Relative Motion Orthoses

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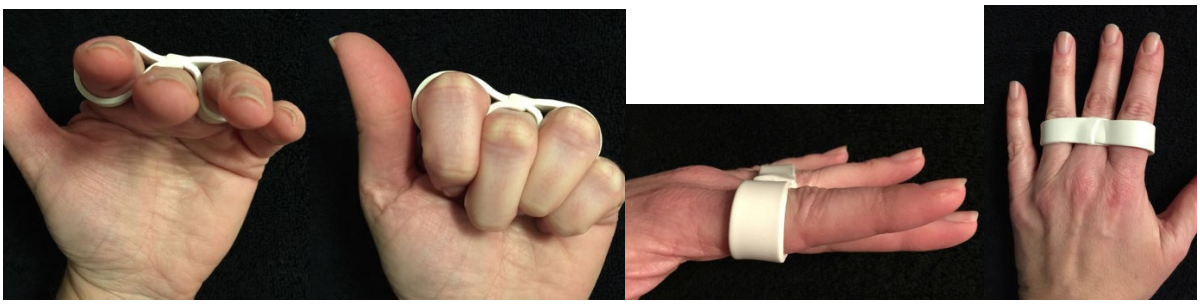
The use of Relative Motion (RM) Orthoses is a current trend in Hand Therapy. These devices were originally designed years ago and known as a 'yolk splint'; used for treatment of extensor tendon injuries in combination with a wrist orthosis. Most recently they have received much attention at national and international meetings as an intervention that can be utilized for a multitude of diagnoses including extensor tendon injuries (central slip, sagittal band, repairs), trigger finger, s/p Dupuytren's release, stiffness, tendon adherence to name a few. There are 2 specific types of RM orthoses: RM flexion and RM extension with the terms flexion/extension relating to the position of the involved MCP joint.

RM flexion orthoses can be utilized to encourage **extension** at the PIP joint by restricting MCP extension and redirecting active extension effort to PIP joint. This can be a very effective orthosis to address active PIP extension lags (Passive ext>Active ext). Consider utilizing a piece of elastic therapeutic taping beneath the orthosis to further encourage maximal active extension. Using this device throughout the day can retrain the hand to avoid compensatory MCP hyperextension. *Photos of RM flexion orthosis to address Middle Finger:*



RM extension orthoses can be utilized to encourage **flexion** at the PIP joint by restricting MCP flexion and redirecting flexion effort to PIP/DIP joints. This can be an effective orthosis to address lack of both active and passive PIP flexion deficits. Restricting MCP flexion simulates 'blocking exercises' and can give the patient the feedback required to obtain maximal flexion distally, encouraging tendon glide and end range motion.
Photos of RM extension orthosis to address Middle Finger:

Fabrication Tips:

- Choose thermoplastic with no coating to allow for permanent closure of 'rings' (Manosplint Carolina)
- Consider not using strapping to simplify use of orthosis
- Utilize a solid material (versus perforated) to prevent uneven edges
- Keep width of thermoplastic as wide as possible, without impeding motion at MCP and PIP joints, to maximize pressure distribution
- When addressing border digits (index or small fingers) – may need to include all digits in design
- During fabrication process be sure to keep 'rings' large enough to allow easy donning/doffing of orthosis – especially if edema is present
- Using a pencil at the level of the middle phalanx during the molding process can be helpful to obtain optimal MCP position
- If slippage is an issue – consider lining a portion of the orthosis with a nonskid product such as Microfoam tape

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