# A STUDY ON DIETARY HABITS AND EXERCISE ON SLEEP QUALITY IN MENOPAUSAL WOMEN

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**Abstract**: Women generally spend last third of their life time in menopause after reproductive year has ended. The menopausal transition precedes menopause it is characterized by irregularity of the cycle, hot flushes, night sweats, mood swings, anxiety, and sleep disturbances is one of the main symptoms; regular exercise may help to improve sleep quality. Diet also plays an important role in quality of life of menopausal women.

**OBJECTIVE**- The present research was conducted to study the impact of yoga and walking on dietary habits and sleep pattern in menopausal women.

**METHODOLOGY**- Purposive sampling was used to recruit 83 participants into control and experimental group. The impact of 3 months daily half an hour yoga training for these asnas (Warrior pose,vajrasna,child pose, cat cowpose,Butterfly pose, sleeping butterfly pose, parvamuktasana ,relaxing pose, pranayama) and walking was studied on dietary habits and sleep quality .The tools used to collect data were questionnaire and 24- hour dietary recall. The sleep quality was analysed using Pittsburgh Sleep Quality Index (PSQI). Data collected were coded in Microsoft excel and statistical analysis was done using SPSS to interpret the results.

**RESULT**-The age of study participants ranged between 41-51 years with the mean of 45 years    There was no significant difference for energy intake (t-0.82  ,p=>0.05) highly significantly excess consumption of carbohydrate, highly significantly decrease in protein(t=-2.842,p0≤.01)  intake at baseline in intervention group participants. In the same participants post intervention there was non-significant difference in energy intake (t=-0.33,p=>0.05) highly significantly excess consumption of carbohydrate ad highly significant decrease in protein intake  and for fats it was seen that participants  before intervention consumed 22% of fats in their daily diet this difference was greater than the dietary guideline by 2.69  however post intervention there was reduction in the consumption of the fat by 1.96 (22%) but still this was significantly greater than dietary fat  guidelines. In experimental group participants there was highly significant reduction in the sleep scores from 9.60 to 6.38 post intervention (t=13.53,p≤0.01) however in control group participants there was highly significant increment in sleep scores from 9.03 to 9.72 post intervention.(t=-2.85,p=≤0.01).Thus sleep quality increase in intervention group participants and deteriorated  in control group participants post intervention.

**CONCLUSION**- Thus overall yoga and walking had an impact on  the fat intake and  sleep quality in the intervention group participants as compared to control group .Fat intake reduced significantly  by 1.96gm or 2%  in intervention group particpants.Overall sleep quality in intervention participants improved significantly.

**Index Terms -** Sleep pattern, Dietary habits, menopausal women.

## I. INTRODUCTION

The mean menopause age of Indian Women is found to be 45 .9 years and average age at natural menopause of the Indian women was found to be 46.2 years(Ahuja 2016) . In the years leading up to menopause (perimenopause), the balance of hormones in a woman's body changes, these hormonal changes can lead to symptoms like hot flushes , sleep problems and mood swings . A study conducted by Mahajan et.al ,2012 was a community based cross sectional study women in North India the results reported that mean age of menopause women was 44 years the main symptoms reported were hot flushes (56%), Fatigue (60%),night sweats 52%, back aches( 51%), other ailments associated with menopause were arthritis (25%) ,Hypertension 23% and they profoundly affected health status and physical ability of midlife women. Sleep disturbance is one of the main symptoms of menopause prevalence of sleep disorder increases with age, ranging from 16% to 42% in pre- menopausal women, 39 to 49% in peri-menopausal women, 35-60% in post –menopausal women (Haiden Joffee et.al 2011). Kravitz et al 2011 reported that women in the SWAN study who had a bilateral oophorectomy and who was not using HT had the highest prevalence of sleep difficulty, independent of age or years since surgery, with this effect related to Hot flushes. As women experiences physiological changes during menopause transition and after menopause which is likely to influence the nutritional intake however low nutrient intake and nutrients deficiencies are likely to increase in menopause. According to Noll p et.al, 2021 dietary intake is found to be associated with the severity of menopausal symptoms; however, evidence for the association between dietary intake and menopausal symptoms is inconsistent and inconclusive, and it is provided by a small number of studies. Regular aerobic exercise have shown to reduce menopausal symptoms, overall health problem and sleep disturbances among menopausal women, epidemiological studies have indicated that exercise may be useful in improving sleep quality and reducing day time sleepiness. Kuruvila S, 2012 reported that walking prevented menopausal symptoms among menopausal women. Similarly, Manisskamaki K et .al (2017) conducted a study to determine whether exercise training improves sleep quality or reduces the hot flashes among menopausal women with vasomotor symptoms he found that sleep quality was improved significantly more in intervention group than in control group the amount of hot flushes related to sleep diminished at the end of intervention.

## II. RESEARCH METHODOLOGY

Purposive sampling was used to recruit 83 participants into control and experimental group. The impact of 3 months daily half an hour yoga training for these asnas (Warrior pose,vajrasna,child pose, cat cowpose,Butterfly pose, sleeping butterfly pose, parvamuktasana ,relaxing pose, pranayama) and walking was studied on dietary habits and sleep quality . The study population included all peri menopause, menopausal women and post- menopausal women (41-51 years).The women who have under gone recent surgery( hysterectomy ),receiving any kind of hormone replacement therapy ,women with serious illness and women who did not gave the consent were not included in the study. The tools used to collect data were questionnaire and 24- hour dietary recall. Questionnaire included questions on general characteristics, physical activity, dietary habits and sleep pattern. The sleep quality was analyzed using Pittsburgh Sleep Quality Index (PSQI).

**Statistical analysis**- Data collected were coded in Microsoft excel and statistical analysis was done using SPSS to interpret the results.

## III. RESULTS AND DISCUSSION

### 3.1 General characteristics

The mean age of the participants in the study ranged from 41 to 51 years with the mean of 45 years .Majority of the participants were graduates and on the basis of Kuppuswamy criteria for the classification of socio economic status the study participants belong to the upper lower to upper middle class it was also seen that majority of the participants were disease free and most of them did not undergone the surgery and participants in the study were not taking any medicines, the study participants were in menopause stage and post menopause stage the majority of the participants period lasted for 3 days and in control group(18%) their period lasted for 3- 4 days. Further it was seen that majority of the participants did not experience changes in bleeding pattern ,did not experienced irregular periods and experienced moderate to heavy flow.

Table 1: Physical activity of the study participants.

(**$p \leq 0.01$- findings considered to be highly significant)

| | Experimental group | | | | Paired z test | P value |
|---|---|---|---|---|---|---|
| | Yes | No | | | | |
| **Regular exercise** | | | | | 4.23 | 0.00** |
| Baseline | 36% | 64% | | | | |
| Post intervention | 100% | | | | | |
| | Once a day | Twice a day | Thrice a day | Every-day | | |
| **Frequency of exercise** | | | | | 3.394 | 0.00** |
| Baseline | 54% | 30% | 10% | 6% | | |
| Postinterevntion | | | | 100% | | |
| | Running | Walk-ing | Yoga | Other | | |
| **Type of exercise** | | | | | 1.85 | 0.00** |
| Baseline | 42% | 20% | 6% | | | |
| Postinterevntion | | 50% | 50% | | | |

From the table 1 it was seen that most of the participants did not exercise regularly before the intervention programme  it was also found that there was highly significant correlation between physical activity between the experimental group it was seen that majority of participants in experimental group performed yoga or walking and when results was analysed,  and duration of the exercise participants performed was for 30 minutes and performed moderate activity and results for control group was found to be insignificant.

### 3.2) Dietary habits

Majority of menopausal women is changing in their nutritional status, causes of this includes hormonal changes, unhealthy eating habits, life style, most common symptoms of menopause are hot flashes, night sweats, mood swings women entering the menopause are unprepared to cope with the changes of this period of life and insufficient knowledge of dietary habits can lead to over nutrition or lack of nutrient. Studies have supported that women are suffering from one or more chronic disease  and risk factors are associated following the ending of their menstrual cycle (unni j 2010). Diet and food intake have a vital role in maintaining the health, unhealthy diet, obesity and nutritional deficiencies may lead to various disorders (Lambrinoudaki et.al 2010)

Dietary habits of the participants were assed using the dietary habits questionnaire and 24 hour dietary recall method.

Table 2 - describes Dietary habits of the study participants

**p ≤0.01- findings considered to be highly significant

| | Experimental group | | | | | Wilcoxon test | P value |
|---|---|---|---|---|---|---|---|
| **Skipping meals** | **Breakfast** | **Lunch** | **Dinner** | **No** | | 4.258 | 0.00** |
| Baseline | 48% | 14% | 4% | 34% | | | |
| Post intervention | 12% | 6% | 4% | 78% | | | |
| **Consumption of Coffee/tea in a day** | **1-2 cups** | **3-4 cups** | **5-6 cups** | **None** | | 4.238 | 0.00** |
| Baseline | 52% | 14% | 22% | 12% | | | |
| Postinterevntion | 54% | 8% | | 38% | | | |
| **Frequently Consuming outside food** | **Daily** | **Once a week** | **More than once a month** | **Once a month** | **Not at all** | 3.934 | 0.00** |
| Baseline | 4% | 24% | 20% | 38% | 14% | | |
| Postinterevntion | 2% | 6% | 12% | 12% | 64% | | |
| **Consumption of junk food** | **Once a week** | **2-3 times a month** | **Once a month** | **Not at all** | | 4.432 | 0.00** |
| Baseline | 10% | 42% | 38% | 10% | | | |
| Postinterevntion | | 20% | 40% | 40% | | | |

From table 2  it was revealed that when  chi square  test was performed it was found that there was a significant difference in the proportion of intervention group and control group participants with respect to their diet type (X2 = 12.226, p ≤ 0.01). However these differences should not be considered significant as test assumptions could not be met. There was 50 % of data with expected count of less than 5. Unhealthy dietary habits such as skipping breakfast, timing of the meals are associated with the metabolic abnormalities (Ramsey KM et.al 2007). According to St- Onge 2016, skipping breakfast and irregular eating habits were strongly associated with poor sleep quality as before intervention programme most of participants skipped their meals particularly breakfast however post intervention most of the participants did not skipped their meals on regular basis ,consumed 1-2 cups of coffee/tea in a day and there was significant reduction in  the consumption of  the unhealthy foods/processed foods and major proportion of the sample were not having any  craving for the certain food however only few participants in experimental group reported that they were craving for the foods that were  spicy and in control group participants reported that they were craving for food that were sweet but majority of them reported that they were not taking home cooked food while going  outside and in experimental group participants.

### Dietary intake

Macronutrient and energy intake of the participants was calculated with the help of IFCT (2017) and compared with RDA guideline.

Table 3- describes the impact on yoga and walking on diet as well as diet compare with RDA standards
**p ≤0.01- findings considered to be highly significant

| Intervention group | Minimum | Maximum | Mean ±Standard deviation | Mean difference | Paired t value(p value) | RDA | One sample t value(p value) |
|---|---|---|---|---|---|---|---|
| Energy Kcal(Baseline) | 1045.00 | 2330.00 | 1624.2±305.0 (97.84±18.37%) | 41.16±9.01 | 4.21 (0.00**) | 1660kcal | -0.828 (0.41) |
| Energy Kcal (Post intervention) | 1045.00 | 2290.00 | 1583.1±274.11 (95.36±16.51%) | | | | -1.984 (0.053) |
| Carbohydrate gram (Baseline) | 100.00 | 355.00 | 188.26±57.88 | 13.54±33.17 | 2.88 (0.006**) | 130gram | 7.117 (0.00**) |
| Carbohydrate gram (Post intervention) | 80.00 | 267.00 | 174.72±44.64 | | | | 7.083 (0.00**) |
| Protein gram (Baseline) | 30.00 | 78.00 | 50.86± 10.29 | 2.460±5.01 | 3.47 (0.001**) | 55gram | -2.842 (0.007**) |
| Protein gram (Post intervention) | 30.00 | 78.00 | 48.40±9.25 | | | | -5.043 (0.00**) |
| Fat gram (Baseline) | 25.00 | 64.00 | 40.62± 9.46 | 2.26±5.31 | 3.005 (0.004**) | | |
| Fat gram (Post intervention) | 25.00 | 64.00 | 38.36± 8.29 | | | | |
| Control group | Mean | Maximum | Mean ±S.D | Mean difference | t value | p value | One sample t value(p value) |
| Energy Kcal(Baseline) | 1206.00 | 2191.00 | 1644.63±265.76 (99.0745±16.00%) | 58.66±329.1 | 1.024 (0.31) | | -0.332 (0.74) |
| Energy Kcal (Post intervention) | 1225.00 | 2000.00 | 1585.96±197.47 (95.54±11.89%) | | | | -2.154 (0.39) |
| Carbohydrate gram (Baseline) | 108.00 | 265.00 | 178.15±43.10 | 10.57±60.16 | 1.010 (0.32) | 130gram | 6.417 (0.00**) |
| Carbohydrate gram (Post intervention) | 100.00 | 265.00 | 167.57±43.34 | | | | 4.980 (0.00**) |
| Protein gram (Baseline) | 36.00 | 67.00 | 50.33± 8.06 | 1.545±11.79 | 0.753 (0.45) | 55gram | -3.326 (0.00**) |
| Protein gram(Post intervention) | 30.00 | 65.00 | 48.78 ±8.73 | | | | -4.084 (0.00**) |
| Fat gram(Baseline) | 29.00 | 60.00 | 40.57 ±6.81 | -2.93±10.38 | -1.625 (0.11) | | |
| Fat gram (Post intervention) | 25.00 | 56.00 | 43.51± 7.86 | | | | |

Post intervention in experimental group participants  it was observed that there was a highly significant reduction in energy intake by 41.16 ± 69.01 Kcals (t = 4.21, p ≤ 0.01), there was  highly significant  decrease in consumption of  carbohydrates  by 13.54±33.17gm(t=2.88,p ≤ 0.01)for  protein  there was highly significant  decrease in consumption by  2.4 6±5.01gm(t=3.47, p ≤ 0.01) and for  fats  it was observed  that there was highly significant decrease in consumption by 2.26±5.31gm(t=3.00≤ 0.01).

In  control  group  participants  there  was  non – significant  reduction  in  energy  intake  by 58.66±329.16kcals(t=1.02,p  >0.05) ,there  was  non-significant  decrease  in  consumption  of  carbohydrates  by 10.57±60.16gm(t=1.01, p >0.05),  proteins  by  1.54±11.79gm(t=0.75,p>0.05). However for fats there was non – significant increase in consumption of in fat intake by 2.93±10.38gm (t=-1.625, p ≥0.05).

Thus yoga  and walking had an impact on dietary intake it significantly reduced the macro and calorie intake thus calorie intake and macronutrient intake highly significantly reduce post intervention in intervention group participants.

However in control group participants calorie intake, carbohydrate and protein intake reduction was observed was observed to be non-significant. For fats it was observed there was significant increase in consumption probable reason would be they were not given any nutrition counselling ad was also not performing yoga.

**Comparison with RDA standards**

There was no significant difference for energy intake (t-0.82   ,p=>0,05) highly significantly excess consumption of carbohydrate, highly significantly decrease in protein(t=-2.842,p0≤.01)  intake at baseline in intervention group participants.

In the same participants post intervention there was non-significant difference in energy intake (t=-0.33,p=>0.05) highly significantly excess consumption of carbohydrate ad highly significant decrease in protein intake .

**Percent Dietary adequacy**

Table 4 - percent Dietary adequacy

**p ≤0.01- findings considered to be highly significant

| Intervention Group | Mean± Standard Deviation | t value | p value | Mean Difference | RDA guideline |
|---|---|---|---|---|---|
| Carbohydrate (Baseline) | 46.01±9.38 | -10.544 | 0.00** | -13.98 | 60% |
| Carbohydrate (Post intervention) | 44.14±8.83 | -12.694 | 0.00** | -15.85 | |
| Protein (Baseline) | 12.66±2.08 | -24.898 | 0.00** | -7.33 | 20% |
| Protein (Post intervention) | 12.3497±2.00420 | -26.991 | 0.00** | -7.65 | |
| Fat (Baseline) | 22.69±4.51 | 4.228 | 0.00** | 2.69 | 20% |
| Fat (Post intervention) | 21.96±4.06 | 3.419 | 0.01** | 1.96 | |
| **Control group** | **Mean± Standard Deviation** | **t value** | **p value** | **Mean Difference** | **RDA guideline** |
| Carbohydrate (Baseline) | 43.03±5.96 | -16.330 | 0.00** | -16.96 | 60% |
| Carbohydrate (Post intervention) | 42.08±9.12 | -11.280 | 0.00** | -17.91 | |
| Protein (Baseline) | 12.28±1.19 | -29.436 | 0.00** | -7.71 | 20% |
| Protein (Post intervention) | 12.29±1.504 | 37.165 | 0.00** | -7.70 | |
| Fat (Baseline) | 22.32±2.711 | 4.928 | 0.00** | 2.32 | 20% |
| Fat (Post intervention) | 24.82±4.31 | 6.425 | 0.00** | 4.82 | |

Table 4 - represents the percent dietary adequacy of the study participants.

For carbohydrate -before intervention the participants consumed 46% of carbohydrate in their daily diet this difference was highly significantly below the dietary guideline by -13.98 however after post intervention the participants consumed 44% of the carbohydrate in their diet which was highly significantly below the dietary guideline by -15.85 thus carbohydrate intake before and post intervention was highly significantly below the dietary guideline.

For protein it was observed that before intervention participants consumed 12.6% of the protein in their daily diet which was highly significant below the dietary guideline by -7.33 and after post intervention participants consumed 12.3% of the protein in their daily diet which was highly significant below the dietary guideline by -7.65. thus protein intake before and post intervention was highly significantly below the dietary guideline.

for fats it was seen that participants before intervention consumed 22% of fats in their daily diet this difference was greater than the dietary guideline by 2.69 however post intervention there was reduction in the consumption of the fat by 1.96 (22% ) but still this was significantly greater than dietary fat guidelines .

In control group - it was observed that before intervention participants consumed 99% of the calorie which was below the dietary guideline by -0.332 and post intervention participants consumed 95% of the calorie which was below the dietary guideline by -2.15. Thus carbohydrate intake before and post intervention was highly significantly below the dietary carbohydrate guideline.

For carbohydrate- It was seen that before intervention the participants consumed 43% of carbohydrate in their daily diet this difference was highly significantly below the dietary guideline by -16.96 however after post intervention the participants consumed 42% of the carbohydrate in their diet which was highly significantly below the dietary guideline by -17.91.

For protein it was observed that before intervention participants consumed 12% of the protein in their daily diet and was highly significant below the dietary guideline by -7.71 after post intervention participants consumed 12% of the protein in their daily diet which was highly significant below the dietary guideline by -7.70 and for fats it was seen that participants before intervention consumed 22% of fats in their daily diet this difference was greater than the dietary guideline by 2.69 however post intervention there was increase in the consumption of the fat by 4.82 (24%) which was significantly greater than dietary guidelines.

**3.3) Sleep pattern**

Table 5 - Sleep pattern of the study participants
**p ≤0.01- findings considered to be highly significant

| | Experimental group | | | | Wilcoxon test | p value |
|---|---|---|---|---|---|---|
| **Rate your overall sleep quality** | Very bad | Fairly bad | Fairly good | Very good | 4.604 | 0.00** |
| Baseline | 28% | 28% | 32% | 12% | | |
| Postinterevntion | | 10% | 78% | 12% | | |
| **How long(minutes) it takes to fall asleep** | <15 minutes | 16-30 minutes | 31-60 minutes | >60 minutes | 4.512 | 0.00** |
| Baseline | 2% | 26% | 50% | 22% | | |
| Postinterevntion | 2% | 765 | 22% | | | |
| **Sleep difficulty for half an hour** | Not during past month | Less than once a week | Once or twice a week | Three more times a week | 5.583 | 0.00** |
| Baseline | | 8% | 48% | 44% | | |
| Postinterevntion | | 60% | 33% | 20% | | |
| **Hours of sleep** | >7 hours | 6-7 hours | 5-6 hours | <6 hours | 3.87 | 0.00** |
| Baseline | 14% | 52% | 26% | 8% | | |
| Postinterevntion | 24% | 50% | 24% | 2% | | |
| **Waking up in the middle of night or early** | Not during past month | Less than once a week | Once or twice a week | Three more times a week | 4.600 | 0.00** |
| Baseline | 10% | 38% | 36% | 16% | | |
| Postinterevntion | 10% | 68% | 22% | 10% | | |
| **Have to get up to use bathroom** | Not during past month | Less than once a week | Once or twice a week | Three more times a week | -4.08 | 0.00** |
| Baseline | 4% | 52% | 38% | 16% | | |
| Postinterevntion | 4% | 32% | 38% | 6% | | |
| **Feel too cold** | Not during past month | Less than once a week | Once or twice a week | Three more times a week | 2.00 | 0.04* |
| Baseline | 52% | 10% | 36% | | | |
| Postinterevntion | 60% | 28% | 10% | | | |
| **Feel too hot** | Not during past month | Less than once a week | Once or twice a week | Three more times a week | 5.64 | 0.00** |
| Baseline | 6% | 20% | 32% | | | |

| | | | | | |
|---|---|---|---|---|---|
| Postinterevntion | 8% | 54% | 30% | | |
| **Cannot breathe comfortably** | Not during past month | Less than once a week | Once or twice a week | Three more times a week | 2.0 | 0.04* |
| Baseline | 44% | 36% | 14% | 6% | |
| Postinterevntion | 44% | 40% | 12% | 3% | |
| **Have bad dreams** | Not during past month | Less than once a week | Once or twice a week | Three more times a week | 4.83 | 0.00** |
| Baseline | 4% | 20% | 36% | 40% | |
| Postinterevntion | 4% | 62% | 34% | | |
| **Trouble while driving/eating meals** | Not during past month | Less than once a week | Once or twice a week | Three more times a week | 4.19 | 0.00** |
| Baseline | 10% | 28% | 30% | 32% | |
| Postinterevntion | 14% | 66% | 20% | | |
| **Problem to keep enough enthusiasm to get things** done | No problem at all | Only a very slight problem | Some what a big problem | Very problem | 5.15 | 0.00** |
| Baseline | 2% | 18% | 40% | 40% | |
| Postinterevntion | | 74% | 26% | | |

Table 5 describes the data about the sleep pattern of the study participants after the intervention programme it was observed that 78% of the participants after post intervention reported that their overall sleep quality was fairly good. This difference in proportion was highly significant (Wilcoxon test=-4.604,p ≤0.01) and in experimental group majority of participants reported 15 minutes lesser time to fall asleep and this difference was highly significant(Wilcoxon test=-4.512, p=≤0.01) and study participants in experimental group(38%) reported that once or twice a week they were waking up in the middle of night.

Majority of the participants(50%) in experimental group (Post intervention) were sleeping for 6-7 hours , hours of sleep increase by 10% in the category of 7 hours and this increment was highly significant in participants who responded( Wilcoxon test=-3.87,p0≤.01). 68% of them in post intervention reported that less than once a week they woke up in the middle of night as compared to baseline where majority of them(38%) reported to this category and this improvement was highly significant in waking up at night(Wilcoxon test =-4.600 p≤0.001).

In experimental group participants usage of bathroom at midnight reduced from once or twice a week to less than once a week and this difference in proportion was highly significant (Wilcoxon test= -4.082, p≤0.01) and most of the participants in both the groups did not snore or cough badly during past month and in intervention group 60% participants improved reported absence of feeling too cold at midnight as compared to 52% in baseline and this difference was significant and there was no significant difference in response to feeling to hot majority of them reported less than once a week as compared to baseline this difference was highly significant(Wilcoxon test=-5.6406,p≤0.01).

In intervention group post intervention majority of participants responded 44% can breathe comfortably and few respondents showed improvement for breathing comfortably at night time this differences in proportion was significant(Wilcoxon test=-2.00,p=≤0.05) and in experimental group participants there was highly significant reduction (Wilcoxon test=-4.832, p≤0.00)in observing bad dreams at mid-night from 40% of majority at baseline for 3 or more times a week to 62% majority for less than once a week post intervention and in intervention group majority of participants (74% ) (post intervention)reported very slight problem for enthusiasm to get things done as compared to 40% (baseline) who reported enthusiasm to get things done a very big problem and this difference in proportion was highly significant(Wilcoxon test=5.159, p ≤0.01).

The mean global PSQI score for the study participants in experimental group(Baseline) was 9.60±1.77 which indicates the participants were experiencing poor sleep quality (>5) but however the mean global PSQI score for the post intervention was found to be 6.380±1.2103 which indicated that the sleep quality was improved for post intervention participants, however results for control group were found to be insignificant.

Buchanan et.al 2017, determine the effect of yoga and aerobic exercise compared with usual activity on objective assessment of sleep in midlife women. He concluded that potentially sleep improvement was seen.

The effect of regular to moderate aerobic exercise on sleep quality and melatonin level in sleep impaired post -menopausal women was studied by Cai et.al 2014, he founded that regular to moderate aerobic exercise may help to improve sleep quality and increase the melatonin level in sleep impaired post- menopausal women thus regular to moderate aerobic training exercise is recommended for sleep impaired in post- menopausal women.

## IV. Conclusion

Menopause is a natural process in the normal female ageing, among menopausal symptoms sleep disturbance is one of main symptom. From the study it can be concluded that after postinterevntion yoga and walking had an impact on the fat intake and sleep quality in the intervention group participants as compared to control group. Fat intake reduced significantly by 1.96gm or 2% in intervention group particpants.Overall sleep quality in intervention participants improved significantly.

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