

Advancing Maternal Health: The Role of Physiotherapy Interventions in Obstetric Care and Rehabilitation

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Abstract

Maternal health requires a comprehensive approach that extends beyond safe pregnancy and childbirth to include physical recovery, functional independence, pelvic floor integrity, pain control, psychological well-being, and long-term quality of life. Pregnancy and parturition produce significant physiological and biomechanical changes, including altered posture, increased lumbar loading, ligamentous laxity, abdominal wall stretching, pelvic floor stress, and reduced movement efficiency, which may contribute to pain, urinary incontinence, pelvic floor dysfunction, fatigue, and delayed postpartum recovery. Physiotherapy has an important role across the obstetric care continuum by providing antenatal exercise, pelvic floor muscle training, postural education, breathing techniques, pain management, labor preparation, cesarean rehabilitation, and graded return-to-activity guidance. This review examines the contribution of physiotherapy interventions in obstetric care and maternal rehabilitation, with emphasis on antenatal fitness, pregnancy-related low back pain and pelvic girdle pain, pelvic floor rehabilitation, postpartum functional recovery, and recovery after cesarean delivery. The reviewed evidence supports physiotherapy as a preventive, restorative, and educational strategy that can improve mobility, reduce pain, enhance continence, restore abdominal-pelvic function, and promote maternal confidence after childbirth. Integrating physiotherapists into multidisciplinary maternal healthcare services may improve early screening, individualized rehabilitation, timely referral, and overall maternal quality of life. This review highlights physiotherapy as an essential component of modern obstetric care and postpartum recovery.

Keywords: Antenatal exercise, Maternal health, Obstetric physiotherapy, Pelvic floor rehabilitation, Postpartum rehabilitation

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Introduction

The quality, accessibility, and responsiveness of a healthcare system are primary measures of maternal health. Maternal care has traditionally been aimed at decreasing mortality, preventing obstetric complications, and ensuring safe childbirth. Although these are fundamental goals, modern maternal health needs a wider perspective that encompasses physical recovery, functional independence, pain management, integrity of the pelvic floor, psychological and life satisfaction during pregnancy and postpartum. The postpartum period is now being widely regarded as a period of rehabilitation as opposed to a natural recovery period as well. Recent findings on postpartum rehabilitation show that conventional, personalized, and multidisciplinary interventions are necessary to combat the broad spectrum of physical impairments and functional impairments that women face after childbirth¹.

The pregnancy and birth bring about intricate modifications in the body of the mother. These are hormonal changes, ligamentous laxity, altered posture, abdominal wall distension, weight gain, loading of the pelvic floor, gait changes, and mechanical stress of the lumbar spine and pelvis. These adaptations are physiological, although they can put women at risk of experiencing pain, decreased mobility, urinary incontinence, dysfunction of the pelvic floor, fatigue, and delayed recovery from daily activities. Maternal health can not be assessed exclusively based on the obstetric outcomes. The use of patient-reported outcome measurements has been on the rise to assess postpartum health and well-being, given that it reflects the symptoms, functional health, emotional health, and lived experiences that would otherwise go undetected during standard clinical practice².

Physiotherapy has become a significant part of obstetric care as it can deal with musculoskeletal, neuromuscular, pelvic floor, respiratory, and functional effects of

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pregnancy and childbirth. It has a role in the antenatal, intrapartum, and postnatal continuum. Physiotherapists give exercise advice, teach on posture, train pelvic floor muscles, provide pain management, breathing techniques, and pre-labor preparation during pregnancy. Physiotherapy assists in the postpartum recovery process, which includes progressive mobility, pelvic floor, abdominal retraining, scar management, and continence care, as well as graded return to activity. The introduction of the program of structured maternal exercise and pelvic-abdominal rehabilitation training to obstetric professionals is one such trend,³ as the skills have increasingly become part of the maternal healthcare system, as opposed to a supplemental service.

Although there is an increasing applicability of obstetric physiotherapy, training, referral systems, and clinical application gaps exist. The needs assessment of obstetric professionals regarding training needs suggests that the domains of maternity exercise and the rehabilitation of the pelvic-abdominal area need more vivid educational models, better professional awareness, and enhanced collaboration among professionals⁴. These clinical gaps are vital as a number of impairments that occur during pregnancy and postpartum can be prevented or controlled if they are detected at the early stages. Unless promptly addressed, women can develop chronic pain, incontinence, pelvic floor dysfunction, decreased activity levels, poor sexual functioning, and poor quality of life.

Physical and physiological requirements of pregnancy and parturition also prove the necessity of physiotherapy. During pregnancy, almost all systems of the body are affected, and during childbirth, it can cause extra stress due to vaginal birth, cesarean section, perineal trauma, protracted labor, or instrumental birth. These changes can be understood to create evidence-based rehabilitation and assist clinicians in differentiating between normal recovery and dysfunction that needs intervention⁵. Physiotherapy interventions may thus be preventive, restorative, and educative, based on the pregnancy or recovery stage of the woman.

The quality of postnatal support also influences maternal well-being. The research on the topic of maternal care bundles, nursing support, and experiences of women demonstrates that mothers require the provision of coordinated care that will meet the physical, psychological, and informational needs of mothers after the delivery process⁶⁻⁸. Unmet expectations in the areas of pain and fatigue, emotional adaptation, breastfeeding posture, mobility, pelvic symptoms, and access to professional help are common among postpartum women. Qualitative evidence also indicates that women appreciate respectful communication, personalized care, and practical care during the process of transitioning to motherhood⁹. Physiotherapy is potentially part of this model through providing functional assessment, education, symptom management, and maternal-centered strategies of rehabilitation.

Physical recovery is intimately associated with mental health. Pain and incontinence, decreased mobility, body image, and delayed functional recovery can be factors that cause psychological distress during the perinatal period. Clinical psychological advice on the perinatal mental health underlines the role of holistic care, especially in those women who have other physical difficulties or disability¹⁰. Physiotherapy is not used in place of psychological care, though it could be used to supplement maternal confidence, autonomy, and engagement through enhancing movement, decreasing discomfort, and encouraging safe activity.

This is a review paper that explores the use of physiotherapy interventions in promoting maternal health in terms of obstetric care and rehabilitation. It deals with antenatal exercise, training of the pelvic floor muscles, coping with pregnancy-related musculoskeletal pain, post-partum rehabilitation, cesarean and perineal healing, diastasis recti, and multidisciplinary care. The review endorses a wider paradigm of obstetric care by making physiotherapy a component of maternal healthcare, which places survival, recovery, functional, and long-term well-being at the forefront.

Objectives of the review

This review aims to explore how physiotherapy interventions can enhance maternal health during pregnancy, childbirth, and the postpartum period. It will address evidence-based methods of antenatal exercise, pelvic floor rehabilitation, pain management, cesarean recovery, and functional restoration. Another significant point mentioned in the review is the necessity to combine physiotherapy with other multidisciplinary methods of obstetric care in order to contribute to a faster healing process, avoid complications, and increase the quality of life of the mother.

Review

1. Physiological and Biomechanical Changes During Pregnancy

Pregnancy is linked to vast physiological and biomechanical modifications that prepare the maternal body for the development of the fetus, labor, and childbirth. These alterations involve the musculoskeletal, cardiovascular, respiratory, endocrine, and pelvic systems, posing a special functional requirement on the mother. These adaptations have significance as concerns obstetric physiotherapy since they affect posture, mobility, balance, perception of pain, pelvic floor functioning, and postnatal recovery⁷. It is thus seen that gynecological physiotherapy in the prenatal and postnatal stages is relevant in determining the impairments early on and advising women on safe movement, exercise, and rehabilitation techniques¹¹. During pregnancy, spinal and pelvic mechanics could change due to increased body mass, anterior movement of the center of gravity, lumbar lordosis, stretching of abdominal anterior muscles, and hormonal softening of ligaments. Such alterations may lead to discomfort, decreased stability, gait changes, and decreased daily activities⁵. Physiotherapists in the field of women's

health are aware of the fact that the scope of gynecological physiotherapy encompasses musculoskeletal examination, pelvic floor rehabilitation, antenatal exercise advice, posture correction, and postpartum functional recovery¹². The services become particularly relevant since the maternal health outcomes are more and more considered in terms of function, well-being, and patient-reported experiences as opposed to obstetric events alone^{2,9}. The mode of childbirth can also affect physical status in the postpartum period. The postpartum women who undergo a cesarean section can complain of pain in the

abdomen, sensitivity of the scar, lack of trunk control, difficulty in movement, and musculoskeletal problems that affect their daily functioning¹³. Low back pain during pregnancy is another significant cause of disability among pregnant women that may disrupt their sleep, walking, housework, and even work¹⁴. Such physical transformations make it reasonable to consider physiotherapy as an integral part of the general care of a pregnant woman to help prevent, manage symptoms, and recover^{1,3,8,10}. Figure 1 depicts the main pregnancy-related alterations in posture, mobility, pelvic floor functioning, pain, and recovery.

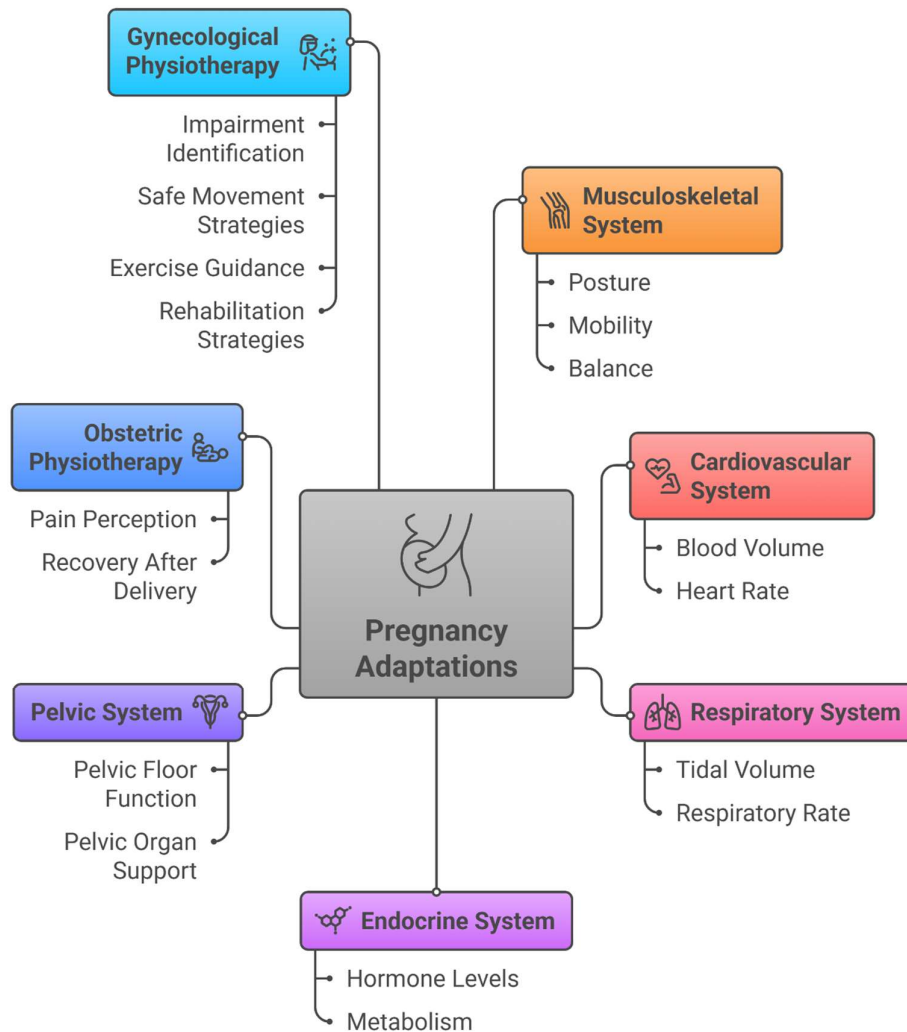


Figure 1: Physiological and biomechanical pregnancy adaptations relevant to obstetric and gynecological physiotherapy

2. Scope of Physiotherapy in Obstetric Care

Obstetric physiotherapy has shifted from a more symptom-based mode of treatment to a wider preventive and rehabilitative role in pregnancy, childbirth, and the postpartum period. Physical therapy is deemed to become an essential part of the postpartum care in the fourth trimester since most of the women still experience pain, weakness, pelvic floor symptoms, fatigue, and functional restriction following the delivery

¹⁵. This role is utilized to complement the previous maternal care priorities because it is not only based on obstetric outcomes but also on recoveries, mobility, continence, and quality of life^{2,7}.

Postpartum rehabilitation encompasses training, pelvic floor training, abdominal retraining, posture correction, breathing exercises, pain management, scar management, and progressive transition to daily activity. The evidence of systematic reviews indicates

that postpartum rehabilitation interventions are becoming more and more common to enhance maternal functioning and minimize childbirth-related impairments¹⁶. These are applicable interventions on women who have delivered through a vagina, cesarean section, perineal trauma, and musculoskeletal pain during pregnancy^{1,5,13,14}. Physiotherapy also helps women by encouraging them to be self-managed, enhancing body consciousness, and reducing fear of movement in the movement healing process^{8,9}. Recent narrative sources explain postpartum physiotherapy as a dynamic discipline, which is

inclusive of an integrative approach, customized training, healing of the pelvis, and multidisciplinary practice¹⁷. The exercises of the pelvic floor are very crucial since the systematic review and meta-analysis have indicated that they prevent and treat the pregnancy-related dysfunctions of the pelvic floor¹⁸. Another important role of the antenatal exercise is in the field of obstetric care, where meta-analytic evidence suggests that the outcomes of delivery and maternal preparedness might be beneficial¹⁹. Table 1 provides an overview of important physiotherapy interventions during pregnancy and postpartum.

Table 1. Physiotherapy interventions across the obstetric care continuum

Physiotherapy intervention	Maternal care phase	Primary clinical purpose	Expected maternal outcome	Reference
Antenatal exercise	Pregnancy	Improves maternal fitness, mobility, and preparation for childbirth	Better physical conditioning and improved functional capacity	[19]
Pelvic floor muscle training	Pregnancy and postpartum	Strengthens pelvic floor muscles and improves bladder control	Reduced urinary incontinence and pelvic floor dysfunction	[24]
Postural education	Pregnancy	Reduces excessive spinal and pelvic strain	Improved posture and reduced musculoskeletal discomfort	[20]
Low back pain exercise therapy	Pregnancy	Addresses pregnancy-related lumbar pain and mobility restriction	Reduced pain and improved daily function	[30]
Pelvic girdle pain management	Pregnancy and postpartum	Improves pelvic stability and movement tolerance	Reduced disability and improved walking capacity	[29]
Cesarean rehabilitation	Postpartum	Restores abdominal function, mobility, and scar-related comfort	Improved pain relief and functional recovery	[36]
Face-to-face physiotherapy education	Pre-cesarean and postpartum	Improves knowledge of postoperative recovery and safe movement	Better recovery awareness and postoperative self-management	[38]
Postpartum return-to-activity training	Postpartum	Guides graded return to exercise, work, and sport	Safer progression of physical activity	[32]

3. Antenatal Exercise and Maternal Fitness

The key feature of physiotherapy in obstetric care is the use of antenatal exercise since it helps in maintaining maternal fitness, functional capacity, and childbirth preparation. Antenatal physical therapy can be birth-based on supervised exercise, education on posture, education on breathing, relaxation training, pelvic floor muscle mobilization, and education on safe daily activities²⁰. Such interventions are significant as physiological and biomechanical alterations during pregnancy can lessen movement, elevate musculoskeletal tension, and influence maternal trust in movement^{5,14}. Antenatal physiotherapy thus plays a part in prevention and early intervention on pregnancy discomfort^{11,15}.

Attitude and knowledge about the use of the antenatal exercises determine maternal participation and compliance. Those pregnant women who have a higher knowledge of the benefits of exercise are more likely to participate in safe physical activity and appreciate its importance to pregnancy health, labor preparation, and postpartum recovery²¹. Nevertheless, it is important to

have access to the correct guidance as exercise needs to be adjusted to the gestational age, the fitness level before pregnancy, medical and obstetric risk, and symptom presentation^{3,4}. Physiotherapists can offer personalized programs that incorporate aerobic exercise, strength exercises, stretching exercises, pelvic stability exercises, and warning signs education that needs referral^{12,17}.

There is also evidence of the use of antenatal exercise in women with higher obstetric risk factors like overweight and obesity. Randomized trial data show that organized antenatal exercise can have an effect on maternal and perinatal outcomes amongst overweight and obese pregnant women²². Another important aspect of antenatal fitness is pelvic floor muscle training: it has been proven to help prevent and treat urinary incontinence during pregnancy and postpartum²³. The systematic review and meta-analysis results also indicate that prenatal exercise, including pelvic floor muscle training, is linked with the outcome of urinary incontinence during and after pregnancy²⁴. Figure 2 depicts the benefits, influencing factors, interventions,

and the evidence-based support of antenatal exercise in maternal care.

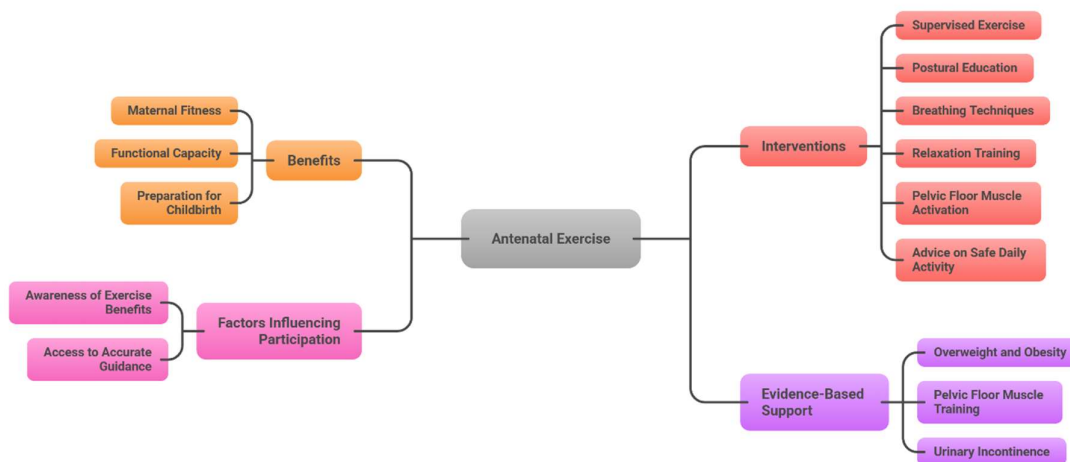


Figure 2. Antenatal exercise components and benefits

4. Pelvic Floor Muscle Training in Pregnancy and Postpartum

One of the most significant physiotherapy interventions in obstetric care is pelvic floor muscle training, as pregnancy and childbirth put a lot of stress on the pelvic floor muscles, fascia, and supportive structures. The symptoms of pelvic floor dysfunction may include urinary incontinence, fecal incontinence, pelvic organ prolapse, loss of pelvic support, sexual dysfunction, and loss of confidence in daily activities. Research has shown that pelvic floor muscle exercise has the potential to enhance the activity of pelvic floor muscles and voiding during pregnancy and postpartum, which supports its application as a preventive and curative intervention²⁵. Such advantages are of clinical relevance as the recovery of the postpartum is not only about the repair of the tissue but also the restoration of the continuity, functionality, and quality of life^{1,2,15}.

Preventive intervention before childbirth has been shown to have an effect on early maternal recovery outcomes, as regular antenatal exercise, including pelvic floor muscle training, can lead to a decrease in urinary incontinence three months after delivery²⁶. Physiotherapists come in by educating proper contraction technique, relaxation, coordination of breathing, endurance exercise, functional activation, and progression of exercises based on the symptoms and the level of recovery^{11,12,18}. Much of this significance is attributed to supervised instruction, as most women could perform the pelvic floor contractions improperly without any expert evaluation and feedback^{3,4,21}.

General management of musculoskeletal symptoms during pregnancy should also be incorporated with pelvic floor rehabilitation. Multidisciplinary conservative therapy, such as exercise, manual techniques, education, and activity modification, may be necessary in women experiencing low back pain, pelvic girdle pain, or both²⁷. Increased healthcare utilization and sick leave are linked with persistent lumbopelvic pain postpartum, indicating that untreated

pregnancy-related pain can persist and impact postpartum function²⁸.

5. Physiotherapy Management of Pregnancy-Related Low Back Pain and Pelvic Girdle Pain

Pelvic girdle pain and low back pain during pregnancy are typical musculoskeletal disorders that could disrupt walking, sleep, domestic chores, work, and maternal well-being. Postural changes, an augmented lumbar loading, ligamentous laxity, modified pelvic mechanics, abdominal muscle stretching, and progressive changes in the center of gravity during pregnancy are related to these symptoms^{5,14,28}. Treatment of physiotherapy is thus aimed at the reduction of pain, improvement of functions, confidence in movement, and preventing the occurrence of chronic postpartum disability^{1,15}.

A systematic review of physiotherapy strategies on pregnancy-related lumbopelvic pain found that the conservative interventions could involve personalized exercise, stabilizing exercises, manual therapy, acupuncture-related methods, pelvis belts, education, and modification of activities²⁹. Clinical assessment should be used to determine the treatment instead of a single standardized treatment due to differences in the symptoms based on the location of pain, pain severity, gestational age, physical activities, and the history of musculoskeletal problems in the past^{11,12,20}. Education of patients is also important, especially on the aspects of posture, safe lifting, sleep positioning, pacing of daily exercises, and excessive mechanical strain^{7,8,21}.

Physical activities are another important part of treatment. A systematic review and meta-analysis indicate that traditional exercises have the potential to decrease lower back pain and/or pelvic girdle pain in pregnancy, which supports the use of these exercises in the antenatal physiotherapy program³⁰. These activities can involve pelvic tilts, light strengthening, functional core training, hip stabilization, stretching, breathing coordination, and functional re-training of movement^{18,19,22,24}. Physiotherapy can also contribute to functional

recovery and pain management after delivery in women whose pain continues after delivery or who have an operative childbirth³¹.

6. Physiotherapy Support During Labor and Delivery

Physiotherapy assistance in labor and delivery is founded on the movement optimization, pain management, control of breathing, maternal position, and protection of pelvic and abdominal organs. Physiotherapy principles are very applicable in the intrapartum care, even though physiotherapists might not be present at all delivery settings. Antenatal preparation is advised, starting with postural, pelvic mobility, relaxation, breathing techniques, and functional utilisation of the pelvic floor^{20,21}. These interventions can enhance confidence in mothers and assist women to play a more active role in childbirth and decrease fear of pain and movement^{8,9,15}.

A pregnancy-return to sport rehabilitation timeline highlights that maternal recovery is a continuum in the prenatal period that lasts into the postpartum period³². In this continuum, labor support that is informed by physiotherapy can encompass upright positioning, side-lying postures, supported squatting, pelvic rocking, breathing coordination, and rest positions, which minimize overuse of the lumbar spine and pelvis^{5,14,29}. The strategies are especially applicable to women experiencing pregnancy-related low back pain, pelvic girdle pain, pelvic floor symptoms, or decreased mobility^{27,28,30}.

Evidence regarding postpartum rehabilitation also demonstrates that structured interventions are becoming more and more popular to enhance the postpartum recovery, which is why early education throughout the labor preparation and the immediate postnatal care should be provided³³. In physically demanding jobs, women have postpartum rehabilitation procedures established to recover musculoskeletal health and occupational physical functioning, where progressive functional recovery after delivery is crucial³⁴. Females who deliver using cesarean delivery might need further physiotherapy to treat pelvic floor dysfunction, weakened abdomen, and delayed functional rehabilitation³⁵. Consequently, physiotherapy assistance during birth and delivery must be incorporated with the antenatal preparation and postpartum recovery to ensure safer mobility, less pain, a healthy pelvis, and enhance maternal functioning in the long term.

7. Postpartum Rehabilitation and Functional Recovery

Postpartum rehabilitation is a vital aspect of maternal care since labor can cause pain, weakness, fatigue, dysfunction of the pelvic floor, abdominal impairment, impaired mobility, and inability to resume normal life. The goals of physiotherapy include restoration of function by means of early mobilization, breathing, circulation, and postural, pelvic floor retraining, abdominal activation, pain management, education, and progressive restoration to physical activity^{1,15,17}. Individualization of functional recovery mode of delivery, severity of symptoms, physical requirements, breastfeeding positioning, sleep disturbance, psychological well-being, and maternal objectives must be considered^{2,8,9}.

The importance of physiotherapy following cesarean section is especially high since abdominal wall functioning, scar mobility, trunk strength, confidence in movements, and coordination of the pelvic floor might be impacted by surgical delivery. Post-cesarean physiotherapy evidence demonstrates that post-operative treatment has a positive impact on pain relief and functional recovery and should be incorporated into the treatment of operative childbirth³⁶. Interventions that may be involved in rehabilitation could be assisted coughing, bed mobility, early ambulation, scar education, gentle abdominal recruitment, pelvic floor, and progressive strengthening^{13,31,35}.

Prevention of muscle diastasis and re-establishment of abdominal-pelvic coordination should be included in the postpartum care. The women's post-cesarean section rehabilitation program focuses on abdominal muscle healing, diastasis recti prevention, pelvic floor contraction, and safe loading of functional loading³⁷. Another significant constituent of recovery is education. Evidence in randomized trials suggests that face-to-face training and education of women undergoing the elective cesarean section in relation to physiotherapy can aid their knowledge about their recovery and postoperative outcome³⁸. Thus, postpartum physiotherapy needs to be framed as a guided recovery process, instead of a recommendation, that connects early postnatal intervention with the long-term rehabilitation, continence care, musculoskeletal health, and maternal quality of life. Table 2 gives typical maternal health issues and associated physiotherapy management options.

Table 2. Common Maternal Health Problems and Physiotherapy Management

Maternal health problem	Common presentation	Physiotherapy management	Rehabilitation goal	Reference
Pregnancy-related low back pain	Lumbar pain, reduced mobility, difficulty with daily tasks	Stabilization exercise, posture correction, activity modification	Pain reduction and improved function	[14]
Pelvic girdle pain	Pelvic pain, walking difficulty, impaired weight transfer	Pelvic support, exercise therapy, education, and manual techniques	Improved pelvic stability and mobility	[28]

Urinary incontinence	Leakage during coughing, sneezing, or exertion	Pelvic floor muscle exercise and bladder education	Improved continence and pelvic floor control	[25]
Postpartum pelvic floor dysfunction	Weakness, pelvic heaviness, and continence symptoms	Pelvic floor rehabilitation and progressive strengthening	Restoration of pelvic support and function	[18]
Post-cesarean abdominal weakness	Pain, reduced trunk control, difficulty rising or lifting	Breathing exercises, abdominal activation, scar education	Improved trunk control and functional recovery	[35]
Diastasis recti risk	Abdominal separation, poor core control, pressure mismanagement	Abdominal-pelvic coordination and graded core exercise	Improved abdominal wall function	[37]
Postpartum functional limitation	Fatigue, pain, reduced activity tolerance	Individualized rehabilitation and gradual activity progression	Return to daily activities and maternal independence	[16]
Reduced maternal well-being	Physical discomfort, reduced confidence, impaired quality of life	Multidisciplinary rehabilitation and patient-centered support	Improved quality of life and recovery experience	[2]

Limitations and Future Directions

There are some limitations in this review. The literature included represents various physiotherapy interventions, maternal groups, delivery methods, and postpartum outcomes, and, as such, might not allow direct comparison of studies. There is more evidence to support the use of antenatal exercise and pelvic floor muscle training, whereas other areas (cesarean rehabilitation, diastasis recti management, perineal trauma recovery, long-term postpartum functional outcomes, etc.) are less established. Various intervention periods, supervision, doses of exercises, follow-up, and outcome measures can also be used to interpret the findings differently.

Further studies ought to be conducted on good randomized controlled trials that have larger samples, standardized physiotherapy procedures, and extended follow-up after the initial postpartum period. There is a need to focus more on patient-reported outcomes, quality of life, return to work, return to sport, sexual health, and psychological well-being. The tele-rehabilitation, community-based physiotherapy, and culturally relevant models of maternal rehabilitation in low-resource settings also should be explored in future studies. Incorporating physiotherapy as a regular part of obstetric services could enhance early screening, prompt referral, and holistic maternal recovery.

Conclusion

This review brings to the fore the great importance of physiotherapy in the development of maternal health in terms of assisting women during pregnancy, childbirth, and postpartum stages. The reviewed evidence suggests that physiotherapy interventions can help in preventing, managing symptoms, restoring functions, and providing long-term recovery. Antenatal exercise enhances maternal fitness and prepares women to give birth, whereas pelvic floor muscle training helps in continence, pelvic stability, and avoidance of pelvic floor dysfunction. Physiotherapy offers effective conservative care for lower back pain and pelvic girdle pain caused by pregnancy, which are among the most

common disorders in pregnancy and postpartum, and are disabling. The use of structured rehabilitation helps in the postpartum period in recovery after vaginal birth, cesarean section, perineal trauma, abdominal weakness, and diastasis recti. These interventions enhance movement, lessen pain, reinstate core and pelvic floor dynamics, and facilitate safe re-entry into day-to-day living, labor, and physical activity. The concept of maternal care should thus shift its delivery-based model to a more comprehensive rehabilitation-based model. The inclusion of physiotherapists in the multidisciplinary approach to obstetric care has the potential to enhance screening in the early phase, customized care, timely referral, and quality of life of mothers throughout the care process.

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