

Effect of Yoga Life Style Intervention on Body Weight and Blood Chemistry of Middle Aged Women

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Abstract

The present study aims to determine the effects of Yoga on body weight and blood chemistry [total cholesterol level, low density lipoprotein (LDL), high density lipoprotein (HDL) and serum triglyceride levels] of middle aged women. The sample for the study comprises of 50 females between the ages of 40 to 55 years. Sample was further divided into two groups (i) Experimental group (N=25), (ii) Control group (N=25). The subjects of the Experimental group went through a Yogic intervention for six months under the direct supervision of researchers. They performed – Dhanurasana, Bhujagasana, Sarvangasana, Halasana, Chakarasana, Shalabhasana, Paschimotanasana, Purnmatsyandrasana and Nadishodhana, Sithali, Sitakari, Brahmari, Bhastrika and Kapalbhatai Parayanama early in the morning at 5.00 to 6.00 a.m. daily in the campus of C.R. College of Education. The Control group was engaged in daily routine work. The subjects of both the groups were tested before and after the experimental period of three months. The data was analyzed statistically by applying t-test. The results show that the Yoga helped the Experimental group effectively in decreasing the body weight, total cholesterol, LDL and triglycerides whereas on HDL, no significant effect was obtained. No significant changes were observed in the Control group. It is concluded that Yoga intervention helped in decreasing the body weight and improving the lipid profile of middle aged women which is beneficial for healthy life.

Key Words: Body weight, total cholesterol, low density lipoprotein (LDL), high density lipoprotein (HDL) and serum triglyceride

Introduction

Rising costs of prescribed drugs and increasing population are making alternative medicine increasingly more attractive. Yet there are few rigorous, scientific studies which are examining the safety and effectiveness of alternative and complementary therapies in fighting specific symptoms or diseases. Yoga is one of the promising and most appealing therapies in the recent times. It is increasingly gaining popularity as a means of exercise and fitness training. Indian philosophy of living (i.e. Yoga life) has gained a great momentum among the people of well developed nations but caution is needed because Yoga has now become a "new fitness craze". Practicing of Yoga postures is claimed to improve the body's alignment, resulting in

increased circulation, nervous system stimulation and increased energy. However it needs to be recognized more by health care professionals for a complement to conventional medical care rather than just a trendy leisure activity. Over the last 10 years, researches have shown that the Yogic exercise improve strength, flexibility, cardiovascular endurance and many more abilities in our body.

Galantino et al (2004), through a pilot program, examined the ability of Yoga for alleviating low back pain, the practice improved balance and flexibility and decreased disability for people with chronic back problems. *Narendran et al (2005)* suggested that integrated approach to Yoga during the pregnancy is safe. It improves birth weight, decreases pre-term

labour and decreases IUGR either in isolation as associated with PIH, with no increased complications.

After the age of 45 it becomes difficult to do the rigorous exercises. In addition to this, changes occur in the lifestyle, eating habits, day to day stresses etc during the middle age and are known to be associated with conditions of overweight, obesity, hypertension and diabetes.

Keeping in view the importance of Yoga, the present study was carried out to determine the effects of Yoga asanas and Paranyama on the middle aged women. The aim of the study therefore was to find out whether there was any effect of Yoga therapy on body weight, total cholesterol, serum triglyceride, low & high density lipoproteins of middle aged women.

Material and Method

In the present study a purposive random sampling plan was used for the selection of samples. The sample for the study comprised of 50 females ranging in age from 45 to 55 years. The sample was further split into two groups (i) Experimental group (N=25), (ii) Control group (N=25).

The selected sample of experimental group went through training for six months under the direct supervision of Yoga experts and the researchers. The intervention consisted of Dhanurasana, Bhujagasana, Chakrasana, Paschimotansana, Shalabhasana, Puran Matsyandrasana, Shavasan asanas and Nadishodhana, Sithali, Sitakari, Brahmari, Bhastrika, Kapalhati and Paranyama which were performed early in the

morning from 5.00 to 6.30 a.m. daily at C. R. College of Education, Hisar. The sample of control group was engaged in daily routine work.

Body weight and lipid profile (total cholesterol, low density lipoprotein, high density lipoprotein and serum triglycerides) were determined, taken on the first and last day of the training. Keeping in view the objectives as well as the design of the study, the appropriate statistical techniques such as t-test, mean and standard deviation were used to analyze the data.

Results

Table 1: Mean S.D. and t-ratio of pre-test and post-test on body weight (kg) for control group.

| | N | Mean | SD | t-ratio |
|----------|----|-------|------|---------|
| Pretest | 25 | 58.96 | 7.9 | 0.037 |
| Posttest | 25 | 58.88 | 7.53 | |

Table 2: Mean S.D. and t-ratio of pre-test and post-test on total cholesterol (mg/dL) for control group.

| | N | Mean | SD | t-ratio |
|----------|----|--------|-------|---------|
| Pretest | 25 | 203.60 | 41.36 | 0.25 |
| Posttest | 25 | 204.20 | 40.34 | |

Table 3: Mean S.D. and t-ratio of pre-test and post-test on low density lipoprotein (mg/dL) for control group.

| | N | Mean | SD | t-ratio |
|----------|----|--------|-------|---------|
| Pretest | 25 | 154.80 | 38.69 | 0.092 |
| Posttest | 25 | 153.80 | 37.88 | |

Comparison of pre and posttest values of body weight and different components of lipid profile of the control group are presented in tables 1-5. Statistical comparisons reveal no significant differences between the mean values of pretest and posttest in all the variables of control group.

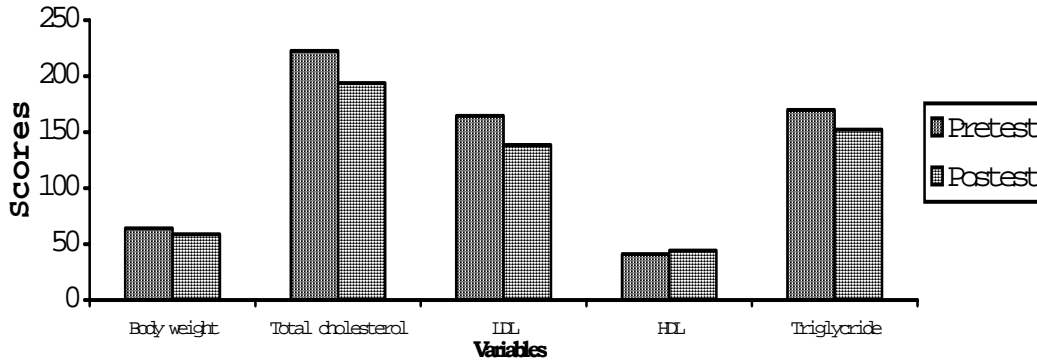


Figure 1: Comparison of pre and post mean values of body weight and lipid profile in the experimental group before (pretest) and after (posttest) yogic intervention programme

Table 4: Mean S.D. and t-ratio of pre-test and post-test on high density lipoprotein (mg/dL) for control group.

| | N | Mean | SD | t-ratio |
|----------|----|-------|------|---------|
| Pretest | 25 | 40.76 | 8.47 | 0.225 |
| Posttest | 25 | 41.28 | 7.86 | |

Table 5: Mean S.D. and t-ratio of pre-test and post-test on serum trygleride (mg/dL) for control group.

| | N | Mean | SD | t-ratio |
|----------|----|--------|-------|---------|
| Pretest | 25 | 157.40 | 20.49 | 0.035 |
| Posttest | 25 | 157.20 | 20.00 | |

Tables 6 to 10 compare the mean values of pre-test and post-test values of body weight and different components of lipid profile of the experimental group.

Table 6: Mean S.D. and t-ratio of pretest and posttest on body weight (kg) for experimental group.

| | N | Mean | SD | t-ratio |
|----------|----|-------|------|------------------|
| Pretest | 25 | 64.00 | 9.05 | 2.18 (P<0.05) |
| Posttest | 25 | 58.76 | 7.94 | |

Table 6 shows that the t-ratio (2.18) for body weight that is significant at 0.05 level. Therefore, the lower mean value (58.76 kg) of posttest as compared

to the higher mean value (64.00 kg) of pretest shows that Yogic exercise and Paranayama had a significant effect on the body weight of middle aged women. *Manchanda et al (2000)* also reported similar findings.

Table 7: Mean S.D. and t-ratio of pretest and posttest on total cholesterol (mg/dL) for experimental group.

| | N | Mean | SD | t-ratio |
|----------|----|--------|-------|------------------|
| Pretest | 25 | 222.40 | 39.57 | 2.85 (P<0.01) |
| Posttest | 25 | 193.60 | 31.41 | |

Table 7 shows that the t-ratio (2.85) for total cholesterol is significant at 0.01 level. *Cholesterol* helps the body form hormones, vitamin D and other important substances, but too much of it in the blood can clog and damage the blood vessels. Because it is a fat-like substance that doesn't mix with blood, cholesterol has to combine with proteins to form lipoproteins. Therefore the lower mean value (193.60 mg/dl) of the post test as compared to the higher mean value (222.40 mg/dl) of pretest shows that the Yogic exercise and paranayam had a significant effect on reducing the

total cholesterol of the middle age women. *Yogendra et al (2004)* and *Bijlani et al (2005)* in their study also found that with the help of Yoga one can reduce total cholesterol in the blood.

Table 8: Mean S.D. and t-ratio of pretest and posttest on low density lipoprotein (mg/dL) for experimental group

| | N | Mean | SD | t-ratio |
|----------|----|--------|-------|----------|
| Pretest | 25 | 164.80 | 34.88 | 2.88 |
| Posttest | 25 | 138.60 | 29.00 | (P<0.01) |

From Table 8 it is found that the t-ratio (2.88) for LDL was significant at 0.01 levels. Build up of LDL in the blood increase the risk of heart disease in an individual. The scores of LDL are related to the health of an individual so the lower mean value (138.60 mg/dl) of post test as compared to mean value (164.80 mg/dl) of pre test shows that the Yogic exercise and Paranayam helps in reducing the level of LDL which in higher concentrations is known to be harmful in the body. Findings of the present study agree with those reported by *Manchanda et al (2000)*, *Yogendra et al (2004)* and *Bijlani et al (2005)*.

Table 9: Mean S.D. and t-ratio of pretest and posttest on high density lipoprotein (mg/dL) for experimental group.

| | N | Mean | SD | t-ratio |
|----------|----|-------|------|---------|
| Pretest | 25 | 41.00 | 5.83 | 1.31 |
| Posttest | 25 | 44.16 | 5.46 | |

Table 10: Mean S.D. and t-ratio of pretest and posttest on serum tryglcride (mg/dL) for experimental group

| | N | Mean | SD | t-ratio |
|----------|----|--------|-------|----------|
| Pretest | 25 | 170.00 | 24.67 | 3.10 |
| Posttest | 25 | 152.40 | 14.00 | (P<0.01) |

Table 9 indicates that the t-ratio (1.31) for HDL is not significant at 0.05

levels. HDL carries cholesterol to the liver, where it is removed from the body. In other words high HDL levels are good for health. Yoga therapy undertaken for six months time failed to show any significant impact on HDL of the middle aged women.

From Table 10 it was observed that the t-ratio (3.10) for serum triglyceride is significant at 0.01 level. Triglycerides store energy for the body to use when it is needed. If there is too much, it can block blood vessels and cause other health problems such as abdominal pain and pancreatitis. Lower mean value (152.40 mg/dL) of the posttest as compared to the mean value (170.00 mg/dL) of posttest shows that Yogic intervention had a positive effect on reducing the level serum triglyceride in the blood of middle aged women *Damodaran et al (2002)* and *Manchanda et al (2000)* also reported that Yoga decreases the level of triglycerides in blood and improved subjective well being and quality of life.

Conclusion

Based on the results of the present study it was concluded that Yoga therapy has a positive effect on reducing the body weight, total cholesterol, LDL and serum triglyceride but no effect on HDL level in the blood of middle aged women. The results of the present study reveal a great potential of Yoga for healthier living. Future explorations are needed to know the mechanisms involved in producing positive effects on the body.

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