

## [AB1029-HP] A CUSTOM-MADE SPLINT IS USEFUL IN THE TREATMENT OF OSTEOARTHRITIS OF THE TRAPEZIOMETACARPAL JOINT

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**Background:** Osteoarthritis (OA) of the trapeziometacarpal (TMC) joint causes pain and disability at thumb and at whole hand. Custom-made splints are useful in the conservative treatment of TMC joint OA, as they may reduce pain and post-pone surgery (1-4).

**Objectives:** to evaluate the efficacy of a custom-made splint in patients with symptomatic TMC joint OA.

**Methods:** Fifty patients with symptomatic TMC joint OA, radiological stage I-III according to Eaton (1), not treated with surgery (44 women, 6 men, mean age: 60.72±8.7 years; 23 manual workers, 27 no manual workers; 27 with right, 11 with left, 12 with bilateral TMC joint OA) were enrolled in an open study lasting 12 months and treated with a "butterfly" thermoplastic material custom-made splint to be worn 16 hours/day (8 during the day, 8 during the night) for 30 days.

Patients were evaluated at the enrolment (T0), at 1st month (T1) and at 12th month (T2) since splint application, for pain by number rating scale (NRS) 0-10 (0= worst condition, 10= best condition). At T0 and T1, manual muscle examination (range 0-5, with 0= absence of muscle movement, 5= maintaining of the position against a strong pressure) and Jamar dynamometer (mmHg) were used to assess hand strength, pinch gauge to evaluate pinch strength (kg) and Dreiser test to test hand disability (range 0-30).

**Results:** In our patients with symptomatic TMC joint OA, after the application of a custom-made splint, pain improved at T1 in respect to T0 (2.6±1.3 versus 6.0±3.2) and at T2 in respect to T0 (3.2±1.8 versus 6.0±3.2) (p<0.0001 in both cases); at T2, pain was not different from T1 (p=NS).

At T1 in respect to T0, we showed improvement of muscle strength, assessed by dynamometer (p>0,0001), pinch strength, (p<0.0001) and Dreiser score (P=0.001) (table).

Table 1. Items of patients with symptomatic TMC joint OA before (T0) and after (T1) treatment with A custom-made splint

	T0	T1	P
Pain (by NRS* 0-10)*	6.0±3.2	2.6±1.3	<0.0001
Muscle Strength (by manual muscle examination**)	4.4±0.6	4.6±0.7	NS
Muscle Strength (by dynamometer) (mm Hg)	37.5±12.5	49.7±15.4	<0.0001
Pinch Strength (pinch gauge) (kg)	4.5±2.3	5.2±2.8	<0.0001
Dreiser test	6.8±2.9	4.4±2.0	0.001

Legend. \*NRS: number rating scale; \*\*Evaluated on opponens pollicis, flexor pollicis brevis, flexor pollicis longus, palmar interossei and lumbricali muscles.

**Conclusion:** In our patients, the application for 1 month of a custom-made splint results to be an efficacious conservative treatment in symptomatic TMC joint OA, by improving pain (with the improvement persisting also at 12 months), manual strength, pinch strength, and hand disability.

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