint.

When to evaluate the splint's effectiveness varies depending on whether the splint is worn during the day or at night. Day splints (prefabricated and custom-made) are associated with more rapid pain reduction (45 days in the study) than night splints, where benefits may not be seen for up to 12 months. Therefore, patients using a splint at night may only be able to evaluate effectiveness with persistent use (over months).

For ongoing day use, custom-made splints have shown better pain reduction in the longer term.

Some patients may achieve the best results by using more than one splint (e.g. a thermoplastic splint at night and a neoprene splint during the day).

Some patients do not achieve significant pain reduction with either day or night splints over the short or long term.

## Grading

NHMRC Level 1 evidence

## References

Hochberg MC, Altman RD, April KT et al. American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee. *Arthritis Care Res* 2012;64(4):465–74.

Kjeken I, Smedslund G, Moe RH et al. Systematic review of design and effects of splints and exercise programs in hand osteoarthritis. *Arthritis Care Res* 2011;63(6):834–48.

Ye L, Kalichman L, Spittle A et al. Effects of rehabilitative interventions on pain, function and physical impairments in people with hand osteoarthritis: a systematic review. *Arthritis Res Ther* 2011;13(1):R28.

## Consumer resources

Australian Hand Therapy Association (AHTA) has a state-by-state list of hand therapists (see 'Find a Therapist').

[www.ahta.com.au](http://www.ahta.com.au)

Occupational Therapy Australia lists hand therapists in its 'Find an OT' section.

[www.otaus.com.au](http://www.otaus.com.au)

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