Evidence-based treatment of aquatic physical therapy in the rehabilitation of upper-extremity orthopedic injuries

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CRD summary
This review aimed to identify the evidence on treating orthopaedic upper-extremity injuries with aquatic therapy, and to specify any particularly useful techniques based on experimental studies. The authors concluded that there is some scientific evidence to support aquatic physical therapy as an intervention, but further research is needed. This was a poorly reported review and the conclusions should be treated with caution.

Authors' objectives
To identify the evidence on treating orthopaedic upper-extremity (UE) injuries with aquatic therapy, and to specify any particularly useful techniques based on experimental studies.

Searching
PubMed, PEDro, the Cochrane Library, CINAHL and Hooked on Evidence were searched; the search terms were reported. Published bibliographies from the Aquatic Section of the APTA were reviewed and the reference lists of included articles checked. Only studies published in English in peer-reviewed journals were considered for selection.

Study selection
The following eligibility criteria were pre-specified: the population should have a UE orthopaedic injury (shoulder, elbow, wrist or hand) and have received aquatic rehabilitation/physical therapy. Injuries which were neurological, degenerative or systemic were excluded. Included studies with an experimental population consisted of males and one female; it was unclear what most of the patients' injuries were. All types of evidence were considered in this review, and the included papers comprised a randomised controlled trial (RCT), a case study and expert opinion articles. The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Methods of synthesis
The authors carried out a narrative synthesis which included descriptive comparisons across the included studies.

Results of the review
This review included 9 articles: one RCT (6 males), one single-case study (female) and seven expert opinion articles. One expert opinion piece was partially based on a convenience sample of 8 volunteers.

Across the included papers, the following factors were identified to support the use of aquatic physical therapy for UE orthopaedic injuries: early activation of range of movement in the post-operative period, improved strength, joint mobility and proprioception, minimisation of pain, a decrease in the risk of further injury, and the use of equipment to increase resistance during therapy.

Authors' conclusions
There is some scientific evidence to support aquatic physical therapy as an intervention for UE orthopaedic injuries. Further research is needed to quantify these benefits.
CRD commentary
This was a poorly reported review which presented a clear clinical question but failed to adequately specify relevant inclusion criteria (particularly study design). The searches did not cover non-English or unpublished sources and may have failed to locate relevant studies. Overall, insufficient details were reported on the review procedures, which makes it difficult to judge to what extent the chances of error and bias were reduced. The reviewers also included a study of healthy volunteers contrary to their inclusion criteria. No validity assessment was carried out, and the results of the narrative synthesis appear to have been based equally on an RCT and expert opinion articles that contained no experimental data. This review is unlikely to be reliable and the conclusions should be treated with caution.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.
Research: The authors state the need for further research to quantify the benefits of aquatic physical therapy for orthopaedic UE injuries, particularly focusing on specific exercises and their impact on functional outcomes. Assessments of the impact of aquatic physical therapy on healing time, range of movement and joint mobility are also recommended.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.