



# **EFFECT OF SPECIFIC YOGIC PROTOCOL ON BODY COMPOSITION VARIABLES AMONG MALES**

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## **Abstract**

The objective of the study was to assess the effect of Specific Yogic Protocol on selected Body Composition Variables among males. 23 males from Spirit Yoga Centre, New Delhi randomly selected to participate in the study as subjects. The age of subjects was ranging from 25 years to 60 years. Following variables were selected for the study: Body Weight status, Total Body Water, Body Protein, Body Minerals and Body Fat %. The data was collected by conducting Inbody Body Composition Analyser machine and Anthropometric tape. The reliability of data was established following the instrument's reliability and tester competency. The data was collected before the commencement of training programme that was known as pre-test and thereafter, at the end of 3 months of training program known as post-test 1 and at the end of 6 months of the training programme known as post-test 2. In all, three data collection was executed from the experimental group during the 6 months specific yoga training program. A six months training program was designed to assess the effect of Specific Yogic Protocol on selected variables. The training was provided to experimental group for 5 days/week for the duration of six months. Descriptive statistics and Repeated Measure MANOVA were applied using SPSS Software to analyse data. The collected data was significantly normalized before further processing. The obtained result shows the significant changes in selected variables i.e. Body Weight status, Total Body Water, Body Protein, Body Minerals and Body Fat % due to Specific Yogic Protocol.

Keywords: BMI, WHR

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## **INTRODUCTION**

"Yoga" refers to an inner science comprising of a variety of methods through which human beings can realize this union and achieve mastery over their destiny. It is a spiritual discipline that aims to achieve eternal peace and harmony between body and mind and soul. It aims at cleansing our mind of the mental pollutants along with making our body physically fit. Yoga is essentially a spiritual discipline based on an extremely subtle science, which focuses on bringing harmony between mind and body. It is an art and science of healthy living. It is the true union of our will with the will of God. It means for uniting the individual spirit with the Universal spirit, or God. It is the means to reach complete Self-Realization. With keeping the fact in mind that, the wide area of yogic

exercises and its effect on various aspect of human body and psychology is poorly depicted. The research scholar has decided to delimit his research work on specific yogic exercises and its effect on selected body composition variables i.e. body weight, total body water, body protein, body minerals and body fat% and psychological variables i.e. anxiety and self-esteem.

### **Statement of the problem**

“Effect of Specific Yogic Protocol on Body Composition Variables among Males”

### **Objectives of study**

The following objectives were set for the present study: 1) To assess the health status of the male subjects on selected variables i.e. Body Weight, Total Body Water, Body Protein, Body Minerals and Body Fat %, 2) To assess the effect of Specific Yogic Protocol on Body Weight of selected male subjects, 3) To assess the effect of Specific Yogic Protocol on Total Body Water of selected male subjects, 4) To assess the effect of Specific Yogic Protocol on Body Protein of selected male subjects, 5) To assess the effect of Specific Yogic Protocol on Body Minerals of selected male subjects, 6) To assess the effect of Specific Yogic Protocol on Body Fat% of selected male subjects

### **Delimitation of the study**

The present study was delimited as:

- The study was delimited to male subjects only.
- The study was delimited to subjects aged between 25-60 years of age.
- The study was further delimited to male subjects of Spirit Yoga centre, Delhi only.

- The study was further delimited to specific yogic protocol that included various Kriyas, Asanas and Pranayams.

### **Limitation of the study**

The findings of this study had to be seen in light of some limitations as follows:

- Factors like diet, lifestyle, daily routine habits etc., which may have an effect on the result of the study, was considered as limitation in this study.
- The meteorological variations such as air temperature, atmospheric pressure, relative humidity etc. during the training period cannot be controlled and their possible influence on the study was recognized as limitation.
- Certain factors like past training and genetic factors that have affected the result of the study was also consider as the limitation of the study.
- Psychological state of the subjects may affect the result of the study. Thus, this was considered as the limitation of study.
- The intent and motivation of the subjects during training and testing procedure was considered as the limitation.

### **Significance of the study**

Though, the present study was confined to an specific yogic protocol and its impact on selected Body composition Variables, still it may have significance in following manner: 1) The study would profile the lifestyle and health behaviors of male subjects, 2) The study would provide relevant information of health status of male subjects and would be eye opener for society or health experts regarding the prevailing trend of individual behaviour and its

health consequences, 3) The study would enable better policy framing health promotion measures in general, 4) The study will serve as a motivational force to the general population to minimize the problems related to various health factors, 5) The result of the study will be helpful for the men's which are related to the other field and 6) The Study would provide relevant data for comparative survey of similar nature on wider population.

## **PROCEDURE AND METHODOLOGY**

### **Selection of the Subjects**

23 males from Spirit Yoga Centre, New Delhi were randomly selected to participate in the study as subjects. The age of subjects was ranging between 25 years to 60 years.

### **Selection of the Variable**

For this study, the selection of Body Composition and Anthropometric Measurement and steps like observation of the scientific literature by the researchers, the source from the different libraries and the advice of the experts of the field were consulted. While selecting the variables, the literature and the opinions of the experts, test conduction facilities, availabilities of the equipment etc. was taken into consideration and the following variable selected for the study:

**Body Composition Variables:**

- Body Weight
- Total Body Water
- Body Protein
- Body Minerals
- Body Fat%

**Criterion Measures**

| S.no | Item             | Equipment/ test                   | Unit |
|------|------------------|-----------------------------------|------|
| 1    | Body Weight      | Body Composition Analyser Machine | Kg   |
| 2    | Total body Water | Body Composition Analyser Machine | Kg   |
| 3    | Body Protein     | Body Composition Analyser Machine | gm   |
| 4    | Body Mineral     | Body Composition Analyser Machine | gm   |
| 5    | Body Fat%        | Body Composition Analyser Machine | %    |

**Reliability of the Data**

The reliability of data was established following the instrument's reliability and tester competency.

**Instrument Reliability**

Estimation of Body composition variables was done with the help of Body Composition Analyser- Machine. All the instruments such Analyzer machine is of high quality, manufactured by reputed companies and the results showed excellent accuracy. The testing procedure was started after establishing the instrument reliability.

In early 1990's during his post-doctoral position at Harvard Medical School, Dr. Kichul Cha, discovered that the results of bioelectrical impedance analysis (BIA) were fundamentally inaccurate. He pointed out how different

body parts have different levels of impedance; to accurately analyze body composition, the body would need to be analyzed by segments instead of as a whole. Dr. Cha developed the methods that would overcome the limitations of BIA and transform how BIA would be measured. With this, he created the InBody.

In 1996, Dr. Cha founded InBody Co., Ltd. in Seoul, Korea to produce and promote the InBody and its revolutionary methods. The InBody features Direct Segmental Multi-Frequency Bioelectrical Impedance Analysis and uses an Eight-Point Tactile Electrode Method, which can precisely measure individual body compositions.

The standard anthropometric tape was also used for measurement of circumferences hip and waist. It was obtained from the Physical education lab. All these equipment were tested in the physical experimental laboratory of Faculty of Physical Education Sports Science.

### **Administration of the test**

The researcher explained the study to the subjects & ask for their support & sincere participation in the study. Necessary instructions was given before Body Composition Test and Anthropometric Measurement. The subjects were ensured of confidentiality of their individual data and result. After making sure the subjects have understood the instructions, the test was administered.

### **Statistical Techniques**

The data was collected from male subjects of Yoga Centre, New Delhi and used for the statistical treatment that specifies descriptive statistics. Various information was presented in graphical format such as Bar graph, Line graph, Pie Chart etc. when and wherever required. In order to describe the status of health condition of subjects, descriptive statistics (mean, standard deviation) was calculated. Data distribution was assessed by evaluating skewness and kurtosis along with histogram, Q-Q Plot and Box Plot diagrams. Shapiro-Wilk test was conducted

for normality test and non-normality was fixed wherever required. After randomization of the data, parametric test i.e. Repeated Measure MANOVA was applied and effect of selected yogic exercises was assessed on health variables. All the statistical tests were applied using SPSS (version 16) software. In all the cases of inferential statistics, 0.05 level of significance was fixed to test the hypothesis.

## ANALYSIS OF RESULT AND DISSCUSSION ON FINDINGS

The purpose of the present investigation was to study the “**Effect of Specific Yogic Protocol on Body Composition and Psychological Variables among Males**”. Research designed a 6 months specific yogic training program in which special emphasize was given to cleaning exercises i.e. Shatkarma, balancing and maintaining the posture i.e. Asanas and breathing exercises i.e. Pranayam. The training was given to male subjects for 6 months and their body composition test was conducted using InBody Analyzer machine and Standard Anthropometric tape. The InBody Body Composition Analyzer features Direct Segmental Multi-Frequency Bioelectrical Impedance Analysis and uses an Eight-Point Tactile Electrode Method, which can precisely measure individual body compositions. In order to fulfill the objectives of the study following body composition and health variables was selected:

- Body Weight
- Total body water
- Body Protein
- Body Minerals
- Fat percentage

### Descriptive and Shapiro-Wilks Test for Normality

|  | PRE-TEST | AFTER 3 MONTHS | AFTER 6 MONTHS |
|--|----------|----------------|----------------|
|  |          |                |                |

|                         | MEAN  | SD    | Sig. | MEAN  | SD    | Sig. | MEAN  | SD    | Sig. |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|
| <b>BODY WEIGHT</b>      | 90.11 | 10.49 | .990 | 88.82 | 10.22 | .989 | 87.55 | 10.10 | .994 |
| <b>TOTAL BODY WATER</b> | 45.81 | 2.31  | .972 | 45.84 | 2.30  | 1.00 | 45.93 | 2.32  | 1.00 |
| <b>BODY PROTEIN</b>     | 12.51 | .65   | .965 | 12.88 | .59   | .989 | 13.22 | .57   | .710 |
| <b>BODY MINERALS</b>    | 4.55  | .27   | 1.00 | 4.40  | .23   | .069 | 4.54  | .26   | .983 |
| <b>BODY FAT %</b>       | 29.20 | 6.45  | .411 | 28.63 | 6.28  | .461 | 27.92 | 6.15  | .416 |

Table above representing the descriptive values of all the subjects for selected variables at pre-test and post-tests level. Apart from mean and standard deviation tests, data's normality was also assessed by applying and Shapiro-Wilks test of normality. As and when required, non-normality in data was corrected by applying appropriate technique and deviation in data was fixed for further processing.

#### MAUCHLEY'S TEST

|                         | Mauchly's W | Approx. Chi-Square | df | Sig. |
|-------------------------|-------------|--------------------|----|------|
| <b>BODY WEIGHT</b>      | .779        | 5.233              | 2  | .073 |
| <b>TOTAL BODY WATER</b> | .431        | 17.694             | 2  | .000 |
| <b>BODY PROTEIN</b>     | .812        | 4.370              | 2  | .112 |
| <b>BODY MINERALS</b>    | .975        | .526               | 2  | .769 |
| <b>BODY FAT %</b>       | .646        | 9.175              | 2  | .010 |

Firstly, the test for sphericity was executed to assess the equality in variance in obtained data at different points of time i.e. pre-test, after 3 months of training and after 6 months of training for all the selected variables. The result obtained in case of all variables were found significant ( $P=0.00$ ) at 0.05 level except the case of Body weight, Body protein and Body Minerals status of selected subjects. It validates that statistical test i.e. Repeated Measure Multivariate Analysis of Variance (MANOVA). The result found here shows that the variances of the differences Total Body Water and Body Fat % are equal. Rest of the variables i.e. Body weight, Body protein and Body Minerals were found insignificant. Therefore, on the basis of result, we were not able to rely individually

on the test above for Total Body Water and Body Fat %. As the sphericity of test was violated here, it was corrected by making appropriate adjustment to the degree of freedom of the F-test. Thereafter, f-test and pairwise comparison were executed which has shown below.

#### F-TEST

|                         | <b>F</b> | <b>Sig.</b> |
|-------------------------|----------|-------------|
| <b>BODY WEIGHT</b>      | 1.725E3  | .000        |
| <b>TOTAL BODY WATER</b> | 9.096E3  | .000        |
| <b>BODY PROTEIN</b>     | 1.107E4  | .000        |
| <b>BODY MINERALS</b>    | 7.388E3  | .000        |
| <b>BODY FAT %</b>       | 474.561  | .000        |

The F-test calculation for selected variables i.e. Body Weight status, Total Body Water, Body Protein, Body Minerals and Body Fat %, of selected subjects in experimental group have shown in table above. Here, the obtained results presented significant result for F-value as their p-value were equal to 0.00 (which is less than 0.05 level of significance) represented the significant difference in the case of all selected variables. The presented result proves the efficiency of Specific Yogic Protocol in order to improve the status of Body Weight status, Total Body Water, Body Protein, Body Minerals and Body Fat % among selected subjects.

#### CONTRAST TEST

|                         | <b>Type III Sum of Squares</b> | <b>df</b> | <b>Mean Square</b> | <b>F</b> | <b>Sig.</b> |
|-------------------------|--------------------------------|-----------|--------------------|----------|-------------|
| <b>BODY WEIGHT</b>      | 75.452                         | 1         | 75.452             | 93.294   | .000        |
| <b>TOTAL BODY WATER</b> | .159                           | 1         | .159               | 1.532    | .229        |
| <b>BODY PROTEIN</b>     | 5.772                          | 1         | 5.772              | 94.029   | .000        |
| <b>BODY MINERALS</b>    | .001                           | 1         | .001               | .131     | .721        |
| <b>BODY FAT %</b>       | 19.047                         | 1         | 19.047             | 121.001  | .000        |

The within subject contrast test was executed to assess the trend of changes occurred in selected variables i.e. Body Weight status, Total Body Water, Body Protein, Body Minerals and Body Fat % due to Specific Yogic

Protocol over a period of 6 months. Here, we can see within subject contrast calculations for all selected variables. Out of all selected variables, only Body Weight, Body Protein and Body Fat% were found to have the linear component which was significant for main factor i.e. testing as their P-value was found less than 0.05 level of significance. On the basis of obtained result, it can be stated that 6 months of Specific Yogic Protocol might lead to linear changes in above mentioned variable i.e. Body Weight, Body Protein and Body Fat%.

## CONCLUSIONS AND RECOMMENDATIONS

On the basis of objectives of the study and result obtained after statistical application, the following conclusions were drawn: It was concluded that there is a significant effect of Specific Yogic Protocol on Body Weight of selected male subjects. Further, it was concluded that there is a significant effect of Specific Yogic Protocol on Total Body Water of selected male subjects. It was also concluded that there is a significant effect of Specific Yogic Protocol on Body Protein of selected male subjects. It was concluded that there is a significant effect of Specific Yogic Protocol on Body Minerals of selected male subjects. It was concluded that there is a significant effect of Specific Yogic Protocol on Body Fat% of selected male subjects.

The mentioned conclusions and finding has revealed many facts and filled the gap in information available regarding role of specific yogic exercises for betterment of physical and psychological health. Now, following recommendations are made with future research perspective: Similar study can be taken on female subjects as well. It was recommended that similar study can be carried out on profession wise as well. Similar study can also be conducted on a bigger population. A study can be conducted with including more health and body composition. Further, prediction research can be conducted to identify the health variables that should be stressed for better health condition. Similarly, research on factor analysis can be conducted to identify the psychological variables contributing the most to our health condition.

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