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Analyzing the effects of a dynamic or static orthosis after radical nerve injury using the Nine-Hole Peg Test

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Objective: The radial nerve is a commonly injured upper extremity peripheral nerve. The inability to extend the wrist results in the loss of hand function and dexterity that affects patients' ability to perform their activities of daily living. There is not strong evidence to support orthosis efficacy to improve dexterity.

The purpose of this study was to evaluate whether a static or dynamic orthosis resulted in improved hand dexterity when assessed with the 9-HPT after radial nerve injury.

Materials and Methods: Twenty three participants who suffered radial nerve palsy participated in the study. The test was repeated three times for each participant, first without the orthosis, and then wearing the static orthosis, and finally wearing the dynamic orthosis. The 9-HPT was used as the outcome measure.

Results: The distribution of the 9-HPT times (sec) was of 35.7 ±4.9 without a wrist orthoses, and decreased with the use of the static and the dynamic orthoses to 33.7 ±4.8 ($P<0.01$) and 24.6 ±2.6) ($P<0.01$) respectively.

Conclusions: The use of a dynamic orthosis after radial nerve palsy can provide the patient with greater manual dexterity when compared to the use of a static orthosis.