

Should physiotherapists recommend swimming to patients with low back pain (LBP) and is further research warranted?

Purpose: It is common practice to suggest to patients with low back pain (LBP) to try swimming as a form of exercise but what evidence is this recommendation based upon and is there a need for further research? This scoping review was carried out to prepare and support a research proposal which will investigate whether swimming is beneficial for patients with LBP and whether swimming could target some of the comorbidities associated with LBP.

Methods: A search was carried out on the following databases; PubMed, SPORTdiscus, CINAHL, MEDLINE and AMED using the following keywords and combinations; swim*, back pain, aquatic, rehabilitation, hydrotherapy. The search was expanded by reviewing the reference list of the included studies, searching the grey literature and reviewing a recent Swim England report. This scoping review included basic science research, correlational studies, RCTs, systematic reviews and research relevant to the delivery of swimming.

Stature recovery: Greater and more rapid in water [1]

Load: Less load at increasing depths of water due to buoyancy [3,4]

Pain: Swimming able to modulate nociceptive, inflammatory and neuropathic pain and central sensitisation in rodents [5-9] Pain more likely during land exercise than in water [11]

Basic Research

Muscle activity: Lower in the water [10] EMG different between land and water exercise [11]

Core muscles: Older swimmers less postural sway [12]

Incidence of LBP: Swimming most likely sport to improve and least likely to aggravate LBP [18] Lowest lifetime prevalence for LBP in swimmers compared to other sports [19]

Weight management: Significantly lower obesity rates in swimmers [15] Compared to walking, swimming was better at improving body weight, fat distribution and insulin for sedentary women [16]

Correlational Studies

Disc degeneration: Disc degeneration greater in elite than recreational swimmers, but no association between this and LBP symptoms [13] No difference in disc degeneration between elite swimmers and those not involved in sport [14]

Mental health: Masters swimmers less likely to take medication for mental health [17]

Aquatic exercise and swimming: One small uncontrolled trial of a combination of dryland exercise, aquatic exercise and swimming found improvement in physical scores and swimming ability [20]

Aquatic Exercise

Systematic review and Meta-analysis: Aquatic exercise can reduce pain and improve function in people with LBP [21]

Just swimming? There are currently no studies that have evaluated just swimming for LBP

Swimming ability: 27% of adults are unable to swim a length and 53% of adults are unable to swim 4 lengths of a pool [22]

Swimming

Perceived benefits of swimming: 88% patients thought that swimming was 'good' for LBP [23] Swimming is seen to be generally good for you and low impact [29]

Barriers to exercise (LBP): Pain, comorbidities, lack of motivation, fear of movement, false beliefs about back pain and exercise, lack of time and incorrect advice from a health professional or family [26-28]

Facilitators to exercise (LBP): Doing exercise under the supervision of a healthcare professional, regular follow up and group exercise [26]

Delivery

Learn to swim frameworks: The Halliwick method [24] and Swim England Adult learn to swim framework [25] could be used, no research supporting whether these programs are suitable for people with LBP

Health economics: No studies evaluating economic benefits of swimming for patients with LBP

Barriers to swimming: Lack of swimming skills and loss of swim fitness [29]

Swimming is 'the exercise for those who thought they couldn't exercise anymore..' (Heminsley, 2017)

Conclusions: There is sufficient evidence presented in this scoping review to support undertaking a study investigating whether swimming is beneficial for patients with persistent LBP.

Implications: Aquatic therapy is currently offered on the NHS and some patients can access aquatic exercise and swimming through exercise referral schemes. Due to significant gaps in the literature there is only low level evidence that funding should be directed to swimming and swimming lessons for patients with LBP.

Acknowledgements and ethical approval

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References:

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