

## Abstract

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**Background/Purpose:** Osteoarthritis (OA) is a painful, progressive disease of synovial joints characterised by deterioration of cartilage and bone and inflammation. Osteoarthritis of the knee and hip joints is common and a major cause of musculoskeletal pain and disability in older adults. In addition to conventional pharmacological management, people with OA often use complementary and alternative treatments. In vitro studies find ginger extract inhibits the inflammatory enzymes COX-2 and 5-lipoxygenase. Ginger seems to be absorbed after topical application by a compress that provides heat and relaxation therapy. European hospitals specialising in traditional therapies routinely use ginger compresses applied to the lower back for treatment of inflammatory conditions. In order for topical ginger treatments to be used more widely, a pre-packaged ginger patch was developed. This pilot study assessed the effects of the ginger compress and standardised ginger patch and the potential effect size of the treatments.

**Methods:** Twenty adult volunteers with osteoarthritis aged 35 – 90 years, recruited from medical centres and the community, were randomly assigned using a block size of 4, to ginger treatment with ginger compress (GC) or ginger patch (GP). Both treatments were provided daily for seven consecutive days at medical centres by trained nurses. While lying supine either a warm GC or GP was secured on the mid back for 45 minutes. All participants were offered a supply of the GP for self-treatment at home for the following 24 weeks. The 5-item modified Health Assessment Questionnaire (MHAQ) was used to assess pain, global effect, fatigue, functional status and health satisfaction. The MHAQ was completed once a week for 3 weeks and 4 weekly for 24 weeks.

**Results:** Participants (mean age 64 years, 80% female) had a mean pain score at baseline of 2.1, with 3 being the most extreme pain. Most participants had OA of the hips and/or knees (17/20, 85%). All participants had a reduction in pain one week after ginger therapy, with a mean pain score 1.1. A comparison of MHAQ scores for the GC and GP groups show a strong correlation, with  $p = 0.98$  at baseline and  $p = 0.97$  at 7 days. After seven days of ginger treatment the MHAQ mean total scores for all participants for pain, fatigue, global effect and functional status were reduced by 48%, 49%, 40% and 31% respectively, with scores progressively declining over the following 24 weeks. Pain, fatigue, global effect and functional status were all statistically significantly reduced from baseline to 7 days, 12 weeks and 24 weeks after therapy ( $p < 0.001$ ). Health status satisfaction improved for both GC and GP, with 80% dissatisfied 7 days before therapy to 70% satisfied 7 days after therapy and 82% satisfied 24 weeks after therapy.

**Conclusion:** This pilot study suggests ginger therapy using both the GC and GP has the potential to relieve symptoms and increase independence for people with osteoarthritis. These data will be utilised in the design of a randomised placebo-controlled trial of the GP.