



## **Effectiveness of power yoga on weight reduction, mental health and quality of life in postmenopausal overweight and grade 1 obese females**

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### **Abstract**

**Objective:** Objective of the study was to check the effectiveness of power yoga on body mass index, mental health and Quality of life in overweight and grade 1 obese postmenopausal females by the end of 6 weeks.

**Subjects and methods:** In this study total 40 females were included within age group 45-55 years having BMI between 25kg/m<sup>2</sup>-34.9kg/m<sup>2</sup>, females having mild to moderated symptoms on beck depression scale i.e score 11 and more, females who at least have mild menopausal symptoms i.e 5 points on MRS. we included 10 minutes of warm up which includes 5 rounds of sun salutations followed by various yoga postures in standing and sitting with choreographed sequence which flows from one posture to other and is co-ordinated with breathing. In the end 10 minutes of cool down exercise including Jacobson's relaxation was performed for 6 weeks duration (5 days per week).

**Results:** Mean score of BMI improved from 29.43 to 28.64, mean score of BDS was improved from 19.52 to 15.95 and mean score of MENQOL was improved from 164.4 to 152.42.

**Conclusion:** Power Yoga showed significant effect on weight, mental health and quality of life in postmenopausal overweight and grade 1 obese females by the end of 6 weeks.

**Keywords:** power yoga, postmenopausal, weight, mental health, quality of life

### **1. Introduction**

Menopause is defined as the permanent cessation of ovarian function and is thereby the end of a woman's reproductive phase. Menopause begins around the age of 50 years and is characterized by at least 12 months of amenorrhea. While it is an inevitable part of every woman's life, about 3 out of every 4 women experience complaints during menopause. The most common menopausal symptoms include hot flashes, night sweats, fatigue, pain, decreased libido, and mood changes. These symptoms often persist for several years post menopause. <sup>[1]</sup>

The increase in body weight after menopause is partially related to normal aging. Body weight increases (averaging 250 grams per year) throughout life because of a decrease in lean body mass and metabolic rate, regardless of menstrual status. However, the early postmenopausal years are associated with accelerated weight gain, especially in women already characterized by increased weight and fat mass. There is also evidence suggesting that menopause is associated with changes in body composition and fat distribution. With increasing menopausal age, lean body mass decreases while fat mass increases. The proportion of android (upper-body) fat to gynoid (lower-body) fat deposition is greater in postmenopausal than in premenopausal women. Oestrogen has an effect on the form of obesity, its deficiency causing women to attain the obesity. The postmenopausal years have been associated with lower levels of physical activity, leading to a lower energy expenditure and greater abdominal adiposity in this time of life. Insufficient PA can be an important factor in postmenopausal weight gain. <sup>[2]</sup>

Changes in body fat distribution with declining oestrogen

level may be due to alterations in adipose tissue metabolism. Several studies have shown that oestrogen influences adipose tissue lipoprotein lipase activity and lipolysis. Observed that oestradiol administration attenuates lipolytic response in subcutaneous abdominal adipocytes, but not in adipocytes isolated from the intra-abdominal fat depot. This study suggests that higher circulating oestrogen levels maintain typical premenopausal fat distribution by causing preferential fat storage in subcutaneous vs intra-abdominal fat depots. After menopause, when oestrogen declines, this preferential storage in subcutaneous tissues disappears and there may conversely be preferential storage in abdominal adipose. <sup>[3]</sup>

Overweight women may suffer from psychosocial consequences, with a significant impact on self-esteem and general well-being. Mood disorders are one of the most important co-morbid conditions of sexual dysfunction in postmenopausal women, it is plausible that weight gain and obesity at menopause may be risk factors for poor sexual functioning. However, little is known of the specific impact of weight gain on sexual function at menopause as a consequence of the 'domino' effect of other menopausal symptoms, especially psychological symptoms. <sup>[4]</sup>

Depression is marked by a loss of interest or pleasure in doing things, constant depressed mood, loss of appetite, sleeplessness, feelings of guilt or low self-esteem, poor concentration, and low energy. It has been noted that depression has a significant effect on quality of life, and that worldwide, it is the fourth leading contributor to the global burden of disease. The prevalence of depressive symptoms during the menopausal transition is somewhere between 40 and 60 percent. Women with a history of clinical depression

or postpartum depression are at a higher risk for experiencing depressive symptoms during the transition into menopause. In general, depression is associated with reduced quality of life. Well-conducted studies have shown that depression, specifically in the years surrounding menopause, has a significant impact on physical and mental well-being.<sup>[5]</sup>

Yoga is an ancient discipline designed to bring balance and health to the physical, mental, emotional, and spiritual dimensions of the individual.<sup>[6]</sup>

Power yoga is a unique combination of dynamic breathing and strong, flowing movements, which creates a high- heat, high- energy workout. Power yoga is choreographed sequence of posture that flow into one another, building strength, unwinding tight joints, and loosening muscles. Power yoga is complete mind and body workout that develops concentration and reduces stress with its focus on mindful breathing and body heat.<sup>[13]</sup>

Power yoga differ from other form of yoga in that it is quicker-paced, nonstop format that focus on strength, endurance and stamina. It is based on the premise that you can strengthen and develop a muscle by placing demand on it. In addition to being palatable to consumers, power yoga can help clients reprogram and retrain old movement patterns.

The training goal is a smooth, orchestrated performance by the entire body and with special focus on coordinate movements, proper alignment and a supple and stabilized core; it can also help to achieve good posture.<sup>[7]</sup>

Power yoga increase flexibility, strength and stamina, this ultimately helps reduce the risk of injury during other physical activities. Power yoga eliminates toxins through sweat and enhances immune system performance. Power yoga increase blood flow. Power yoga promotes weight loss not only through burning calories (approximately 200 calories an hour) but also by building lean muscle mass, which raises basal metabolic rate (that burn more calories, even when you're sitting around later).It improves mood, GABA is brain chemical in which low levels are linked to depression. Power yoga increases levels of the brain chemical by 27%and improves self-image and confidence. Helps to reduce stress by release of cytokine, a tension triggered type of protein that make feel tired and moody.<sup>(8)</sup>

The improvement in various parameters such as sense of wellbeing, feeling of relaxation, improved concentration, self-confidence, improved efficiency, good interpersonal relationship, increased attentiveness, lowered irritability levels, Improves quality of sleep and an optimistic outlook in life were some of the beneficial effects.<sup>[9]</sup>

**2. Methodology**

a. Purpose- The purpose of this study was to check the effectiveness of power yoga on weight reduction, mental health and quality of life in postmenopausal overweight and grade 1 obese females by the end of 6 weeks.

b. Selection of subjects-40 postmenopausal females between age 45-55 years were included in the study on the basis of BMI between 25kg/m<sup>2</sup>-34.9kg/m<sup>2</sup>, females having mild to moderated symptoms on beck depression scale i.e score 11 and more, females who at least have mild menopausal symptoms i.e 5 points on MRS. Females with history of any recent trauma to upper extremity, lower extremity and spine were excluded. Females with history of postmenopausal bleeding, systemic illness, joint replacement, neurological

disorders, currently on hormone replacement therapy, surgical interventions during the prior 3 months or planned during next 3 months were excluded.

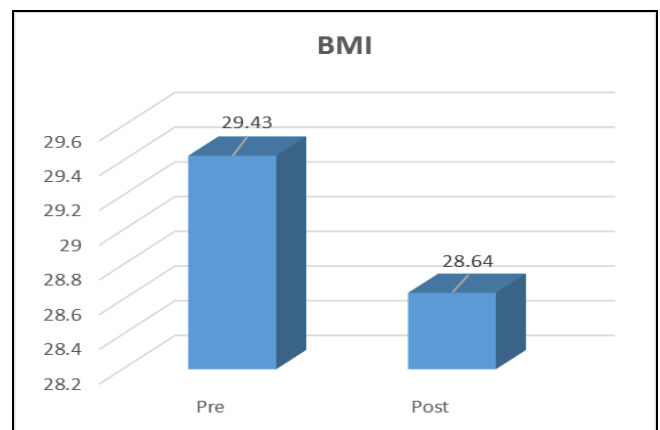
c. Procedure- The study was begun with an approval after presentation of its synopsis to an ethical committee in P.E.S. Modern college of Physiotherapy. Study was conducted in and around Pune. Subjects who satisfied the study criteria were enrolled and briefed about the study. Later an informed consent was obtained from subjects to participate in the study. Subjects were assured that the collected information will not be misused in any form. Intervention outcomes like BMI, Beck depression scale and MENQOL were taken pre and post intervention. Intervention was carried out for 5 days per weeks for 6 weeks.

**Treatment protocol:**

1. Warm up- 5 rounds of sun salutation for 10 minutes
2. Exercises in standing position- each position hold for 30 secs
  - a) Big toe posture; padangusthasana
  - b) Extended Triangle Posture; Uttitha Trikonasana
  - c) Leg Intense Stretch; Prasarit
  - d) Intense Side Stretch; Parvottanasana
  - e) Warrior Pose; Virabhadrasana
3. Exercises in sitting position- each position hold for 30 secs
  - a) Intense west side stretch posture; Paschmottasana
  - b) Boat Pose; Navasana
  - c) Locust Pose; Shalahasana
  - d) Frog Pose; Bhekasana
  - e) Half Lord of Fishes Posture; Ardha Mastyandresana.
4. Cool down- Jacobson's Relaxation for 10 minutes.

**Table 1:** d. Interpretation for weight reduction using BMI Pre and Post treatment scores analysed by Paired 't' test.

Scale	Mean	t-value	p-value	Significance
BMI PRE	29.43	15.6919	<0.0001	Extremely significant
BMI POST	28.64			



**Fig 1**

**Table 2:** e. Interpretation for mental health using Beck Depression Scale Pre and Post score analysed using Paired 't' test.

Scale	Mean	t-value	p-value	Significance
BDS PRE	19.525	25.8769	<0.0001	Extremely Significant
BDS POST	15.95			

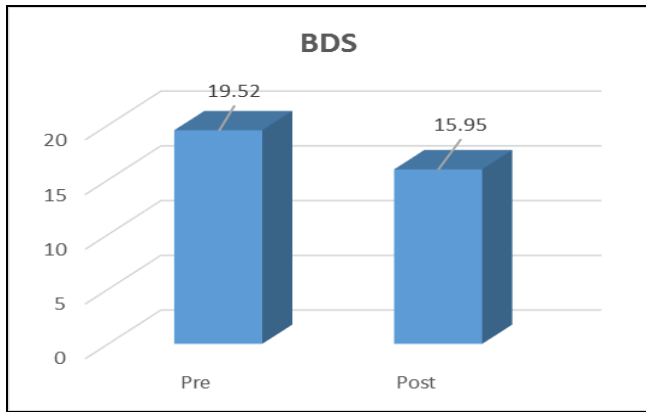


Fig 2

Table 3: f. The interpretation for quality of life using Menopause Specific Quality Of Life Scale Pre and Post scores analysed using Paired ‘t’ test.

Scale	Mean	t-value	p-value	Significance
MENQOL PRE	164.4	42.3083	<0.0001	Highly Significant
MENQOL POST	152.42			

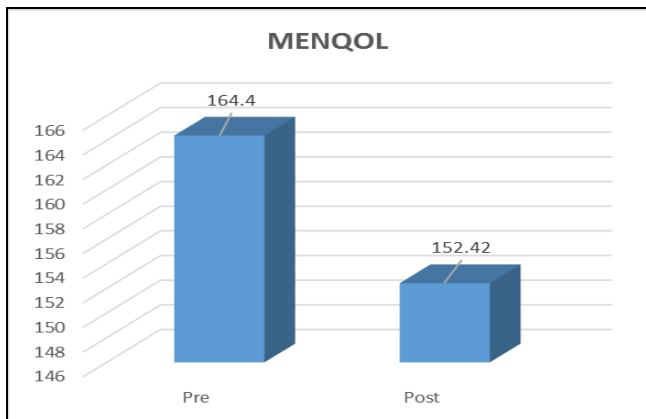


Fig 3

Table 4: g. Results by Pre-treatment and Post-treatment mean values of BMI, BDS, MENQOL scale score.

	Pre-Treatment	Post-Treatment
BMI	29.43	28.64
BDS	19.52	15.95
MENQOL	164.4	152.42

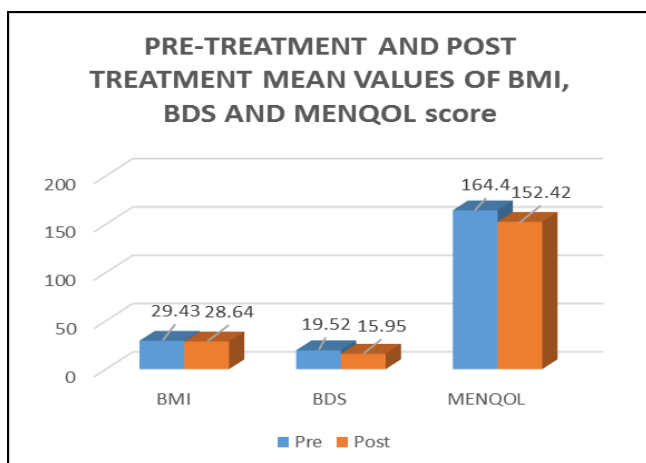


Fig 4

### 3. Results

- Difference between Pre and Post were compared and analysed using paired ‘t’ test for all three components.
- Body Mass Index: Shows that the p value < 0.0001 which is significant and hence power yoga is effective in weight reduction in postmenopausal overweight and grade 1 obese females. (Table 5)
- Beck Depression Scale: Shows that the p value is < 0.0001 which is significant and hence power yoga is effective in reduction of depressive symptoms and improve mental health in postmenopausal overweight and grade 1 obese females. (Table 6)
- Menopause Specific Quality of Life Questionnaire: Shows that the p value is < 0.0001 which is significant and hence power yoga is effective in improving quality of life in postmenopausal overweight and grade 1 obese females. (Table 7)

### 4. Discussion

- The present study was done to check the effectiveness of power yoga on weight reduction, mental health and quality of life assessed by using BMI, BDS, MENQOL scores respectively in postmenopausal overweight and grade 1 obese females. This study was a pilot study as no studies on power yoga has been done before.
- In this study total 40 females were included within age group 45-55 years having BMI between 25kg/m<sup>2</sup>-34.9kg/m<sup>2</sup>, females having mild to moderated symptoms on beck depression scale i.e score 11 and more, females who at least have mild menopausal symptoms i.e 5 points on MRS. Females with history of any recent trauma to upper extremity, lower extremity and spine were excluded. Females with history of postmenopausal bleeding, systemic illness, joint replacement, neurological disorders, currently on hormone replacement therapy, surgical interventions during the prior 3 months or planned during next 3 months were excluded.
- In this study we found that the power yoga had significant effect on weight reduction, mental health and quality of life in postmenopausal overweight and grade 1 obese females.
- In our study we included 10 minutes of warm up which includes 5 rounds of sun salutations followed by various yoga postures in standing and sitting with choreographed sequence which flows from one posture to other and is co-ordinated with breathing which helps in creating high heat energy workout which increases strength, flexibility and stamina. Power yoga increases blood flow. It helps in burning calories and helps to build lean mass which helps in weight reduction. It improves mental health by increasing brain chemicals by 27% and improves self-image and confidence thus improving mental health. It reduces stress by release of cytokines which helps to improve the quality of life. In the end 10 minutes of cool down exercise including Jacobson’s relaxation was performed.
- We have done this study for 6 weeks duration (5 days per week). Hence to check the long term effect and comparison with other treatment protocols is the future scope of study with the larger sample size and taking dietary changes into considerations. With such few limitations we have completed our study.

- The data analysis was done using paired 't' test which showed p value for BMI is <0.0001 which is extremely significant. P value for BDS is < 0.0001 which is extremely significant and p value for MENQOL is < 0.0001 which is also extremely significant
- Thus overall findings of this study suggests that 6 weeks of power yoga in postmenopausal females between age group 45-55 years shows significant effect on weight reduction, mental health and quality of life.

## 5. Conclusion

The study "Effectiveness of Power Yoga in weight reduction, mental health and quality of life in postmenopausal overweight and grade 1 obese females" shows After 6 weeks of research we found that Power Yoga shows significant effect on weight, mental health and quality of life in postmenopausal overweight and grade 1 obese females.

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