

Influence of yoga on flexibility, balance and quality of life in postmenopausal women

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Abstract

Background: Menopause brings a huge change in a woman's life. Yoga can be an alternative training to exercise regimes to improve flexibility, balance and quality of life in postmenopausal osteoporosis

Methods: 50 postmenopausal women between the age group of 45-60 yrs were selected. A 6-week yoga protocol was given including pranayama and asanas. Back Scratch test, Sit and reach test for flexibility, One-legged stance test for balance and the Menopausal specific quality of life questionnaire were used as outcome measures.

Results: Our study shows significant results pre and post intervention with $p < 0.005$

Conclusion: On the basis of the result obtained, we can say that the given Yoga protocol was effective to improve upper limb flexibility, lower limb flexibility, balance and Quality of life in postmenopausal women

Keywords: flexibility, Postmenopausal, Menopause, pranayama

1. Introduction

Menopause brings a huge change in a woman's life. Natural menopause is defined as the permanent cessation of menstrual periods, after a woman has experienced 12 months of amenorrhea without any other obvious pathological or physiological cause. Yoga can be an alternative training to exercise regimes to improve balance and quality of life in postmenopausal osteoporosis. Improving flexibility and balance is important in postmenopausal women to prevent falls and hence other complications seen in postmenopausal osteoporosis. Quality of life is impacted in these women because of the hormonal changes. Hence this study looks forward to improving it.

2. Problem Statement

To know the effect of yoga on flexibility, balance and quality of life in menopausal women

3. Objectives

1. To find out the influence of yoga on flexibility of upper extremity in postmenopausal women
2. To find out the effect of yoga on flexibility of lower extremity In postmenopausal women
3. To find out the effect of yoga on balance in postmenopausal women
4. To find out the effect of yoga on quality of life in postmenopausal women

4. Methodology

1. Ethical approval was taken from the ethical committee of Smt. Kashibai Navale College of Physiotherapy, Pune, Maharashtra
2. Study design: Interventional study
3. Study area: Parvati, Pune
4. Sample size: 50
5. Sampling method: Convenient sampling
6. Study duration: 6 months

a. Inclusion criteria

- Women who have achieved menopause (1 year from last period)
- Age group of 45-60 years
- Women who have not practised yoga before.
- Women who wish to enrol for 6 weeks program.

b. Exclusion criteria

- Women suffering from musculoskeletal dysfunction.
- Women participating in any other fitness regimes
- Women having any recent history of fall or trauma
- Women having any neurological dysfunctions

c. Material used

- 1 meter long ruler or Yardstick
- Measuring tape
- Stopwatch
- Paper, pencil

Procedure

- Written consent was taken from subjects who fulfill the inclusion criteria and who volunteered to participate in the study
- Subject's demographic data- age, height, weight was recorded.
- A pre-intervention assessment of flexibility and balance was done using
 - Upper limb flexibility – Back Scratch test
 - Lower limb flexibility – Sit and reach test
 - Balance – One legged standing test
 - Quality of Life- MQOL Questionnaire
- A 6 week Yoga program was given to the subjects- 1 hour-3 times a week-for 6 weeks.
- Subjects were instructed to refrain from all other forms of exercise while participating in the training program.
- Each session included-
 - 10 minutes of pranayamas,

- 30 minutes of warm up poses
- 10 minutes of asanas (yoga postures)
- 10 minutes of relaxation
- Pranyama –Nadi shodhana a type of breath control exercise with specific inhalation and exhalation technique was taken.
- Warm up exercises included parsva uttanasana, frog pose, and suryanamaskar 2-12 repetitions.
- Asanas include- Vakrasana, Vidalasana, Paschimuttanasana, Vrikshasana, Virabhadrasana, Trikonasana, Partner Bridge (Setu Bandhasana)
- Each asana/pose were held for 15 seconds and then gradually increased to 90 seconds in the end, according to each individual’s capability.
- Relaxation in savasana (the corpse pose)
- After 6 weeks, the outcome measures were reassessed and recorded.

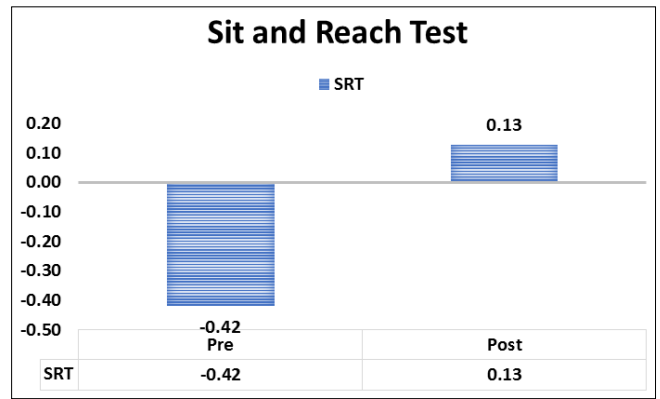
Result and Analysis

- The data was analysed using Primer software with level of significance at $p < 0.05$
- Paired t-test was used to measure the pre and post intervention results in the same group.
- 44 postmenopausal women completed the protocol. (6 dropouts- out of which 3 had to leave town, 2 had personal issues, and 1 was not interested to continue further.)
- Level of significance was as follows

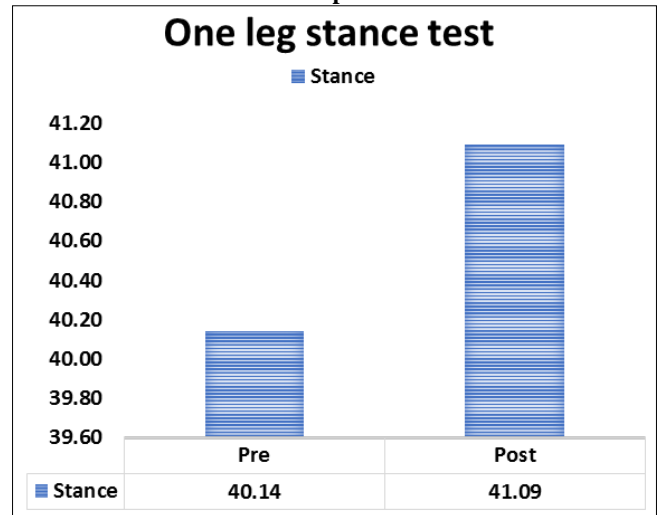
Table 1

Outcome measure	p value
Back scratch test R	0.001
Back scratch test L	0.002
Sit and reach test	0.017
One legged stance test	0.048
Quality of Life	0.000

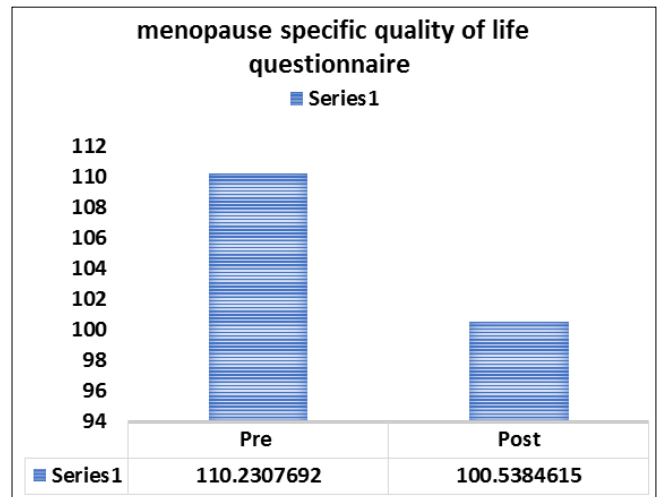
The following graphs show the improvement post-intervention.



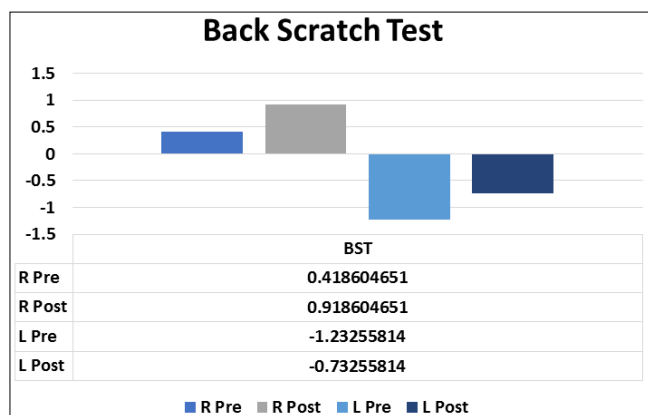
Graph 2



Graph 3



Graph 4



Graph 1

Discussion

This study shows that a 6 weeks Yoga protocol has a significant improvement on flexibility, balance and quality

of life in postmenopausal women in the age group 45-60 yrs. The study shows that upper limb flexibility ($p=0.001$) and quality of life ($p=0.000$) improved more significantly than it improved lower limb flexibility ($p=0.017$) and balance ($p=0.048$). A plausible reason to the positive outcome of this protocol overall can be attributed to the benefits of Yoga as discussed further. Moreover, the appropriate combination of Pranayama and Asanas may have revealed such results. Suryanamaskar consisting of various poses causes muscles to elongate and hence improves flexibility as measured by the back scratch test and the sit and reach test. Paschimuttanasana, trikonasana and virbhadrasana mainly targets the stretching of lower limb muscles in different angles and postures.

However, lower limb muscles are continuously in action while standing, walking and hence might need more vigorous training to relax them and stretch effectively, when compared to upper limb musculature.

In the pose Vrikshasana, the base of support is reduced and centre of gravity raised hence challenging balance. Balance is a complex phenomenon and the study shows that it may need more specific and targeted asanas for significant improvement.

The Shavasana incorporated after the asanas helps in controlling the breathing pattern with deep and meaningful inhalation and exhalation, while the mind has space to quietly focus and redirect attention.

Pranayama quietens the mind, bringing it under control through deep and rhythmic

BREATHING. Yoga asanas while appearing to deal with the physical body alone, actually influence the chemical balance of the brain, which in turn improves one's mental state of being. This can be the physiological explanation for an improvement in quality of life in the subjects.

Conclusion

On the basis of the result obtained, we can say that the given Yoga protocol was effective to improve upper limb flexibility, lower limb flexibility, balance and Quality of life in postmenopausal women.

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