

April 2006 Splint

Simple Static Progressive Opposition Splint

Submitted by: Lisa Forbes Duchart, BMR, OT (Based on a design by Carol Zimmerman, OT, CHT)
Clinical Specialist in Burns Health Science Center Winnipeg, Canada



Description of splint:

Simple static progressive opposition splint for opposition of thumb to 4th and 5th digits

Materials used/needed:

- * Aquaplast splinting material
- * Aqua-tubes
- * Pressure glove (initially used pre-fab Norco Glove – modified for amputations; eventually used a custom made Bio Concepts pressure glove)
- * Standard 1 inch Hook and Loop Velcro
- * Elastic strap

Fabrication instructions:

1. Fit patient with pressure glove – modify for amputations, if required
2. Mold radial and ulnar parts of splint to the dorsum of the hand:
 - a. Clear dorsal wrist crease
 - b. Include the MCP's distally
 - c. Position the 2 parts of the splint so that the space between them is at the 3rd MC
 - d. **Be sure to mold the splint to incorporate the arches of the hand
3. Add the Aqua-tubes (they act as the spring for the splint)

4. Fasten the splint onto the pressure glove (use Loop Velcro sewn to the pressure glove and Hook Velcro fastened to the inside of the splint)

**it is NB that the splint is fastened to the glove, or the splint will shift, disrupting the forces

5. Add Velcro to secure the splint to the hand
6. Add the elastic strap.

Advantages:

Quick and easy and to fabricate (approximately 45 minutes with an assistant sewing pressure glove).

Disadvantages:

Improper molding of the splint may cause compression of the MC's (see precautions).

Indications:

This splint was used with a patient who sustained a severe electrical burn resulting in amputation of index and middle digits and required a palmar flap for substantial tissue loss. The goal of the patient was a functional grasp using remaining digits.

Precautions/Contraindications:

It is extremely NB that when this strap is fastened, the splint acts to oppose the thenar and hypothenar eminences and NOT compress the MC's together in a linear fashion. The splint may need to be remolded/adjusted until true opposition is achieved when strapped.

Outcome Measures:

Distance of thumb tip to 4th digit tip and thumb tip to 5th digit tip was measured during weekly therapy sessions and functional grasp of various sized objects, items and ADL activities were utilized with this splint. After 3-4 weeks, the patient was able to touch the tips of 4th and 5th digits to his thumb, and achieved a functional grasp (however, could not grasp small objects).

Total Time Required to Fabricate the Splint / Device:

Approximately 45 minutes (with an additional assistant performing the sewing on the glove)

Level of Therapist Skill / Specialization Required: Intermediate

If you have any questions about the design of the splint or comments about the fabrication, please email Lisa at LForbes-Duchart@exchange.hsc.mb.ca