

# Bracing Alone versus with Hand Therapy for the Early Management of Thumb Carpometacarpal Arthritis: A Prospective Comparative Study

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## INTRODUCTION:

Bracing alone or with hand therapy (+HT) are cornerstones of nonoperative management for symptomatic thumb carpometacarpal (CMC) arthritis, yet comparative data are scarce. We prospectively evaluated the early utility of these approaches with a pragmatic, patient-centered design. We hypothesized patients choosing +HT would derive greater benefits than those choosing bracing alone.

## METHODS:

Patients newly managed for symptomatic thumb CMC arthritis had a standard clinical evaluation. We recommend all symptomatic patients trial bracing and discuss our standard-of-care option for +HT. After making a shared management decision, we invited patients into the study. Patients choosing +HT received our standardized prescription that includes our care algorithm and images/instructions. We electronically collected data at baseline and 1, 2, 6, and 12 months. Patient-reported outcomes measures (PROMs) were the brief Michigan Hand Questionnaire (bMHQ); PROMeasurement Information System (PROMIS) Pain Interference (PI) module; three visual analog/numerical rating pain sub-scales for a) current, b) activity-related, and c) worst pain; and treatment choice expectation, satisfaction, and regret questionnaires. We used bivariate mixed effect regression analyses to compare continuous variables between groups.

## RESULTS:

Sixty-six patients enrolled (bracing alone 25, +HT 41; mean age 62 years (SD 9.5); 4:1 females:males), with variable retention (Figure 1). There were no baseline differences between groups. The bracing alone group had significant improvements compared to baseline for bMHQ (Figure 2) and PROMIS PI at 2 months and all pain sub-scales by either 2 or 6 months. The +HT group had significant improvements for bMHQ and PROMIS PI at both 1 and 2 months, and for all pain sub-scores by 1 or 2 months. At 1 month, the +HT group had improved bMHQ scores relative to bracing; at 6 months, the bracing group had comparatively lower PROMIS PI values. There were no other significant PROMs differences between groups at any other timepoints. At 12 months, patients had moderate initial treatment choice satisfaction (57% bracing; 62% +HT), with ~56% in both groups indicating they would be extremely likely to recommend the same to others and none reporting regret.

**DISCUSSION AND CONCLUSION:** Patients choosing +HT for the initial management of their symptomatic thumb CMC arthritis had some earlier benefits compared to their baseline measures than those choosing bracing alone. Most patients reported reasonable degrees of contentment and likelihood of recommending either bracing alone or +HT to others for their initial care. We need larger cohorts with better retention to improve comparative statistical power for these options.

Figure 1. Patient Response Rates at Each Study Timepoint

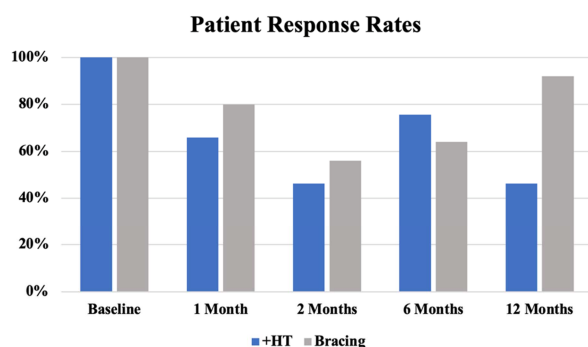


Figure 2. Bivariate Estimates for Brief Michigan Hand Questionnaire (bMHQ)

	Est.	Lower	Upper	p-value
Pairwise Comparisons Between Baseline Values and Each Subsequent Timepoint				
Hand Therapy: 1 Month - Baseline	9	4	14	<0.05
Hand Therapy: 2 Months - Baseline	9	4	15	<0.05
Hand Therapy: 6 Months - Baseline	1	-4	6	>0.05
Hand Therapy: 12 Months - Baseline	2	-4	8	>0.05
Bracing: 1 Month - Baseline	6	0	13	>0.05
Bracing: 2 Months - Baseline	15	8	22	<0.05
Bracing: 6 Months - Baseline	15	7	22	<0.05
Bracing: 12 Months - Baseline	7	0	14	<0.05