



Effect of Aquatic Therapy in Pregnant Women: A Systematic Review

Binal Dave<sup>1\*</sup> and Rozina Shaikh<sup>2</sup>

<sup>1</sup>Medical Head, AquaCentric Private Limited, India

<sup>2</sup>Women's Health Physiotherapist, AquaCentric Private Limited

**\*Corresponding Author:** Binal Dave, Medical Head, AquaCentric Private Limited, India.

**Received:** February 09, 2024  
**Published:** July 25, 2024  
© All rights are reserved by **Binal Dave and Rozina Shaikh.**

Abstract

**Introduction:** During pregnancy, there are changes in physiological frameworks of the human body, alongside physical changes. It is normal for females to diminish the power of exercises, particularly in the last trimester. Aquatic exercises during pregnancy has shown positive impacts on pregnant women.

**Methods:** Systematic review utilizing the PICO procedure, looked on the Pubmed, SciELO, LILACS, and Science Direct stages, utilizing the descriptors: Pregnancy, hydrotherapy, personal satisfaction, pregnant ladies, and amphibian climate.

The research was conducted from May to July 2023.

**Results:** The search at first brought about 537 articles, of which 95 records stayed subsequent to eliminating copies, 14 in the wake of understanding digests and titles, and 5 articles were remembered for the end. The examples went from 46 to 140 members. Of the five investigations chose, all got positive outcomes, including torment decrease during pregnancy, as well as further developed weight control, circulatory strain, and rest quality.

**Conclusion:** Aquatic therapy for pregnant ladies acts empatically in weight control, improves quality of life , diminishes low back pain and joint pains..

**Keywords:** Pregnancy; Hydrotherapy; Personal Satisfaction; Pregnant Ladies; Water-based Environment; Physiotherapy

Introduction

In pregnancy, every one of the frameworks of the human body change alongside physical changes to meet the metabolic necessities of both mother and fetus [1]. Throughout pregnancy, the gamble of injury during the act of activity might expand because of changes in the focal point of gravity, expanded weight load, and diminished equilibrium and coordination, causing a danger of injury during physical activity [2]. The progressions that happen in pregnant ladies offer satisfaction and individual change, however many feel deterred and weighty, introducing confusions to move around and perform day to day assignments. Concentrated upper-body obesity impairs mobility and postural stability [3] by causing mechanical overload, particularly in the spine and lumbar region. Despite the fact that it has been demonstrated that physical activity during pregnancy prevents elevated blood pressure and excess glucose, excess weight during pregnancy has increased worldwide. During pregnancy, it is common for women to reduce the intensity of their physical activities, particularly in the fourth trimester [4]. Pregnant ladies who go on with a functioning life by rehearsing exercises during the development time frame accomplish better wellbeing contrasted with inactive pregnant ladies, as they look for a superior wellbeing status, which can help work and recovery [5].

Because of the gamble of certain exercises, wellbeing experts endorse practices as per the pregnant lady's condition, surveying her requirements. Moreover, the gamble of injury expands because of the great degrees of estrogen and relaxin, which cause the probability of tendon laxity and hypermobility [6].

Actual practice in the sea-going climate, other than being viewed as protected and agreeable, is the most demonstrated for pregnant ladies, introducing a few advantages, since when lowered, 2 contradicting powers follow up on the body, gravity on one side and buoyancy on the other. These forces are balanced in a way that reduces body weight and makes it easier to move without putting more strain on the joints; subsequently pregnant ladies can perform works out that are not available in dry land [7].

A few advantages of water movement are the decrease of joint shock, decrease of edema, expanded diuresis, decrease of hypertension, control of overweight, help of back torment, further developed temperature, and diminished hazard of unnatural birth cycle. Practicing on the water is fundamental to grasp breathing, deliberately and immediately controlling the beat, strength and aviation routes, being extremely helpful at the hour of conveyance

and furthermore leaning toward the profound contact with other pregnant women [8].

The target of this study was to audit the impacts of actual practices in the oceanic climate for ladies during pregnancy.

Methods

This is a precise survey and the directing inquiry of this study was: “What are the advantages of sea-going activities for pregnant ladies?”.

The examination was organized in light of the PICO strategy [9] (Diagram 1).

Diagram 1: PICO research methodology.

- Abbreviation Depiction Definition
- P Patient Pregnant ladies
- I Mediation Water work out
- C Control Patients who take part in the water exercises
- Results Agony toward the back and Joints, Rest quality as well as blood pressure control

The accompanying data sets were deliberately Looked: Pubmed, SciELO (Logical Electronic Library On the web), LILACS (Latin American and Caribbean Writing in Wellbeing Sciences), and Science Direct.

The descriptors used were as follows: physiotherapy, pregnancy, hydrotherapy, quality of life for pregnant women, the aquatic environment; synonyms.

The review was directed From April to May 2023.

Eligibility criteria

Qualification models included randomized clinical Preliminaries that tended to the utilitarian impacts of water Practice in pregnant ladies, accessible in English, distributed somewhere in the range of 2010 And 2023, to refresh the point. The study did not include women with multiple pregnancies, high-risk pregnancies, combining aquatic exercise with other activities, suspected foetal distress, hypertensive pregnant women, or those with pulmonary or heart failure.

Data extraction

The articles gathered utilizing the data set look were chosen by following the titles (first stage), abstracts (second stage), and complete perusing (third stage). Then, at that point, an exploratory perusing of the chose studies was led, trailed by specific and scientific perusing. The information removed from the articles were organized: creators, title, diary, year, rundown, And ends, to empower the acquiring of important data for the exploration. The course of choice, information extraction from articles, and distinguishing proof of strategic perspectives was directed by 2 autonomous commentators. At the point when there was any conflict between

them, the analysts read the whole article again for reassessment. In the event that the conflict endured, a third free commentator surveyed and settled on the last choice. The exploration followed the things of the PRISMA [10] convention for deliberate surveys. strategic quality appraisal The systemic nature of the investigations was surveyed by the PEDro scale rules, which scores 11 things, in particular: 1 - qualification Standards, 2 - irregular assignment, 3 - stowed away allotment, 4 - pattern examination, 5 - blind people, 6 - blind advisors, 7 - blind evaluators, 8 - sufficient development, 9 - aim to treat the investigation, 10 - correlations among gatherings, and 11 - point gauges and variability [11]. Things are scored as Present (1) or missing (0), creating a most extreme amount of 10 focuses, not including the principal thing.

Results

Subsequent to perusing the theoretical and titles, 14 articles were found, of which just 5 were chosen by the Consideration rules. Those that didn't involve oceanic activity exercise based recuperation in pregnant ladies as the primary focal point of treatment, articles with a writing survey plan (3), non-randomized examinations (4), or articles irrelevant to pregnancy (2) were rejected from the review. The flowchart in Figure 1 shows every one of the standards and data sets utilized for the choice of articles. The 5 examinations remembered for this precise survey talk about the advantages of the sea-going climate during pregnancy, which got a mean score of 5, comparing to direct systemic quality. As indicated by Rodriguez-Blanque., *et al.* [12], the quality and time spent resting were thought of as successful for pregnant ladies who rehearsed water exercises. Vásquez-Lara., *et al.* [13], then again, demonstrated that the last estimations of blood vessel pressures (systolic, diastolic and mean) were fundamentally higher in pregnant ladies who didn't rehearse Oceanic activities. Backhausen., *et al.* [14] revealed, that the power of low back torment was extensively Lower for those pregnant ladies who performed Sea-going activities. Sánchez-García., *et al.* [15], in his review, saw that sea-going activities during the gestational period help to control overweight during pregnancy. Bacchi., *et al.* [16] expressed in their review that, during pregnancy, water exercises with 3 week by week meetings keep away from maternal unreasonable weight gain. The rundown of the discoveries of each article is displayed in Figure a.

Discussion

Based on the findings of this systematic review, aquatic exercise has many advantages for pregnant women, including reducing overload and preventing injuries [12,15]. It is also effective in reducing back and joint pain [14], controlling weight [16] and blood pressure [13], and improving sleep quality [12]. As a result, water provides support for the body, lessening the impact that movements have on the joints, facilitating movement, increasing circulation, and reducing back pain during delivery [14]. Water alleviates pressure and strain, whether close to home or strong, and a few developments can highlight this loosening up sensation, yet one of the best advantages of practicing in water is crafted by breathing as per the movements [12-14]. Bacchi., *et al.* [16] noticed positive out-

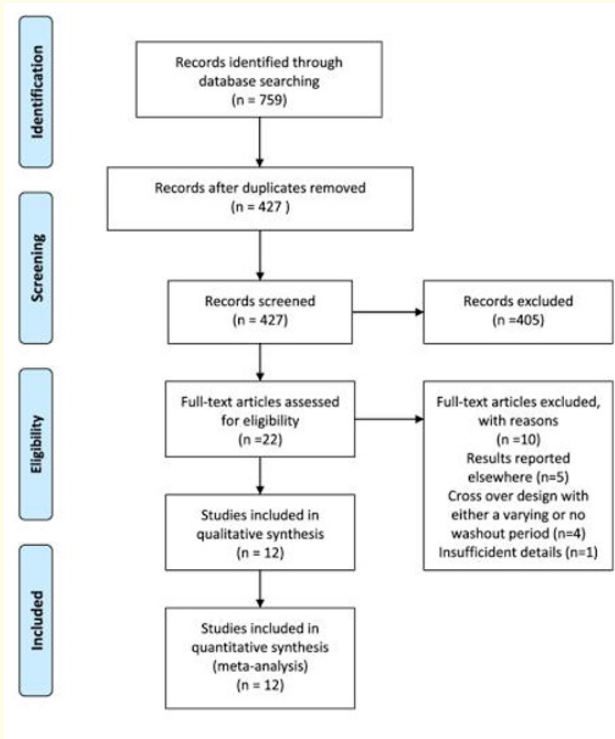


Figure 1: Flowchart of screening for randomized clinical trials for systematic review and PRISMA methodology.

Author	Sample	Study design	Age	Objective	Intervention	Protocol	Results
Rodriguez-Blanque et al. <sup>12</sup>	140	Randomized study	21 to 43 years	To determine whether there is an association between moderate intensity physical activity in an aquatic environment and to assess the quality of sleep in pregnant women.	Control group: Followed the usual recommendations during pregnancy, consisting of general guidelines for midwives, including emphasis on the positive effects of physical exercise. Exercise group: performed the exercises in the swimming pool of the Faculty of Physical Activity and Sports Sciences at the University of Granada, under the supervision of midwives and specialists in sports sciences, who had previously received a training course on the SWEP (study of water exercise during pregnancy) method.	The exercise program was applied 3 times a week (in hourly sessions in the morning or afternoon), following the SWEP method specially developed for this study. The sessions consisted of 3 phases: warm-up exercises; the main phase (divided into aerobic exercises and strength and endurance exercises), and a stretching and relaxation phase.	The quality and time spent sleeping in the EG group were considered higher compared to the CG group.
Vázquez-Lara et al. <sup>13</sup>	46	Randomized clinical trial study	29 to 31 years	To evaluate the effect of a 6-week physical activity program in an aquatic environment with neck-deep immersion on hemodynamic constants in pregnant women.	Control group: had their blood and urine samples collected during the second and third trimester visits conducted at the health care facility during routine pregnancy control. Exercise group: The samples of pregnant women were collected at the sports center at the beginning and end of the program.	The structure of each session consisted of: warm-up and adaptation exercises to the aquatic environment (5 min), followed by a group of moderate aerobic exercises (20 min), where muscle groups (upper and lower limbs, respiratory dorsal and abdominal work), as well as pelvic work (10 min), ending with a phase of relaxation and recreational exercises (10 min).	When comparing the groups, the initial values did not differ, but at the final measure the CG showed higher mean blood pressure (systolic, diastolic and mean) than that of the EG.
Backhausen et al. <sup>14</sup>	516	Randomized controlled study	30 to 31 years	To evaluate the effect of an unsupervised aquatic exercise program on the intensity of low back pain and on days spent on sick leave among healthy pregnant women.	Exercise group: standard prenatal care, counseling and guidance and access to a water exercise program from 20 weeks of gestation. Control group: received standard prenatal care, counseling and guidance, and access to a water exercise program at 32 weeks of gestation.	A session of 4 swimming laps as a warm-up, followed by 6 exercises in water and finished with another 4 laps. The 6 exercises were performed in 2 series and required 2 foam dumbbells, a swim belt, and a kickboard.	The EG had lower back pain intensity compared to the CG.

Figure a: General data from the included randomized clinical trials, using the aquatic environment with pregnant women.

comes connected with the use of a sea-going activity program on weight control during pregnancy. In their study, Sánchez-García, *et al.* [15] also reported positive results regarding weight management during pregnancy. The amphibian climate gives variance producing less gravity than on the ground, forestalling body weight on the joints, consequently, the practice in the water becomes gentle for the joints, the muscles work harder, permitting more prominent fat consuming and better muscle conditioning, for what it's worth against water opposition. During pregnancy, the expanded portability of the pelvic support winds up creating shakiness, which can set off lower back torment and, thus, thwart the capacity of these ladies to lead their day to day exercises. Consequently, practice in water turns into major areas of strength for a for pregnant ladies, as viewed as an agreeable and safe climate permits ladies to perform activities or developments that would be restricted ashore, expecting to reinforce muscle groups [15]. Backhausen, *et al.* [14], in their discoveries, expressed that the amphibian activity, regardless of whether not administered, brought about the decrease of lower back torment. Vásquez-Lara, *et al.* [13] checked that during pregnancy, blood vessel vasodilation happened with expanded conduit consistence, which leaned toward a diminishing in BP, and a resulting expansion in sodium discharge, adding to expanded blood volume. At the point when water submersion happens, the arterioles widen, advancing a diminishing in fringe obstruction, thusly pulse diminishes, and the act of oceanic activities offers a hypotensive impact Rodríguez-Blanque, *et al.* [12] detailed that during Pregnancy, ladies might advance to extreme a sleeping disorder, and may sporadically encounter bad dreams, night fear, and, surprisingly, post pregnancy psychosis. All through pregnancy, a lady's body goes through physiological and hormonal changes, and there is an expansion in chemical levels. In this manner, while progesterone is fundamental for fetal development and soundness, it has various Ramifications, bringing about fatigue and extravagant rest. Oceanic physiotherapy tends to strategies that advance physical and mental unwinding, chipping away at breathing which works on the body's oxygenation, decreasing degrees of stress and a sleeping disorder. Rest is viewed as a physiological condition of self guideline and ladies go through a progression of physiological states from pubescence to menopause, which can cause rest dysregulation and problems. These rest problems during pregnancy can begin with extreme tiredness and progress to serious a sleeping disorder, bringing about a diminished feeling of prosperity, described by changes in mind-set and inspiration, and absence of consideration and fixation. Exercises in the water control the beat of breathing and uneasiness, request more prominent exertion from the body, subsequently advancing body weakness. Be that as it may, pregnant ladies experience sluggishness, As it requires more prominent respiratory interest, advancing a sensation of unwinding, particularly assuming the water is warm [12]. This survey's solid point is the chance of collection The principal benefits related with water practice For pregnant ladies. The present work has a lot of external validity because pregnancy is very common worldwide. As limits, we have that the clinical preliminaries dissected address amphibian activities for pregnant ladies with

dissimilar methodologies, targets, and Intercessions, consequently with various conventions, as well as the restricted systemic nature of the investigations included.

Conclusion

Aquatic therapy for pregnant ladies acts empathically in weight control, improves quality of life , diminishes low back pain and joint pains.

Bibliography

1. Rodríguez-Blanque R., *et al.* "Randomized Clinical Trial of an Aquatic Physical Exercise Program During Pregnancy". *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 48.3 (2019): 321-331.
2. Vallim AL., *et al.* "Water exercises and quality of Life during pregnancy". *Reproduction Health* 8.1 (2011): 14.
3. Silva JR Jr., *et al.* "Effects of an Aquatic physical exercise program On glycemic control and perinatal Outcomes of gestational diabetes: Study protocol for a randomized Controlled trial". *Trials* 14.1 (2013): 390.
4. Vázquez Lara JM., *et al.* "Calidad de vida Relacionada con la salud en una Población de gestantes sanas tras Un programa de actividad física en el Medio acuático (PAFMAE)". *Revista Española de Salud Pública* 91 (2017): e201710042.
5. Melzer K., *et al.* "Physical activity And pregnancy: cardiovascular Adaptations, recommendations and Pregnancy outcomes". *Sports Medicine* 40.6 (2010): 493-507.
6. Aguilar Cordero MJ., *et al.* "Influencia Del programa SWEP (Study Water Exercise Pregnant) en los resultados Perinatales: protocolo de studio". *Nutrición Hospitalaria* 33.1 (2016): 156-161.
7. Artal R., *et al.* "Guidelines of the American College of Obstetricians and Gynecologists for Exercise during pregnancy and the Postpartum period". *British Journal of Sports Medicine* 37.1 (2003): 6-12.
8. Santos CMC., *et al.* "The PICO strategy for the Research question construction And evidence search". *Revista Latino-Americana de Enfermagem* 15.3 (2007): 508-511.
9. Moher D., *et al.* "Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement". *PLoS Medicine* 6.7 (2009): e1000097.
10. Shiwa SR., *et al.* "PEDro: A base de dados de evidências". Em fisioterapia. *Fisioter Mov.* 24.3 (2011): 523-533.
11. Rodriguez-Blanque R., *et al.* "The influence of Physical activity in water on sleep quality In pregnant women: A randomised trial". *Women Birth* 31.1 (2018): e51-58.



12. Vázquez-Lara JM., *et al.* "Efecto de un programa de Actividad física en el medio acuático Sobre las constantes hemodinámicas. En mujeres embarazadas". *Enfermería Clínica* 28.5 (2018): 316-325.

13. Backhausen MG., *et al.* "The effects of an unsupervised water Exercise program on low back pain and Sick leave among healthy pregnant Women – A randomised controlled trial". *PloS One* 12.9 (2011): e0182114.

14. Sánchez-García JC., *et al.* "Influencia del ejercicio físico en La evolución del peso gestacional y Posparto: Ensayo clínico aleatorizado". *Nutrición Hospitalaria* 36.4 (2019): 931-938.

15. Bacchi M., *et al.* "Aquatic Activities during pregnancy prevent Excessive maternal weight gain and Preserve birth weight: A randomized Clinical trial". *The American Journal of Health Promotion* 32.3 (2018): 729-735.