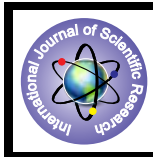


MEDICAL IMPACT OF YOGA ON FASTING BLOOD GLUCOSE AMONG TYPE-II DIABETIC PATIENTS IN CHENNAI REGION



Nursing

KEYWORDS : Fasting Blood Glucose, Type-II Diabetics, Asana, Pranayama, Meditation

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ABSTRACT

The study was designed to find out the impact of yoga on fasting glucose among the Type-II diabetic patients in chennai region. To facilitate the study, 30 diabetic type-II patients were selected from Chennai metropolitan city and were analyzed with the differences in the mean values of pre and post test score on fasting blood glucose. Their age group ranged between 35 to 45 years and then given yoga training for a period of eight months. The pre tests were taken from the subjects before administering the training. The subjects were involved with their respective practices on five days in a week. At the end of the eight month practices post test were taken on fasting blood glucose. The statistical analysis reveals a significant difference of the improvement in fasting blood glucose.

YOGA AND DIABETES

The practice of yoga exercise means to practice both the body and mind through the yoga. It takes willpower and perseverance to accomplish each yoga pose and to practice it daily. But the prize for your perseverance is really worth all the hard work. The practice of yoga exercises or yoga asanas with yoga blocks can improve health, increase resistance, and developmental awareness. Doing the yoga poses requires having own yoga kit and to study each pose and execute it slowly as they control their body and mind. Asana are beneficial in treatment of diabetes. Due to various twists, stretches and strains in the body, the internal organs are stretched and subjected to strain. This increased the blood supply, oxygen supply to the organs increasing the efficiency and functioning of the organ stretching various glands result in increased efficiency of the endocrine system. Asana like Dhanurasana (Bow Pose in prone position), Ardhamatsyendrasana (Half spinal Twist), vajrasana, yoga mudra, pavana Muktasana, sarvangasana, halasana, matsyasana have been found useful in diabetes. These asanas have positive effect on pancreas and also insulin functioning.

There are 8 types of pranayama mentioned in Hatha Yoga. One of the basic preparations for pranayama is Nadi Shodhana Pranayama or alternate nostril breathing; this type is found useful in diabetes as alternate nostril breathing has calming effect on nervous system, which reduces stress levels; helping in diabetes treatment and one can even visualize the proper functioning of pancreas. Proper insulin administration in the body can help in treatment of diabetes. Yogic practices help to reduce or maintain the blood sugar level and it improves overall health level of diabetic patients. It is evident from a number of the adaptations that occur in training that there are several health related benefits such as psychological and physical fitness. Yogic practices increase myocardial oxygen supply, myocardial function and increase electrical stability.

DIABETES MELLITUS

There are two major types of diabetes: Type I diabetes - Insulin - dependent diabetes mellitus and Type II diabetes - Non - Insulin - Dependent diabetes Mellitus. The subdivisions in type 2 diabetes are Pre - diabetes and Gestational diabetes. The other types of diabetes are Latent Autoimmune Diabetes in Adults (LADA) and Maturity Onset Diabetes of the Young (MODY).

TYPE II DIABETES

The most common form of diabetes is type 2 diabetes. About 90 to 95 percent of people with diabetes have type 2. This form of diabetes is associated with older age, obesity, family history of diabetes, previous history of gestational diabetes, physical inactivity, and ethnicity. About 80 percent of people with type 2 diabetes are overweight. Type 2 diabetes is increasingly being diagnosed in children and adolescents. However, nationally

representative data on prevalence of type 2 diabetes in youth are not available. When type 2 diabetes is diagnosed, the pancreas is usually producing enough insulin, but for unknown reasons, the body cannot use the insulin effectively, a condition called insulin resistance. After several years, insulin production decreases.

STUDY METHODOLOGY

The investigator reviewed the available scientific literature and on the basis of discussion with experts, feasibility criteria, availability of instruments, equipments and the relevance of the variable of the study, the study was designed to find out the impact of yoga on fasting glucose among the Type-II diabetic patients in chennai region. To facilitate the study, 30 diabetic type-II patients were selected from Chennai metropolitan city and were analyzed with the differences in the mean values of pre and post test score on fasting blood glucose. Their age group ranged between 35 to 45 years and then given yoga training for a period of eight months. The pre tests were taken from the subjects before administering the training. The subjects were involved with their respective practices on five days in a week. At the end of the eight month practices post test were taken on fasting blood glucose. The data collected from Type 1 and 2 diabetic patients were statistically analyzed by student paired 't' ratio. 't' indicated the significant mean difference between pre and post test of diabetic patients, the calculated 't' value was tested for significant difference at the 0.05 level of confidence.

TABLE-I
YOGA TRAINING PROGRAMME BREAK UP SCHEDULE

| S.No | Yogic practice | Name | Duration (minutes) | Total (minutes) |
|------|----------------|---------------------------|--------------------|-----------------|
| I | Asanas | 1. Padmasana | 1.5 | 23.0 |
| | | 2. Vajrasana | 1.5 | |
| | | 3. Yoga mudra | 1.5 | |
| | | 4. Pachimottanasana | 1.5 | |
| | | 5. Matsyasana | 1.5 | |
| | | 6. Shalabasana | 1.5 | |
| | | 7. Bhujangasana | 1.5 | |
| | | 8. Vibareethakarani Mudra | 1.5 | |
| | | 9. Pawan muktasana | 1.5 | |
| | | 10. Dhanurasana | 1.5 | |
| | | 11. Sarvangasana | 1.5 | |
| | | 12. Halasana | 1.5 | |
| | | 13. Pathahasthasana | 1.5 | |
| | | 14. Trikonasana | 1.5 | |
| | | 15. Shavasana | 2.0 | |

| | | | | |
|-------|------------|----------------------------|-----|------|
| II | Pranayama | 1. Nadi Sudhi | 4.0 | 12.0 |
| | | 2. Nadi Shodhana | 4.0 | |
| | | 3. Sitali | 4.0 | |
| III | Meditation | Breath counting meditation | 5.0 | 5.0 |
| Total | | | | 40.0 |

Fasting Blood Glucose

Purpose: a sugar tolerance test determines how quickly sugar is cleared from the blood. The test is usually used to test for diabetes and insulin resistance.

Equipment: Blood sugar analyzer, blood collecting strips and Gluco meter.

Procedure: There are two different types of glucose blood testing—a fasting glucose test and a random glucose test. Patients having a fasting glucose test, they should not eat or drink for eight hours before their test. Subject can only drink plain water. They may want to schedule a fasting glucose test first thing in the morning, so they do not have to fast during the day. Patients may eat and drink before a random glucose test. Severe stress can cause a temporary increase in blood glucose. This stress is usually due to surgery, trauma, stroke, or heart attack. Certain medications can also affect blood glucose levels. Always tell their doctor about the medications they are on—including prescriptions, over-the-counter drugs, and herbal supplements.

| Category of a person | Fasting value | | Post Prandial |
|----------------------|---------------|---------------|---------------|
| | Minimum value | Maximum value | 2hr after |
| Normal | 70 | 110 | Less than 140 |
| Early Diabetes | 110 | 130 | 140 to 200 |
| Established Diabetes | More than 130 | - | More than 200 |

RESULTS ON FASTING BLOOD GLUCOSE

Fasting blood glucose was measured through glucometer. The pre and post test means of experimental group was statistically analyzed to find out the significance and results are presented in Table II.

TABLE II
Computation Paired ‘T’ Ratio of Pre Test and Post Test on Fasting Blood Glucose

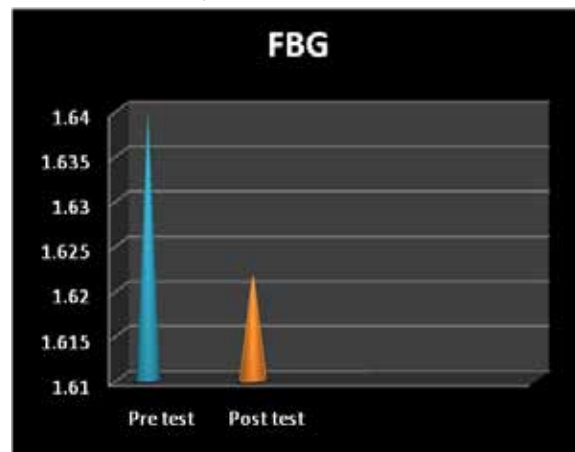
of Type-II Diabetics- (Scores in mg/dl)

| Variables | Mean | Std. Dev. | Std. Error mean | Mean Diff. | df | ‘t’ ratio | Remarks |
|-----------|--------|-----------|-----------------|------------|----|-----------|---------|
| Pre test | 1.6400 | 27.86959 | 7.19590 | 1.8667 | 14 | 2.182 | P<0.05 |
| Post test | 1.6213 | 27.37013 | 7.06694 | | | | |

**Significant at 0.05 level of confidence with degrees of freedom 14. The table value is 2.145.* Table II indicates that the calculated mean of pre and post test of fasting blood glucose were 1.640 and 1.6213 respectively. The mean difference in fasting blood glucose was 1.8667 a careful observation of the above ta-

ble shows that the calculate ‘t’ ratio 2.182 is higher than the table value of 2.145. Hence it is significant and the null hypothesis was rejected. This indicated that there is a significant difference between pre and post test in fasting blood glucose due to eight month yogic practices for type 1 diabetic patients.

FIGURE-1
Figure Showing the Mean difference of Fasting blood glucose Between Pre and Post Test Of Type II Diabetics



FINDINGS AND CONCLUSION

The result on the fasting blood glucose was presented in the table II proved that there was significance improvement among the pre and post test means on type-II diabetic patients. The obtained ‘t’ ratio of 2.182 was higher than the required table value of 2.145 to significant at 0.05 level. Hence there was significant effect because of 8 month yogic practices, which means the fasting blood glucose was reduced after the yogic practices. Regular yogic practice helps to reduce the fasting blood glucose level, because while practicing yoga the patients were used their whole body and mind and it keeps their metabolic at balance by breathing exercise such as Pranayama and deep breathing meditation that help to carry more oxygen to all the body parts for that the cells get proper nutrition from the blood.

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