

# Treatment2Go

## Exploring Hand Therapy Manual

**NEW**

## Orthotics: Static Splinting Made Simple



**NEW**



Exploring Hand Therapy, Corporation d/b/a Treatment2Go

[www.handtherapy.com](http://www.handtherapy.com)

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727-341-1674

Fax: 888-2704079

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# ORTHOTICS FOR IMMOBILIZATION

**1**

**LONG ARM SPLINT**  
A full arm splint including elbow, forearm and wrist

Materials: Orfit® Classic (1/8" / 3.2mm) or Orfit® NS (1/8" / 3.2mm)

**2**

**CIRCUMFERENTIAL ELBOW SPLINT**  
Positions the elbow in 90° or less of elbow flexion

Materials: Orfit® EASE (1/8" / 3.2mm)

**3**

**POSTERIOR ELBOW SPLINT**  
To limit flexion the elbow

Materials: Orfit® EASE or Orfit® Classic (1/8" / 3.2mm)

**4**

**RESTING HAND SPLINT**  
Positions the hand in a safe and protected position

Materials: Orfit® Classic (1/8" / 3.2mm)

**5**

**ANTI-SPASTICITY SPLINT**  
Helps to reduce tone and maintain length of flexors tendons

Materials: Orfit® Classic Stiff, Orfit® NS Stiff, Orfit Natural NS or Orfibrace™ (1/8" / 3.2mm)

**6**

**DORSAL BLOCKING SPLINT**  
For post-operative flexor tendon management

Materials: Soft-Fit® or Orflight® (1/8" / 3.2mm)

**7**

**DORSAL WRIST COCK-UP**  
Maintains wrist extension while allowing for the palmar surface to be free

Materials: Orfit® Classic, Orfit® NS, Orfit® Colors NS or NS (1/8" / 3.2mm)

**8**

**CIRCUMFERENTIAL WRIST AND THUMB SPLINT / LONG OPPONENS**  
For conservative or post-operative positioning of the wrist and thumb

Materials: Orfit® Colors NS (1/12" / 2.0mm)

**9**

**SHORT OPPONENS SPLINT**  
Positions the thumb in a functional position

Materials: Orflight® (1/12" / 2.0mm or 1/16" / 1.6mm)

**10**

**FINGER WRAP SPLINT**  
Easy to use splinting material on a roll

Materials: Plast-O-Fit®

**11**

**ANTI-CLAW SPLINT**  
Prevents hyperextension of the MCP joints

Materials: Orfit® Classic (1/8" / 3.2mm)

**12**

**FINGER SPLINTS**  
For mallet injuries, swan neck deformities, and similar

Materials: Orfit® Classic or Orflight® (1/16" / 1.6mm)

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# Sponsors

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### Active Innovations

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### North Coast Medical

Website: [www.ncmedical.com](http://www.ncmedical.com)  
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Toll-Free: 800.821.9319  
Email: [custserv@ncmedical.com](mailto:custserv@ncmedical.com)



North Coast



Debby Schwartz, OTD,OTR/L, CHT is a hand therapist with decades of experience as a practicing clinician. She has joined Orfit Industries America to promote product awareness and splinting education. Debby is an active member of ASHT and has participated in IFSHT meetings as well. She has presented on a variety of hand therapy topics both at national and international conferences and has written a number of articles for hand therapy publications, including the British Journal of Hand Therapy, ADVANCE for OT and Exploring Hand Therapy Newsletter as well as two research studies for the Journal of Hand Therapy. Debby recently completed her doctoral studies in Occupational Therapy at Rocky Mountain University of Health Professions. Debby travels regularly to conduct splinting workshops and teaches splinting to Occupational Therapy students in university programs. Please contact Debby at [debby.schwartz@orfit.com](mailto:debby.schwartz@orfit.com) to set up a custom designed splinting workshop for your facility.



## Immobilization Splinting (static)

This is a mixed level (beginner to intermediate level) splinting workshop featuring immobilization splints (static) for the upper extremity. The instructional format includes a didactic lecture to include PowerPoint® presentation on the principles of immobilization, up close and personal splint examples, followed by detailed splint demonstrations, splint critique and allotted follow along lab time for participants to fabricate splints. Participants manual will include splint patterns, photos, FAQ, and occupation based principles relating to immobilization splinting. Participants will be introduced to the knowledge requirements of splint fabrication, including upper extremity anatomy, stages of wound healing, and the characteristics of a variety of different splinting materials. Participants will gain knowledge in making clinical decisions regarding the use of appropriate materials for immobilization splints with their clients and how splinting is used in the occupation based approach. Participants will have the opportunity to watch and fabricate immobilization splints for the elbow, wrist, forearm, thumb, and fingers.

## Learning Objectives:

- Identify the indications, precautions and contraindications for the use of immobilization splinting with your clients.
- Recognize the mechanical principles involved in fabrication of low temperature thermoplastic immobilization splints for the upper extremity.
- Identify the properties and characteristics of different splinting materials.
- Identify the anatomical knowledge base required to fabricate immobilization splints.
- Delineate the necessary steps required to fabricate and fit immobilization splints to the upper extremity.
- Identify and critique a variety of splinting materials for different purposes.
- Gain knowledge of tips and tricks for the fabrication of mobilization splinting.

## **Introduction to Immobilization Splinting**

As therapists treating clients with disabilities and disorders of the upper extremity, we recognize our role in helping our clients engage and participate in life's happenings. As we evaluate their needs, desires and deficits, we are aware of the contexts in which they actively live, work and engage in meaningful activities. Occupation based splinting is a treatment approach that helps our clients return to or initiate engagement in these activities. We include immobilization splinting as a treatment to help support and protect injured upper extremities after surgery or trauma, and we also use splinting to balance and position the hand and wrist for enhanced function due to nerve injury. While considering the client as our partner in planning and goal making, we add immobilization splinting to the treatment choices, knowing that we can help our client succeed and reach their desired goals. Proper splint selection for individual clients and successful splint fabrication are skills that we continuously develop throughout our careers. Initially, we learn the basics of splint fabrication along with the selection of the proper low-temperature thermoplastic materials, and pattern making. We learn new splinting skills at a course or from a colleague. Along the way we see or read about new ideas and master tips and tricks for making successful splints. Every time a client leaves the clinic with a splint that we have fabricated, we have hopefully made a difference in their day to day function. The splints that you fabricate are your calling cards. Take care in their fabrication and take pride in what they can do for your clients!

Debby Schwartz, OTD, OTR/L, CHT

## **Indications for Immobilization Splinting**

As therapists, we determine whether immobilization splinting will help to increase our client's active participation in activities of daily living. Indications include the following:

1. Protect healing structures.
2. Position the hand for function.
3. Reduce spasticity.
4. Alleviate pain.
5. Preserve joint alignment.
6. Aid with active range of motion exercises.

Typically, therapists need to have a referral from a physician to fabricate a splint for a client. The referral directs insurance carriers to pay for the splint (if it is a covered medical expense).

We need the following information from the referring physician:

1. Medical diagnosis
2. Medical or surgical procedures performed.
3. The dates of the injury and of the surgery.
4. Precautions
5. Timetable for splint wear
6. Protocol to follow (if required).
7. Splint Specifications

### **Contraindications for Immobilization Splinting**

1. Any concerns regarding the status of the client,
2. Any concerns regarding the status of the extremity.
3. Unclear diagnosis or incorrect diagnosis.
4. Questions regarding the splint specifications.
5. Lack of clinical skills to fabricate requested splint.

Always use your clinical reasoning skills to determine the appropriateness of the requested splint to the actual client sitting in front of you.

## **Glossary of Material Characteristic Terms**

Choosing the correct low temperature thermoplastic (LTTP) material is easy when we understand what makes each material unique.

Here is a glossary of terms used when describing LTTP's:

- 1. Rigidity** refers to the strength of the material. High rigidity is necessary for large splints, specific diagnoses such as spasticity, and splints projecting large forces.
- 2. Memory** is the ability of the material to return to its original size and shape after being stretched. This is an important concept when frequent remolding of the splint will be necessary, as in serial splinting to increase extension or flexion over time. Memory makes the material more cost efficient. When working with materials possessing excellent memory, remember to let the splint harden sufficiently before removing or it will lose its shape rapidly. Also LTTPs with excellent memory tend to take longer to harden, so be patient!
- 3. Bonding** is the ability of the material to stick to itself or to other materials. Coated materials do not bond without having the coating removed. Non Coated materials have very good bonding to themselves and other attachments.
- 4. Conformability** or drapability refers to the way the material conforms to the shape of the hand. Materials with high drapability work best with gentle handling as they conform easily to the arches or bony prominences. Let gravity assist you. Materials with low drapability require firm handling and are recommended for larger splints where this moldability is less important.

**5. Surface impressionability** describes what the surface looks like when it has hardened.

Do fingerprints show easily? Is the surface smooth or bumpy? Is there a glossy surface or matte surface?

**6. Elasticity or Resistance to stretch** refers to the amount of resistance the material gives to being stretched when heated. High resistance means you must work slowly and steadily to stretch the material. Low resistance to stretch means you need to work more quickly and carefully control the material as it stretches.

**7. Activation temperature** is the temperature at which the splinting material becomes pliable for molding. If the water is too cool, the material will not become pliable.

If it is too hot, the material will get over heated and sticky and become difficult to work with. The ideal temperature for most LTTPs is between 140°-160°F. Please read the manufacturer's directions for each individual LTTP.

**8. Coating** is applied to certain LTTPs to make them easier to work with and less likely to adhere together where no adherence is desired. ( See Bonding above) Coated materials and non coated materials each have advantages and disadvantages. The coating can be removed when desired. (See also helpful hints below)

**9. Perforations** in the splinting material allow for ventilation of the skin and make the material lighter in weight. Today we have choices ranging from percentages of perforations to various names of perforation patterns. Catalogs usually feature pictures which demonstrated the different perforation patterns. Always check to make sure the perforation style is suitable for the splint you are making.



**10. Thickness** of a LTTP must be taken into consideration as well. Thinner materials such as 1/16” and 1/12” are better for smaller splints while larger splints may need thicker materials such as 1/8” or 3/32”.

Thinner LTTPs soften and harden more quickly than thicker materials meaning they have a shorter working time. Sometimes you can use a thinner material for a larger splint if you make the splint circumferential as this type of splint includes stability in the splint design.

**11. Working time** describes the amount of time from when the material is fully heated to when it is cooled off. Novice splint makers may want to choose materials that have a longer working time while advanced splinters can usually work quickly and accurately with LTTPs that cool and harden quickly.

**12. Pre cuts** splints are ready to be heated and molded to your patient’s extremity. They are splint designs cut out of specific LTTPs and ordered by size (and / or Right and Left hand). Make sure you measure your patient correctly for each design.

**13. Prefabricated and /or preformed splints** have already been molded into a specific shape. These must be carefully fit to your patient’s extremity and some adjustments may be necessary. The advantage in these is that the fabrication is complete and you may save time and effort. However, you may not get as good a fit as when you custom make your own splints on your patients.

Orthotics:  
Static Splinting Made EASY  
Static Splints for the Upper  
Extremity

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*Presented by  
Debby Schwartz, OTD, OTR/L, CHT  
Product and Educational Specialist  
Orfit Industries America  
[www.orfit.com](http://www.orfit.com)*

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*Chapter introduction*

Welcome to Exploring Hand  
Therapy's new video on  
static splinting.

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Visit the Orfit website  
at [www.orfit.com](http://www.orfit.com) for information on  
all of our splinting materials.  
We have a features and benefits page  
For each material.

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The learning objectives for the course  
are as follows:

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1. Identify the indications,  
precautions and contraindications for  
immobilization splinting of the upper  
extremity.

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2. Recognize the mechanical principles involved in fabrication of low temperature thermoplastic immobilization splints for the upper extremity.

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3. Determine the anatomical knowledge base required to fabricate low temperature thermoplastic immobilization splints for the upper extremity.

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4. Identify the properties and characteristics of different splinting materials.

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5. Delineate the necessary steps required to fabricate and fit immobilization splints to the upper extremity.

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6. Identify and critique a variety of splinting materials for different purposes.

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Why do we need splints?

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First we should ask, What is a splint?

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A splint is a support or brace that exerts a force on a body segment.

Immobilization splints have a constant force  
while in Mobilization splints the force may vary

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[www.orthobasics.com](http://www.orthobasics.com)

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These are patients with injuries  
To their nerves.  
We use splints help to offset the  
imbalance of muscles  
due to nerve injury.

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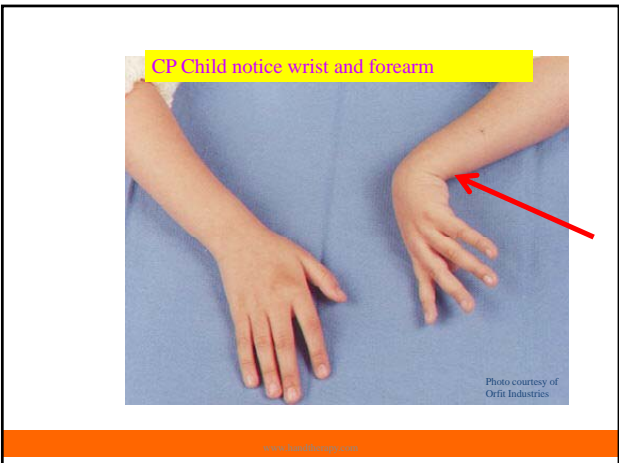
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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

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This is a patient with advanced Rheumatoid Arthritis, which Has already caused destruction of the PIP joint and led to joint subluxation.

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This simple dorsal design makes it easier for this patient to flex the finger and prevents the PIP joint subluxation..

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Wrist Fracture  
ORIF



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Orfit Industries

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limited thumb abduction  
after median nerve laceration,

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Notice  
incision  
scars from  
surgery

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This thumb opponens splint is helping to place an injured body part in a position for function.

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Katie the Goat



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Lets review some  
Of the common  
names of the splints  
we make everyday.

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the Resting Hand splint.  
The resting hand splint fits around the  
forearm, wrist fingers and thumb.

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the Resting Hand splint would  
be indicated for burns, trauma,  
or anyone who needs total  
support of their wrist hand and  
fingers.

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\*\*\*\*The typical Wrist- Finger  
Positioning  
For a Resting Hand Splint  
is seen here is the next two slides

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Wrist =0-20° extension  
MPs =30-45° flexion  
PIPs =20-40° flexion  
DIPs =slight flexion  
Thumb = slight abduction,  
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Wrist Cock up splint.  
I will be demonstrating the  
fabrication of this splint and other  
splints for the wrist in Chapter 9

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Thumb Spica or long opponens  
splint.  
As you can see, this splint design  
includes the wrist and the thumb.  
I will demonstrate this splint in  
Chapter 10.

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A long opponens splint always  
includes the thumb in a functional  
position and the wrist in slight  
extension  
and a short opponens splint means  
the wrist is not included.

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A long opponens splint is indicated for patients with thumb and wrist injuries such as arthritis, tendinitis, fractures or anyone who needs the thumb and wrist supported.

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The Short Opponens splint is indicated for thumb arthritis, injuries of the thumb ligaments or anyone with thumb pain.

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Dorsal Blocking Splint.

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The dorsal blocking splint is used for after surgical repair of the flexor tendons and nerves of the upper extremity and prevents wrist and finger extension.

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### Goals of Immobilization Splints

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Goals of immobilization or static splinting. These include the following:

1. Provide symptomatic relief from painful joints or muscles

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2. Protect and position the upper extremity for optimal healing of structures.

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3. Maximize our client's independent performance of activities of daily living.

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4. Improve and /or preserve joint alignment either before or after surgical intervention.

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5. Reduce spasticity for either improved function or hygiene.

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6. And we can also use splints to block and/ or transfer muscle force for exercises.

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For example, we might fabricate a blocking splint for the MCP joints, in order to transmit the force of flexion to the stiff PIP and DIP joints.

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## Splint Designs for Specific Purposes

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### DISTAL PHALANX FX



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Middle Phalanx FX



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Notice the growth plates At each joint



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Dorsal Based splints



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## Volar Splint



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Finger Tip Splints to  
protect Finger tip injuries,  
DIP joint arthritis,  
And Mallet injuries.

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Photo courtesy of  
Orfit Industries

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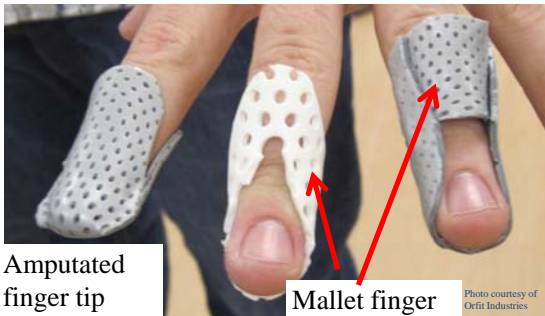
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Amputated  
finger tip

Mallet finger  
splint designs

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Thumb Splints  
are often called short opponens splints

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These are commonly made for  
thumb sprains,  
basal joint arthritis,  
CMC or MP joint laxity,  
and ligament injuries.

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## Functional splint design



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Precut designs with  
reinforcement

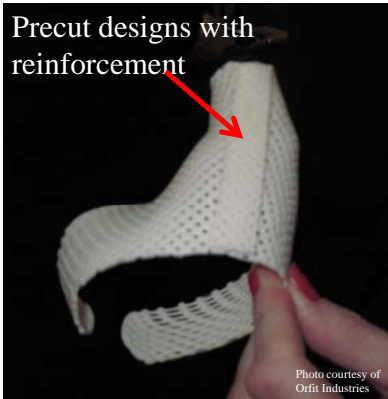


Photo courtesy of  
Orfit Industries

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Position of  
Function



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### Thumb Wrist Splints

Thumb wrist splints are also called thumb spica or long opponens splints. These include the wrist and thumb.

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This splint supports the wrist in slight extension and the thumb in an abducted and flexed posture.

[www.handtherapy.com](http://www.handtherapy.com)

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It is indicated for wrist and thumb tendinitis, sprains, arthritis, and fractures especially fractures of the scaphoid bone.

[www.handtherapy.com](http://www.handtherapy.com)

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Wrist Splints are commonly referred to as wrist cock up splints.

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These wrist splints can be positioned dorsally, or volarly or even circumferential in design.  
\*\*\*Let's take a look at these slides...

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When splinting children, try to keep  
In mind a Child friendly design-  
Use bright colors of materials  
and straps  
\*\*\*as seen here.

www.healthcare.com

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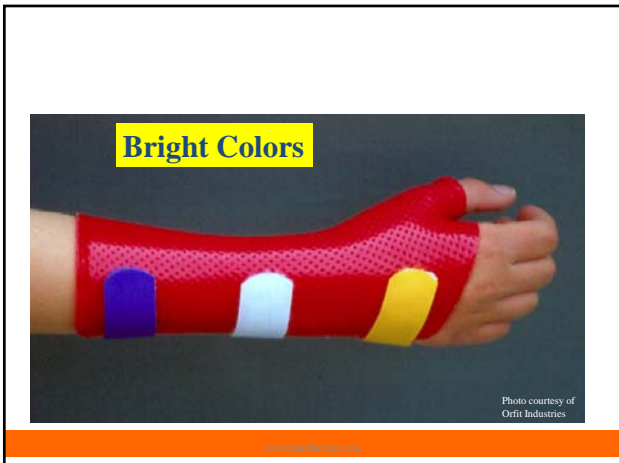
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**Splints with Zippers –this is one from ORFIT but many manufactures offer splints with zippers**



## Forearm Splints

A forearm based splint may be indicated for injuries involving the distal radial-ulnar joint or TFCC tears where limited forearm rotation is indicated for healing.  
A muenster splint...

## muenster splint



Photo courtesy of  
Orfit Industries

[www.orthoblog.com](http://www.orthoblog.com)

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## muenster splint



Photo courtesy of  
Orfit Industries

[www.orthoblog.com](http://www.orthoblog.com)

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An elbow splint, or a long arm splint which also includes the wrist joint, might be indicated following surgical procedures of the elbow, the ulnar nerve or medial or lateral epicondylectomies.

[www.orthoblog.com](http://www.orthoblog.com)

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[www.orthosupply.com](http://www.orthosupply.com)

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## Protocol Specific Splints

[www.orthosupply.com](http://www.orthosupply.com)

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There are protocol specific splints. For example, a dorsal blocking splint is indicated following flexor tendon laceration and repair

[www.orthosupply.com](http://www.orthosupply.com)

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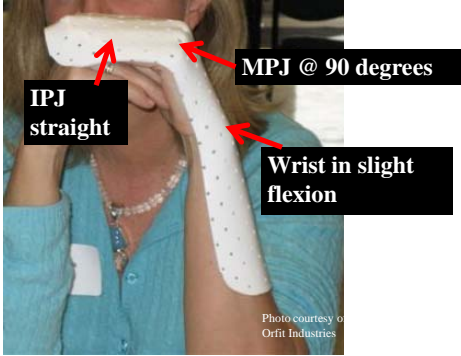
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**Dorsal Blocking Splint**  
This one is for post tendon repair



www.handtherapy.com

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Another protocol calls for a hinged splint for flexor tendon post operative rehabilitation

www.handtherapy.com

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www.handtherapy.com

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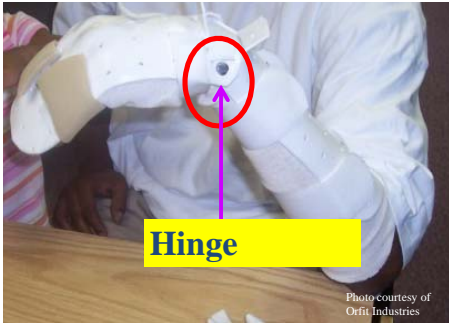
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**Hinge**

Photo courtesy of  
Orfit Industries

[www.orthofix.com](http://www.orthofix.com)

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Photo courtesy of  
Orfit Industries

[www.orthofix.com](http://www.orthofix.com)

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## Exercise Splints

We make to help our clients  
more effectively exercise specific  
joints.

[www.orthofix.com](http://www.orthofix.com)

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Specific splint designs  
can stabilize proximal joints allowing  
Motion to occur at more distal joint.

[www.handtherapy.com](http://www.handtherapy.com)

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For example, a Blocking Splint that  
immobilizes the thumb at the  
MP joint will encourage increased  
IP Flexion.

[www.handtherapy.com](http://www.handtherapy.com)

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And a Blocking splint  
immobilizing the MCP joints  
in hyperextension can be used  
to elicit increase PIP and DIP  
flexion of the fingers.

[www.handtherapy.com](http://www.handtherapy.com)

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Photo courtesy of Orfit Industries

[www.orfitindustries.com](http://www.orfitindustries.com)

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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

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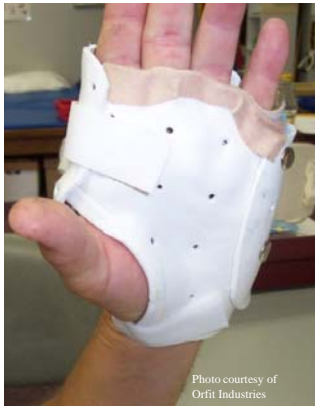


Photo courtesy of Orfit Industries

[www.handtherapy.com](http://www.handtherapy.com)

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What are the indications for splinting?

[www.handtherapy.com](http://www.handtherapy.com)

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- splints help to protect healing structures,
- position the hand for function,
- reduce spasticity,
- alleviate pain,
- preserve joint alignment
- help with exercises.

[www.handtherapy.com](http://www.handtherapy.com)

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Are there any precautions regarding the specific procedure or the specific client?

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And information regarding the Splint specifications-what is the recommended wearing schedule and what is the anticipated duration of splint wear.

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If you do not receive this information from the referring physician, you should call to request it!

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What are the  
contraindications to providing  
splints?

[www.healthcare.com](http://www.healthcare.com)

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Of course if you have any concerns regarding the **status** of client, or concerns regarding the status of his or her extremity, you should not fabricate the splint. You should definitely make contact with the referring physician and voice your concerns.

[www.healthcare.com](http://www.healthcare.com)

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If there is an unclear diagnosis, or you have questions regarding the splint specifications, you should also get in touch with the physician's office to clarify.

[www.healthcare.com](http://www.healthcare.com)

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Always use clinical reasoning skills to determine the appropriateness of the specific requested splint to the client sitting in front of you.

[www.pearsoncmg.com](http://www.pearsoncmg.com)

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***Chapter***

What basic information do you need to know in order to make splints?

[www.pearsoncmg.com](http://www.pearsoncmg.com)

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You need the answers to these basic questions:

- What is the medical diagnosis?

[www.pearsoncmg.com](http://www.pearsoncmg.com)

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- What segment needs to be splinted?
- What is the purpose of the splint?
- Should it immobilize or mobilize?

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Who is your client?

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You need to know if the client is  
Able to understand what you  
are doing and saying regarding  
the splint you are making.

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What parts of the anatomy do you need to consider when you fabricating a splint for your client?

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You really do need to consider all of the anatomy!

[www.handtherapy.com](http://www.handtherapy.com)

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### Creases

- Wrist creases,
- Palmar creases
- Thenar creases

[www.handtherapy.com](http://www.handtherapy.com)

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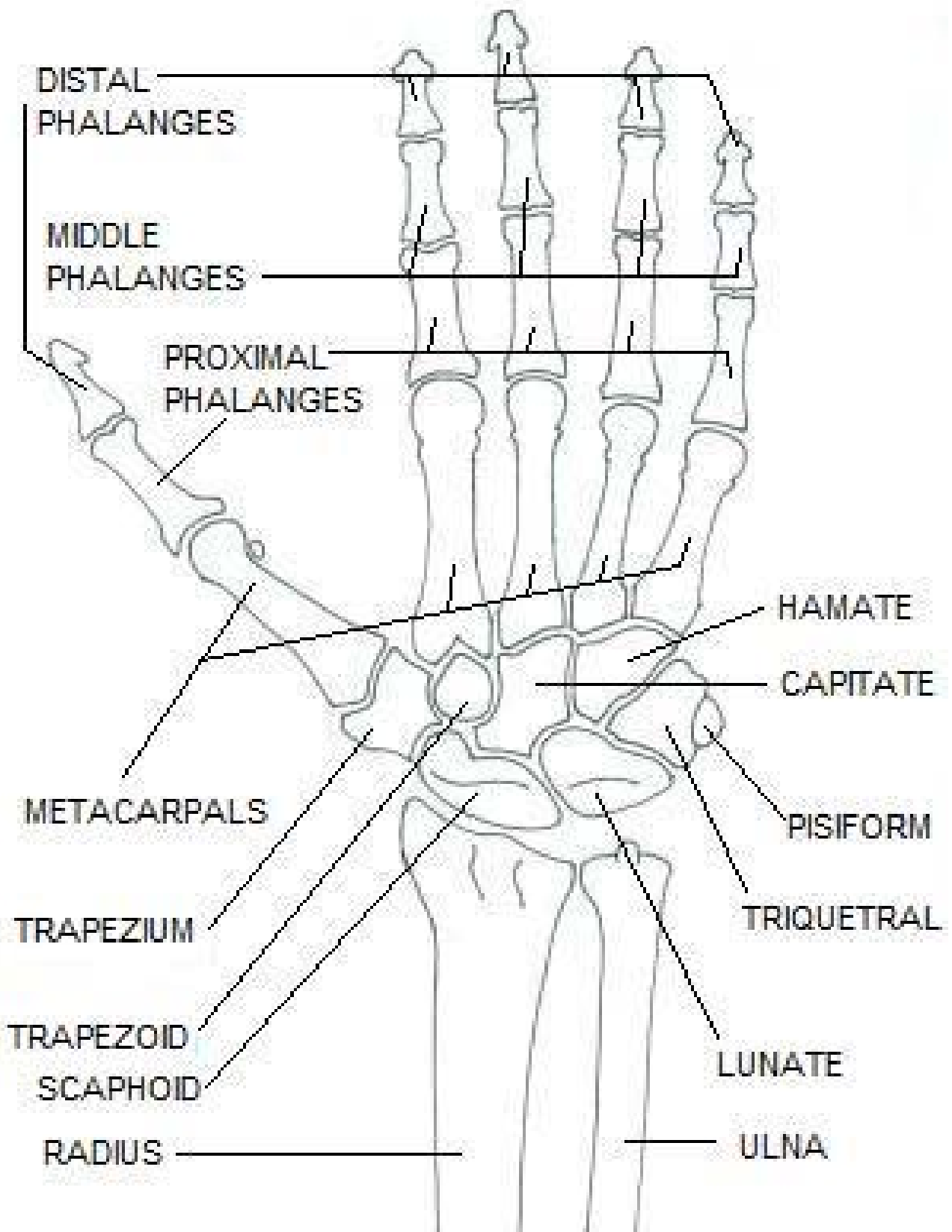
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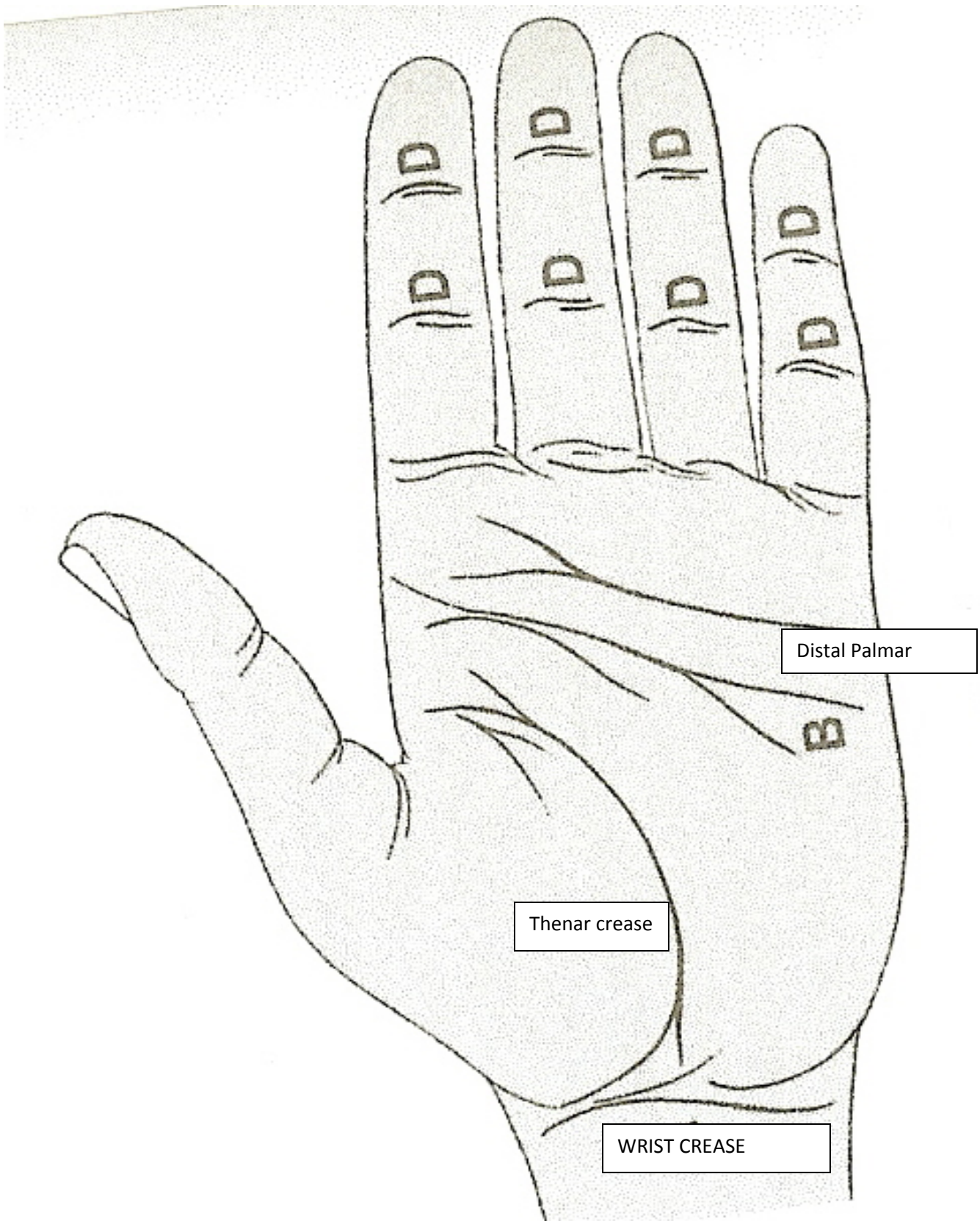
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*Image courtesy of  
Joint-pain-experts.com*



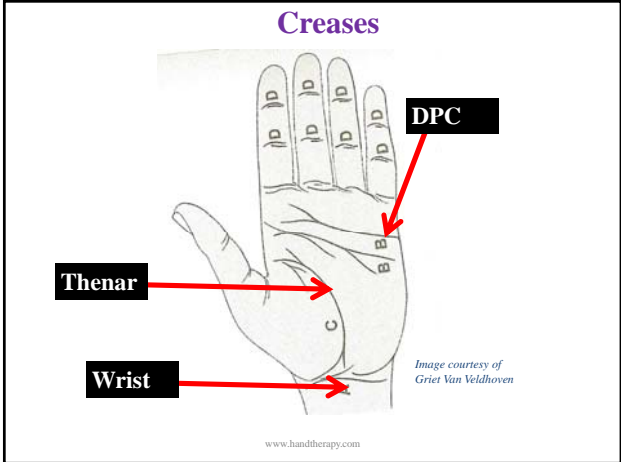
**BONES OF THE HAND**



Distal Palmar

Thenar crease

WRIST CREASE



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The distal palmar crease is critical when fabricating wrist splints.

www.handtherapy.com

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**Bony Prominences**  
And the bony prominences should be protected inside the splint.

www.handtherapy.com

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# The Radial and ulnar styloids and the Dorsal MP joints Pisiform

www.handtherapy.com

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## Larger view in manual

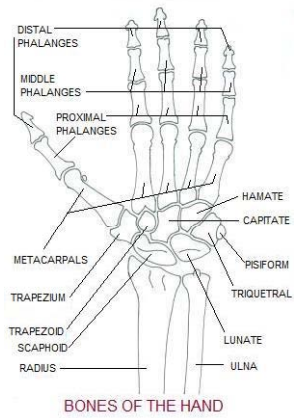


Image courtesy of  
Joint-pain-experts.com

www.handtherapy.com

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## Ulnar Nerve

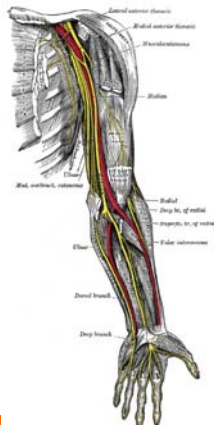


Image courtesy  
of Wikipedia

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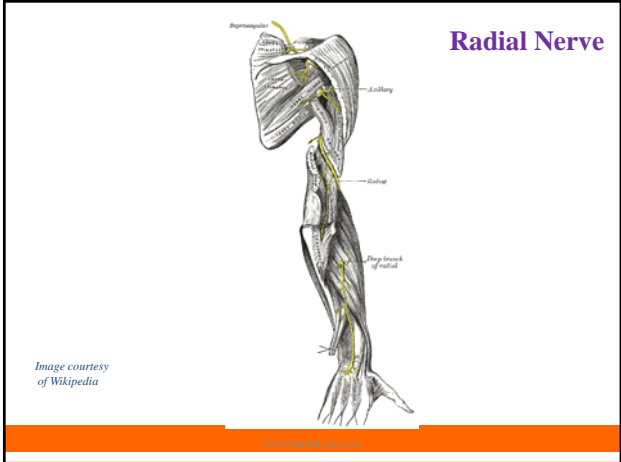
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**Radial Nerve**

*Image courtesy of Wikipedia*

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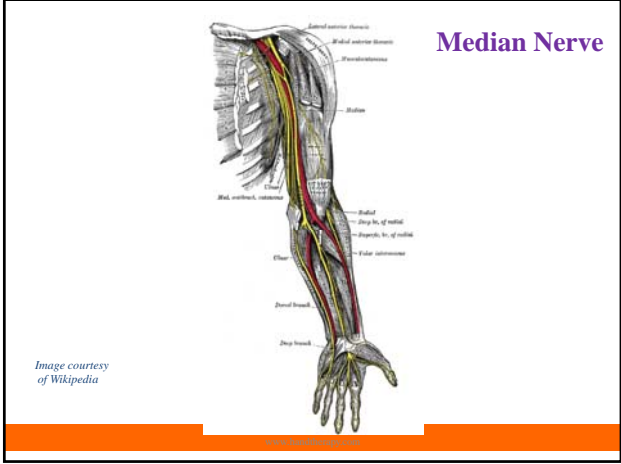
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**Median Nerve**

*Image courtesy of Wikipedia*

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Make sure to be pay attention to the following commonly compressed pathways of the nerves:

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- Radial nerve at radial groove of humerus
  - Ulnar nerve at cubital tunnel
- Superficial branch of Radial nerve
  - Median nerve at the wrist
  - Digital nerves

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Proximal Transverse Arch

Very rigid

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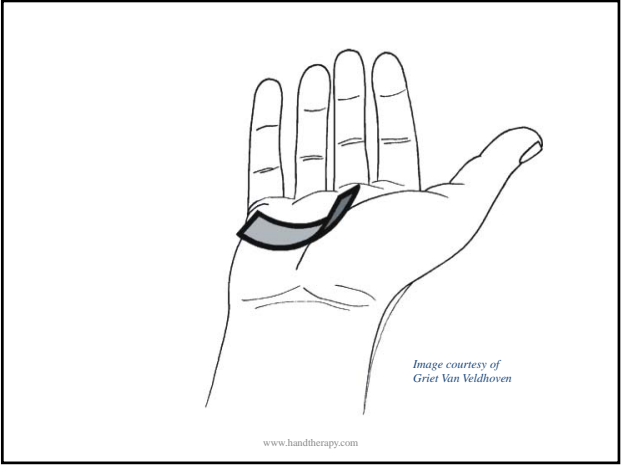
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## Distal Transverse Arch

This is a very mobile part of the hand as the MCP heads flex around objects.

It is an important landmark for splinting the dorsum of the hand.

[www.handtherapy.com](http://www.handtherapy.com)

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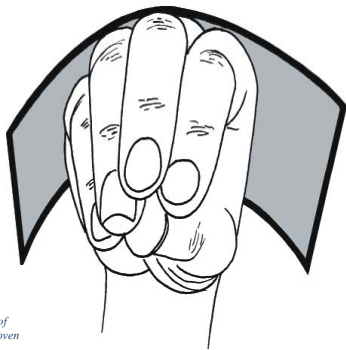


Image courtesy of  
Griet Van Veldhoven

[www.handtherapy.com](http://www.handtherapy.com)

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The Longitudinal Arc runs from the tip of our middle finger through to the tip of the thumb- it allows us to grasp and release; shorter on ulnar side.

[www.handtherapy.com](http://www.handtherapy.com)

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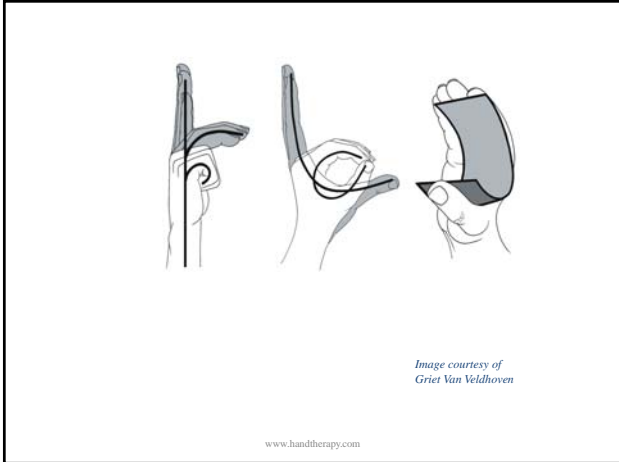
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Our finished splint design  
should take into  
consideration all of these  
hand arches

www.handtherapy.com

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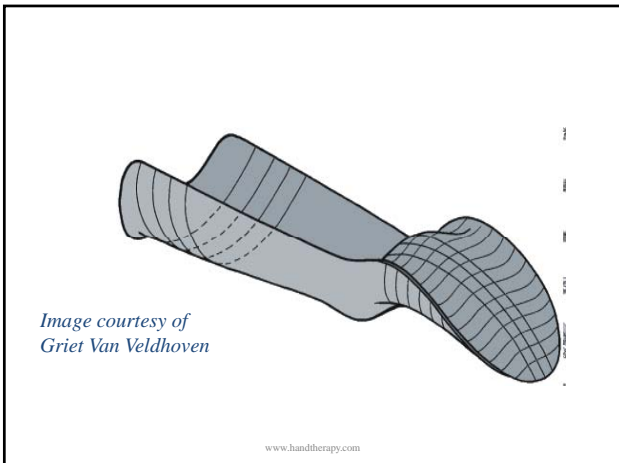
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What are the additional  
Anatomical Considerations  
involved in splinting?

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- Our splints should always:
1. Provide maximum contour to the extremity.
  2. Provide support for the arches
  3. Protect areas of risk- bony prominences.
  4. Provide adequate strapping.

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Which bony prominences are at risk?

- Olecranon
- Medial and Lateral Epicondyles
- Radial and Ulnar Styloid processes
- Base of first metacarpal
- Dorsal MP and PIP joints
- Pisiform

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## The Circulatory System

There can be Circulation Issues if the splint is not fitting appropriately

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Make sure your patient is educated on what to look for:

- Color changes
- Temperature changes
  - Tingling
  - Throbbing

[www.handtherapy.com](http://www.handtherapy.com)

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Proper alignment of the fingers

The splint should allow active flexion of the digits in the normal anatomical alignment towards the scaphoid bone.

[www.handtherapy.com](http://www.handtherapy.com)

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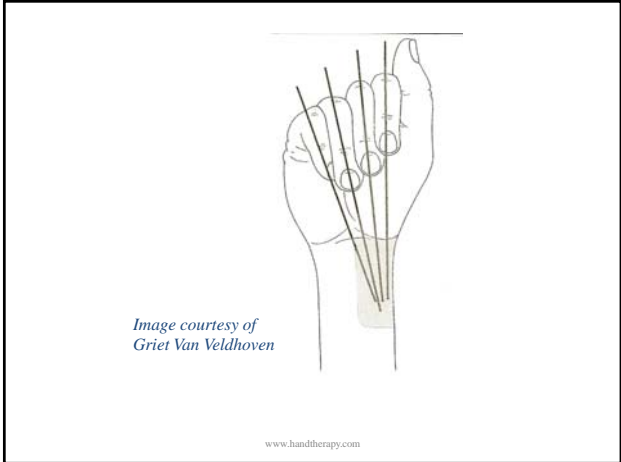
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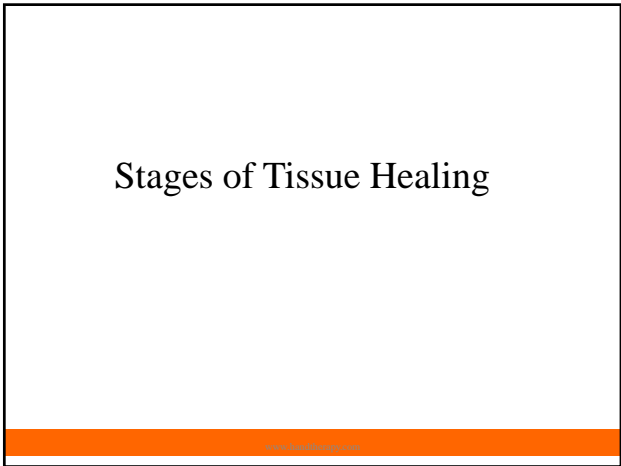
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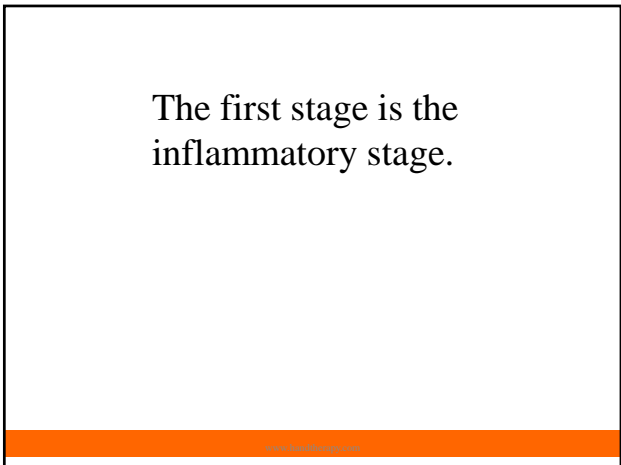
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It begins with trauma or surgery and typically lasts less than a week. There is an influx of white blood cells into the injured extremity and pain and edema are evident.

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Immobilization of the body part is key  
We fabricate splints to protect, support and position.

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The second phase is the  
Fibroplasia or Proliferative phase

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This phase can last anywhere from 4-5 days to 2-6 weeks. It often is influenced by the patient's general health. Clients with Congestive heart failure or diabetes might take longer to heal.

During this phase collagen synthesis begins. And as the collagen fibers increases in volume and strength  
We usually begin mobilization of the affected joints.

We typically provide splints that help apply stress to influence this scar maturation  
But we must carefully monitor the amounts of stress from the splints

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During tissue healing-  
Need for *balance*:

Rest and Protection of wound  
*versus*  
Joint Motion.  
in order to prevent potential  
serious loss of range of motion

[www.handtherapy.com](http://www.handtherapy.com)

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The final phase of healing is  
known as the maturation  
or remodeling phase.

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There is a continuous  
reorganization of collagen fibers  
and there is a noted increase of  
the tensile strength  
of the maturing scar tissue.  
We observe that this scar tissue  
responds to low loads of stress  
over prolonged periods of time.

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There is an increased tolerance at this stage for serial static and static progressive splinting.

But we must take great care to avoid overly aggressive use of mobilizing forces.

[www.handtherapy.com](http://www.handtherapy.com)

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***Chapter***  
Mechanical Principles of splinting

[www.handtherapy.com](http://www.handtherapy.com)

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- All splints should:
- Allow maximum function
- Have a simple design
- Fit very well
- Be easy to put on and take off.

[www.handtherapy.com](http://www.handtherapy.com)

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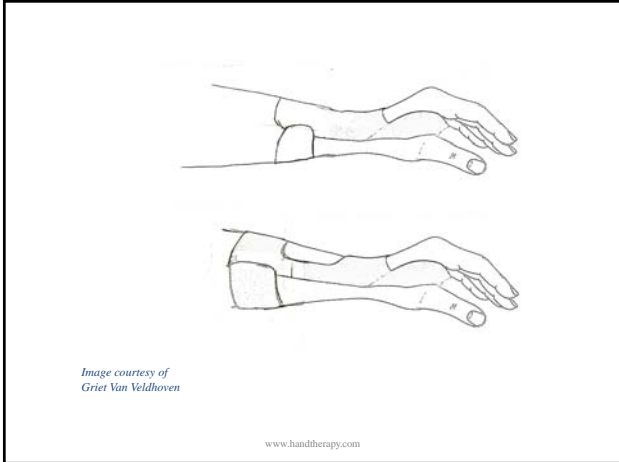
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**You must always be aware!**  
Be aware of forces on the  
client's extremity caused  
by the splint itself and  
correct them!

www.handtherapy.com

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There are Friction forces which come  
from rubbing along the splint edges.

There are Shearing forces which  
occur when the supported limb slides  
inside the splint.

www.handtherapy.com

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And there are  
Compressive forces when opposing  
forces, such as the strap and the rigid  
splint are pushed towards each other.

[www.handtherapy.com](http://www.handtherapy.com)

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You can minimize these forces by  
creating maximal contouring of your  
splint and using appropriate  
strapping!!

[www.handtherapy.com](http://www.handtherapy.com)

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Strapping Suggestions

[www.handtherapy.com](http://www.handtherapy.com)

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- Your straps are what keep the splint properly in place.
- Always align your straps to match the anatomy.

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- Wider straps help with more even distribution of pressure.
- Can use foam under Velcro loop for comfort.

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- Watch for edema between straps-

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Apply forearm strap at angle to conform to musculature.

[www.handtherapy.com](http://www.handtherapy.com)

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Now we will discuss  
some specific cases  
Where Immobilization Splinting  
was incorporated into treatment

[www.handtherapy.com](http://www.handtherapy.com)

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[www.handtherapy.com](http://www.handtherapy.com)

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Photo courtesy of Orfit Industries

www.handtherapy.com

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PIP joint flexion contractures and the circumferential splint for PIP extension.

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Photo courtesy of Orfit Industries

www.handtherapy.com

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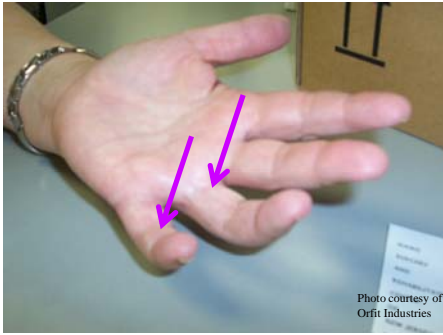
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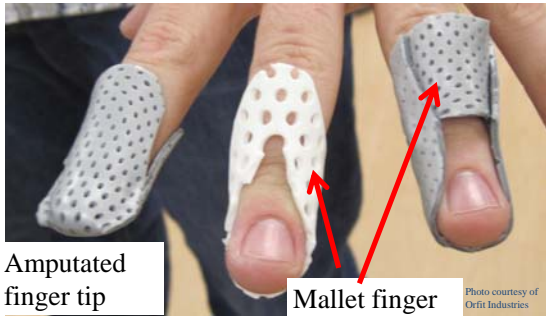
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Amputated  
finger tip

Mallet finger  
splint designs

Photo courtesy of  
Orfit Industries

www.handtherapy.com

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Photo courtesy of  
Orfit Industries

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This radiograph is of a Fifth Metacarpal- Carpal Fracture/ dislocation s/p ORIF and the patient received a volar wrist cock-up splint which actually blocked MCP flexion due to the location of his injury.

www.handtherapy.com

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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

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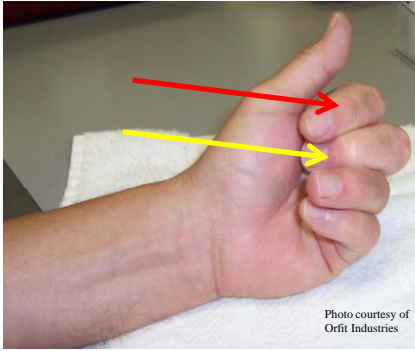


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### STIFF FINGER

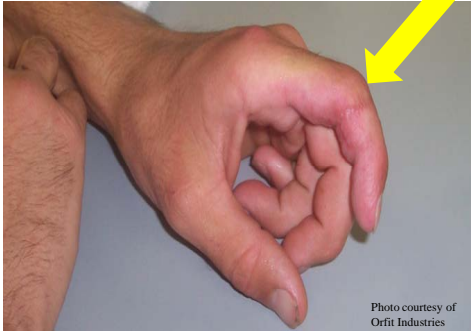


Photo courtesy of Orfit Industries

www.handtherapy.com

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### Blocking Splint Dorsal View



Photo courtesy of Orfit Industries

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**biceps tendon  
rupture and repair**  
the patient  
usually gets an elbow  
splint or a long arm splint.

www.handtherapy.com

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### Biceps tendon rupture/repair



www.handtherapy.com

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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

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## Ulnar Nerve Palsy



Photo courtesy of Orfit Industries

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## Functional splint to correct UN



Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

www.handtherapy.com

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**Chapter**

What type of Splinting Equipment  
Do you need in your clinic in order  
to make splints??

[www.handtherapy.com](http://www.handtherapy.com)

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Splint Pan



[www.handtherapy.com](http://www.handtherapy.com)

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Sewing Machine



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Heat Gun



Photo courtesy of Orfit Industries

www.handtherapy.com

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### Splinting Tools

- Awl or wax pencil
- Scissors - curved and straight
- Utility knife
- Pliers
- Hole punch

www.handtherapy.com

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Photo courtesy of Orfit Industries

www.handtherapy.com

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Be careful handling hot materials!

- Check temperature of splinting material before application on patient!

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Take care of your equipment!  
Turn off the heat gun.  
Close the splint pan.  
Put sharp tools away and clean up!!!

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ERGONOMICS

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Use proper body mechanics to protect yourself and your clients!

Position the client for your easy access to their extremity. You might be next to them or behind them.

[www.handling.com](http://www.handling.com)

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Protect yourself from back strain  
Consider the table height and where the client is seated.  
Table corners are best for easy access to the extremity.

[www.handling.com](http://www.handling.com)

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Whenever possible, let gravity assist you in splint fabrication!  
Place your patient's extremity in a gravity assisted position:

[www.handling.com](http://www.handling.com)

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Typically, the forearm is supinated for volar splinting or in gravity assisted position for elbow splinting.

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Always use appropriate tools!

Good Quality Scissors

Utility knife

Hole-punch

Hammer

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***Chapter***

Steps to Splint Fabrication.

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# Patterns

[www.handtherapy.com](http://www.handtherapy.com)

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[www.handtherapy.com](http://www.handtherapy.com)

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**Draw the pattern on a paper towel  
Or directly on splinting material**

**Cut out carefully and try  
not to leave marks!**

[www.handtherapy.com](http://www.handtherapy.com)

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Photo courtesy of Orfit Industries

[www.handtherapy.com](http://www.handtherapy.com)

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Cut off a piece of material big enough for the pattern.

Never cut the material cold, especially the thicker 1/8" materials.

[www.handtherapy.com](http://www.handtherapy.com)

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- Slightly heat up the material prior to cutting out the pattern.
- Do not let the material get too warm or too activated as this will also make it difficult to cut.

[www.handtherapy.com](http://www.handtherapy.com)

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Photo courtesy of Orfit Industries

[www.handtherapy.com](http://www.handtherapy.com)

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Photo courtesy of Orfit Industries

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Photo courtesy of Orfit Industries

[www.handtherapy.com](http://www.handtherapy.com)

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Trace pattern using awl or wax pencil  
or place paper towel directly on  
slightly heated splinting material.

[www.handtherapy.com](http://www.handtherapy.com)



Photo courtesy of  
Orfit Industries

[www.handtherapy.com](http://www.handtherapy.com)



Photo courtesy of  
Orfit Industries

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www.handtherapy.com

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Mold to patient's hand  
using gravity to assist  
or ace wrap into place.  
Handle gently.

www.handtherapy.com

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Splint wear, care, and precautions

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You are making the splint so that your client will wear it. Hopefully, they will be compliant!!!

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It is thought that clients will be more compliant if they understand the purpose of splint And how it will help them.

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Also, compliance may be increased if the splint is comfortable, easy to put on and take off and aesthetically pleasing to the client.

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*Chapter*  
Low Temperature Thermoplastics.

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- Easy to cut
- Can easily remold
- Contour to hand anatomy
- Can be molded directly on our patients
- And they are Durable!

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## TERMS

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•Drapability or Conformability which refers to how easy the material conforms to the arches and bony prominences of the hand.

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•High drapability means light handling.  
Let gravity assist you in the splint making.

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Low drapability means the material requires firm handling. This is usually recommended for larger splints.

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•Dorsal splints need good draping qualities.

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**memory**

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This is different from material being thermoplastic which means that it can be reheated and will once again become flat and remoldable. All splinting material is thermoplastic.

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Memory is a critical feature when it is Likely that frequent reshaping will be necessary. This property actually makes the material cost efficient.

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When making a splint from a material with memory, be sure to let the material completely harden before removing from the hand Or your splint will lose its shape.

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**Coating** on a splinting material.  
The coating or lack of coating  
on a material directly  
affects the ability of the material  
to stick to itself

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Splinting material is either Coated or  
Uncoated. There are  
advantages and disadvantages with  
both.

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The advantages to a coated material is  
that it is easier to handle and is not  
tacky or sticky.

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The advantages to a non coated material is that it is easier to get attachments and straps to stay attached.

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- If coated, the coating can be scratched off.
- Uncoated material readily bonds to itself.

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The coating is very useful for temporary bonds when the material is warm. When it cools, these bonds can be popped apart.

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You can always use lotion or soap on the material to prevent accidental adherence.

[www.handwriting.com](http://www.handwriting.com)

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The trick with the non coated or sticky materials is to use a bit of dish soap in the water to prevent accidental adherence.

[www.handwriting.com](http://www.handwriting.com)

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talcum powder tip

[www.handwriting.com](http://www.handwriting.com)

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## Resistance to Stretch

Is a term that refers to the amount of resistance the material gives to being stretched when heated.

[www.ck12.org](http://www.ck12.org)

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High resistance means working slowly and steadily to stretch material.

Low resistance means working more quickly and controlling the material carefully as it stretches.

[www.ck12.org](http://www.ck12.org)

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Another characteristic is the **Surface Impressionability** and this refers to what the surfaces looks like when hardened.

[www.ck12.org](http://www.ck12.org)

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- Do your fingerprints show easily?
- Is the surface of the material smooth or bumpy?
- Is there a glossy surface or matte surface?
- Do you have a preference??

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**Activation Temperature**

All splinting materials work best in a range from 140°-160°F.  
Let's check the temp. right now.

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The activation temperature is the temperature at which the splinting material becomes pliable for molding.

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•If the water is too cool, the material  
•will not become pliable.  
•If it is too hot, the material will get  
too sticky and become very difficult  
to mold.

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**Thicknesses**  
Splinting material comes  
in a wide selection of thicknesses.  
You have many choices from  
ultra thin to very thick materials.

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Always fit your selection of  
material thickness, material type  
and purpose of the splint  
to the size of your client.

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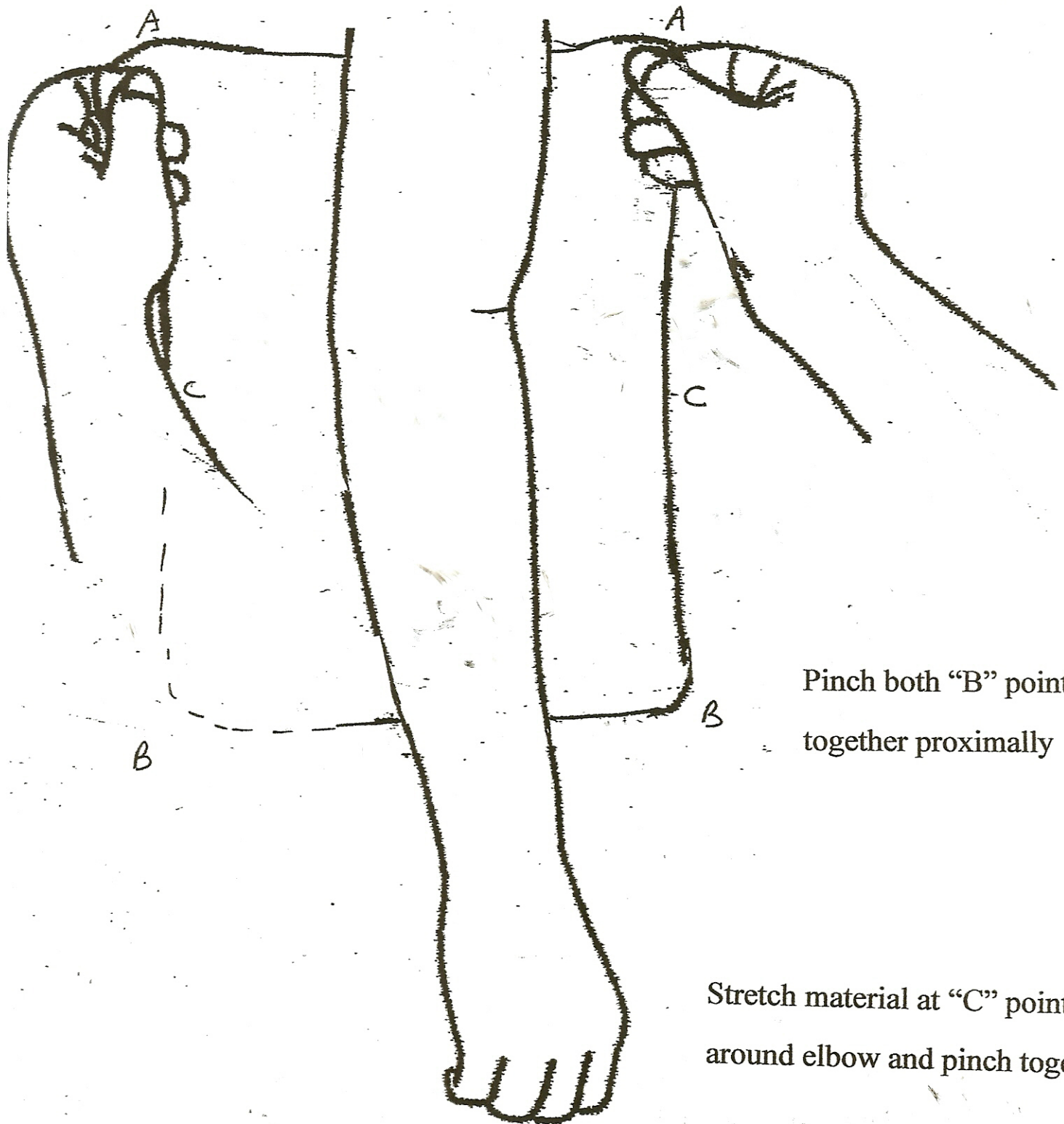
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# Elbow Flexion Splint

Pinch both "A" points together proximally

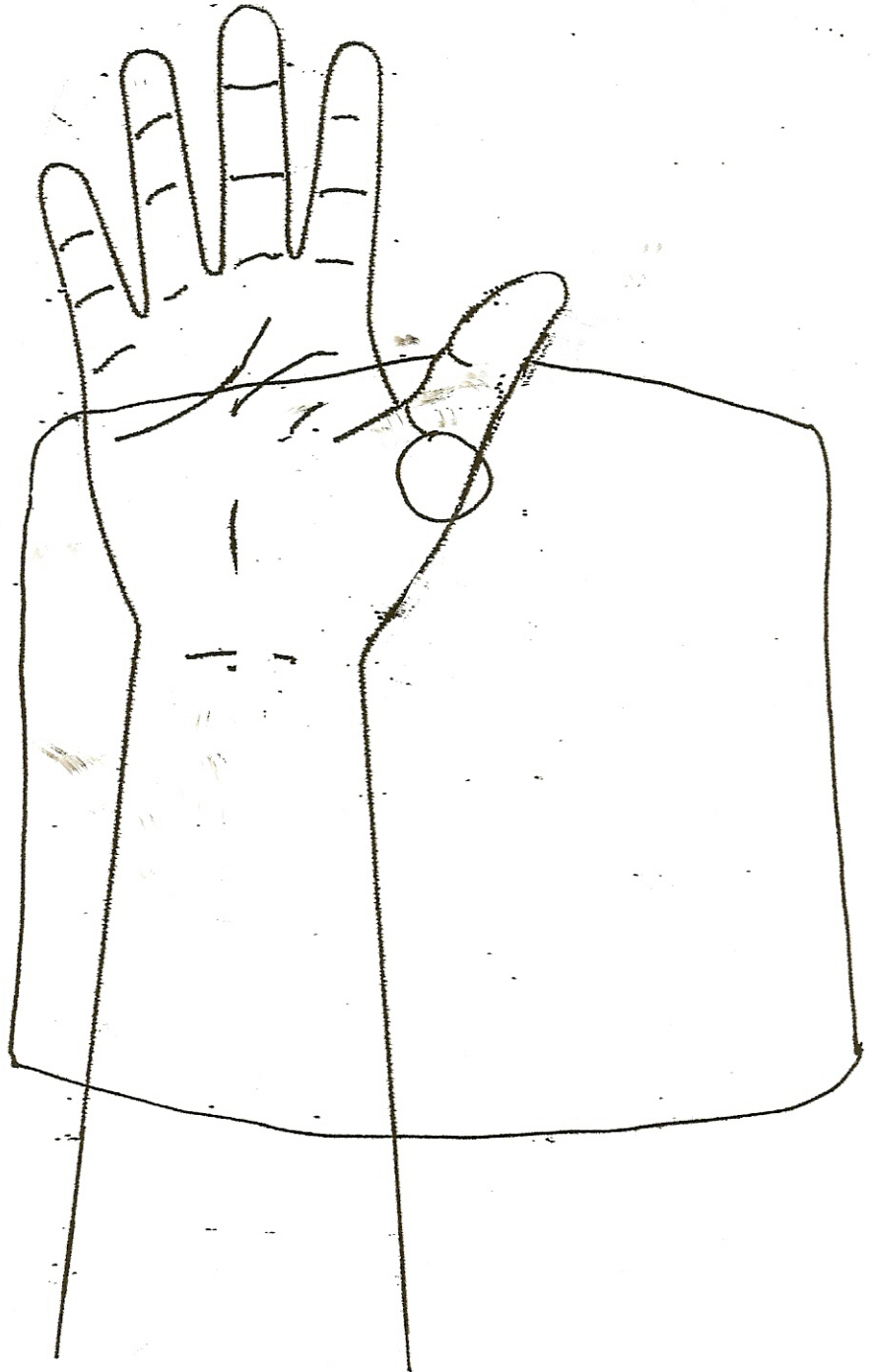


Pinch both "B" points together proximally

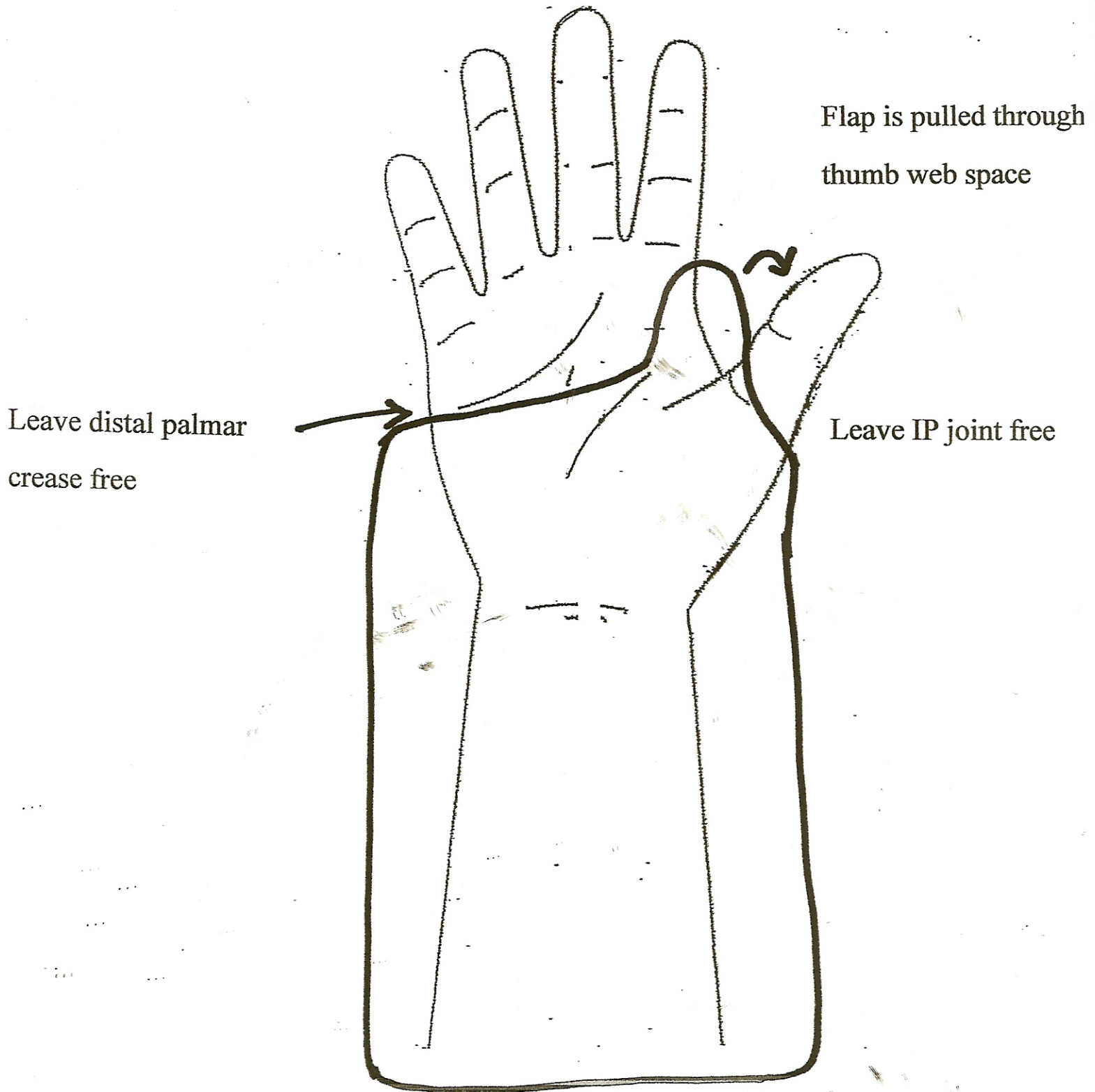
Stretch material at "C" points around elbow and pinch together

# Circumferential Wrist Splint

Cut only a small hole in the  
center of the material  
at least 1" from the edge

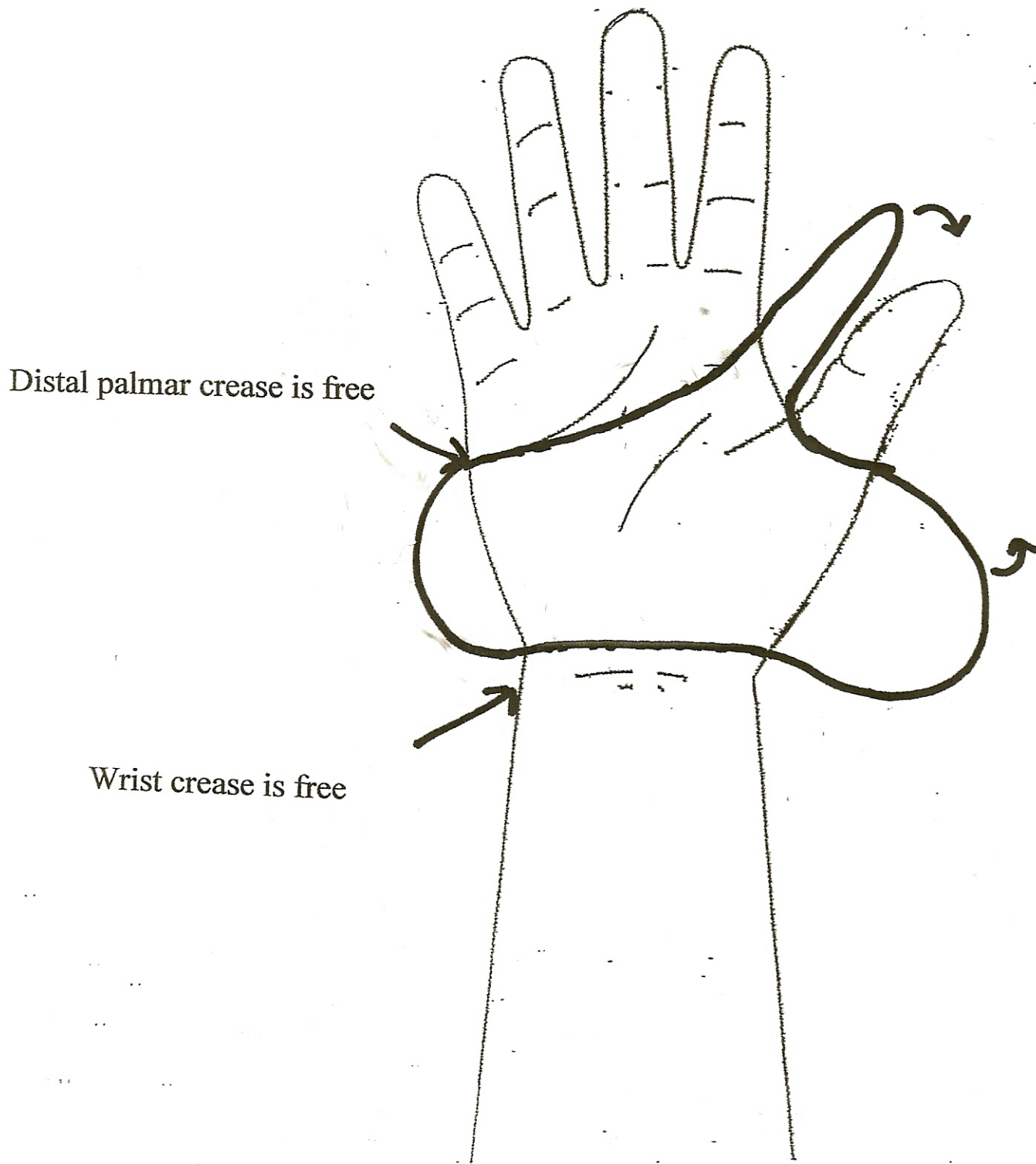


# Long Opponens Splint

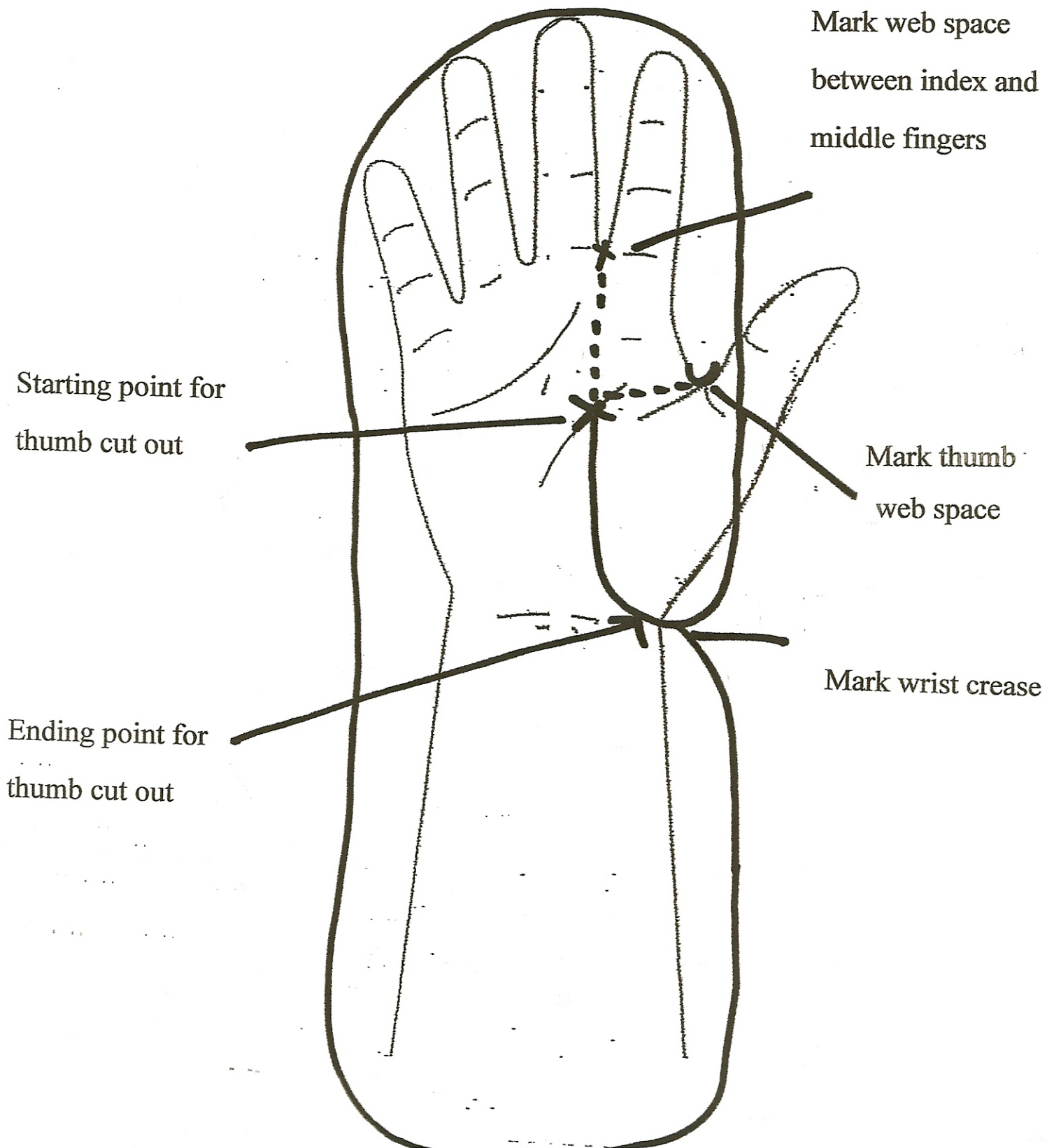




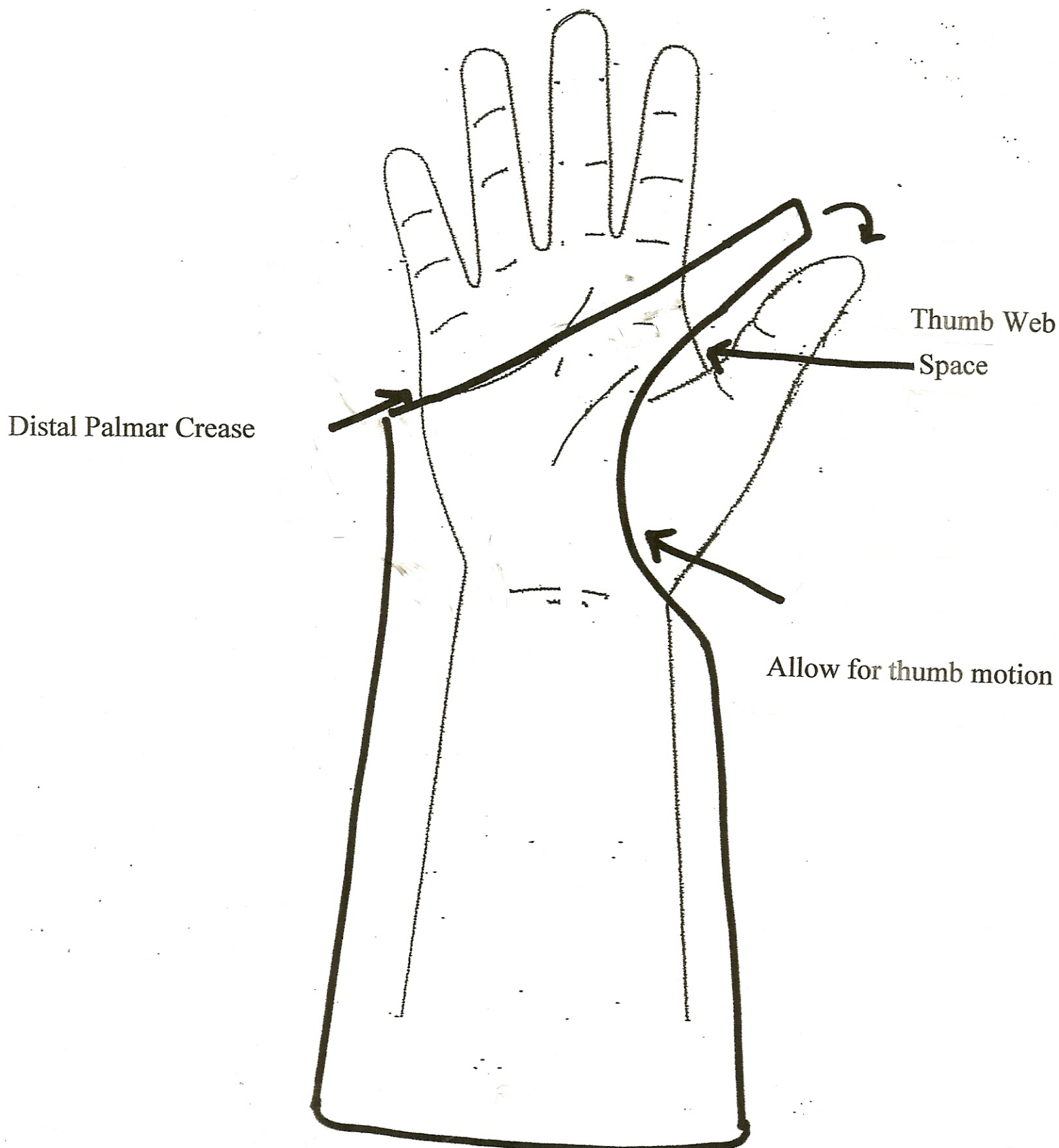
# Short Opponens Splint



# Resting Hand Splint

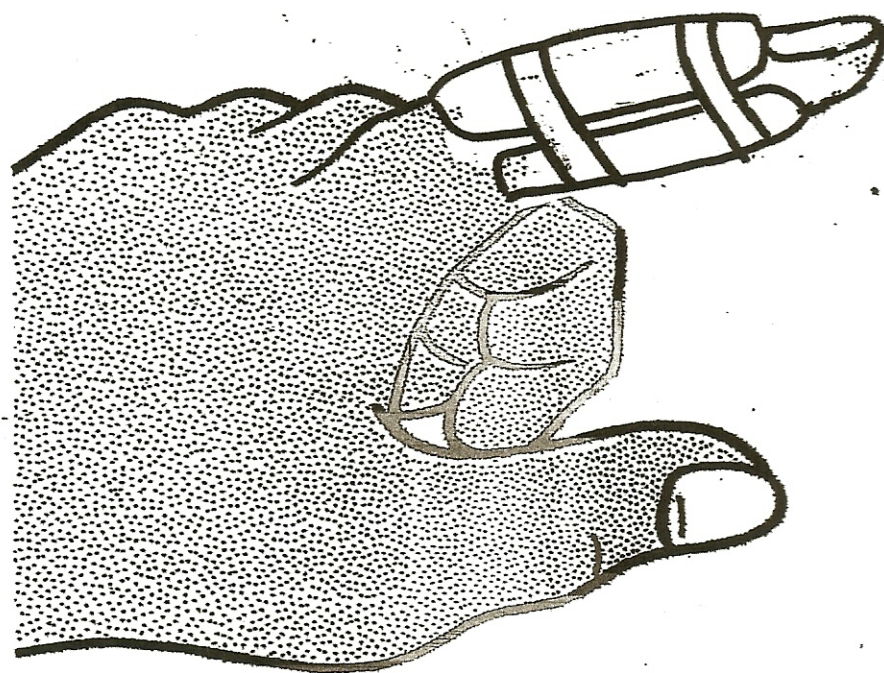
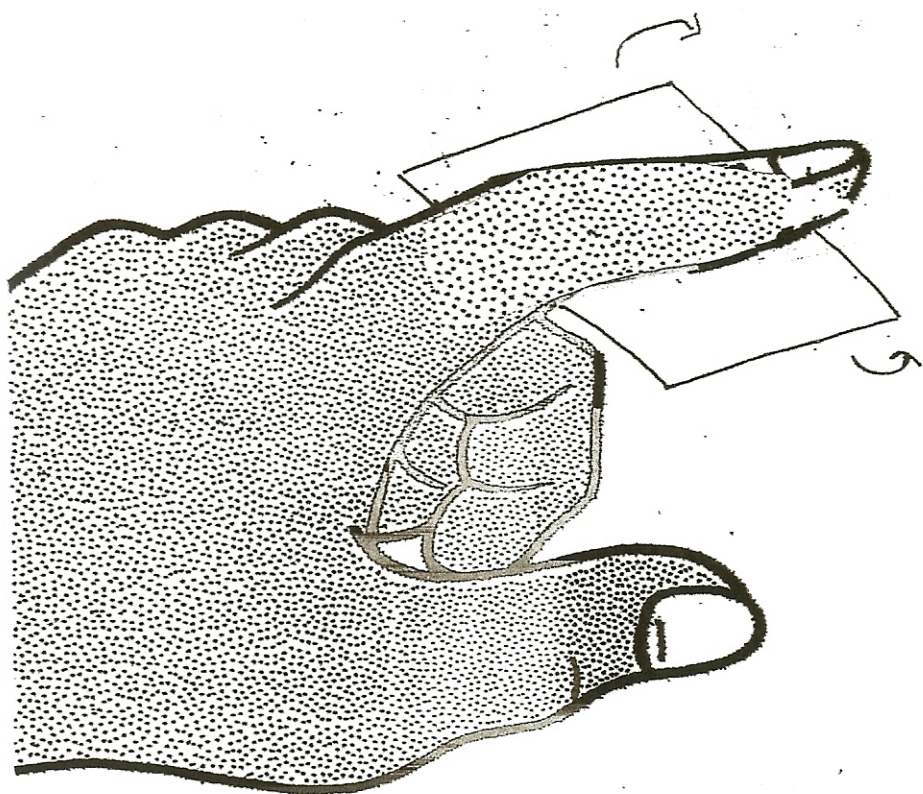


# Wrist Cock-Up Splint



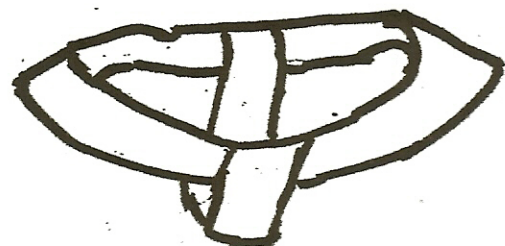
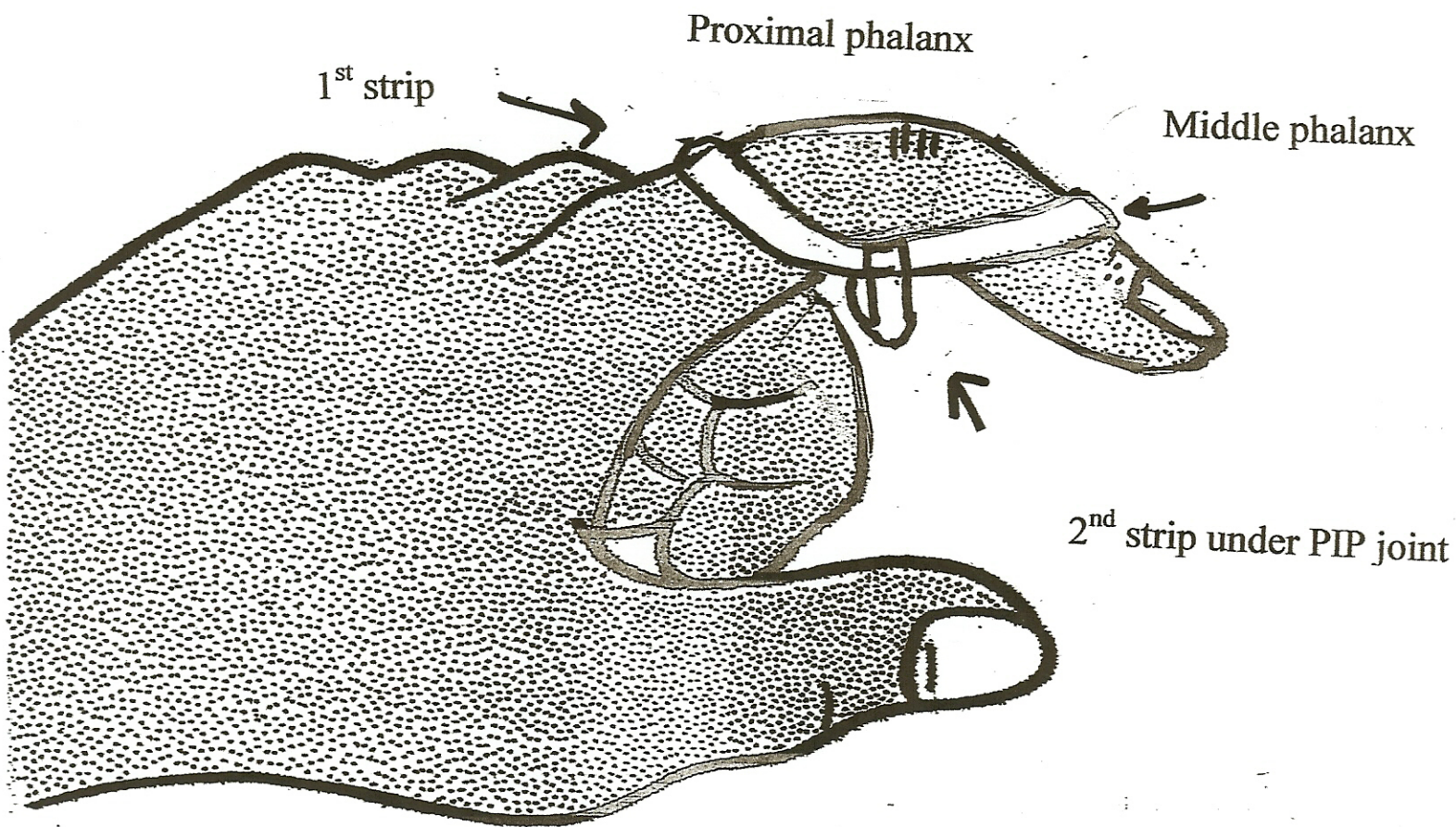
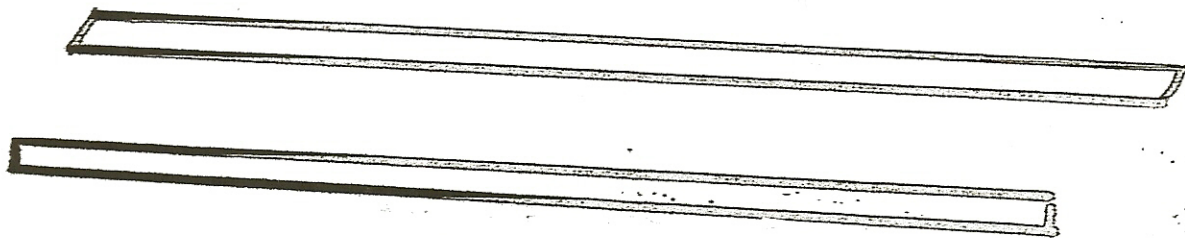


# Circumferential Finger Splint



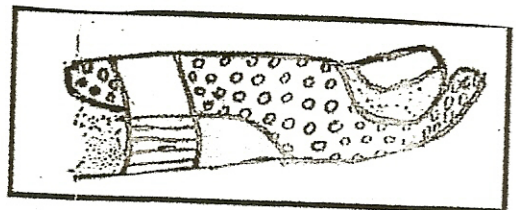
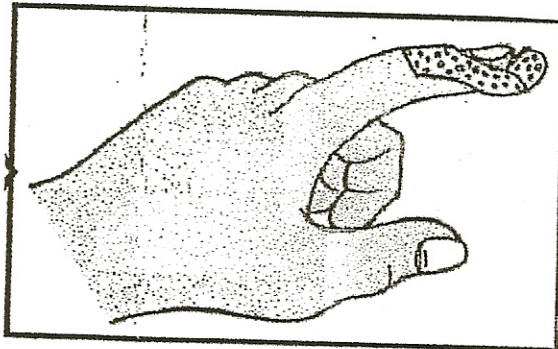
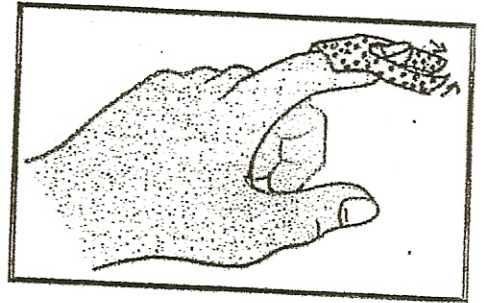
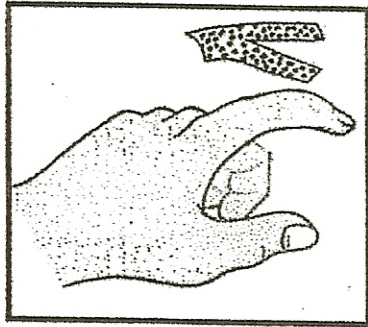
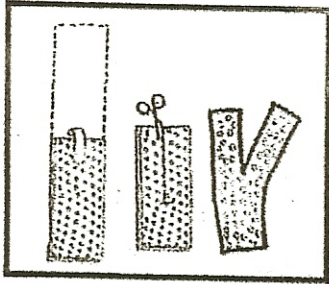
# Anti- Swan Splint

Use two strips of 1/12" thick material





# Mallet Splint



**Market Place**

Static splinting

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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**MarketPlace Splints**

- Our demonstrations are not all inclusive and we urge you to do a market analysis, internet search and visit vendor booths at conferences to learn about various splinting products available in your marketplace.

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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**MarketPlace Splints**

If you have any specific product design questions you can contact the companies directly. Many companies have regional reps which will gladly assist or provide in-services for you.

We are not presenting the products in any particular order and this list is not all inclusive. We have chosen companies we are familiar with. Some of them may be sponsors of this course. For sponsor information please refer to the manual.

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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### 3pp

- Oval 8 finger splint
- [Arthritis](#)      [Mallet Finger](#)
- [Jammed Fingers](#)      [Swan Neck Deformity](#)
- [Hypermobility](#)      [Boutonniere Deformity](#)
- [Fractures](#)      [Trigger Finger](#)



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### Oval 8

- **Features**
- Oval-8 Finger Splints can be worn six different ways, depending on the condition or treatment.



Oval-8 Finger Splint. Worn to reduce Boutonniere Deformity.



Oval-8 Finger Splint. Two splints worn to immobilize the joint.

EXPLORING HAND THERAPY DBA  
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### 3 point products



Oval-8 Finger Splint. Worn to correct lateral (sideways) deviation.



Oval-8 Finger Splint- Mallet Finger



Oval-8 Finger Splint. Swan Neck Deformity.



Oval-8 Finger Splint. Worn to prevent Trigger Finger.

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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### Adjusting

- Use precision spot heat gun and gently adjust
- Up to 20 degrees of flexion or hyper extension
- Heat where the band meets the splint and then apply pressure



Oval-88 Finger Splint- Worn to reduce Boutonnere Deformity.  
EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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### 3 PP thumb spica Plus

- One size fits most
- Comes with an extra aquaplast blank
- VIDEO

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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3pp™ ThumSpica™ Plus  
3point products



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### ThumbSling NP with a 2" stay

2" stay.. Is good to allow support and you can apply it anywhere needed.

- Also this adds rigidity to help with billing
- Used for OA/RA, thumb pain

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TREATMENT2GO

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### Thumb Sling NP

- FOAMLIN splint with special strap to lift and support the splint.
- Splint slips on hand and closes with hook
- The strap wraps under and around the thumb and then around the wrist for support under the thumb or you can wrap around the thumb again.

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**Carpal lift**

**Symptoms and Causes of  
Ulnar Sided Wrist Pain**

**3pp™ Carpal Lift™**



**3point  
products**

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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**ts TRIGGER  
FINGER  
SOLUTION** **ACTIVE INNOVATIONS**

- Developed by an Orthopedic Surgeon
- Device has a cushioning ring that relieves pressure on affected area so patients can resume daily activity
- Allows the hand's protective fat pad to heal
- Can be worn on any finger with complete freedom of movement
- Available for purchase by medical professionals

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**MTS MOLDABLE  
THUMB SPICA** **Moldable Thumb Spica**

- **Short-term stabilization that limits motion at MP and CMC joints**
- Heat moldable thermoplastic stay for superior immobilization can be custom molded to accommodate for pressure points, swelling, etc.
- Uniquely designed to be applied with one hand
- Non-stretch hook and loop closure straps at the wrist and thumb ensure proper immobilization
- Customizing of the thermoplastic splint can be done by immersing in hot water, the use of a hydro collar or low heat with a heat gun
- Allows use of the hand while limiting motion of metacarpophalangeal (MP) and carpometacarpal (CMC) joints

EXPLORING HAND THERAPY DBA  
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- For the MTS, we would like to point out the one hand application
- Universal FIT (right/left)
- Another nice feature is the moldable piece which can be heat moldable

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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- **Introducing the only wrist brace that allows for safe lateral movement**
- Dynamic performance hinge allows 20 degree ulnar/radial deviation
- Contoured dorsal design allows for finger dexterity and an open palm
- Lightweight padding/non-metal construction
- High-impact plastic splint
- Functional strapping system
- Unilateral design
- Day or night use
- Available for purchase by medical professionals



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TREATMENT2GO

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## NORTH COAST MEDICAL



EXPLORING HAND THERAPY DBA  
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### Functional Position Splint



Maintains a functional position of the hand and wrist.  
Can be adjusted with a heat gun or by dunking in water

*popular splint & Latex FREE*

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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### Safe Position burn Latex FREE

*Helps prevent burn contractures durable splint.  
Keeps hand in an intrinsic plus position which is ideal for post burn*

The wrist is positioned at 20° to 30° extension, MPs at 60° to 70° flexion, IP extended and thumb in mid-abduction/extension position.



EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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### Pre-fabricated Anti spasticity ball



- *Places the hand in a flexion-inhibiting position and maintains the hand arches & is Latex Free & is ideal for positioning the spastic hand.*

Padded hand strap is anchored with a rivet for a secure positioning. Can be adjusted with heat gun or putting back in

Made of 1/8" (3.2mm) splinting material.

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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### Liberty CMC immobilizer



- Provides comfortable immobilization of the thumb CMC and MP joints.
- Immobilizes the thumb CMC and MP joints.

EXPLORING HAND THERAPY DBA  
TREATMENT2GO

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### Stax Finger



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### Sugar tong Precut



- Ideal for cumulative trauma injuries, forearm fractures, post total elbow joint replacement, biceps tendon repairs and ulnar nerve transposition conditions

EXPLORING HAND THERAPY DBA  
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### Long arm pre-cut



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### Resting PAN position PRECUT



- *Easily positions the thumb in the desired degree of abduction.*
- *Positions the thumb in palmar abduction or slight opposition.*

Supports the hand in a functional position to help maintain the palmar arches and prevent contractures.

EXPLORING HAND THERAPY DBA  
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### Gauntlet Immobilization precut



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### PRE-CUT Radial Bar Wrist Cock- up



- Extended ulnar border and flared forearm trough provide support when the splint is dorsal or volar.
- Can be applied dorsally or volarly. Use as a base splint for dynamic finger outrigger attachments.
- Supports the wrist for a variety of medical conditions.

EXPLORING HAND THERAPY DBA  
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### CMC precut



- Excellent for CMC arthritis and ligamentous injuries.
- Supports the thumb CMC and MP joints while allowing free wrist motion for functional use.
- Lightweight, comfortable splint may improve patient compliance.
- One universal size can be trimmed easily to fit an array of hand sizes.

Provides lightweight, yet strong support for the CMC and MP joints.

EXPLORING HAND THERAPY DBA  
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### Comp thumb immobilization Precut



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### NC Hemi Sling



Unique waist belt design eliminates pressure on the uninvolved arm and maintains constant depression of the scapula and elevation of the humerus to reduce subluxation.

EXPLORING HAND THERAPY DBA  
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### Latex free Comfy Cool Ulnar Nerve



- The insert protects the ulnar nerve from damaging tension by **allowing the elbow to move from full extension to the molded, limited flexion position.**
- Gel elbow pad protects the posterior elbow from painful bumps and pressure points. Removable gel pad measures

•Circumferential design with open proximal end makes the splint easy to put on and adjust.  
•Provides protection and support for such conditions as thoracic outlet syndrome, tendinitis, bursitis, ulnar nerve irritation and post-surgical repair of the elbow.

EXPLORING HAND THERAPY DBA  
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### Comfort cool D-Ring wrist



perforated neoprene and lined with terry cloth

- Cool, lightweight support provides cumulative trauma relief.
- Provides excellent support without excessive bulk or warmth
- Ideal for wrist disorders such as carpal tunnel syndrome, arthritis and tendinitis. Aluminum volar support is pre-bent for 15° wrist extension and can be removed for adjustments.
- Circumferentially designed with double-layer cotton stockinette under D-ring closures for comfort and easy application. Attach [Comfort-Gel™ Pads](#), for added scar care or padding.

EXPLORING HAND THERAPY DBA  
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### Comfort cool wrist wrap/dorsal



- Neoprene can be trimmed and customized easily.

*Nice splint because you can use it to prevent ulnar deviation or wrist extension.*

Ideal for tendinitis, wrist instability, ulnar drift problems TFCC pathology

EXPLORING HAND THERAPY DBA  
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### Norco Soft MP ulnar drift



**Neoprene** provides warmth and stronger support.

**fabrifoam®** provides comfortable support that won't slip.

EXPLORING HAND THERAPY DBA  
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### Comfort cool Thumb spica



*Universal support with moldable thermoplastic stay provides a customized fit.*

Thin, 1/16" (1.6mm), perforated neoprene provides cool, lightweight support and compression.

EXPLORING HAND THERAPY DBA  
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### Liberty CMC thumb splint



Helps stabilize thumb MP and CMC joints while allowing wrist and finger movement.

- One is made of supple, top-grain **Leather** for moderate, conforming support. The other is made of stiff, perforated **Leatherette** lined with cotton for firm support.

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### Norco Palm Protector



Protect palms and allow finger movement.

Goal of protector is to help prevent finger contractures and skin breakdown in the palm.

This palm protector is really soft (exceptionally soft ) and as you can see allows free finger movement

Excellent for Home, BEDSIDE, or Clinic use

EXPLORING HAND THERAPY DBA  
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### NC Elbow Protector



Gel pad can be heated or chilled

The **Foam Elbow/Heel Protector** offers excellent skin aeration.

The **Gel Elbow/Heel Protector** includes a removable, shock-absorbing gel pad  
Remove gel pad from sleeve before machine washing

EXPLORING HAND THERAPY DBA  
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### Liberty Flare Wrist



*Designed specifically for people whose wrist circumference and mid-forearm circumference vary by 4" (10cm) or more.*

EXPLORING HAND THERAPY DBA  
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### Liberty Sport Wrist



Use with or without the pads for three levels of support.

- Insert the 1/4" (6.4mm) pad for moderate support
- the 1/8" (3.2mm) pad for mild-flexible support.
- Use without the pads for mild support.

*This is a nice splint for our active patients or our sports patients. It is a Semi-flexible brace and provides solid support*

EXPLORING HAND THERAPY DBA  
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### Comfort Cool CMC RESTRICT



- **Provides gentle compression that helps relieve thumb discomfort associated with CMC joint arthritis and/or instability, tendinitis or repetitive motion.**
- **Contoured neoprene strap wraps around the thumb CMC joint and the first metacarpal for direct CMC joint support.**

*Comfortable splint provides direct support for the thumb CMC joint while allowing full finger function.*

**designed for OA and medial subluxation of the thumb CMC joint.**

EXPLORING HAND THERAPY DBA  
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- This concludes our STATIC SPLINTING course
- THANK YOU.

EXPLORING HAND THERAPY DBA  
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## **Static Splinting Course**

### **References**

- Colditz JC. Principles of Splinting and Splint Prescription. In Hunter JM, Mackin EJ, Callahan AD, Skirven TM, Schneider LH, Osterman AL, (eds). *Rehabilitation of the Hand and Upper Extremity*. 5th Ed, St. Louis: Mosby. 2002:2389-2408.
- Coppard B, Lohman H. *Introduction to Splinting*. Mosby Elsevier, St. Louis, 2008.
- Duncan RM. Basic Principles of Splinting the Hand. *Physical Therapy*. 1989; (69) 12:1104-1116.
- Fess EE, Gettle KS, Philips CA, Janson JR. *Hand and Upper Extremity Splinting: Principles and Methods*. 3<sup>rd</sup> Edition. Elsevier Mosby, St. Louis, 2005.
- Fess EE. A History of Splinting: To Understand the Present, View the Past. *Journal of Hand Therapy*. 2002;15:97–132.
- Hogan L, Uditsky T. *Pediatric Splinting. Therapy Skill Builders*. San Antonio, 1998.
- Jacobs ML, Austin N. *Splinting the Hand and Upper Extremity: Principles and Process*. Lippincott Williams and Wilkins, Baltimore, 2003.
- Journal of Hand Therapy*. Volume 15, Number 2, April- June 2002.
- McClure PW, Blackburn LG, Dusoid C. The Use of Splints in the Treatment of Joint Stiffness: Biologic Rationale and an Algorithm for Making Splints. *Physical Therapy*. 1994;74:1101-1107.
- Schultz-Johnson K. Splinting- A Problem Solving Approach. In Stanley BG, Tribuzi SM, (eds). *Concepts of Hand Rehabilitation*. FA Davis, Philadelphia, 1992;238-271.
- Van Lede, P, Van Veldhoven G. *Therapeutic Hand Splints, A Rational Approach*. Provan, Antwerp- Belgium 1998.