



Impact of 6 Weeks Pilates Training on Menopause Specific Symptoms and Quality of Life in Menopausal Women: A Case Report

Anjali Bais¹, Simran A. Mishra¹, Palak P. Darda¹ and Pratik Phansopkar^{1*}

¹*Department of Musculoskeletal Physiotherapy, Ravi Nair Physiotherapy College, Datta Meghe Institute of Medical Sciences, Sawangi Meghe, Wardha, Maharashtra, India.*

Authors' contributions

All author made best contribution for the concept, assessment and evaluation, data acquisition and analysis and interpretation of the data.

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Case Report

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ABSTRACT

Introduction: The concept of menopause is a complete cessation of ovarian function. Most common symptom of menopause include muscle and joint ache, poor memory, lower back pain and trouble sleeping. The vasomotor and emotional domains reported less often compared with the physical and psychological domains. Such adverse changes in physical and mental health may have a negative impact on Quality of Life (QOL). Pilates is a mind body exercise focusing on muscle strength, core stability, endurance, muscle control, posture, and respiration which seems to improve both the physical and psychological components in women during menopause. The given study helps to provide the effect of 6 weeks Pilates training protocol on menopausal women's presenting complaints as well as on her QOL.

Complaints and clinical finding: Patient's main concern were low back ache without any cause night sweats, fatigue, disturbed sleep wake cycle which lead to difficulties in performing activities of daily living which hampered the QOL of the patient. Physical findings revealed decrement in lower back and lower limb muscle strength along with some tightness. Scales helped to reveal that patient is having fatigue and tiredness and mat-exercise treatment protocol were formed.

Therapeutic Intervention: 6 weeks Pilates training.

Conclusion: As there are minimal to no evidence present in reference to this study, it helps us to provide new and proper treatment protocol and it is helpful to know the effect of the same. It showed significant improvement in the muscular strength as well as reduction in stress level and helped in enhancing the QOL of the patient.

Keywords: Menopause; pilates; fatigue; quality of life; muscle strength.

1. INTRODUCTION

The concept of menopause is a complete cessation of ovarian function [1]. The symptoms peak between 45-55 years and decrease in severity after 55 years [2]. Most common symptoms of menopause include muscle and joint pain, slow feeling, poor memory, lower back pain and trouble sleeping. The vasomotor and emotional domains reported less often compared with the physical and psychological domains [2]. Such adverse changes in physical and mental health may have a negative impact on Quality of Life (QOL) as women undergo transition from menopause [3].

Pilates is a mind body exercise focusing on strength, core stability, endurance, motor control, posture, and respiration [4]. Exercises may be mat based or require the use of specialized equipment and the concepts of Pilates include centering, focus, balance, precision flow and respiration [5]. Pilates seems to improve both the physical and psychological components in women during menopause [6].

As there are little to no evidence related to the effect of Pilates training on Menopausal women with respect to the related symptoms as well as the Quality of Life. This helps us to provide new and proper treatment protocol and it is helpful to know the effect of the same.

2. CASE PRESENTATION

A 48-year-old woman, visited to the clinic with the complaints of low back ache since 1 year which was insidious in onset and not of progressive nature. It was acute in onset and is of dull-aching type. Pain is of moderate intensity which aggravates on heavy exertional work and relieves on rest and medications. Pain was not associated with any radiation, tingling and numbness and patient marked 4 on NPRS scale. Along with these, patient also presented complaints of insomnia which was basically due to menopausal symptoms including hot flashes and night sweats. She presented disturbances in

her sleep wake cycle which was that she may lie in bed for hours before she falls asleep, and other nights she does not felt difficulty in falling asleep. She started waking up between 2 to 4 hours after falling asleep due to extreme night sweats and hot flashes. She also started feeling tired after doing her normal household work which she used to perform efficiently without any tiredness. Due to all the presented complaints, she started having difficulties in performing the activities of daily living. There was no relevant past history or family history and patient did not have any musculoskeletal, cardiovascular and neurological diseases.

Past medical history revealed that patient was suffering from diabetes from past 3 years. There was no relevant past surgical history and family history.

General examination of the patient revealed the condition of patient was good and BMI was 23.5 kg/m².

Menstrual history revealed –

Age of Menarche- 18 years
Cycle length- 28-30 days
Days of flow- 4-5 days which was regular with normal bleeding and associated with cramps, headaches and loose stools
Number of pads changed/ day- 2-3
Last menstrual period- 14 months back
Associated symptoms- associated with cramps, headaches and loose stools

Gynecological and Obstetric history revealed-

No of deliveries- 2
Mode of deliveries- Normal
Gravida- 2
Paretti- 2
Living- 2
Dead- 0
Abortion- 0

Clinical findings: On admission, a thorough evaluation and assessment were done.

Table 1. Range of motion

Lower back ROM	Ranges
Lumbar flexion	0-45 degree
Lumbar extension	0-15 degree
Rotation	
Towards right	0-5 degree
Towards left	0-6 degree
Side bending	
Right side	0-20 degree
Left side	0-18 degree

Table 2. Gross muscle testing

Musculatures	Grading
Erector spinae	4
Quadratus lumborum	4+
Gluteus Maximus	4
Adductors	5
Hip Flexors	5
Hip Extensors	5

Table 3. Special test

Special test	Findings
Slump	Negative
Straight leg raise	Negative
Prone knee bending	Negative
One leg standing (for jt. dysfunction)	Negative
For muscle tightness	
Obers test	Negative
Rectus femoris tightness	Positive
Homans test	Negative

3. THERAPEUTIC INTERVENTION

Patient underwent supervised Pilates training program of 6 weeks in order to prevent further risks and complications as well as to maintain and to increase muscle strength, enhance activities of daily living and to improve Quality of life of patient.

Exercises commands were given-

- 1) **Hundred** – Lie on back, bring knees over hips into a table top position and then exhale with head, neck and shoulder are lifted and abdominal muscle curl up. Arms are extended with elbow extended and fingertips are reaching in front of you.
- 2) **Pelvic curls**- Lie on your back, knees should be flexed, arms by your side and engage the abs for pelvic tilt. Exhale and tilt your pelvis by compressing abdomen

and pulling belly down towards the mat. Sequentially, press lower spine on floor. Inhale and press down the feet and raise the hip, lower spine and the middle portion of spine up to shoulder blade. Support the movement with hamstring and abdominals.

- 3) **Leg stretch (single and double)**- Lie on the back with leg extended on the floor, arms by your side, legs are taut and held together and arms needs to be on the floor, abdominal are pulled inward and upward. Start with one leg and extend it towards the ceiling straight and progress to other leg.
- 4) **Leg circle (single and double)**- Lie on the back with leg extended on the floor, arms by your side, legs are taut and held together and arms needs to be on the floor, abdominal are pulled inward and upward. Draw one knee towards the chest and extend it towards the ceiling. Do 5-8 circles and reverse of each side. Stretch is necessary while switching the legs
- 5) **Spine stretch forward**- Legs are extended along with shoulder width apart, and knees are flexed. Inhale and extend your arms in front of you up to shoulder height. Exhale and lengthen your spine into large C-shaped curve.
- 6) **Curl up**- Lie on your back, shoulder relaxed, align your body properly. Inhale and bring arms overhead and let the head and upper spine join the curl up motion. Exhale and curl your body while reaching with stretched hand for your toes, abdominals contracted and rounded back.
- 7) **Criss-cross**- Lie on your back, place your hands behind your head. Inhale and bring legs in tabletop position and exhale and bring the opposite elbow towards the knee while rotating the body in the direction where elbow is going.

Exercise are shown here:- Figs. a, b, c, d.

WEEK1-WEEK3: Warm up consist of deep breathing along with generalized full body stretching.

Patient performed leg stretches (single and double), leg circles (single and double), pelvic curls and back extension exercises. All are performed for 10 repetitions each and 5 seconds hold and 3 sets of each exercise. As patient was getting tired easily, 10 second rest has been given between each exercise and 30 seconds rest after whole set.



Fig. (a). Spine stretch forward



Fig. (b). Criss-Cross



Fig. (c). Pelvic Lift



Fig. (d). Hundred

WEEK 3-WEEK 6: Along with the general stretches and the given exercises, additional exercises that are Spine stretch forward, curl up and criss-cross were added into the program. The new exercises has been performed by patients with the same dosages.

Collectively, 30-40 minutes specific treatment protocol has been given including 5 minutes of warming up and 5 minutes of cooling down. Intensity was gradually increased week wise, Rate of Perceived Exertion scale has been used to maintain as well as increase the program intensity. Initially, it ranges between 9-11 and gradually progressed to 11-13 and it has been done for 3 days a week.

Follow up and Outcomes:

- a) Numeric Pain Rating Scale-
Pre score- 4/10
Post score- 2/10
- b) Visual Analogue Scale to evaluate Fatigue Severity (VAS-F)
Pre score- 6/10
Post score- 3/10
- c) Menopause specific QOL (MEN-QOL)
Pre score- 54/174
Post score- 18/174

Table 4. Post ROM)

Lower back ROM	Pre ranges		Post ranges
Lumbar flexion	0-45	Degree	0-45
Lumbar extension	0-15	Degree	0-15
Rotation			
Towards right	0-5	degree	0-7
Towards left	0-6	Degree	0-7
Side bending			
Right side	0-20	degree	0-20
Left side	0-18	degree	0-20

Table 5. Post muscle strength

Musculatures	Pre Grading	Post Grading
Erector Spinae	4	4+
Quadratus lumborum	4+	5
Gluteus Maximus	4	5
Adductors	5	5
Hip Flexors	5	5
Hip Extensors	5	5

4. DISCUSSION

Strength, in this case was that the patient was able to perform all the exercises from the intervention in the correct manner and proper time.

The limitations of this case were that the patient used to get tired easily due to fatigue. In order to cope up with this, the patient performs proper breathing pattern long with the intervention technique.

Low back pain (LBP) is most common disorders of the musculoskeletal system [7]. It is one of the major symptom of menopause is lower back pain. Due to adverse changes in physical and mental health, it hampered the Quality of life of menopausal women.

So, 6 weeks of proper Pilates intervention were programmed [5]. Exercises were leg stretches (single and double), leg circles (single and double), pelvic curls and back extension exercises, spine stretch forward, curl up and criss-cross which mainly focuses on improving lumbar strength. As physiotherapy intervention includes Range of motion exercises (ROM), strengthening exercise, functional mobility exercises, trunk control exercises, weight bearing exercises for achieving several functional outcomes [8], all these got covered in Pilates training intervention. Studies showed that Pilates major exercises helps in improving low back pain, posture, balance and Quality Of Life of Older elderly female [9,10].

Along with the lower back pain issue, the patient also showed the symptoms of fatigue and disturbed night sleep. There has been significant improvement in sleep quality as well as reduction in fatigue by Pilates Exercise Program [11]. Studies on different aspects of perimenopausal problems were reported [12-14]. Warjekar et. al. reported about lipid profile, estradiol for evaluation of cardiovascular risk in pre-and post-menopausal women [15]. Aglawe et. al. reported about core therapy, supportive therapy, and alternative therapy in correlation to plethora of menopausal problems [16]. Pohane et. al. conducted a comparative study of menopausal age and symptoms with respect to prakriti in rural and urban regions [17-20]. Few more related were reviewed [21-26].

5. CONCLUSION

This case reports provide patient with a comprehensive treatment plan which showed

significant improvement in the muscular strength as well as reduction in fatigue level and helped in enhancing the Quality of Life of the patient.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline patients consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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