



Tracking Functional Changes Best Evaluates Early Symptomatic Thumb Carpometacarpal Arthritis Progression

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Objective

- (1) Examine how strength, range of motion and patient-reported outcome measures change over 36 months in patients with early thumb carpometacarpal (CMC) arthritis (OA).
- (2) Determine if the changes in these variables correlate with radiographic progression over the 36 months in patients with early CMC OA.

Methods

- 91 patients with symptomatic early CMC OA were recruited to participate in a longitudinal trial that was designed to prospectively monitor the CMC as the degenerative disease progresses
- Data was collected at baseline, 18 months, and 36 months.
- Difference in strength, range of motion and patient-reported measures (PRWHE and AUSCAN) were measured between CMC OA patients at baseline and at the follow-up visits.
- Patients were categorized as patients with radiographic progression or not.

Category	Variable
Strength (N)	Maximum grip
	Lateral key pinch
	3-finger pinch
	2-finger pinch
Thumb Range of Motion	Retroposition
	Flexion
	Abduction
	Functional opposition
	Lateral deviation
Patient-Reported Outcomes	PRWHE (Total)
	AUSCAN (Pain)
	AUSCAN (Function)

Results

- At 18- and 36-month follow-up visits, patients with CMC OA had significant losses in strength and range of motion, but there were no statistically significant changes in their patient reported outcome measures.
- When comparing patients with radiographic progression of CMC OA to those patients without radiographic progression:
 - 18 months: there was a significantly greater decrease in lateral key pinch strength in patients with radiographic progression. There were no other significant difference in strength, patient-reported, and range of motion at 18-month follow-up.
 - 36 months: there were no significant differences in any of the variables we examined when comparing patients with and without radiographic progression.

Conclusion

- Early symptomatic CMC OA progression is not reliably detected based on evidence of radiographic progression (i.e. modified Eaton stage) alone at 18- and 36-month follow-up.
- Our data supports that progression of early CMC OA is most reliably detected by evaluating functional parameters.
- We will continue following our cohort of symptomatic subjects with follow up imaging, strength measurements, and surveys of pain and function to further examine the biomechanics and natural history of thumb CMC OA progression.