Hydrotherapy and Tai Chi each provide clinical improvements for older people with osteoarthritis

Synopsis


**Question:** For people with osteoarthritis of the hip or knee, do hydrotherapy or Tai Chi give worthwhile improvements in pain and physical function? **Design:** Randomised, 3-arm, parallel, controlled trial with concealed allocation, assessor blinding, and intention-to-treat analysis. **Setting:** Tertiary hospital, Sydney, Australia. **Participants:** Adults aged 59–85 years, with osteoarthritis of the hip or knee meeting American College of Rheumatology criteria, recruited through advertisements, social clubs for older people, and referral from local general practitioners and rheumatologists. 55 participants were randomised to hydrotherapy, 56 to Tai Chi, and 41 to a control group. **Interventions:** Participants in either of the two treatments groups were required to attend classes (max 15 participants) for one hour, twice per week for 12 weeks. Hydrotherapy involved lower limb exercise in waist-deep water, including walking, free-standing and bar work, running, and stairs. Tai Chi included a 10-minute warm-up followed by a modification of 24 forms of Sun style Tai Chi. Participants were allowed to purchase, if they desired, a Tai Chi video to assist with home practice. The control group were wait-listed for 12 weeks and then randomly allocated to one of the two treatments. **Outcomes:** The primary outcomes were pain and physical function measured by the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Secondary outcomes included the SF-12 general health status questionnaire; the Depression, Anxiety and Stress Scale of psychological well being; the participant’s global assessment of treatment effectiveness and current status of the joint that had originally been the most painful; and physical performance measures (50-foot walk test, stair climb test, and Up and Go test). Outcomes were assessed at the end of the 12-week treatment period, and 12 weeks later. **Results:** At the end of treatment, pain had improved by 6 points (95% CI 0 to 13) more in the hydrotherapy group than the control group. Similarly, physical function had improved by 10 points (95% CI 4 to 14) more in the hydrotherapy group and by 10 points (95%CI 3 to 17) more in the Tai Chi group. The hydrotherapy group also showed significant treatment benefits in the physical component summary of the SF-12 and the three physical performance measures. Twelve weeks later, comparisons with a no-treatment control group were not possible, but the outcomes that had improved significantly during treatment had mostly been maintained. **Conclusion:** Older people with osteoarthritis of the hip or knee can obtain clinically worthwhile improvements in physical function from hydrotherapy or Tai Chi.

Commentary

This Australian study investigated 12 weeks of hydrotherapy or Tai Chi classes for sedentary older people with chronic osteoarthritis of the hip or knee. The study concurs with the growing body of knowledge suggesting that a variety of exercise-based interventions may be beneficial to reduce pain and improve physical function in this client group.

There have been relatively few high quality studies investigating hydrotherapy for osteoarthritis. Bartels et al (2007), in their Cochrane review, concluded that while aquatic exercise provided short-term beneficial effects for people with hip or knee osteoarthritis, the longer term benefits had not been investigated. The current study demonstrated significant improvements in pain, function, walking speed, and stair climbing over 12 weeks of hydrotherapy and these outcomes were largely maintained for the next 12 weeks. A strength of the current study is that the hydrotherapy protocol is outlined clearly and may be reproduced by any organisation with hydrotherapy facilities and a physiotherapist.

This is one of the few studies investigating Tai Chi for people with osteoarthritis. Compared to the no-intervention control, the 12-week Tai Chi exercise significantly improved function and stair climbing and these outcomes were largely maintained for a further 12 weeks. Once again, the Tai Chi program could be replicated by an organisation if the video is purchased and Tai Chi instructors are available.

A comparison between the exercise modes was not part of the current paper; however, effect sizes were larger for the hydrotherapy group. Adverse events were uncommon with only 2 of 111 participants withdrawing because of an exacerbation of pain (2%). Therefore, while both modes of exercise have positive effects with few adverse effects, further analysis is needed to determine if one mode is superior to the other. In the meantime, client preference, availability of a hydrotherapy pool, or access to qualified Tai Chi instructors may determine which mode is chosen with a particular client.

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References