

Influence Of Pilate Therapy And Conventional Therapy On Functional Disability In Post Natal Women With Back Pain

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Abstract:

Background: Post natal period is the first six to eight weeks after childbirth or until the body returns to its pre-pregnancy status. It is important for both short term and long term well being of women and her child. Pregnancy related low back pain is a common complaint that occurs in 20-90 percentages of women. Pain is characteristically present between the 12th rib and the gluteal folds during the course of pregnancy, possibly radiating to the postero lateral thigh, the knee, and the calf but not to the foot. It is due to a combination of mechanical, hormonal, circulatory, and psychosocial factors. After six weeks of delivery, women only partially resumed their pre pregnancy functional state. Much more time, rest, support from family members is required for enhancing functional and psychological status of women.

Method: 494 subjects were included according to criteria. Subjects were allotted into two groups. Group A: Pilates and Group B: Conventional. Interventions were given for 6 weeks and changes in Oswestry Low Back Disability were noted during 2nd, 4th and 6th weeks. Changes within the group was analyzed using Repeated Measures Anova Test and between the groups using Unpaired t-test.

Result: With Conventional therapy, the disability was reduced from 36.56 ± 1.49 on day 1 to 21.46 ± 1.81 in 6th week. Pilate therapy showed reduction of 36.55 ± 1.5 on day 1 to 7.03 ± 1.80 in 6th week. At 2nd week, disability was reduced to 36.65 ± 1.54 with conventional therapy and 29 ± 1.68 with Pilate therapy. By the end of 4th week, with conventional therapy it was further reduced to 29.06 ± 1.89 and 19.7 ± 1.29 with Pilates. After 6 weeks of interventions, functional disability was reduced to 21.46 ± 1.81 with conventional exercises and 7.03 ± 1.80 with Pilates.

Conclusion :

The study concludes that Pilate's therapy has shown to be statistically significant in reducing functional disability in post natal women when compared with conventional therapy.

Keywords:

Post natal, Back pain, Functional Disability, Pilate, Conventional therapy.

Introduction:

Post natal period occurs immediately after the delivery. It is critical but often neglected period by a women¹. Many complications arise in it so it is essential for proper parent and new born management. This period is divided into three distinct phases: acute phase which is 24 hours immediately after the delivery, sub acute phase which lasts 2-6 weeks after the deliveries and late phase which can last from 6 weeks to 6 months following delivery². This period has significant importance in terms of prevention, early detection, counseling, exercising, immunization, nutrition. During

the postpartum period, the mother experiences several changes including physical and emotional changes. During this time a wide range of complications have been reported, including back pain, breast feeding problems, constipation, depression, post traumatic stress disorder, anxiety and fatigue.

Back pain: Most of the women suffer from back pain which may be presented as soreness and stiffness. Newly developed back pain in post natal period can last from 6 months to more than a decade³. 45% of pregnant women and 25% women post-partum suffer from lumbo-pelvic pain associated with pregnancy⁴. Pregnancy related low back pain can be defined as pain between the 12th rib and the gluteal folds or pubic symphysis during the course of pregnancy. Approximately one third of women experience severe pain. Pregnancy related low back pain (PLBP) has been recognized even as early as 400 BC by Hippocrates. Pelvic girdle pain has come to be recognized as a distinct entity only in the last few decades. It has been postulated that increased weight gain, shifting of centre of gravity, stretching of abdominal muscles can give rise to pelvic pain. According to F.Turgut et al, 59.1% pregnant women had low back pain at time of delivery and 43.2% women had low back pain 6 months post partum⁵. Postural changes can contribute to post natal back pain. This may include: Joint laxity, widening and increased mobility of the sacroiliac joints and pubic symphysis, increase in the anterior tilt of the pelvis. Increased Body Mass Index, young age, a history of low back pain before pregnancy, multi parity and joint hyper mobility have been found to be predisposing factors of low back pain in women after childbirth. Pelvic girdle pain is a common musculoskeletal disorder during and after the pregnancy. Its prevalence has been reported to be 7-65% during pregnancy and 0-41 % post partum in the past two decades. Sacroiliac dysfunction is reported to be high in full term normal delivery than lower segment cesarean section⁶.

The subjectivity and pattern of pain makes physical activities difficult. Although physical problems typically associated with the postpartum period are often regarded as transient or comparatively minor, they are strongly related to both the functional impairment and poor emotional health⁷. Due to back pain it becomes very difficult for a woman to perform ADL'S like lifting her baby, breast feeding, Toileting, dressing, Getting up from bed and moving around. The physical health QOL was lower in postnatal mothers⁸. Post natal depression causes extreme sadness and despair in the weeks and months after childbirth. Postpartum anxiety causes excessive worrying after having a baby. Serious conditions like Postpartum hemorrhage, Postpartum preeclampsia, Deep vein thrombosis (DVT), Pulmonary embolism may occur which adds up to physical limitations. Women's health related quality of life is significantly impaired leading to reduced daily activity, decreased self-care, challenges with breastfeeding and baby handling, and increased medical costs for both mother and baby. Post natal physiotherapy focuses on support and rehabilitation of women, detecting prevention and management of back pain, restoration of bowel and bladder functions, pelvic floor issues, and postural issues. Majority of gynecologists are aware of Post Natal Physiotherapy but there is lack of referral systems⁹. Comprehensive interventions need to be developed to improve the Quality of Life of women during the postnatal period¹⁰. It worsens with time. According to study findings, greater attention must be paid to providing postpartum healthcare for housewife and less educated women as well as those with history of disease in pregnancy¹¹.

Materials and Methods:

This experimental study was carried out in 494 subjects in post natal women presenting with functional disability. The present study was carried out in the Department of Physiotherapy and Department of Obstetrics & Gynecology, Krishna Vishwa Vidyapeeth, Karad after taking clearance from Institutional ethics committee of KIMS, Karad. Group A received Conventional therapy and Group B Pilate therapy. After baseline assessment, Computer generated random numbers were used to allocate the interventions. Data for outcome measures was generated before and after the interventions in either group. To assess functional disability, Oswestry Low Back Disability was used. The subject was given detailed information about the study. She was informed about all the treatment options, clothes to be worn, timing between breakfast and treatment, how to stop the session if any discomforts. Treatment was given for 30 minutes for 6 weeks. Post treatment score was analyzed at 2nd, 4th and 6th week respectively. Difference between pre and post was calculated by appropriate statistical tool.

Results:

Of 494 women’s, 32.79% women were in 25-30 age group. 39.67 % women were Primi gravidae and 60.32% were Multi gravidae. Mean age of our study population was 25.66 yrs. mean weight gain for women’s included in the study was 11.42 kg.

Within the group analysis

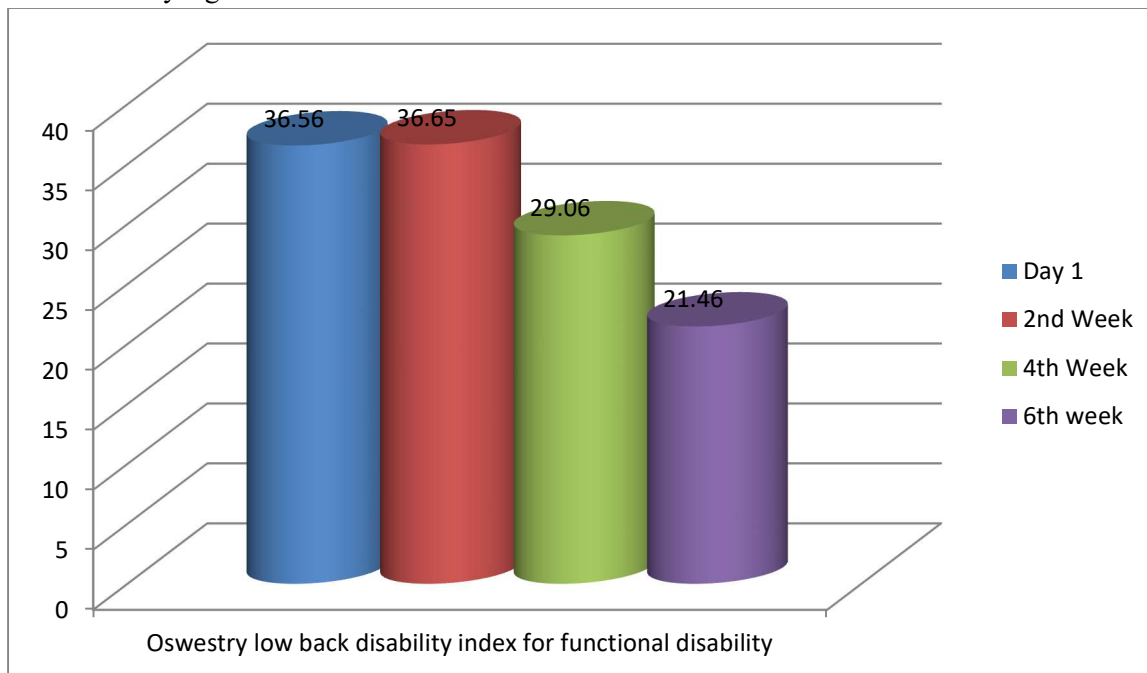
Pre and post analysis within the group was done using Repeated measures ANNOVA test. The scores were analyzed at 2nd, 4th and 6th weeks.

Group A. Conventional Therapy:

Outcome measure	Day 1	2 nd week	4 th week	6 th week	P value	F value
Oswestry low back disability index	36.56 ± 1.49	36.65 ± 1.54	29.06 ± 1.89	21.46 ± 1.81	P is <0.0001	F= 11049

Table no. 1 : Changes in scores of Functional disability with Group A (Conventional Therapy).

Differences in the values between Day 1 to 2nd week were not significant (P> 0.05); whereas values within other columns were extremely significant.

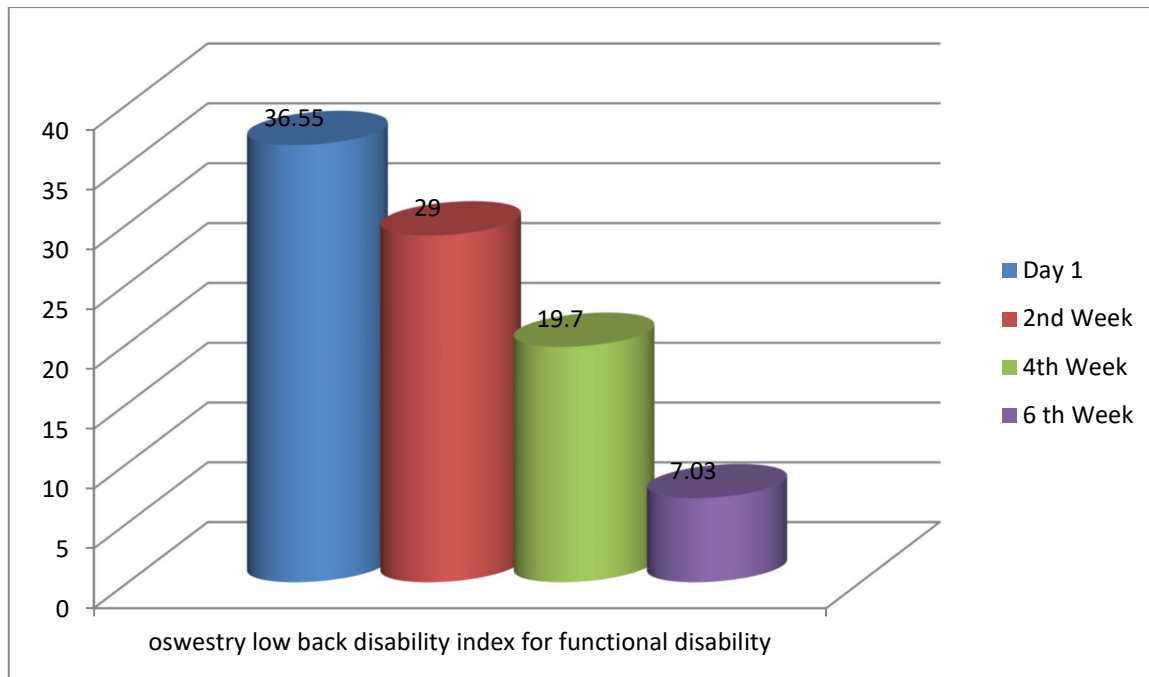


Group B: Pilate Therapy:

Outcome measure	Day 1	2 nd week	4 th week	6 th week	P value	F value
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Oswestry low back disability index	36.55 ± 1.5	29 ± 1.68	19.7 ± 1.29	7.03 ± 1.80	P is <0.0001	F= 18823
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Table no.2: Changes in scores of Functional disability with Group B (Pilates Therapy). Disability was significantly reduced from 36.55 ± 1.5 on day 1 to 7.03 ± 1.80 in 6th week. P is <0.0001 was extremely significant.



Between the group analysis:

Pre and post analysis between the Groups was done using unpaired t- test. The scores were analyzed at 2nd, 4th and 6th weeks.

After 2nd week:

Group	2 nd Week	P value	T value
Group A: Conventional therapy	36.65 ± 1.54	P < 0.0001	t= 52.691 with 492 degrees of freedom
Group B: Pilates Therapy	29 ± 1.68		

Table no. 3: Changes in the values of Functional Disability between the groups after 2 weeks.

Group B (Pilates Therapy) showed extremely significant reduction in functional disability when compared with Group A (Conventional Therapy).

After 4th week:

Group	4 th Week	P value	T value
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Group A: Conventional therapy	29.06 ± 1.89	P < 0.0001	t= 64.199 with 492 degrees of freedom
Group B: Pilate Therapy	19.7 ± 1.29		

Table no. 4: Changes in the values of Functional Disability between the groups after 4 weeks.

Group B shows extremely significant reduction in functional disability when compared with Group A

After 6th week:

Group	6 th Week	P value	T value
Group A: Conventional therapy	21.46 ± 1.81	P < 0.0001	t= with 492 degrees of freedom
Group B: Pilate Therapy	7.03 ± 1.80		

Table no. 5: Changes in the values of Functional Disability between the groups after 6 weeks

Pilate therapy (Group B) shows extremely significant decrease in functional disability when compared with conventional therapy (Group A).

Discussion:

A study on effect of Pilate therapy and Conventional therapy on functional disability was carried out in 494 subjects at Krishna Vishwa Vidyapeeth Karad. The study focused on finding improved in disability using Oswestry Low Back Disability scoring. The treatment was given for 6 weeks. Quality of life (QOL) is defined by the World Health Organization as “an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”¹². A functional disability is a disability that stops a person from being able to perform, or greatly impairs the performance of, at least one activity of daily living or instrumental activity of daily living. Ability to work is severely compromised in post natal period due to physical and mental factors. By the end of 6 weeks, Functional disability was significantly improved with Pilate therapy (7.03 ± 1.80) over Conventional therapy (21.46 ± 1.81). There was a steady improvement in physical functions with Pilate therapy over a period of 6 weeks whereas in first few weeks the improvement was not significant with conventional approach. Conventional therapy works without necessarily emphasizing functional application. They focus on building muscle mass and strength in a controlled environment, adhering to set training regimens and routines. They lack in specificity of training. Pilate therapy has shown significant improvement in pain intensity. It has been effective in lowering depression, anxiety and quality in obese women¹³. Concentration of correct movements practiced in Pilate makes it easier to learn it and become proficient in it. Pilates is a low impact exercise that creates optimal strength through muscle balance and fine-tuning neuromuscular patterns. It emphasizes on the core, the center of the body from which all movement originates. Pilates improves core strength and function¹⁴. Pilates concentrates on the full body’s alignment, ideal range of motion at the joints, and a balance of all opposing muscles. Pilates achieves balance in the muscles of the body so that they don’t become loose or tight. This directly improves flexibility and serves for synchronized movement patterns in everyday living.

Pilates improves cardiorespiratory capacity¹⁵. This facilitates good oxygen flow and circulation. This makes the women feel energetic and happy. This has a proportional impact on quality of movement. Pilates is a mind-body practice that enhances proprioception, or body awareness¹⁶. With increased proprioception, the body is in correct position to respond to stimulus, which can prevent injuries and falls. The inward focus and use of breathing exercises in Pilates can regulate the nervous system. Good mobility requires flexibility and even strength. Pilates practice keeps moving with smooth and accurate transitions between precise, slow, controlled movements., most Pilates exercises are a combination of the

stretching and strengthening, which improves strength, flexibility, and mobility¹⁷. This directly improves quality of movement and reduces dysfunction. Evidences show that Pilates helps raise immune system functioning¹⁸. It has been shown to enhance cognitive functioning. Pilates have found that subjects experienced lessening of anxiety, fatigue, and depressive symptoms, and giving away negative thought patterns. Pilate has shown to significantly reduce post natal back pain thereby improving quality of life in normal delivery¹⁹. The pattern of movements done in Pilates has shown that probability of anti-inflammatory interleukin (IL)-10-producing regulatory type 1 cells and immunosuppressive CD4+CD127lo/-CD25bright T regulative cells decreased. This boosts the immune system. Pilates was effective on quality of life, sleep, strength and flexibility soon after completion of training. Pilates is an effective intervention for improving physical and mental well-being. These findings indicate the necessity and importance of incorporating structured physical activity, such as Pilates, into the lifestyles of the elderly to promote better health outcomes and quality of life²⁰. With pilates, women's showed significant improvement in lifting heavy weights without extra pain, walking for longer distances, sitting in chair for longer times, standing for house hold activities for longer without extra pain. Pilates is a whole body fitness program. It focuses on the core, lower-body strength, upper-body strength, flexibility, and posture. This lays down a great foundation for any movement. Combined with aerobic activity and a healthy eating plan, Pilates is useful in weight loss and body toning. Motivation, which is described as the process that initiates and drives goal-oriented actions, may be improved by Pilates²¹. Through the mental, emotional and physical benefits, Pilates can be a effective mechanism in achieving greater welfare and happiness.

Conclusion:

Pilate therapy is significantly effective in reducing functional disability in post natal women than conventional therapy. This is revealed by enhanced quality of movement patterns in women and is an effective medium to improve quality of life.

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