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A systematic review of compression gloves in arthritis

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Abstract:

Background: Compression gloves (CG) are provided in rheumatoid arthritis (RA), inflammatory arthritis (IA), systemic lupus erythematosus (SLE) and hand osteoarthritis (OA) to relieve pain and swelling at night, reduce stiffness and improve hand movement and function the following morning. Gloves are usually fingerless (ie stop mid-finger) and are provided for day use for similar reasons. Compression is thought to increase blood flow and remove extracellular fluid, which increases warmth, reduces stiffness and pain and improves finger joint motion. No systematic evaluation has been conducted. The aim of this systematic review was to examine the effectiveness of CG in reducing hand symptoms and improving hand function in adults with RA, IA, SLE or hand OA.

Methods: Seven databases were searched: AMED, CINAHL, MEDLINE, The Cochrane Library, PROQUEST, PubMed and Web of Science to October 2013. Randomised controlled trials (RCTs) were assessed for methodological quality using the 11 item PEDRO scale.

Results: Eight studies, published between 1971 and 1992, were identified. Five were excluded as: a case report (n=1), an observational study (n=1); randomised comparisons of two types of CG (n=2); and one recoded results into, 'improved, no change or worsened' with no explanation for recoding criteria. The remaining three were crossover trials, comparing night use of full-length finger CG (either nylon and spandex or thermal yarn and spandex) with a placebo (either a close fitting, loose fitting or thermal) glove. PEDRO scores were 1 to 6. Sample sizes ranged from 8 to 23 in RA; and one study included 5 with hand OA. All reported completer analysis only. Objective measures included 2nd-5th proximal phalangeal (PP) or proximal interphalangeal joint (PIPJ) circumference (mms), grip strength (adapted sphygmomanometer), composite finger flexion (CFF) and dexterity. Subjective measures included pain and stiffness. In the remaining three studies, all reported a significant reduction in PP or PIPJ circumference in RA. There were no differences in swelling, grip strength, CFF or dexterity in RA or hand OA. Two reported significant improvements in pain and stiffness in RA. However, one reported the thermal placebo had similar effects, suggesting CGs are not essential to reduce pain and stiffness.

Conclusions: The few, small studies identified were generally of poor quality and evidence for effectiveness of compression gloves at night is inconclusive in RA. There is no evidence as yet for day use in RA or night/day use in hand OA, SLE or IA. Medication regimens and CG manufacture have changed since studies were conducted. Further research is required.