A Low-Profile Dorsal Dynamic Splint

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This dorsal dynamic splint was designed to provide grasp release and joint mobilization during recovery from radial nerve injuries. The low profile of the outrigger is the primary feature of this design. The force provided by the half-inch (1.25 cm) wide elastic acts on the metacarpophalangeal (MCP) joints to provide an extension assist when flexion is actively present. The elastic should support the MCP joints at 20 degrees of flexion, but allow full, active range of motion in flexion. Thus the patient will be able to pick up and release objects during the performance of functional tasks.

Made of Orthoplast® (Johnson & Johnson), Velcro®, and half-inch (1.25 cm) drill rod wire, the basic pattern is similar to that for a dorsal wrist cock-up splint (Figure 1). Care should be taken to dome over the ulnar styloid to avoid skin breakdown in that area.

The drill rod wire is cut, bent, and attached over the dorsal distal end of the splint with a piece of Orthoplast® (Figure 2). The elastic is adjusted to allow the MCP joints to rest in 20 degrees of flexion, avoiding hyperextension (Figure 3). After measuring and sewing the elastic slings, slide them over the distal ends of the wire prongs. The prongs are then capped with a piece of Orthoplast® to prevent injury from the sharp wire ends. The wrist is supported in a functional position. Velcro closures are attached with Weldwood® Contact Cement (Figure 4).