



## COMPARISON OF BODY COMPOSITION BETWEEN HOUSE WIFE AND WORKING WOMEN

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### ABSTRACT

Present study aimed to assess and compare the body weight, basal metabolic rate (BMI), body fat, and basal metabolic rate (BMR) between housewives and working women. Total 48 women were selected randomly. Out of 48 women, 37 were housewives and 11 were working women. The age of the subjects were ranging from 30 years to 45 years. Data was gather using Meltron body composition analyser. One way analysis of variance (ANOVA) was applied to analyse the data. Result showed insignificant difference in all studied variables between housewives and working women. In conclusion, more study is required to draw meaningful conclusion on higher number of subjects.



**KEYWORDS:** basal metabolic rate, body mass index, body fat, housewives, body weight.

### INTRODUCTION

Active participation in sports activity by the female athletes has dramatically increased in the last few decades. Physical education and sports have gained tremendous popularity all over the world. Women are able to increase fat mobilization and breakdown, and inhibit the use of glycogen which helps in performing better in endurance activity. Female athletes often desire to change their Body Composition to help them succeed in sport.

Basal metabolic rate (BMR) is the minimum amount of energy needed by the organism to perform essential functions of the body's tissues and vital organs such as breathing, heart and blood circulation, synthesis of molecules etc. it commonly believed that men usually have a higher BMR than women since they tend to have more muscle. The BMR accounts on average for about three quarters of an individual's energy needs (Rarrick; 1973). Harris and Francis (1937) explored body surface area, age and sex to calculate approximate basal metabolic rate value. About 70% of a human's total energy expenditure is due to the basal life processes within the organs of the body . About 20% of one's energy expenditure comes from physical activity and another 10% from thermo-genesis, or digestion of food (postprandial thermo- genesis) (Grande and Keys; 1980). Exercise requires and uses energy. Although BMR is energy expended at rest, exercise has both short-term effects (during the time of the exercise itself) and long-term effects (after and between exercise sessions). One of the longer term effects of frequent physical exercise is an increase in BMR. This is due to increased overall activity of the heart and vascular system, together with other body systems and tissues.

Water plays important role in physiological activity, performing different task. Level of water in body fluctuated with physiological changes. The continual regulation of the volume and composition of

body fluid is essential for optimal body functioning. This regulation involves the relationship between the external environment and the body, as well as the interchange taking place between the body's own cells, tissues and organs. In most individuals, approximately 60% of the total weight is water. This percentage varies between 50% and 70%, with the exact value primarily dependent on a person's fat content. Since fat has very low water, individuals with more fat will have a lower overall percentage of body weight as water (Harris, 1937). In present study research scholar aimed to evaluate possible changes in Body composition, BMR and Body water level in Indian house wives by using bio- electrical impedance method (Maltron Body Composition Analyzer BF- 907).

### Method

Total 48 house wife from Raipur, Chhattisgarh were selected randomly after their informed concern. Out of 48 women 11 women were working women and remaining 37 were non-working women means they were house wife. The age of the subjects was ranging from 30 years to 45 years. Their height weight, body mass index, fatness and and basal metabolic rate (BMR in kcal) were measured with the help of body composition analyser. Body weight was measured by using weighing machine and the score was recorded in Kg. Height was measured by using stadiometer and the score was recorded in cm. By using Maltron Body Composition Analyzer BF-907, BMR, Body Fat percentage and Body water level were measured. All the measurement were taken in the laboratory.

Body composition of subject was determined by bio- electrical impedance method (Maltron body composition analyser BF-907, UK). In this process subjects were asked to sit on chair with their legs and arms slightly apart. The Maltron body composition analyser was a large analyser typically fixed on the hand and foot of the subjects with the help of electrodes. All relevant parameters were entered in the recording unit (gender, height, weight, age, fitness, nationality) .Four electrodes were applying on the right side of the body, on the hand, wrist, foot, and ankle. The total 5 minutes duration was allotted for recording the desired score. ME4000 Electrode pads were placed on hand and foot of the subjects. The ME4000 Electrode Pads were placed centrally directly below the knuckle of the middle finger .The second Electrode Pad was placed on the crease of the wrist. Similarly, on the foot the ME4000 Electrode Pads on the foot were applied centrally directly where the second and third toe meet the foot. The second Electrode Pad was placed at the crease of the ankle in the line with shin bone. Maltron body composition analyses two MEC1102 electrode cables of Maltron body composition analyser which had two long wires that extended from the plug. At the end of the cables were two clips-a positive (red) and -a negative (black) total four clips which connected with ME4000 electrode Pads. On hand negative (black) electrode pad was clipped near to the knuckle, and the positive (red) Electrode Pad on the wrist. On foot: Negative (black) electrode pad was clipped near to the toes, and the positive (red) electrode pad on the ankle.

### Statistical Treatment:

To find out the difference in the selected variables between the studied group one way analysis of variance (ANOVA) statistical technique was employed. While F-ratio showed significant difference Least Significant Difference (LSD) post-hoc test was applied to determine paired mean difference. To test the hypothesis the level of significance was set at 0.05 level.

## Results

**Table 1: Comparison in summary characteristics of height, weight, body mass index, body fat, and basal metabolic rate between house wife and working women.**

| Variable | House Wife          |        | Working Women       |        | ANOVA   |         |
|----------|---------------------|--------|---------------------|--------|---------|---------|
|          | Mean $\pm$ SE       | SD     | Mean $\pm$ SE       | SD     | F-value | p-Value |
| Height   | 153.05 $\pm$ 1.03   | 6.25   | 152.82 $\pm$ 1.79   | 5.93   | 0.012   | NS      |
| Weight   | 60.33 $\pm$ 1.74    | 10.6   | 55.55 $\pm$ 3.14    | 10.44  | 1.74    | NS      |
| BMI      | 25.82 $\pm$ 0.66    | 4.03   | 23.68 $\pm$ 1.13    | 3.75   | 2.46    | NS      |
| Fat      | 35.80 $\pm$ 0.88    | 5.36   | 32.27 $\pm$ 2.04    | 6.77   | 3.25    | NS      |
| BMR      | 1263.43 $\pm$ 28.03 | 170.49 | 1182.09 $\pm$ 57.52 | 190.78 | 1.83    | NS      |

Mean  $\pm$  SE; Means did not differ from each other statistically significantly at  $p < 0.05$  (based on one way ANOVA), BMI – Body Mass Index, BMR – Basal Metabolic Rate.

Table 1 represent the characteristics of height, weight, BMI, body fat and BMI between house wife and working women. Result of the present study revealed insignificant ( $p > 0.05$ ) difference in characteristics of body compositions (for detail follow table 1). Height shows similar stature in both the groups. Body weight of house wife (60.33  $\pm$  1.74) is insignificantly ( $p > 0.05$ ) heavier than that of working women (55.55  $\pm$  3.14). Body fat depicts similar results. The body fat of house wife (35.80  $\pm$  0.88) is insignificant ( $p > 0.05$ ) fatter than working women (32.27  $\pm$  2.04). Basal metabolic rate (1263.43  $\pm$  28.03) is insignificantly higher in house wife than working women (1182.09  $\pm$  57.52). Body mass index revealed that the house wife groups falls under obese weight category while the working women falls under normal weight category. The comparison of BMI revealed insignificant ( $p > 0.05$ ) difference between the group.

## CONCLUSION

The main findings of the study shows insignificant different between house wife and working women in all studied variables namely body wright, BMI, fat, and BMR. The trend shows that the mean of weight, BMI, fat and BMR of house wife is higher. Study show inter individual difference is high in both the groups. In this study, the menstrual cycle was not taken into account which may affect the results of the study. To draw robust conclusion study on more subject, avoiding the limitation of menstrual cycle, is required.

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