# Research Study in Aquatic Physiotherapy

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- Over the years , aquatherapy has been known as pool therapy, hydrotherapy and sometimes in earlier literature , as a balneotherapy.

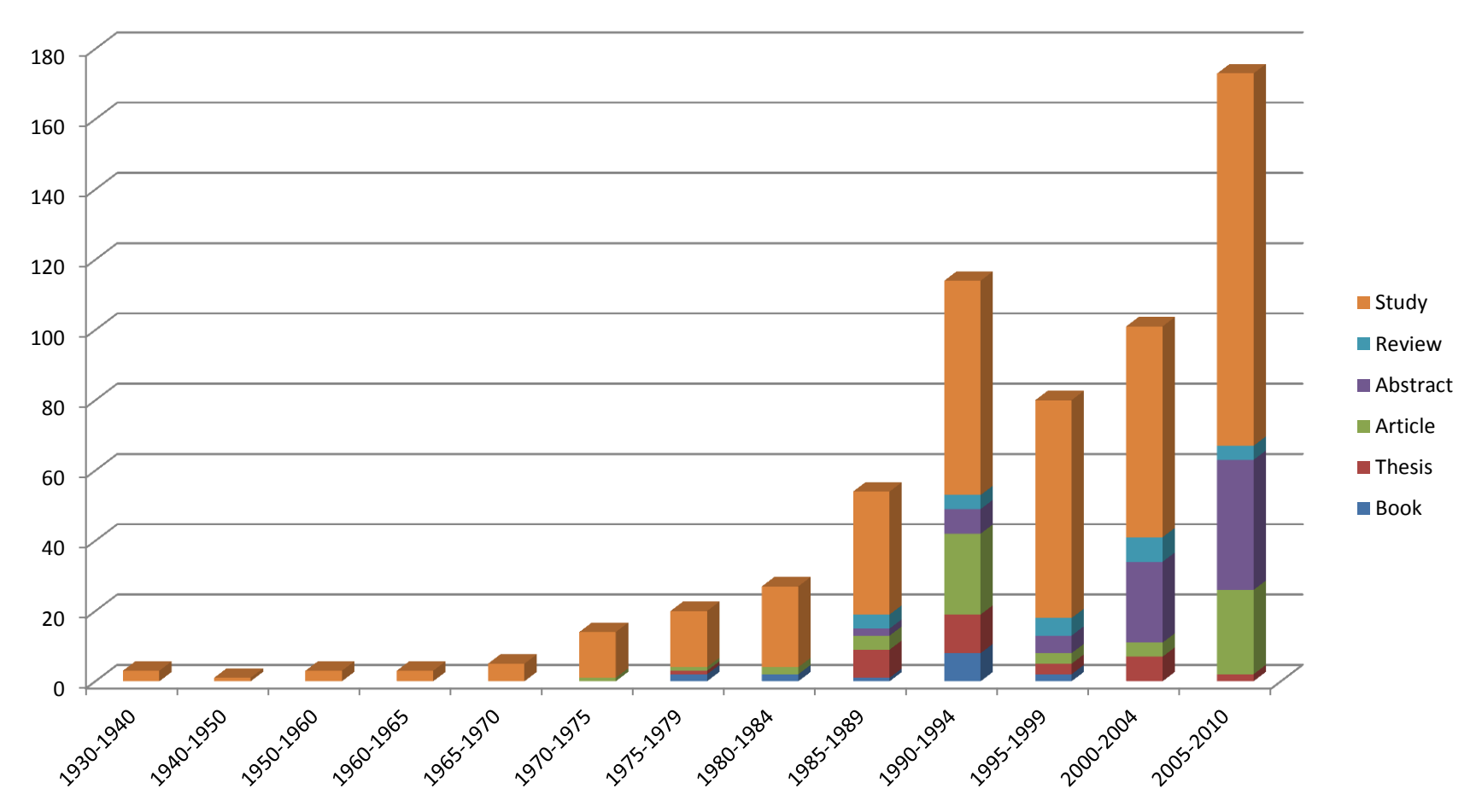
- Exercise in warm water ,usually termed hydrotherapy or aquatic therapy, is a popular treatment with a pain relief effect for many patients with painful neurologic or musculoskeletal conditions.

# Where is the Beef?
# Evidence Based Aquatic Therapy

JANET GANGAWAY PT, DPT

Recent reports have demonstrated the effectiveness of comprehensive health education , including life style education and exercise combination with aquatherapy.

# Aquatic Exercise Association Research Bibliography



# Evidence-based research in aquatherapy

Evidence-based systematic review of the effectiveness of hydrotherapy in acute and chronic medical conditions

Dr. Gordon Doig,
University of Sydney

This systematic review was to identify and summarise the evidence from randomised controlled trials supporting the use of hydrotherapy (aquatic exercise, pool therapy) in acute and chronic medical conditions.

# Medline was search by using pubmed

- Search for systematic reviews hydrotherapy , aquatic exercise or pool therapy
- This search identified 41 potentially eligible papers
- Search for recent RCT’ s hydrotherapy, aquatic therapy or pool exercise
- This search identified 73 potentially eligible papers

- Musculoskeletal Conditions
- Osteoarthritis
- Rheumatoid Arthritis
- Fibromyalgia
- Low Back Pain
- Neuromotor Impairments in Children
- Elderly

# Musculoskeletal Conditions

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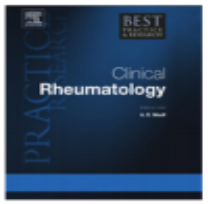


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## Aquatic exercise & balneotherapy in musculoskeletal conditions

Arianne P. Verhagen, PT, MSc, PhD [a,*], Jefferson R. Cardoso, PT, MSc, PhD [b], Sita M.A. Bierma-Zeinstra, PT, MSc, PhD, Prof [a,c]

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- Authors performed a systematic literature search to enable an evidence based synthesis of the most recent, high quality systematic reviews evaluating aquatic exercise and balneotherapy interventions for musculoskeletal conditions

- For this evidence base synthesis they systematically searched PubMed, EMBASE, CINAHL, and PEDro and Web of Science
- They incuded studies between 2006-April 2012
- Based on the evidence found they conclude that aquatic theraphy is probably effective in patients with osteoarthritis, low back pain and fibromyalgia in the short term, when compared to no treatment.

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- Nevertheless it remains unclear whether aquatic exercises are more effective than other active interventions such as land based exercises
- Furthermore there is lack of evidence for specific doses and timing of exercise programmes because most RCT’ s and SR s did not provide information to address these issues.
- It remains unclear whether balneotherapy is more or less effective than aquatic exercises. They seem equally effective and these treatments seem particular useful when patients are unable to exercise on land.

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# Osteoarthritis

Osteoarthritis prevalence is on increase,

Aquatic physiotherapy is widely thought of by physiotherapists as a beneficial treatment option for patients with osteoarthritis

# Aquatic Management of Hip Osteoarthritis

White Leah

Academic Journal June 2012

Database of systematic reviews MEDLINE, PEDro, and PubMed databases for management of hip osteoarthritis.

Clinical studies involving hip osteoarthritis and it's management using aquatic physiotherapy 9 articles meet the selection criteria

Conclusion based on the current literature aquatic physiotherapy has potential benefits for pain reduction and increased function however further research is needed to establish if it is an optimal treatment choice for hip osteoarthritis.

# Rheumatoid Arthritis

LITERATURE REVIEW

## The Effectiveness of Hydrotherapy in the Management of Rheumatoid Arthritis: A Systematic Review

Khamis Y. Al-Qubaeissy MD, Francis A. Fatoye PhD, Peter C. Goodwin PhD & Abebaw M. Yohannes* PhD, MSc, FCCP

Department of Health Professions, Manchester Metropolitan University, Manchester, UK

**Abstract**

**Background.** Hydrotherapy is frequently indicated for the rehabilitation of patients with rheumatoid arthritis (RA); nevertheless, there has been inadequate appraisal of its effectiveness. The potential benefits of hydrotherapy for patients with RA are to improve and/or maintain functional ability and quality of life.

**Objectives.** The aim of this systematic review was to evaluate the effectiveness of hydrotherapy in the management of patients with RA.

**Method.** AMED, CINAHL, EMBASE, MEDLINE, PubMed, Science Direct and Web of Science were searched between 1988 and May 2011. Keywords used were rheumatoid arthritis, hydrotherapy, aquatic physiotherapy, aqua therapy and water therapy. Searches were supplemented with hand searches of references of selected articles. Randomized controlled trials were assessed for their methodological quality using the Physiotherapy Evidence Database (PEDro)

Musculoskelet. Care (2012) 

# Inclusion and Exclusion Criteria for considering studies for this review

Studies were included if:

- they were randomized controlled trials (RCTs);
- they were published in the English language;
- they included participants aged 18 years or above who had been diagnosed with RA according to the 1987 ACR criteria (Arnett et al., 1988) or they used the criteria of Steinbrocker (Steinbrocker et al., 1949);
- a water-based intervention (hydrotherapy) had been used in the study, and compared with the results without intervention;
- patients had received a minimum of four weeks of hydrotherapy intervention.
- they used one of the following outcome measures: pain, patient global assessment, activity of daily living (ADL), physical function, disease activity and QoL (Boers et al., 1994; Haigh et al., 2001).

Articles were excluded if:

- they had insufficient information available (abstract only);
- they did not involve an RCT;
- they were not adult trials (juvenile trials);
- they did not involve human trials;
- they included participants without rheumatic diseases;
- the treatment modality included balneotherapy, Kneipp therapy, mud therapy or sulphur therapy;
- they were not written in English (even if the abstract was in English);
- participants were primarily and predominantly diagnosed with osteoarthritis, fibromyalgia syndrome, back pain, neurological disease or osteoporosis.

# Results

A total of 197 studies were identified based on the key search terms and the hand search of bibliography references (CINAHL 12; Medline;42 PubMED;122AMED;13 Manual Search 8).

After the initial screening of the titles and abstracts, 32 studies were found to satisfy the inclusion criteria and were further scrutinized for the present systematic review.

# Conclusion

There is some evidence to suggest that hydrotherapy has a positive role in reducing pain and improving the health status of patients with RA in the short term . However long term benefit is unknown. It is difficult to make specific recommendations at this stage because of lack of evidence ( eg. optimal duration and frequency)for clinical practice. Therefore further studies are needed, using robust RCT's.

# Fibromyalgia

Fibromyalgia Syndrome (FMS) is chronic non articular rheumatological condition characterised by wide spread musculoskelatal pain increased pain at tender points .

Aquatherapy is non –pharmacological therapy of FMS

Rheumatol Int (2008) 29:119–130
DOI 10.1007/s00296-008-0674-9

REVIEW ARTICLE

# The effectiveness of hydrotherapy in the manageme of fibromyalgia syndrome: a systematic review

Joseph G. McVeigh · Helen McGaughey · Melissa Hall · Patricia Kane

Received: 1 May 2008 / Accepted: 1 August 2008 / Published online: 27 August 2008


**Abstract** Hydrotherapy is often used in the treatment of fibromyalgia syndrome (FMS), however there has been limited evaluation of its effectiveness. The aim of this systematic review was therefore to examine the effective-

**Keywords** Fibromyalgia · Systematic review · Physiotl

- The aim of this systematic review was therefore to examine the  effectiveness of hydrotherapy in the management of FMS
- An electronic database search of AMED, BNI, CINAHL; the Cochrane Library, EMBASE, MEDLINE, PROQUEST, Science Direct and Web of Science was searched. After reviewing the articles classified highly relevant or irrelevant,
- 19 studies highly relevant, 10 of which fulfilled the inclusion criteria and were included in the final review

# Conclusion

Due to the heterogeneous nature of the interventions, it is difficult to made specific recommendations for clinical practice, however it appears that aquatherapy with or without exercise has a positive role to play in the management of FMS.

# Low Back Pain

- Low back is the most common cause of referal to a physical therapist and is one of the leading causes of disability
- Aquatic therapy has been used for many years in the management of musculoskelatal problems including low back pain
- Is theraupatic aquatic exercise an effective treatment for relieving low back pain?

*Clinical Rehabilitation* 2008; 22: 3–14

# Therapeutic aquatic exercise in the treatment of low back pain: a systematic review

**Benjamin Waller** University of Jyväskylä, Finland, **Johan Lambeck** Faculty of Kinesiology and Rehabilitation Sciences, Katholieke Universiteit Leuven and **Daniel Daly** Faculty of Kinesiology and Rehabilitation Sciences, Katholieke Universiteit Leuven, Belgium

Received 22nd February 2008; returned for revisions 20th April 2008; revised manuscript accepted 16th August 2008.

**Objective**: To examine the effectiveness of therapeutic aquatic exercise in the treatment of low back pain.
**Design**: A systematic review.
**Methods**: A search was performed of PEDro, CINAHL (ovid), PUBMED, Cochrane Controlled Trials Register and SPORTDiscus databases to identify relevant studies published between 1990 and 2007. *Population*: Adults suffering from low back pain. *Intervention*: All types of therapeutic aquatic exercise. *Comparison*: All clinical trials using a control group. *Outcomes*: Oswestry Disability Index, McGill Pain Questionnaire, subjective assessment scale for pain (e.g. visual analogue scale) and number of work days lost as a direct result of low back pain. Methodological quality

- A search was performed of PEDro, CINAHL, PubMed,Cochrane Controlled Trials Regisster and SportDiscuss  databases to identify relevant studies
- 37 trials found and 7 accepted into the review
- Therapautic aquatic exercise appeared to have a beneficial effect however no better than other interventions

Clinical Rehabilitation 2009; 23: 3-14

# Conclusion

There was sufficient evidence to suggest that therapautic exercise is potentially beneficial to patients suffering from chronic low back pain and pregnancy related low back pain . There is further need for high quality trials to substantiate the use of therapeutic aquatic exercise in a clinical setting

Clinical Rehabilitation 2009; 23: 3-14

# Neuromotor Impairment in Children

Swimming and hydrotherapy  have been reviewed as beneficial activities for children with neuromotor impairments

*Clinical Rehabilitation* 2006; **20**: 927–936

# Effects of aquatic interventions in children with neuromotor impairments: a systematic review of the literature

**Miriam Getz** The Kibuzzim College of Education and Dance, Tel Aviv, and the Israel Sport Center for the Disabled in Ramat Gan, **Yeshayahu Hutzler** The Zinman College for Physical Education and Sports at the Wingate Institute and the Israel Sport Center for the Disabled in Ramat Gan, Israel and **Adri Vermeer** The Faculty of Educational Sciences of the Utrecht University, The Netherlands

Received 15th June 2005; returned for revisions 7th November 2005; revised manuscript accepted 6th March 2006.

**Objective**: To determine the effectiveness of aquatic interventions in children with neuromotor impairments.

**Design**: A search of electronic databases that included MEDLINE, PubMed, ERIC, PsychLit, PEDro, Sport Discus, CINAHL and Cochrane between 1966 and January 2005 was conducted using the following keywords: 'hydrotherapy', 'aquatic therapy', 'water exercise', 'aquatics', 'adapted aquatics', 'aquatic exercise' and 'swimming'. An additional resource, the Aquatic Therapy Research Bibliography until 1999, was explored manually. Titles and abstracts were assessed manually according to the following inclusion criteria: (1) population (children with neuromotor or neuromuscular

The purpose of this review is to evaluate the effectiveness of aquatic interventions in children with neuromotor impairment

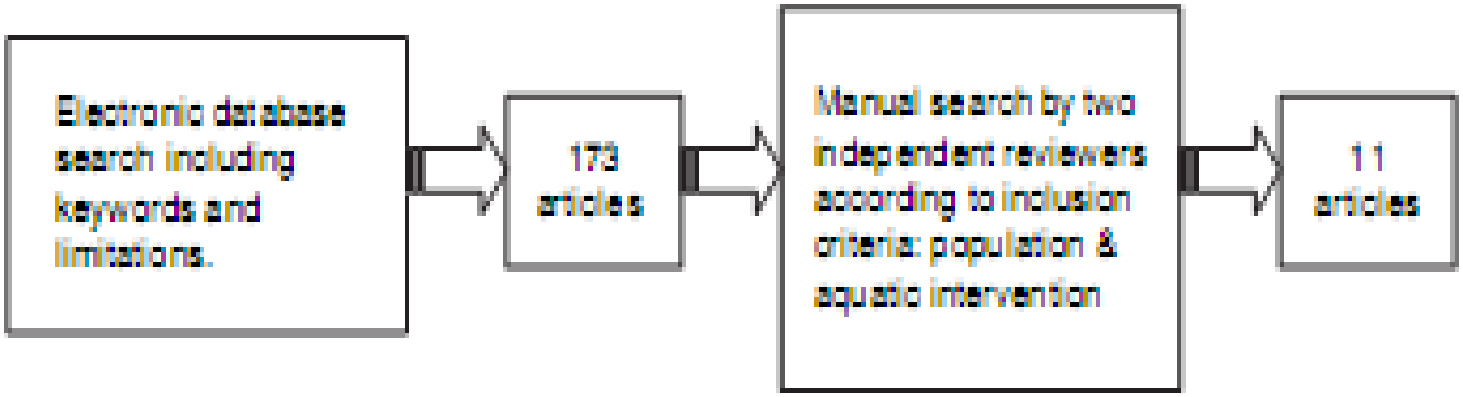


**Figure 1** Flow of data retrieval procedure.

- 7 articles reported improvement in body functions and 7 articles reported improvement in activity level.
- Two of the four articles that investigated outcome measures regarding participation described positive effect while the findings of the two revealed no change.
- None of the articles reported negative effects due to aquatic interventions

# Conclusion

According to this review there is a substantial lack of evidence based research evaluating specific effects of aquatic interventions in this population

# Elderly Persons

- Physical activity for the elderly person is able to provide beneficial organic effects, including general well being, preservation of independence, prevention of diseases
- Aquatic physical therapy programes have frequently been indicated for the elderly population since they are carried out in a safe environment good acceptance of and complience with treatment

REVIEW

# Aquatic physical therapy as a treatment modality in healthcare for non-institutionalized elderly persons: a systematic review

## Fisioterapia aquática como modalidade de tratamento em idosos não institucionalizados: uma revisão sistemática

Gisele da Silveira Sarmento[1], Andréa Sanchez Navarro Pegoraro[1], Renata Cereda Cordeiro[2]

**ABSTRACT**

**Objective:** To review scientific literature pertaining to aquatic physical therapy in the elderly and institutionalized population. **Methods:** A qualitative systematic review of electronic databases MEDLINE and LILACS, with the topic index terms: "hydrotherapy", "homes for the aged or residential facilities", and "aged. In light of the lack of studies carried out on the institutionalized population, we opted for reviewing literature on the effectiveness of this modality of physical therapy treatment on the non-institutionalized elderly population in

e LILACS, com os descritores de assunto: "hidroterapia" (*"hidrotherapy"*), "instituição de longa permanência para idoso" (*"homes for the aged, residential facilities"*) e "idoso" (*"aged"*). Diante da inexistência de estudos realizados na população institucionalizada, optou-se por revisar a literatura acerca da efetividade dessa modalidade de tratamento fisioterapêutico na população idosa não institucionalizada, a fim de se produzirem conhecimentos que pudessem ser analisados criticamente conforme sua aplicabilidade potencial na população institucionalizada. A qualidade metodológica dos estudos foi avaliada por meio da lista

27were study analyzed  10 study  were excluded since they did not correspond to the eligibility criteria. They analyzed subject characteristics of each study as well as the quality of the methods (good methodological quality in 47% of the studies)

# Conclusion

- Although large part of the studies demonstrated good results with aquatic physical therapy practice , none of them had been applied on long stay instituation for the elderly.
- Therefore, more studies are needed in this area for a model of assistance to long stay institution for the elderly to be proposed

- The aquatic environment has broad rehabilitative potential, extending from the treatmentof the acut injuries through health maintenance in the face chronic disease. However the evidence in systematic reviews identifies areas that need further research.

- High quality trials are needed on aquatic exercises research in specific patient categories that might benefit most aquatherapy.
- Research  is also lacking on cost effectiveness of aquatic therapy


• WE LOVE WATER
• WE THANK WATER
• WE RESPECT WATER
• WE ARE ALL IN WATER
• WE ARE ALL ONE
MASURA EMATO


THANK YOU