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The effect of compression gloves in hand Osteoarthritis: A pre-post test trial

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Background: Compression gloves are used in Hand Osteoarthritis (HOA) to reduce pain (day and/or night), stiffness and improve hand function. A systematic review identified only two trials (sample sizes n= 2 and 5), with inconclusive results [1]. The commonest compression gloves provided in the UK are Isotoner gloves. The aim was to evaluate effects of compression gloves on hand pain, stiffness and function.

Methods: A pre-post-test study was conducted. Participants were recruited from 10 Rheumatology Occupational Therapy (OT) departments; had a doctor diagnosis of HOA and no steroid injections or new/changed medication within the previous 4 weeks. Assessments at 0 and 4 weeks included: hand pain on activity and at night, hand stiffness (all 0-10 numeric rating scales: none to very severe); Measure of Activity Performance of the Hand [MAP-HAND, 2]; Grip Ability Test [GAT, 3]; and composite finger flexion to distal wrist crease (CFF). OT assessors were trained in standardised hand assessment procedures. Assessor inter-rater reliability (ICC,10) was good : CFF (0.76-0.93); GAT (0.98) [4]. All participants received Isotoner ¾ finger gloves. Data were analysed using paired t-tests and effect sizes calculated using eta-squared (values of 0.14+ = large effect [5]).

Results: 30 people with HOA participated: 28 women, 2 men); average age = 61.23(SD 8.35) years; time since diagnosis 4.71(SD 6.47) years. (Right hand data presented below).

Mean(SD)	0 weeks	4 weeks	p	Effect size
Hand pain on activity	7.30 (1.61)	6.22 (1.99)	0.008	0.24
Hand pain at night	6.56 (2.10)	4.19 (2.20)	0.000	0.45
Hand stiffness	7.22 (1.74)	5.85 (2.14)	0.01	0.44
MAP-HAND	25.33 (7.08)	24.03 (7.87)	0.14	0.07
GAT	40.05 (12.04)	33.14 (13.10)	0.000	0.50
CFF Index (cms)	6.84 (2.17)	6.44 (2.33)	0.05	0.14
CFF Middle (cms)	5.72 (2.23)	5.29 (2.25)	0.03	0.17

Conclusion: This study demonstrates, for the first time, that compression gloves used by people with HOA led to significant improvements in: pain during the day and night, stiffness, hand function and finger motion, with moderate to large effect sizes. A limitation was the lack of a control group meaning we cannot be certain benefits were due to compression gloves. A randomised controlled trial needs to be conducted, including longer follow-up.

1 Hammond et al (2014) Rheumatology 53(suppl 1):i125; 2. Paulsen et al (2010) J Rehabil Med 42:636-644; 3. Dellhag & Bjelle (1995) J Rheumatol 22:1559-65; 4. Hammond et al (2014) Rheumatology 53(suppl 1):i124; 5. Cohen (1988) Statistical power for the Behavioural Sciences (Ehrlbaum).