

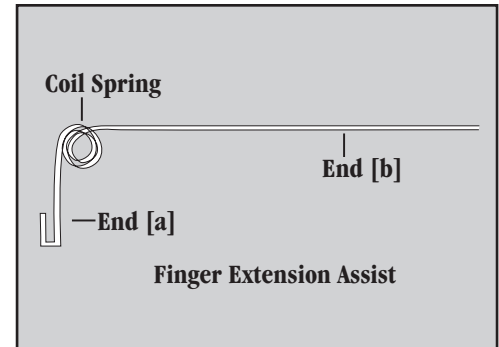


Indications

Use this specially shaped coil spring to provide MP extension assistance to various splint bases for such conditions as radial nerve palsy, incomplete plexus trauma or spinal cord injury. Exterior assist is meant to be used only several hours a day to aid with functional activities.

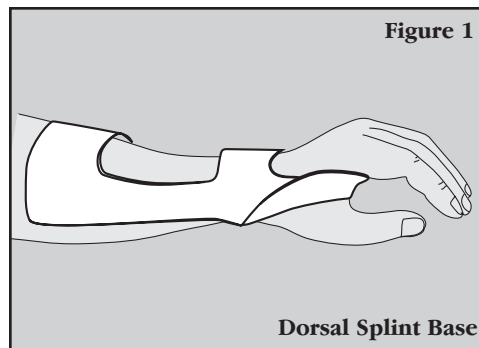
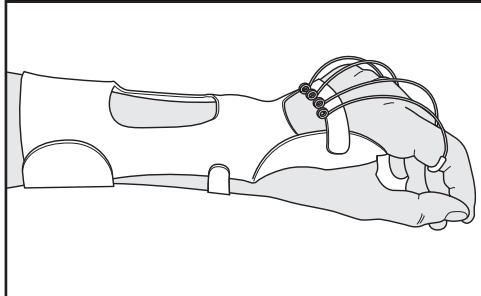
Materials needed

- Orfit® Finger Extension Assist (includes 10 wires/package) NC33665
- Precut dorsal cock-up splint base, i.e., NC33752, NC37521, NC33765. (for Forearm Based Splints)
- Piece of $\frac{1}{8}$ " (3.2mm) and $\frac{3}{32}$ " or $\frac{1}{16}$ " (2.4mm or 1.6mm) thick non-coated, thermoplastic, which becomes sticky material when warm.

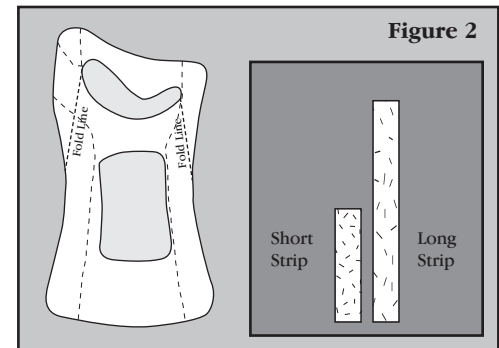


Fabrication Instructions – Two splint designs are provided (Forearm Base and Hand Base).

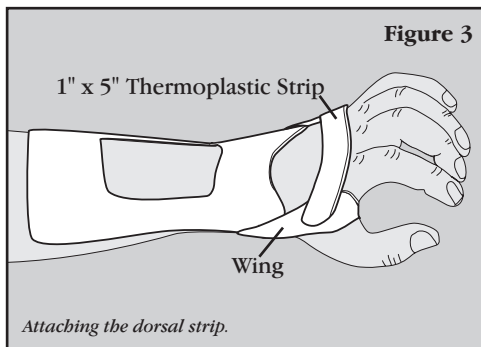
Forearm Base Radial Nerve Splint



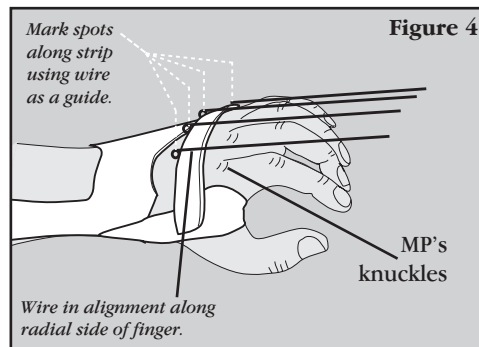
1. Form the dorsal cock-up splint as the base splint (Figure 1). NOT INCLUDED



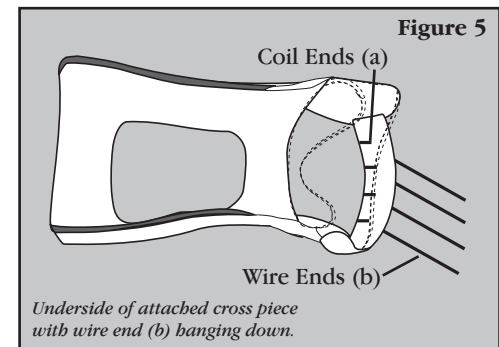
2. Cut a 1" x 5" (2.5cm x 12.7cm) strip out of $\frac{1}{8}$ " (3.2mm) thermoplastic material and a 1" x 3" (2.5cm x 7.6cm) strip out of thinner $\frac{1}{16}$ " or $\frac{3}{32}$ " (1.6mm or 2.4mm) thermoplastic material (Figure 2).
3. Apply lotion, liquid soap, or water to the dorsal hand to prevent adherence by the sticky splint material.



4. Use heat gun to dry heat both lateral folded wings of the splint base. Dry heat the 5" (12.7cm) strip and carefully place it lightly across the dorsal hand, $\frac{1}{2}$ " (1.3mm) proximal to the MP knuckles. Press the ends of the strip firmly into the wings of the dorsal splint to make a strong bond. Trim any material that overhang the sides of the splint (Figure 3).

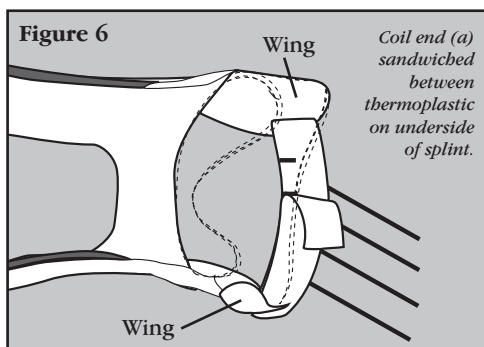


5. Using one of the wires as a guide, measure and mark spots along the proximal edge of this cross piece. Use the wire to project out from each mark to the radial side to each MP knuckle. These marks are where the wires are to be fasten (Figure 4).

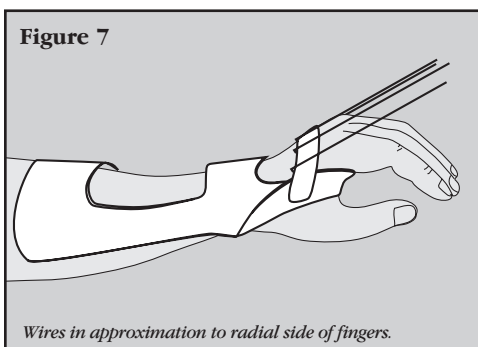


6. Remove the splint and turn upside down. Dry heat the coiled end (a) of one of the wires until hot. Press this heated end into the underside of the attached cross piece at one of the marked spots, leaving the end (b) hanging towards the floor. The heated coil should melt into the thermoplastic material along the edge. Allow it to cool. Repeat as needed for the remaining wires for the involved fingers (Figure 5).

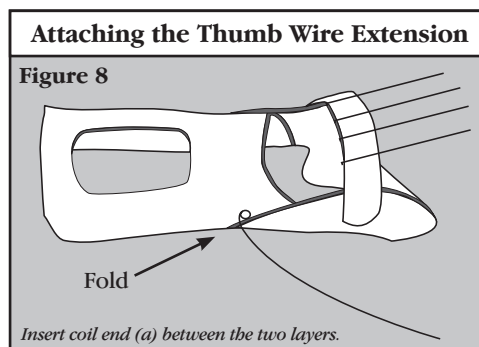
SpringWire™ Extension Assist – Forearm Base Radial Splint



7. Dry heat the shorter thermoplastic strip and the volar surface of the newly made coiled cross piece until soft. Press them together, sandwiching the coil ends (a) between the two layers of thermoplastics (Figure 6). Reheat carefully, if needed, to bond the coils more firmly into the thermoplastics.

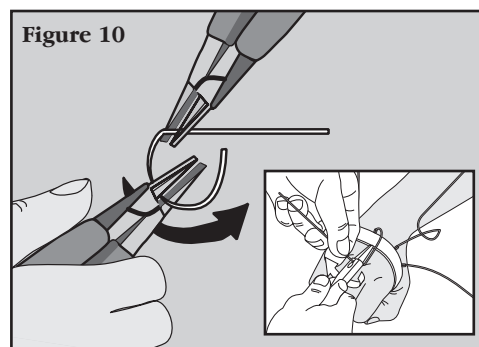
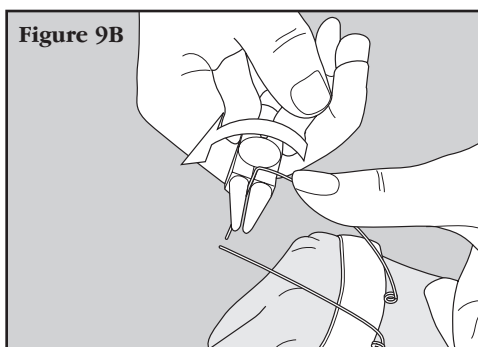
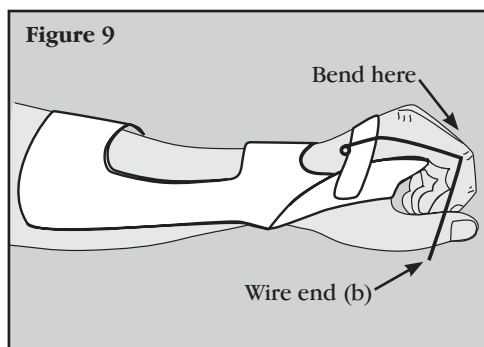


8. Place the splint on the hand. Gently adjust the wires so they are in alignment with the radial side of each MP (Figure 7). Allow splint to harden completely.

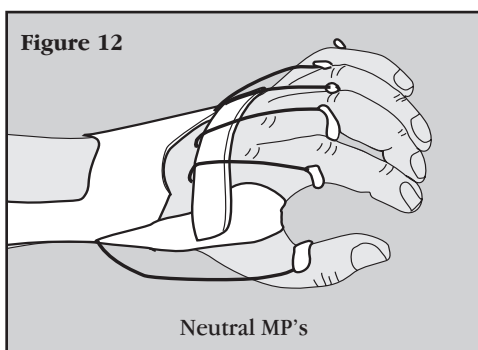
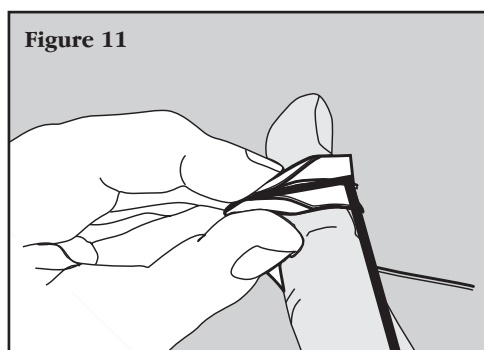


9. To attach the thumb outrigger, heat the fold of the splint's radial wing so that it opens up and the coil end (a) can be inserted between the two layers (Figure 8). Align the wire end (b) along the inside of the thumb (Figure 8).
10. While still warm, dry heat and press the layers together to embed the coil end into the thermoplastic. Cool completely.

Making the Finger Troughs



11. Measure for the initial wire bend by fully flexing the fingers and laying the wire alongside the flexed fingers. Arch/bend the wire just slightly. Make a 90° bend in the volar direction at the point where the wire lies next to the PIP (Figure 9).
12. Use rounded needle nose pliers to form a finger trough that wraps 180° around the volar surface of the finger. Cut the wire where the trough ends on the ulnar side of the finger. (Figure 10)



13. Lay a wet-heated strip of thermoplastic on the trough. Pinch the material around the wire. Trim and flatten. Repeat for all troughs (Figure 11).

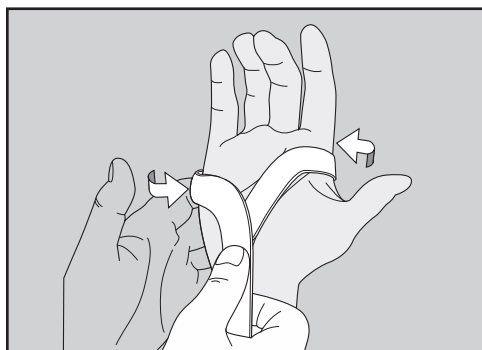
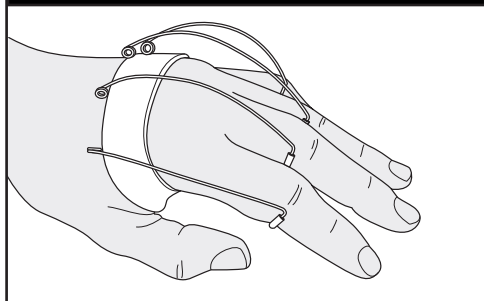
Optional: Strip a 1.2mm thick electrical wire and slide this insulation around the finger rings for padding.

Note

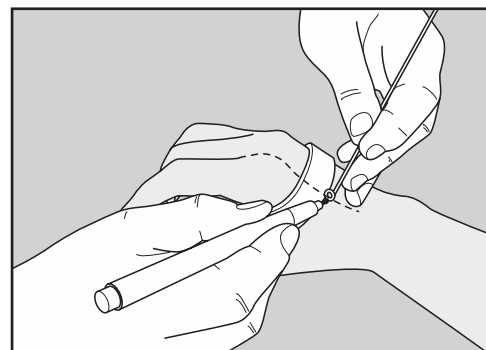
If coil springs are correct, they will hold the MP's in neutral. If they hyperextend or flex the MP's too much, adjust the amount of arch in the wire for the fingers.

SpringWire™ Extension Assist – Hand Base Radial Splint

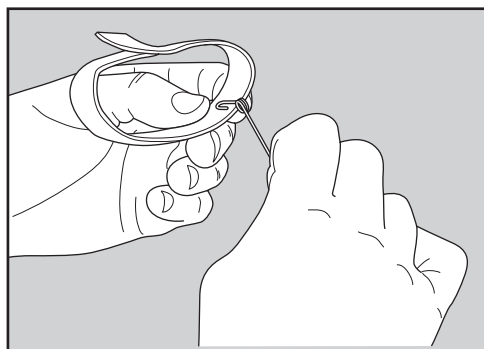
Hand Base Radial Nerve Splint



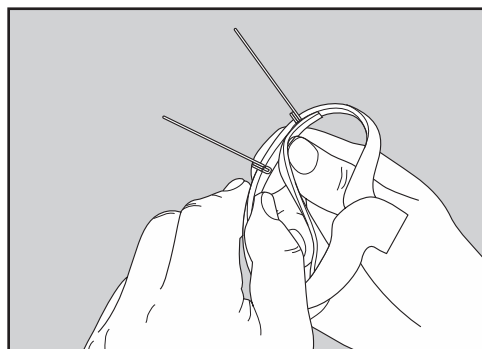
1. Using 1/8" non-coated material, mold a 1" metacarpal ring around the palmar section, resting proximally on the carpals and dorsally across the middle of the back of the hand.



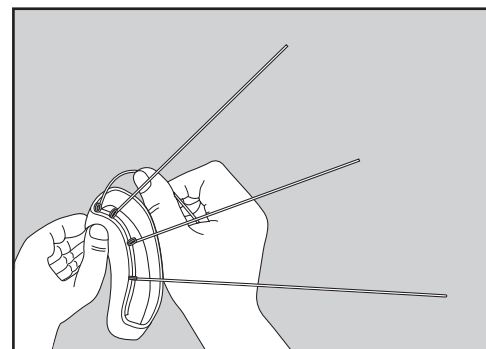
2. Mark the place where the various extension springs are to lie, which is directly opposite the web spaces between each finger.



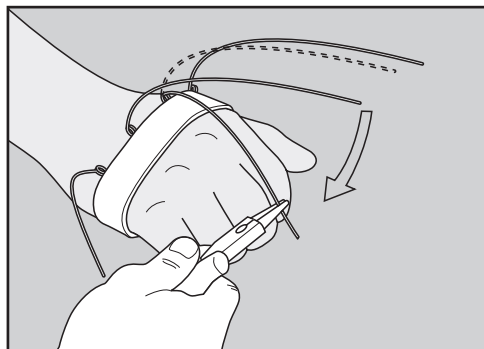
3. Heat the U-shaped spring arm and stick it at the bottom into the plastic. Attach all the springs in this manner.



4. Briefly heat the underside of the metacarpal ring and cover with a thin layer of non-coated thermoplastic. Leave to harden completely.



5. Bend the long spring arms into a bow-like shape.



6. Have the patient make a fist, push the spring between the knuckles and mark the length of the proximal phalanx.

Continue by following steps 11-13 of the *Forearm Base Radial Nerve* instructions.

To be used under the guidance of a qualified medical professional.



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