

July 2007 Splint
Focused Rigidity Resting Hand Splint

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Description of Splint:

A resting hand splint fabricated from non-latex, elasticized polyester Delta-Cast® Conformable tape. The splint is made from varied layer thicknesses of casting material, with the more thick or “rigid” areas of the splint located at the dorsum of the hand. The hand is sandwiched between two layers of casting material, which are secured with hook and loop closures. The metacarpophalangeal joints are positioned for maximum stretch, with the thumb in radial or palmar abduction, or the position of best stretch. The “rigid” portion of the splint at the dorsum of the hand provides stabilization to the joints while the hand is in a stretch position.

Materials Needed:

- One or two rolls 2 inch or 3 inch Delta-Cast® Conformable tape, depending on hand size.
- Delta Terry Net™ foam liner or sticky-backed foam padding.
- Delta Terry-Net™ Thumb Spica liner.
- Delta Terry Net™ fleece lining.
- Adhesive hook and loop closures.
- Cutting strips supplied by BSN Medical. 1 inch width Adhesive De-flex strips, 1/16 inch thermoplastic material, or X-ray film could be used instead of cutting strips.
- Finger length felt finger separators, 1/8 to ¼ inch thick, depending upon hand size.
- Paper tape.
- Bandage scissors.
- Basin of room temperature water.
- One pair of latex-free casting gloves.
- Non-stick pad.

Fabrication Instructions:

- 1) Place cutting strip next to the patient’s skin, bandage, or compression garment, extending from the tip of the small finger to the middle of the forearm. Place a second cutting strip along the radial side of the arm, extending from the tip of the index finger to the middle of the forearm. Secure cutting strips with paper tape if necessary.



2) Insert felt finger separators between all fingers.



3) Apply the Delta Terry-Net™ Thumb Spica liner.



- 4) Apply sticky-backed foam padding over bony prominences. Apply foam padding over the MCP joints as well.



- 5) Don casting gloves.



- 6) Cover table with non-stick pad.
- 7) Apply 4 layers of Delta-Cast® Conformable tape to the dorsum of the hand, extending from the fingertips to the middle of the forearm. These 4 layers create the “rigid” portion of the splint, which will stabilize the hand in its stretch position.



- 8) Dip remainder of casting tape roll into room temperature water and shake off excess water. Working distally to proximally, wrap casting material in one layer from the fingertips to the middle of the forearm, including the thumb. The casting material should be applied relatively tightly, stretched by 50 to 70 percent of the material length, and overlapping by half of the material width. The felt finger separators prevent the fingers from overlapping each other during the wrapping process, when the material is stretched over the hand and fingers.



- 9) Move the MCP's and thumb into the desired position of stretch, keeping the wrist in 30 degrees extension and in neutral alignment. Remove the felt finger separators. Mold the casting material for 2-3 minutes to achieve individual finger definition and a contouring fit of the cast to the hand and arm.



- 10)** The casting material will be set and rigid in approximately 5 minutes. Remove the cast by inserting the scissors underneath the padding and on top of the cutting strip on the ulnar side of the forearm. Cut along the middle of the ulnar side of the forearm and hand, to the fingertips. Slide the hand out of the cast. Additional cuts may be made to the radial side of the cast if it remains difficult to remove. Once the cast is off, finish cutting along the radial side of the cast to separate it into 2 pieces, keeping the enclosed thumb attached to the palmar side of the cast.



- 11)** Using the scissors, round the corners of the cast edges and trim away any areas that might cause discomfort or pressure points.
- 12)** Line the edges of the cast with Delta Terry Net™ fleece lining for patient comfort.





13) Apply the cast to the patient using adhesive hook and loop closures. Apply one strap to the cast at the fingertips, one strap to the wrist area, and one strap to the proximal forearm.



Advantages:

The two-piece design and elasticity of the material allow for a more precise and effective fit. The splint is easy for patients and hospital staff to don correctly, and does not migrate once applied. Cast areas that cause discomfort can easily be trimmed away or windowed. The cast can be washed in the dishwasher without affecting its shape. The cast is lightweight.

Disadvantages:

Fabrication of this cast requires intermediate casting skills. It also requires familiarity with these particular casting materials and focused rigidity principles.

Indications:

For the treatment or prevention of MCP extension contractures.

Precautions/Contraindications:

This cast is applied over grafts that appear mostly healed and durable. It is not appropriate for immediate post-op application due to the potential for shearing of grafts during cast application.

Clinical Reasoning: A useful alternative to conventional splinting where increased fit is required to prevent scar contracture in difficult hand burns.

Level of Therapist Skill / Specialization Required: Intermediate to Advanced skills and familiarity working with casting material is a plus

Total Time Required to Fabricate Splint / Device: 45 minutes – 1 hour

If you have any questions about the design of the splint or comments about the fabrication, please email Lisa at: lisa.k.rindal@healthpartners.com