Land-Based Exercise vs. Hydrotherapy in Osteoarthritis

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Abstract

Osteoarthritis (OA) is the most common form of arthritis. It results in joint pain, stiffness, reduced mobility, and decreased quality of life. While NSAIDs are the cornerstone of treatment, aerobic exercise is one of the safest and least expensive treatments. Aerobic exercise can be completed on land or in water. The database, PubMed, was used to acquire articles that compare hydrotherapy to land-based therapy in individuals with large joint OA. Outcomes of interest included pain relief, joint mobility, and quality of life. Based collectively on six articles, there was no consensus on whether hydrotherapy was superior to land-based therapy. There was little consensus among study results, indicating that no therapy modality appeared to be superior. One theme was exhibited, however–some exercise therapy is more beneficial than no therapy.

Methods

- PubMed
- Medline via PubMed
- Search Terms: "osteoarthritis AND hydrotherapy OR water aerobic AND physical therapy OR land therapy AND randomised control"

Inclusion Criteria:
- RCT
- Published after 2000
- Subjects >18 years old
- Subjects with OA by physician

Excluded:
- Use of invasive ts
- Animal subjects
- Meta-analyses or systematic reviews
- Failure to compare LBE to HT
- RCT still in progress

Results

An RCT compared intensive WBE and intensive LBE in 118 participants with clinical large joint OA. Outcome measures pre- and 4 months post-intervention: Body composition was measured using DCA, walking speed over a 1 km and the knee injury and osteoarthritis outcome score were measured, leisure time physical activity.


An RCT compared the efficacy of aquatic exercise and a land-based exercise program vs control in 79 patients with knee osteoarthritis. Outcome measures pre-, 8 weeks, and 3 months post-therapy: change in pain, in addition knee injury and osteoarthritis Outcome Score questionnaire, and standing balance and strength.


A single-blinded RCT compared WBE and LBE in 64 subjects with knee OA. Outcome measures pre- and 18 weeks post-intervention: visual analog scale (VAS) for pain, the WOMAC, pain during gait assessed by a VAS at rest and immediately following a 50-foot walk test (50FWT), walking time measured at fast and comfortable paces during the SFWT, and the Lequesne Index.


An RCT compared LBE, WBE, and no physical therapy in 84 patients with knee OA. Outcome measurements at baseline, 6 weeks, and 12 weeks: knee injury and Osteoarthritis Outcome Score, a standard plastic gonimeter, and the six-minute walk test.

Discussion

OA is a prevalent, chronic medical condition that often results in pain, reduced function of affected joint(s), and lower perceived quality of life. Physical activity has shown to be a lower-risk treatment option compared to pharmaceuticals and invasive procedures. Land-based exercise is the most common modality of OA physical therapy, and has been shown to reduce pain and stiffness, while increasing muscle strength. However, concerns arise about land-based exercise. There is an increased risk of injury and there is a risk of heat exhaustion especially if exercise is conducted outdoors. In contrast, with water-based therapy there is no risk of fall and decreased risk of collision with objects or other people. Water also provides increased resistance compared to air, so muscle strengthening may occur quicker. Hydrotherapy is also conducted at a temperature that mitigates the risk of heat exhaustion. This review examined six articles comparing hydrotherapy, land-based therapy, and/or a control in participants with OA in large joints. The studies produced inconclusive results. One theme persisted, however—some form therapy is more beneficial than no therapy at all.

Limitations included small sample size, varying durations and quality of therapy between studies, and lack of consistent reporting on subject use of analgesics.

Conclusion

To conclude, the studies showed that hydrotherapy and land-based exercise exhibited comparable effects in the treatment of OA of large joints. Upon examination of the literature, no single modality can be deemed superior to the other. One thing consistent among the studies was that exercise is superior to no exercise. Healthcare professionals caring for patients with OA should consider recommending either land or aquatic exercise programs based on patient preference and convenience.

Furthermore, more current high-quality RCTs including more participants from more locations, and longer follow-up periods are necessary to evaluate the efficacy of these treatment modalities.