

# Effects of Exercise Interventions on Fatigue-Related Myalgia Associated with Postpartum Depression: A Review of Current Evidence

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## ABSTRACT

**Introduction:** Welcoming a baby is often described as magical—but for many new moms, it’s also exhausting, overwhelming, and emotionally heavy. Postpartum depression (PPD) affects a large number of women, especially in the first year after giving birth. Alongside it, deep fatigue and body aches can make even simple tasks feel like climbing a mountain. While medications are available, not every mom feels comfortable taking them—especially while adjusting to breastfeeding or new routines. Many women want natural, empowering ways to feel better. One of those ways is exercise.

**Methods:** To explore how movement might help, we looked at a wide range of studies from trusted medical databases like PubMed, ScienceDirect, the Cochrane Library, and Web of Science. We focused on research that included new moms, used reliable tools to measure things like fatigue and depression, and involved structured exercise—whether it was a simple walking program or a group fitness class.

**Results:** All of the studies demonstrated that regular, moderate-intensity exercise, such as low-impact aerobics, Pilates, walking, or water workouts, had a significant impact. Mothers who moved their bodies on frequently said they encountered less tired, slept better and their general health and mood enhanced. Most of the time, the best programs had some structure, like a professional instructor or a group setting and lasted between six and twelve weeks. It should come as no surprise that solo workouts at home, particularly those that were low intensity, didn't seem to have as many advantages.

**Conclusion:** Exercise after childbirth isn't about “getting your body back”—it’s about finding a way forward. It’s about moving through exhaustion, clearing the mental fog, and feeling like yourself again. For many new mothers, structured, moderate-intensity movement is a safe, effective, and uplifting way to manage fatigue and postpartum depression. It deserves a place in every mom’s postpartum care plan—not as pressure, but as support. Going forward, we need to make these programs easier to access and tailor them to the real lives of moms, especially those who need them most.

**Keywords:** Postpartum depression, Exercise, Fatigue, Myalgia, Physical activity, Maternal health.

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## INTRODUCTION

Postpartum depression (PPD) is a prevalent mental illness that causes mental and emotional disorders in the first year after giving birth. Hormonal shifts, genetic predisposition, and stressors in life everything play an essential part in it

(Carlson K et al. 2025). Common signs are a constant low mood, not being interested in the baby, crying spells that happen a lot and for no reason, and fears of hurting the baby (Marconcin P et al. 2021).

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After giving birth, many new moms feel tired. A lot of them do, up to 90% of the time. It is very closely linked to postpartum depression and can make it harder to get over emotional problems (Yu H et al. 2024). Fatigue-related myalgia is muscle pain or weakness that happens when someone is very physically and emotionally tired. It can make depression worse and make it harder for new moms to sleep and get things done every day (Sara Basyouny et al. 2022). Mothers experiencing postpartum fatigue often feel drained, struggle to focus, and find it challenging to care for their babies, which adds to their overall stress levels (Carlson K et al. 2025). In addition, sleep disturbance, a common feature in early motherhood due to hormonal changes and infant care, significantly worsens both fatigue and depressive symptoms (Yang et al. 2018).

By releasing endorphins, balancing stress hormones, improving sleep quality and speeding up the recovery process for new mothers, regular exercise is known to improve mood (Navas A et al. 2021). Based on recent research, organised sessions of exercise can reduce fatigue-related muscle symptoms, which would benefit both the mental and physical aspects of postpartum depression (Bulguroglu et al. 2023).

This review includes the findings of systematic reviews, meta-analyses and randomised controlled trials to examine how exercise affects fatigue-related myalgia in women with postpartum depression.

**METHODS**

This narrative review evaluated all of the published randomized controlled trials (RCTs), systematic reviews and meta-analyses that investigated through how different types of exercise affect postpartum fatigue-related myalgia and depression. A comprehensive review of major academic databases, such as PubMed, ScienceDirect, the Cochrane Library and Web of Science, was done to find useful literature. The goal of the search was to find studies from the last ten years that looked at exercise interventions specifically for women who had recently given birth. The following predetermined inclusion criteria were used when choosing studies: (1) participants had to be postpartum women within a year of giving birth; (2) the intervention included structured physical exercise; (3) the results included the measurement of depression and/or fatigue using reliable tools like the Fatigue Assessment Scale (FAS) and the Edinburg Postnatal Depression Scale (EPDS). Studies that (1) used medications without a structured exercise component; (2) did not have a control or comparison group, or (3) did not employ standardized outcome measures were excluded. Studies with strong methodological of their efficacy across various postpartum populations, the final selection comprised a variety of exercise regimens.

**RESULTS**

No.	Author's name	Study design	Study group (N)	Intervention	Outcome measures	Conclusion
1.	Bulguroglu et al. 2023	RCT	57 Postpartum women (28 in Pilates group, 29 in control group)	For 12 weeks, the Pilates group in twice-weekly ,one hour sessions of supervised Pilates exercise led by a certified physiotherapist. A 15-minutes warm-up, 45 minutes of Pilates exercises (such as hundreds, swans, shoulder bridge and swimming) and a 15 minutes cool down were all part of the routine. With initial supervision and phone follow-ups at weeks 4, 8 and 12 , the control group participated in a home-based program of breathing and relaxation techniques.	<ul style="list-style-type: none"> <li>• <b>Postpartum Depression:</b>measured using Edinburg Postnatal Depression Scale (EPDS).</li> <li>• <b>Sleep Quality:</b> assessed using the Postpartum Sleep Quality Scale (PSQS).</li> <li>• <b>Functional Status:</b> evaluated using the Inventory of Functional Status After Childbirth (IFSAC).</li> </ul>	In all three outcomes, the Pilates group's profits were statistically significant. Functional status scores increased, depression scores decreased and sleep quality improved. The control group, on the other hand , encountered either no change or worsened results, particularly in terms of functional status and sleep quality. According to the study's outcomes, a 12-week structured Pilates program helps postpartum women feel less depressed, sleep better and be

						more physically functional.
2.	Yang et al. 2018	Single-blinded Pilot RCT	140 Postpartum women (70 in exercise group and 70 in control group)	At home, participants in the intervention group used a DVD to perform aerobic gymnastics exercises at a moderate intensity. For 12 weeks, the exercise was performed at least three times a week for 15 minutes each time. With exercises for the neck, shoulders, arms, chest, waist, legs and relaxation, the DVD included a progressive routine that began with sitting positions and progressed to standing positions. Only normal postpartum care was provided to the control group.	<ul style="list-style-type: none"> <li>• <b>Perceived Stress Scale (PSS)</b> for stress.</li> <li>• <b>Postpartum Sleep Quality Scale (PSQS)</b> for sleep quality.</li> <li>• <b>Edinburg Postnatal Depression Scale (EPDS)</b> for depression.</li> </ul>	After 4 weeks, the aerobic gymnastic exercise significantly reduced perceived stress and fatigue and by 12 weeks, benefits continued to be felt. In comparison to the control group, participants also demonstrated improvement in physical symptoms caused by inadequate sleep. Despite not being clinically depressed at baseline, participant's depression scores did slightly decline. The study recommended the inclusion of aerobic gymnastics in postpartum care strategies after concluding that it is a safe, at-home way to help postpartum women with stress, fatigue and sleep quality.
3.	Basyouny et al. 2022	RCT (Single-masked, prospective design)	60 lactating employed mothers (Group A: 30 intervention; Group B: 30 control)	Over a period of 6 weeks, Group A participated in 30 minutes aerobic exercise sessions five days a week on a treadmill. A 5 minute warm-up, 20 minutes of moderate-intensity aerobic training (60-70% HR max) and a 5 minute cool-down, were all part of the session. Furthermore, lifestyle modification guidance on stress management, breastfeeding ergonomics, diet and time	<ul style="list-style-type: none"> <li>• <b>Fatigue:</b> measured using Fatigue Assessment Scale (FAS)</li> <li>• <b>Stress:</b> measured using the Perceived Stress Scale (PSS-10).</li> </ul> <p>Assessments were conducted at baseline, after 6 weeks and at 6 months post-intervention.</p>	After 6 weeks, the intervention group's levels of stress and fatigue seemed significantly reduced compared to that of the control group (p< 0.001). Though within-group improvements kept going by the 6-month follow-up, the differences between the groups were no longer statistically significant. The study found less stressed and exhausted, its long-term aerobic exercise helps

				management were given to both groups.		lactating working mothers feel less stressed and exhausted, its long-term effects necessitate sustained engagement and perhaps a longer intervention period.
4.	Kazeminia et al. 2022	Systematic review and Meta-analysis	Total of 902 postpartum women across 9 clinical trials (456 participants in the intervention group and 446 participants in the control group)	<ul style="list-style-type: none"> <li>It involved several various types of exercise, such as Pilates, aerobic training and at-home physical activity.</li> <li>Over the course of 4 to 12 weeks, the bulk of programs were offered 3 times a week for 20 to 60 minutes each session.</li> <li>Some interventions start within 72 hours after giving birth, while others started during pregnancy and continued after giving birth.</li> </ul>	<p>Fatigue measured using various standardized tools such as:</p> <ul style="list-style-type: none"> <li><b>Fatigue Identification Form</b></li> <li><b>Multidimensional Fatigue Inventory (MFI-20)</b></li> <li><b>Fatigue Symptom Checklist (FSC)</b></li> </ul> <p>Pre- and post-intervention fatigue scores were compared statistically.</p> <p><b>Primary outcome:</b> Change in postpartum fatigue level</p>	According to the meta-analysis, the intervention group's post-intervention fatigue scores declined statistically considerably (from $9.9 \pm 1.4$ to $8.1 \pm 1.1$ ; $p \leq 0.001$ ). This shows that organized physical activity is a successful, non-pharmacological method of decreasing postpartum women's levels of fatigue. The authors stress the benefits of exercise for clinical counselling and postpartum quality of life enhancement and advise including it in routine postpartum care.
5.	Yu et al. 2024	Systematic review and Meta-analysis of 37 RCTs	A total of 6,616 participants across 37 studies:	Numerous exercise forms, including yoga, Pilates, aerobic training, HIIT, walking and aquatic exercise, were covered in the review. Sessions lasted 10 to 90 minutes and were held one to five times a week for a total of 4 to 6 weeks. During the postpartum periods, low-to-moderate-intensity yoga or Pilates sessions conducted	<ul style="list-style-type: none"> <li><b>Depression:</b> Edinburgh Postnatal Depression Scale (EPDS), Beck Depression Rating Scale (HRDS)</li> <li><b>Anxiety:</b> Hamilton Anxiety Rating Scale (HARS), Self-Rating Anxiety Scale (SAS), State-Trait Anxiety Inventory (STAI)</li> <li><b>Fatigue:</b> Multidimensional Fatigue Inventory (MFI-20), Fatigue Assessment Instrument (FAI), Postpartum Fatigue Scale (PFS)</li> </ul>	Maternal depression, anxiety and exhaustion were significantly reduced by exercise, particularly when postpartum exercise was provided in structured, low-to-moderate intensity formats. Better results were obtained with mixed-format or group delivery. Exercise is a

				4 to 5 times a week for 40 to 60 minutes, either in group or combined group/individual settings, proved to be the most effective format. Measures of Outcome: Validated instruments such as the EPDS, BDI-II, HARS, STAI, MFI-20 and PFS were used to measure depression, anxiety and fatigue. The effect sizes that were reported were fatigue (g = -0.64), anxiety (g = -1.09) and depression (g = -0.71).		useful, non-pharmacological method to enhance postpartum mental and physical health, according to the findings.
6.	Pentland et al. 2022	Systematic review and Meta-analysis	242 postpartum women across 5 RCTs	The main or only aerobic activity was walking, which was done for 90-120 minutes a week for 12-24 weeks on average. Group settings and supervision were associated with most successful interventions.	All included studies used the Edinburgh Postnatal Depression Scale (EPDS) to assess postpartum depressive symptoms.	A significant decrease in EPDS scores was observed in the pooled analysis (mean difference = -4.01; 95% CI: -7.18 to -0.84), indicating that walking is a low cost and effective intervention for postpartum depression. The study highlights that moderate-intensity walking interventions that are group-based may be the most beneficial.
7.	Mohammadi et al. 2015	RCT	127 postpartum women recruited during 26-32 weeks of gestation with EPDS score <15	Participants were split into 3 groups: one that did not exercise, one that was trained to do low-intensity breathing and stretching exercises exclusively during pregnancy, and a third that was trained to do the same exercise for the first two months after giving birth as	<ul style="list-style-type: none"> <li>• <b>Postnatal depression</b> was assessed using the Edinburgh Postnatal Depression Scale (EPDS)</li> <li>• <b>Fatigue</b> was measured using the Fatigue Identification Form</li> </ul> Measurements were taken at baseline, 1 month and 2 months postpartum.	The group's depression and fatigue scores at one and two months postpartum did not differ significantly, according to the study. As a result, neither postpartum depression nor exhaustion were shown to be prevented by the intervention.

				<p>well. These exercises were performed at home without close supervision and were intended to be gentle. The sessions, which were designed to be completed every day, concentrated on basic stretching exercises paired with deep breathing methods.</p>		<p>According to the authors, more investigation is required in order to reach more firm conclusions.</p>
8.	Navas et al. 2021	Multi-center RCT	<p>A total of 294 pregnant women (gestation age 14-20 weeks) with low-risk pregnancies were randomized:</p> <p><b>Intervention group:</b> 148 women</p> <p><b>Control group:</b> 146 women</p>	<p>Pregnant women in the intervention group engaged in moderate-intensity water aerobics for 45 minutes, three times a week, for five months beginning between weeks 14 and 20 of pregnancy in this randomized controlled trial. Warm-up exercises, 20 minutes of aerobic exercise with breathing coordination, relaxation and playful movements were all part of the midwives-led sessions, which were conducted in indoor pools (28-30 degree Celsius). Standard prenatal care was given to the control group.</p>	<p>Measured 1 month postpartum:</p> <ul style="list-style-type: none"> <li>• <b>Postpartum Depression:</b> using Edinburgh Postnatal Depression Scale (EPDS)</li> <li>• <b>Sleep Quality:</b> using MOS Sleep Scale</li> <li>• <b>Quality of Life:</b> using EuroQol 5-Dimension questionnaire (EQ-5D)</li> </ul>	<p>As evidenced by lower EPDS scores and fewer instances of reported emotional distress, the study found that this aquatic exercise program significantly decreased postpartum depression and anxiety symptoms. Additionally, the intervention was safe for both moms and babies, indicating that it is a good way to avoid postpartum mental health problems.</p>
9.	Broberg et al. 2022	Secondary analysis of RCT	<p>A total of 282 pregnant women with current or a history of depression and/or anxiety were enrolled:</p> <ul style="list-style-type: none"> <li>• <b>Intervention group:</b> 143 participants</li> <li>• <b>Control group:</b> 139 participants</li> </ul>	<p>For pregnant women with or at high risk of depression, the intervention comprised a twice-weekly, 12-week supervised group exercise program that began between weeks 17 and 22 of pregnancy. Under the supervision of physiotherapists, each 70-minute session comprised a warm-up, 20</p>	<ul style="list-style-type: none"> <li>• <b>Primary outcome of this secondary analysis:</b> Self-reported sleep quality, assessed via the Pittsburgh Sleep Quality Index (PSQI) at baseline, 29-34 weeks gestation and 8 weeks postpartum.</li> <li>• <b>Psychological well-being</b> was assessed using the WHO-5 Well-Being Index.</li> </ul>	<p>The supervised group exercise intervention did not significantly improve self-reported sleep quality at either 8 weeks postpartum or 29-34 weeks of gestation, according to the study. Over time, especially after giving birth, the quality of sleep declined for both the intervention and control</p>

				minutes of moderate-intensity endurance training, 25 minutes of strength training and 15 minutes of stretching and relaxation. With weekly support emails to promote adherence and customized intensity, the program adhered to national pregnancy exercise guidelines.		groups. But sleep quality was consistently worse for women with low psychological well-being. The results imply that although sleep problems are prevalent during and after pregnancy, particularly in women who experience depressive symptoms, supervised exercise might not be enough to improve sleep quality in this high-risk population.
10.	Lui et al. 2020	Meta-analysis (7 trials)	A total of 7 trials involving 662 women were included in the review. These studies assessed fatigue in pregnant and postpartum women who participated in exercise interventions compared to control groups.	The reviewed studies focused mostly on pregnancy and the postpartum period and included a variety of exercise interventions, including yoga, strength training and aerobic workouts. The most successful interventions lasted longer than eight weeks, were postpartum and were supervised. In line with recommendations for moderate-intensity exercise most days of the week, these programs usually included frequent, scheduled sessions meant to increase physical activity levels and lessen fatigue.	<ul style="list-style-type: none"> <li>• <b>Fatigue levels,</b> measured through standardized fatigue scales.</li> <li>• Effect sizes were summarized using standardized mean difference (SMD).</li> </ul>	According to the meta-analysis, exercise significantly reduced pregnancy and postpartum fatigue (SMD = 0.29; 95% CI: 0.10-0.47; p = 0.003). Long-term, supervised postpartum exercise regimens were found to be especially beneficial by subgroup analysis. The authors came to the conclusion that exercise could be a helpful non-pharmacological strategy to lessen fatigue in this demographic. They did, however, stress the necessity of additional extensive, superior trials to validate these results and elucidate underlying mechanisms.
11.	Qian et al. 2021	Meta-analysis	A total of 17 clinical trials were included in	Four non-pharmacological	<ul style="list-style-type: none"> <li>• <b>Postpartum fatigue,</b> measured using</li> </ul>	Exercise interventions

		(17 trials)	<p>the systematic review, and 10 trials 1194 postpartum women were included in the meta-analysis. The participants were women aged 18 or above, within 0-78 weeks postpartum, with no major postnatal complications.</p>	<p>treatments for postpartum fatigue were investigated in the meta-analysis: physical therapy, psychoeducation, exercise and tea consuming. Exercise regimens ( aerobics, yoga and Pilates) lasted 3 to 12 weeks and began 72 hours to six weeks after giving birth. For comparable lengths of time, psychoeducational support was provided through booklets or home visits. For two weeks, chamomile tea was taken every day, commonly while breathing the aroma. Physical therapies, such as skin-to-skin contact, warm showers, or lavender oil, started 1-2 days after giving birth and were only available for one or three sessions, lasting 10-30 minutes each. The two activities that consistently reduced fatigue were exercise and fatigue.</p>	<p>tools like MFI-20, PFS, FAS, VAS-F, etc.</p> <ul style="list-style-type: none"> <li>• <b>Psychological factors</b> such as depression, anxiety and stress (e.g., EPDS, CES-D, DASS-21)</li> </ul>	<p>significantly decreased postpartum fatigue, according to the meta-analysis (SMD = -1.74; 95% CI: -2.61 to -0.88; p &lt; 0.0001). Though not at the 2-week follow-up, drinking tea also demonstrated a short-term benefit in lowering depression and fatigue after the intervention. The lack of significant effects from psychoeducational interventions was probably caused by low adherence and variations in delivery. Warm showers and the aroma of lavender oil were beneficial, but the results of physical therapies were mixed. The study comes to the conclusion that while tea and exercise are promising non-pharmacological options for managing postpartum fatigue, more high-quality research is required.</p>
12.	Shuai et al. 2024	Network Meta-Analysis (48 RCTs, N=5837)	<p>The review included 48 RCTs with a total of 2930 perinatal women in intervention groups and 2907 in control groups. Participants were women during pregnancy or within one year postpartum.</p>	<p>The study assessed 7 forms of physical activity for perinatal depression: walking, combination routines, yoga, tai chi, traditional aerobics, relaxation therapy (such as deep breathing, muscle relaxation), mind-body exercises (such as yoga, tai chi), and aquatic sports. The majority of</p>	<p><b>Perinatal depression</b>, measured using validated scales such as:</p> <ul style="list-style-type: none"> <li>• Edinburgh Postnatal Depression Scale (EPDS)</li> <li>• Center for Epidemiological Studies Depression Scale (CES-D)</li> <li>• Beck Depression Inventory (BDI) and others</li> </ul> <p>Effectiveness was ranked using <b>SUCRA scores</b> (Surface Under the Cumulative Ranking Curve).</p>	<p>The most successful intervention, according to the analysis, was relaxation therapy (SUCRA=99.4%), which was followed by mind-body practices like yoga and tai chi (SUCRA=80.6%). Moderate benefits were also revealed by traditional aerobics and aquatic sports (SUCRA=70.9%</p>

				<p>programs lasted four to twelve weeks and consisted of 2 to 5 sessions per week, lasting thirty to sixty minutes each. The most successful methods were discovered to be mind-body and relaxation exercises, which provide accessible, low-impact and safe alternatives for promoting physical and mental health throughout the perinatal stage.</p>	<p>and 67.1%, respectively). According to the study's findings, perinatal depression is the best managed with integrated mental and physical (MAP) training methods. In addition, to improve adherence and results in perinatal women, customized and long-lasting exercise regimens are advised, specifically those that address psychological and physical comfort.</p>
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**DISCUSSION**

As stated in this review, exercise is a safe and effective therapeutical approach to decreasing depression, body pain and postpartum fatigue. Exercise like Pilates, aerobic training, walking and water-based activities have been proven in various studies to help women feel less stressed, sleep better and feel less fatigued. These improvements suggest that exercise can be a valuable part of care after childbirth. Wang et al. (2024) also reported that exercise-based interventions such as pram walking, yoga and supervised mixed exercise significantly improved postpartum depressive symptoms.

A few important points were noted. First, exercise programs worked best when they were organized and led by professionals or done in a group. Home-based or unsupervised routines did not always give the same benefits. Fotso et al. (2023) similarly concluded that physical activity combined with support or wellness programs produced better outcomes in postpartum depression management.

Second, the time frame and intensity of the exercises had an important effect. Short or extremely light routines failed to produce identical results as moderately rigorous programs that lasted at least 6 to 12 weeks. Ji et al. (2024) also found that aerobic exercise, yoga and resistance exercises showed moderate beneficial effects in preventing and treating postpartum depression.

Many studies showed that while mood and energy boosts can begin within a few weeks of exercise, these effects might decrease if the exercise does not continue. This suggests that it's critical to support women in lasting their exercise and to promote long-term habits. Yuan et al. (2022) further demonstrated that at least 90 minutes of physical activity per week significantly reduced the risk of postpartum depression.

Simple stretching and other low-intensity, unsupervised exercises commonly didn't yield much improvement. This could be because they failed to keep women interested or were inadequate potent to alter the brain. Also, most studies included women with mild to moderate depression, and even in these cases, exercise helped. Group exercise might also give emotional benefits by offering social support and reducing loneliness. Liu et al. (2025) additionally highlighted that mindfulness and yoga based interventions improved depression, anxiety and emotional wellbeing among postpartum women.

Overall, these results highlight that well-designed and properly supported exercise programs can be a strong part of postpartum recovery and mental health care.

**CONCLUSION**

This review suggests that moderate-intensity exercises, including walking, Pilates, aerobic workouts and water-based activities, may assist to decrease postpartum depression, fatigue and body pain. For 6 to 12 weeks, these exercises showed up to be most effective when done in a group or under guidance.

Due to their reasonable cost, safely and ability to improve mood, sleep and daily activities, these exercises ought to be part of postpartum care. Doctors and health professionals should recommend exercise programs that match each women's needs and comfort level. More research is needed to figure out the best type, length and intensity of exercise and help women stay motivated to keep exercising in the long run especially those at higher risk of depression.

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**CONFLICT OF INTEREST** : None

