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Physical activity during postpartum period- an analysis of the latest studies and guidelines

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ABSTRACT

Introduction and Purpose:

Guidelines recommend at least 150 minutes of moderate-intensity aerobic activity weekly for postpartum women to enhance cardiovascular fitness, muscle strength, weight management, and mental health, particularly in alleviating postpartum depression (PPD). This review aimed to overview physical activity (PA) in postpartum women and identify key aspects to improve their health and quality of life.

Methods:

A literature review was conducted using PubMed and Google Scholar, focusing on articles from 2015 to 2024, including observational studies, clinical trials, meta-analyses, and systematic reviews. Non-English articles and book chapters were excluded.

State of Knowledge:

Studies highlighted the effectiveness of various exercise regimens for postpartum conditions. Trunk stabilization exercises significantly reduced lumbopelvic pain and disability. Exercise training impacted maternal vascular health and blood pressure, with regular exercise reducing blood pressure, preventing long-term cardiovascular diseases. Innovative approaches, such as progressive muscle relaxation exercises (PMRE) combined with online health counseling, reduced PPD and enhanced maternal attachment. Smartphone app-based pelvic floor muscle training (PFMT) reminders increased adherence and improved short-term pelvic floor muscle (PFM) function, showing potential long-term benefits.

Summary:

This review provides strong evidence for structured PA programs in postpartum care, offering benefits from pain reduction and improved cardiovascular health to enhanced mental well-being. Future research should identify barriers to PA adherence and develop tailored interventions for postpartum women.

Keywords: postpartum; physical activity; exercise; postpartum depression; pelvic floor

Introduction

Postpartum physical activity (PA) guidelines emphasize the vital role of regular exercise in enhancing maternal health after childbirth. Most guidelines suggest at least 150 minutes of moderate-intensity aerobic activity per week, aligning with general adult PA recommendations but tailored to the unique changes post-childbirth. [1]

Countries like Canada, Australia, and the United States provide detailed postpartum PA guidelines.

They recommend starting with low-impact activities, such as walking, pelvic floor exercises, and stretching, and gradually increasing intensity to include activities like running or high-intensity interval training (HIIT) as recovery progresses. [2,3]

The health benefits of PA during the postpartum period are well-documented. Regular PA improves cardiovascular fitness, enhances muscle strength, and supports healthy weight management—benefits particularly crucial for postpartum women dealing with weight retention and weakened pelvic muscles after pregnancy and childbirth. [4,5]

PA also significantly impacts mental health during the postpartum period. Postpartum depression (PPD), characterized by extreme sadness, anxiety, and fatigue, affects many new mothers. Research indicates that regular PA can significantly reduce the risk of PPD by promoting the release of endorphins, reducing stress, and alleviating anxiety. Studies show that postpartum women engaging in moderate-intensity PA, such as brisk walking or cycling, experience fewer depressive symptoms than inactive women. [6]

PA is associated with improved self-esteem, better body image, and an enhanced overall quality of life. For new mothers, who often undergo significant changes in their body and lifestyle, PA can be an empowering way to regain a sense of control and normalcy. [7]

Sedentary behavior (SB), characterized by prolonged sitting or inactivity, is an emerging public health concern linked to adverse outcomes like cardiovascular disease, diabetes, and obesity. For postpartum women, who may spend considerable time sitting while feeding or caring for their infants, managing SB is crucial. [8]

Guidelines addressing SB typically recommend breaking up long periods of sitting with short bouts of activity. [3] For example, the Belgian guidelines suggest taking breaks every 30 minutes to walk around, while the Brazilian guidelines recommend 5-minute activity breaks every hour. These breaks can include light activities such as standing up, stretching, or walking, aiming to reduce continuous sitting time and mitigate its negative health effects. [9]

Making PA and SB guidelines accessible and practical for postpartum women is essential. This involves providing clear, easy-to-follow instructions and ensuring the guidelines are culturally relevant and sensitive to the diverse needs of new mothers. Healthcare providers play a crucial role as primary sources of information and support for postpartum women. Training healthcare providers to deliver consistent, evidence-based advice on PA and SB can enhance adherence to the guidelines. [1]

Creating supportive environments for postpartum PA is also vital. This includes providing access to safe, family-friendly exercise facilities, offering postpartum exercise classes, and promoting community-based PA programs. Social support is key for many new mothers in maintaining regular PA. Group exercise classes or walking groups can offer both physical benefits and opportunities for social interaction, further enhancing mental well-being. [10]

While current guidelines provide general recommendations, more specific guidance on optimal exercise forms for different stages of postpartum recovery would be valuable. This includes understanding the impact of various exercise modalities, such as aerobic versus resistance training, on both physical and mental health outcomes. [11]

Future research should focus on developing strategies to reduce SB in postpartum women.

Although some guidelines address SB, limited evidence exists on effective methods to encourage postpartum women to break up prolonged sitting periods. Interventions combining PA and SB recommendations are likely most effective, but more research is needed to identify the best approaches. [1]
Additionally, research is needed to understand the barriers and facilitators to PA and SB adherence in postpartum women. Understanding the challenges new mothers face in maintaining an active lifestyle can inform the development of more effective guidelines and interventions. This includes addressing practical barriers such as time constraints and childcare responsibilities and psychological barriers such as fear of injury or lack of motivation. [12]
The aim of our review was to provide a comprehensive overview of PA in women during the postpartum period and to identify key aspects for improving the overall health and quality of life of women during this period.

Materials and methods of research

A comprehensive literature review was undertaken using the PubMed and Google Scholar databases, with search terms including “postpartum”, “physical activity”, “exercise”, “postpartum depression”, and “pelvic floor”. Articles published between 2015 and 2024 were selected. Filters were applied to include observational studies, clinical trials, meta-analyses, and systematic reviews, while excluding non-English articles and book chapters. To ensure quality, the selected studies were evaluated based on their relevance, methodology, and significance. Systematic data extraction was conducted, covering key findings, study design details, and participant characteristics.

Description of the state of knowledge

Impact of PA on perinatal depression

He et al. performed a meta-analysis on how varying levels of PA influence perinatal depression. This condition encompasses depressive symptoms experienced during pregnancy and after childbirth, potentially leading to serious consequences for both the mother and the infant, including impaired emotional and cognitive development of the child and difficulties in maternal-infant bonding.
The study addressed a gap in the literature by examining the impact of PA's intensity, dose, period, and duration on perinatal depression. Previous research has suggested PA as a potential intervention for reducing depressive symptoms in the general adult population and in perinatal women specifically. However, no prior meta-analysis has systematically analyzed these factors together during the perinatal period.
The research was conducted following PRISMA guidelines and included data from PubMed, Embase, Cochrane Library, and Web of Science databases. The inclusion criteria focused on controlled trials involving perinatal women who either received PA interventions or standard care. The outcomes measured were depression incidence and severity, with weighted mean difference (WMD) and risk ratio (RR) used as effect indicators.

Results from 35 studies, comprising 5084 women, indicated that PA significantly reduced the incidence and severity of depression among perinatal women. Specifically, low-intensity PA, quantified as less than 450 METs-min/week, was effective in lowering depression levels among women with prenatal depression. For the general population, a reduction in PPD risk was observed when PA interventions lasted 12 weeks or longer, particularly during the second and third trimesters, with an activity level of at least 450 METs-min/week.

The study also found that both low and moderate-intensity physical activities were beneficial in reducing depression severity among postpartum women. Moreover, moderate exercise during pregnancy was linked to a decreased risk of PPD. However, the study acknowledged that the effectiveness of PA interventions might vary with different types of exercises and highlighted the need for further research to determine the optimal exercise protocols. [13]

The study conducted by Ji et al. systematically reviewed the impact of various exercise types on perinatal depression, which includes both prenatal and PPD. This condition poses significant mental health challenges for pregnant and postpartum women, with global prevalence rates fluctuating between 10 and 33.3 percent. The research aggregated data from 48 randomized controlled trials (RCTs), encompassing a total of 5,282 participants, to evaluate the effectiveness of different exercise interventions.

The meta-analysis assessed a range of exercise modalities: yoga, aerobic exercises, resistance training, gymnastics, water exercises, fertility dance, and stroller walking. The key findings from the analysis were as follows:

1. **Prenatal Depression Prevention**: Among the various exercise interventions, yoga emerged as the most effective in preventing prenatal depression. The study highlighted that yoga, characterized by its combination of physical postures, breathing exercises, and relaxation techniques, significantly reduced symptoms of depression during pregnancy. Following yoga, combined aerobic and resistance exercises also showed a notable preventive effect on prenatal depression.
2. **Treatment of Prenatal Depression**: For pregnant women already experiencing depression, certain exercise modalities were particularly beneficial. Gymnastics, which involves a variety of physical activities and exercises designed to enhance flexibility and strength, was found to be the most effective in treating prenatal depression. This was followed by pelvic floor muscle training (PFMT) and aerobic exercises, both of which contributed to significant reductions in depressive symptoms among the participants.
3. **PPD Prevention**: In the context of preventing PPD, yoga and aerobic exercises again stood out as the most effective interventions. Yoga's holistic approach, integrating mind-body practices, appears particularly beneficial in reducing the risk of PPD. Aerobic exercises, which improve cardiovascular fitness through activities like walking, running, and cycling, also demonstrated substantial preventive effects.

4. **Treatment of PPD**: For treating PPD, aerobic exercises were identified as the most effective modality. These exercises not only aid in physical recovery after childbirth but also contribute to mental well-being by alleviating depressive symptoms. Water exercises, which involve activities like swimming or water aerobics, were also found to be beneficial due to their low-impact nature and positive effects on mood and physical health. Yoga maintained moderate effectiveness in treating PPD, reinforcing its role as a valuable therapeutic intervention.

The study also highlighted the variation in effectiveness across different exercise types, suggesting that not all exercises confer the same level of benefit for preventing and treating perinatal depression. It was noted that the choice of exercise should consider individual preferences, accessibility, and specific physical conditions associated with pregnancy and the postpartum period.

While the study affirmed the positive role of physical exercise in managing perinatal depression, it also pointed out limitations, such as the relatively small number of trials for some exercise modalities, which might influence the reliability of the findings. Nonetheless, the comprehensive analysis underscored the significant potential of exercise as a non-pharmacological intervention for improving mental health in pregnant and postpartum women. [14]

The study conducted by Uçakcı Asalıoğlu et al. evaluated the impact of online health training/counseling and a progressive muscle relaxation exercise (PMRE) program on PPD and maternal attachment. The research utilized a randomized, controlled, experimental trial design to investigate these effects.

Participants, recruited during pregnancy, completed the Prenatal Attachment Inventory (PAI) and the Edinburgh PPD Scale (EPDS) at 35 weeks of gestation. Stratified block randomization was used to assign participants to either the experimental or control group based on their EPDS scores and parity. The experimental group received PMRE training and online counseling sessions twice weekly from 36-37 weeks of pregnancy until six months postpartum. The control group received standard care without these additional interventions. The primary outcomes measured were changes in EPDS and Maternal Postpartum Attachment Scale (MPAS) scores at six weeks postpartum .

The results indicated that the mean PAI scores before the intervention were similar between the experimental and control groups. However, the experimental group showed a significant reduction in PPD, with a mean EPDS score decrease from 9.12 ± 5.05 to 3.40 ± 3.00, compared to the control group's decrease from 9.77 ± 6.30 to 11.40 ± 5.91 ($P < 0.05$). Additionally, maternal attachment significantly improved in the experimental group, with MPAS scores increasing to 13.92 ± 5.54 compared to the control group's 17.51 ± 6.12 ($P < 0.05$).

The combination of PMRE and online health training/counseling effectively reduced PPD and enhanced maternal attachment. This is attributed to the psychological and physiological relaxation provided by PMRE and the emotional support and coping strategies offered through online counseling. [15]

Impact of PA on urinary incontinence and pelvic floor muscle

The study by Chen et al. explored the effectiveness of non-surgical treatments for urinary incontinence (UI) in postpartum women. UI, defined as the involuntary leakage of urine, affected many postpartum women, significantly impacting their quality of life and participation in physical activities. The systematic review and meta-analysis included RCTs from nine databases up to August 2022. Seventeen studies were selected, focusing on conservative treatments such as PFMT, vaginal cones, electrical stimulation, biofeedback, and various combinations of these therapies.

The review highlighted several key findings:

1. **Effectiveness of PFMT**: Supervised PFMT, especially when combined with the use of a vaginal cone, was more effective in reducing the incidence of UI compared to individual PFMT alone (odds ratio, 0.29; 95% CI, 0.14-0.61). This indicated that a structured and supervised approach significantly enhanced the benefits of PFMT.
2. **Combining Treatments**: The combination of individual PFMT with acupuncture (mean difference, −1.91; 95% CI, −2.46 to −1.37) or electroacupuncture, as well as supervised PFMT with moxibustion, proved more effective in alleviating UI severity compared to individual supervised PFMT alone. This suggested that integrating traditional therapies like acupuncture could enhance the effectiveness of PFMT.
3. **Electrical Stimulation and Biofeedback**: These therapies, when combined with acupoint stimulation or core training, showed superior results in reducing UI severity compared to electrical stimulation and biofeedback alone. For instance, the combination was more effective in improving the incontinence-specific quality of life.
4. **Quality of Life Improvements**: Supervised PFMT and electrical stimulation plus biofeedback combined with core training were found to be the most beneficial in enhancing the UI-specific quality of life for postpartum women.

Overall, this research underscored the potential of non-surgical interventions in improving the quality of life for postpartum women suffering from UI and highlighted the importance of supervised and multifaceted therapeutic approaches. [16, 17, 18]

Mantilla Toloza et al. explored the efficacy of PFMT in preventing stress urinary incontinence (SUI) among pregnant and postpartum women. SUI, a condition where physical stress on the bladder causes involuntary urine leakage, significantly affects women's quality of life, particularly during and after pregnancy. The authors designed the study to assess whether PFMT, a regimen aimed at strengthening pelvic floor muscles (PFMs), can mitigate the risk of developing SUI.

This research involved a systematic review of existing RCTs, emphasizing high-quality evidence to ensure robust conclusions. Databases such as PubMed, Scopus, Cochrane, and PEDro were exhaustively searched, leading to the inclusion of seven studies published in English and Portuguese. The selected trials collectively examined 1,401 pregnant women, all of whom engaged in PFMT to evaluate its preventative effectiveness against SUI.

The primary goal of the study was to determine the impact of PFMT on the incidence and severity of SUI during pregnancy and after childbirth.

The authors meticulously reviewed the methodologies of the included studies, ensuring that each met rigorous standards for clinical research. The effectiveness of PFMT was measured in terms of its ability to enhance PFM strength and reduce the prevalence of SUI symptoms among participants.

Women who began PFMT during pregnancy experienced significantly lower rates of SUI in the postpartum period. The findings underscore the importance of early and regular PFMT implementation to optimize pelvic muscle function and prevent SUI. [19, 20, 21]

The study by Chu et al. aimed to assess the efficacy of PFMT facilitated by smartphone reminders in enhancing adherence and improving PFM function among postpartum women. Conducted at Tongji Hospital, Shanghai, from March to June 2022, the study involved a single-center RCT with 148 primiparous women. Participants were divided into two groups: an intervention group, which received daily PFMT reminders via the WeChat application, and a control group, which did not receive reminders.

Participants were initially assessed for PFM function and given guidance on PFMT at six weeks postpartum. The intervention group received daily reminders to perform PFMT exercises, while both groups were asked to maintain a training diary and attend monthly supervised sessions. The primary outcome was adherence to the training regimen, classified into daily, weekly, sporadic, or no training categories.

Results indicated a significantly higher adherence rate in the intervention group (53.9%) compared to the control group (20.8%) at the three-month follow-up. Additionally, the intervention group demonstrated improved PFM function, as evidenced by higher peak surface electromyography readings (39.8 ± 6.2 μV vs. 37.5 ± 5.9 μV) and longer muscle endurance (8.1 ± 2.0 seconds vs. 7.3 ± 2.0 seconds). Despite these improvements in muscle function, there were no significant differences between the two groups regarding SUI symptoms, as measured by the International Consultation on Incontinence Questionnaire-Short Form and the Patient Global Impression of Improvement scores.

The study concluded that smartphone application-based PFMT reminders effectively increase adherence and improve short-term PFM function in postpartum women. This finding highlighted the potential of integrating technology into postpartum rehabilitation programs to enhance exercise adherence and optimize physical recovery outcomes. The research underscored the need for longer-term studies to assess the sustained impact of such interventions on clinical symptoms and quality of life. [22]

Hua et al. aimed to investigate the mechanisms through which an app-based intervention, Urinary Incontinence for Women (UIW), affects postpartum UI among pregnant women, focusing on self-efficacy in PFMT. UI is a common and distressing condition during pregnancy and postpartum, affecting over half of women during these periods. Risk factors include vaginal delivery, especially instrumental delivery, pre-pregnancy body mass index (BMI), abortion history, and UI during pregnancy. The condition significantly impacts physical, psychological, and social well-being and imposes a substantial economic burden. PFMT is the primary treatment for UI, improving PFM strength and bladder control. Despite its effectiveness, adherence to PFMT is often poor due to lack of time, motivation, and guidance. Therefore, innovative, accessible interventions are needed to enhance awareness and adherence to PFMT among pregnant and postpartum women.

Mobile apps are a promising solution, offering increased accessibility to UI care and improving adherence and awareness. However, most research on app-based interventions has focused on middle-aged and older women, with limited evidence for pregnant and postpartum populations.

The UIW app was developed to address this gap, integrating risk prediction, health education, and PFMT guidance. A previous pragmatic RCT confirmed the app's effectiveness in reducing UI severity during late pregnancy and up to six weeks postpartum. Despite these positive outcomes, the underlying mechanisms remained unclear. This study aimed to explore whether self-efficacy with PFMT mediates the effect of the UIW app on postpartum UI severity.

A secondary causal mediation analysis was conducted using data from a single-center, two-arm, unblinded pragmatic RCT. The study included singleton pregnant women without pre-pregnancy UI, aged 18 or older, between 24 and 28 weeks of gestation. Participants were randomized to receive either the UIW app intervention plus oral PFMT instructions or oral PFMT instructions alone. The primary outcome was changes in postpartum UI severity at six weeks, with changes in self-efficacy with PFMT two months after randomization as a hypothesized mediator.

The analysis revealed that the UIW app intervention's total effect on postpartum UI severity was significantly mediated by self-efficacy with PFMT. The average causal mediation effect was substantial, indicating that an increase in self-efficacy partially mediated the intervention's impact on UI severity improvements. Sensitivity analysis confirmed the robustness of these findings against potential unmeasured confounding. [23]

The study by Dai et al. aimed to evaluate the clinical efficacy of combining warm acupuncture therapy with Kegel exercises in treating postpartum pelvic floor dysfunction (PPFD) among women. The investigation involved 70 primiparous women who experienced PFM injuries post-delivery. These women were randomly allocated into two groups: the treatment group received warm acupuncture at the Zhibian (BL54) acupoint along with Kegel exercises, while the control group underwent sham warm acupuncture and Kegel exercises. Both groups participated in their respective treatments three times weekly over four weeks. The methodology of the study included a random number table method for participant allocation to ensure balanced and unbiased grouping. The sample size calculation was initially set to require at least 88 subjects to achieve significant results, accounting for a 10% dropout rate; however, the study managed to recruit 70 participants due to constraints posed by the COVID-19 pandemic.

Key findings indicated that the treatment group showed significantly greater improvement in PFM strength recovery and pelvic floor functionality compared to the control group. This was determined through various measures, including pelvic floor ultrasound parameters, questionnaire scores related to pelvic floor dysfunction, and the efficacy of UI treatment. Specifically, significant enhancements were observed in the recovery rates of both Type I and Type II PFM strength among the participants in the treatment group. Additionally, there were notable improvements in the pelvic floor ultrasound parameters, which included the Urethral Rotation Angle (URA), Bladder Neck Descent (BND), and Retrovesical Angle (RVA).

The treatment group also demonstrated a considerable reduction in pelvic floor dysfunction-related symptoms and UI severity.

The effectiveness of UI treatment was assessed through a one-hour pad test, which showed that participants in the treatment group experienced significantly reduced urine leakage compared to the control group. This reduction in UI symptoms highlighted the potential of warm acupuncture combined with Kegel exercises to alleviate the severity of such conditions effectively.

In summary, the study's findings provided substantial evidence supporting the use of warm acupuncture in conjunction with Kegel exercises as a viable treatment approach for improving postpartum pelvic floor function and addressing UI among women. This combined therapy offers a significant advantage over traditional methods, promoting more effective recovery and enhanced quality of life for postpartum women suffering from PPFD.

[24]

Impact of PA on postpartum lumbo-pelvic pain

Chaudhry et al. conducted a study to evaluate and contrast the impacts of trunk stabilization and activation exercises on postpartum lumbo-pelvic pain.

A total of 28 women experiencing postpartum lumbo-pelvic pain were randomly assigned to two groups: Group A received trunk stabilization exercises, and Group B received trunk activation exercises. Each group underwent their respective exercise regimes three times a week for eight weeks. Pain intensity was measured using the Numeric Pain Rating Scale, and disability was assessed using the Oswestry Disability Index (ODI).

The results showed a significant reduction in pain and disability in both groups post-intervention, with Group A showing a more substantial improvement. The mean difference in pain reduction for Group A was 3.786, while Group B had a mean difference of 1.714. Similarly, the mean difference in ODI scores for Group A was 2.214, compared to 1.500 for Group B, indicating a greater reduction in disability for Group A. Statistical analysis using paired sample t-tests confirmed that these differences were significant, with p-values of 0.03 for pain reduction and 0.01 for disability improvement in Group A, and 0.04 and 0.03, respectively, for Group B.

The study concluded that while both trunk stabilization and activation exercises effectively reduced pain and disability in postpartum women with lumbo-pelvic pain, trunk stabilization exercises were more effective. This finding underscores the importance of tailored exercise programs focusing on trunk stability to alleviate postpartum lumbo-pelvic pain and improve quality of life for new mothers.

This study contributes to the existing literature by providing comparative evidence on the effectiveness of different exercise regimens in managing postpartum lumbo-pelvic pain, emphasizing the superior benefits of trunk stabilization exercises over activation exercises. The findings suggest that healthcare providers should consider incorporating trunk stabilization exercises into postpartum rehabilitation programs to enhance patient outcomes.

[25]

The study by Yalfani et al. aimed to evaluate and compare the effectiveness of suspension training and isometric-isotonic training on postural stability, lumbopelvic control, and proprioception in women with diastasis recti.

The research involved 36 participants, divided into three groups: suspension training, isometric-isotonic training, and a control group, each comprising 12 members. Demographic characteristics confirmed the homogeneity of the groups, with no significant differences in age, height, weight, BMI, waist-hip ratio (WHR), and time after childbirth.

One-way ANOVA results indicated significant improvements across several parameters for both intervention groups compared to the control group. Both suspension and isometric-isotonic training led to significant enhancements in inter-recti distance (IRD), lumbopelvic control, lumbopelvic proprioception, and reductions in low back pain and disability. Additionally, overall static and dynamic balance stability, as well as anterior-posterior stability, showed significant improvements. However, no significant differences were observed in medial-lateral static and dynamic balance stability.

The study also aimed to evaluate the efficacy of trunk stabilization and activation exercises on reducing pain and disability in women experiencing postpartum lumbopelvic pain. A randomized clinical trial was conducted with 28 participants divided equally into two groups: one received trunk stabilization exercises, and the other performed activation exercises.

Participants were assessed using the Oswestry Disability Index (ODI) and the Visual Analogue Scale (VAS) both before and after the intervention. Significant improvements were found within both groups. In the trunk stabilization group, the mean ODI score decreased from 3.50 ± 0.519 to 1.29 ± 0.469, and the mean VAS score decreased from 5.93 ± 0.267 to 2.14 ± 0.663. In the activation exercises group, the mean ODI score decreased from 3.50 ± 0.519 to 2.00 ± 0.555, and the mean VAS score decreased from 6.00 ± 0.023 to 4.29 ± 0.825.

Comparative analysis revealed that trunk stabilization exercises were significantly more effective in reducing both pain and disability. The post-intervention ODI score was significantly lower in the trunk stabilization group compared to the activation exercises group ($p = 0.001$), and the post-intervention VAS score was also significantly lower in the trunk stabilization group ($p = 0.004$).

In conclusion, while both exercise regimens were effective in alleviating postpartum lumbopelvic pain and disability, trunk stabilization exercises proved to be superior. This finding underscores the importance of targeted stabilization exercises in postpartum rehabilitation programs for managing lumbopelvic pain. [26]

Impact of PA on cardiovascular health

The systematic review and meta-analysis performed by Pongpanit aimed to evaluate the impact of exercise training on maternal vascular health and blood pressure (BP) during pregnancy and up to one year postpartum. The primary outcomes examined were pulse wave velocity (PWV), flow-mediated dilation (FMD), and BP. The researchers systematically searched five databases, including Ovid MEDLINE, EMBASE, CINAHL, Web of Science, and Cochrane Library, up to August 2023. They included RCTs comparing the effects of exercise during pregnancy or postpartum to a non-exercise control group.

The review included 20 RCTs with a total of 1,221 women. The exercise interventions began as early as the eighth week of gestation or between 6 to 14 weeks postpartum and lasted for a minimum of four weeks up to six months. The risk of bias and the certainty of evidence were assessed, and random-effects meta-analyses and sensitivity analyses were conducted.

Key findings from the review included:

1. **Blood Pressure Reduction**: Exercise training significantly reduced systolic BP (SBP) by an average of 4.37 mmHg (95% CI: -7.48 to -1.26; P = 0.006) and diastolic BP (DBP) by an average of 2.94 mmHg (95% CI: -5.17 to -0.71; P = 0.01), although the certainty of this evidence was very low.
2. **No Significant Impact on PWV and FMD**: The exercise training did not show a significant impact on PWV and FMD, which are indicators of arterial stiffness and endothelial function, respectively.
3. **Consistency Across Different Variables**: Subgroup analyses indicated that the positive effects on BP were consistent across various stages of pregnancy, types of exercise, frequency of weekly exercise sessions, and the duration of the training programs.

Overall, the study underscored the importance of incorporating exercise into prenatal and postpartum care to enhance maternal cardiovascular health. Given the critical role of BP control in preventing long-term cardiovascular diseases, especially in women who experienced hypertensive disorders during pregnancy, these findings have significant implications for clinical practice and public health policies aimed at improving maternal. [27, 28, 29, 30]

Thompson et al. investigated the feasibility, acceptability, and preliminary efficacy of a multicomponent intervention administered by Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program staff, aimed at encouraging behavior changes in urban postpartum women with overweight or obesity. The study was a 12-week pilot trial that randomized participants into either a health behavior change intervention group or a control (observation) group. The intervention consisted of monthly sessions with trained WIC staff who provided patient-centered behavior change counseling, supplemented by various touchpoints between visits to promote self-monitoring and support health behavior changes.

The study involved 41 participants, predominantly Hispanic (n = 37, 90%) and Spanish-speaking (n = 33, 81%), who were randomly assigned to the intervention (n = 19) or observation (n = 22) groups. Retention in the intervention group was high, with 79% (n = 15) of eligible participants completing the study. All participants in the intervention group indicated their willingness to participate again. Improvements were observed in participant readiness to change and self-efficacy regarding PA in the intervention group. Additionally, 27% (n = 4) of women in the intervention group achieved a 5% weight loss, compared to 5% (n = 1) in the observation group, although this difference was not statistically significant (p = 0.10). [31]

Summary

The postpartum period is crucial for new mothers, marked by significant changes that can affect their health and quality of life.

Our review provides strong evidence for incorporating structured PA programs in postpartum care. The benefits range from pain reduction and improved cardiovascular health to enhanced mental well-being and increased exercise adherence.

Future research should explore the long-term effects of these interventions and the integration of technological solutions to support and sustain PA among postpartum women. Comprehensive postpartum exercise programs can significantly improve health and quality of life during this critical period.

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