Aquatic physical therapy for low back pain: what are the outcomes?

Barone D, Gangaway J M

CRD summary
This review concluded that aquatic physical therapy is effective in improving pain and a range of other outcomes inpatients with low back pain. However, the majority of the evidence was non-randomised, no validity assessment was conducted, and the review process was poorly reported. It is therefore difficult to determine the reliability of the conclusions.

Authors' objectives
To assess the evidence for aquatic physical therapy (APT) for orthopaedic low back pain (LBP).

Searching
PubMed, PEDro, CINAHL, Hooked on Evidence and the Cochrane Library were searched. The aquatic therapy bibliography (APTA) was also searched and references were cross-checked. The search terms were reported but not the search dates. Only studies published in peer-reviewed journals were eligible for inclusion in the review.

Study selection
Studies of APT for patients with orthopaedic LBP were eligible for inclusion in the review. Studies of patients without injury to the musculoskeletal system, patients with non-neurological pain, or those with systemic pain were excluded. Randomised controlled trials (RCTs), quasi-experimental studies, cohort studies and case series were eligible for inclusion. With the exception of one study, which included only pregnant women, the included studies enrolled both male and female patients. Inclusion criteria for the outcomes were not reported. The included studies reported outcomes relating to pain intensity, mobility and flexibility, functional ability including exercise ability, range of motion (ROM), use of medication and specific physical parameters.

The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
No validity assessment was carried out beyond the assignment of a level of evidence.

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 studies were discussed in turn and a short synthesis also provided. Differences between the studies were apparent from the text and accompanying evidence tables.

Results of the review
Fourteen studies (n=801) were included in the review, of which three were RCTs (n=453), two were cohort studies (n=101), one was a case study (n=1), five were described as experimental studies (n=124) and three were described as quasi-experimental studies (n=122).

The largest RCT (n=258) found that pregnant women randomised to a water gymnastics group had significantly lower pain intensity than women in the control group in the second half of pregnancy (p=0.031). There was no significant difference between the groups in number of days of sick leave, but significantly fewer women in the APT group were on sick leave due to LBP after weeks 32 to 33 of gestation (p=0.031).

A second RCT (n=95) assessed group hydrotherapy in patients with chronic LBP and back and leg pain. A number of measures were assessed, of which only functional status showed a significant difference between the groups, favouring the intervention (p=0.04).
The third RCT (n=100) compared balneotherapy with balneotherapy plus exercise or exercise alone. Significant improvements on a number of measures of ROM and flexibility were observed in the balneotherapy groups (p<0.001) but not in the exercise group, which showed improvements only on pain score (p<0.05). Statistical comparisons between the groups were not reported.

Other study designs reported variable results for a range of different forms of APT. The most frequent positive outcome was pain reduction; full results were reported in the paper.

**Authors' conclusions**
APT assists patients with LBP in improving pain, ROM, strength, quality of life and functional mobility. It allows early initiation of exercise and a shorter rehabilitation period.

**CRD commentary**
The review addressed a clear question and the inclusion criteria were clearly if broadly defined, except for the outcomes. The authors searched a number of relevant databases, but the decision to limit the search to studies published in peer-reviewed journals might have increased the possibility that some relevant studies were not included in the review. The authors did not report using review methodology designed to reduce reviewer bias and error, nor did they report carrying out a validity assessment. The decision to adopt a narrative synthesis was clearly appropriate given the clinical and methodological heterogeneity between the studies. The authors' conclusion generally reflects the evidence presented in the review, but does not fully take account of the poor quality and heterogeneous nature of much of that evidence. In the absence of an assessment of the validity of the included studies, it is difficult to assess the reliability of the conclusions or the recommendation for practice.

**Implications of the review for practice and research**
**Practice:** The authors stated that APT is supported for a short rehabilitation period.

**Research:** The authors stated that RCTs comparing APT with land-based therapy, which focus on categorical diagnoses related to LBP, are required.

**Funding**
Not stated.

**Bibliographic details**

**Indexing Status**
Subject indexing assigned by CRD

**MeSH**
Adult; Exercise; Humans; Hydrotherapy; Low Back Pain /therapy; Swimming; Treatment Outcome; Water

**AccessionNumber**
12008009276

**Date bibliographic record published**
09/08/2008

**Date abstract record published**
03/11/2008

**Record Status**
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.