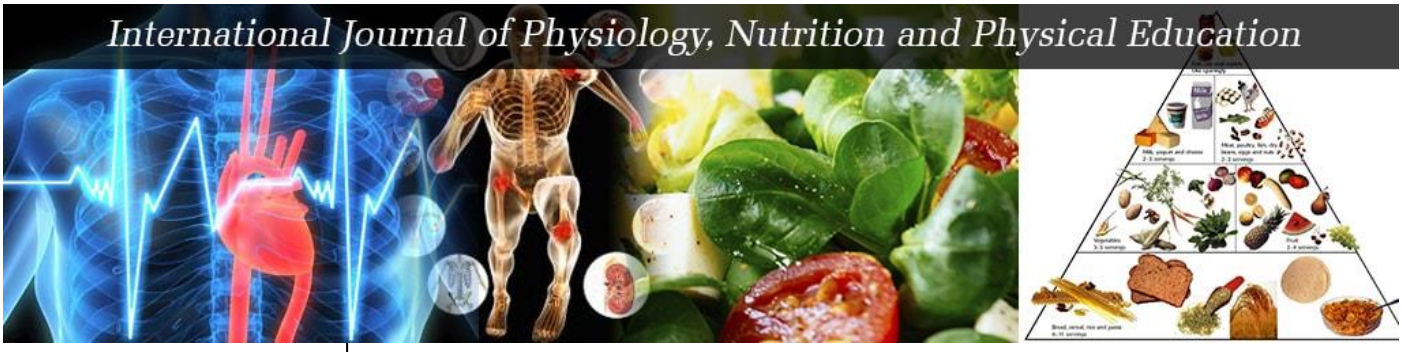

ISSN: 2456-0057
IJPNPE 2021; 6(2): 90-92

www.journalofsports.com
Received: 18-05-2021
Accepted: 23-06-2021

Jisha Abraham
Lakshmibai National College of Physical Education, Kerala University, Thiruvananthapuram, Kerala, India

BipinBalan
Lakshmibai National College of Physical Education, Kerala University, Thiruvananthapuram, Kerala, India

Corresponding Author:
Jisha Abraham
Lakshmibai National College of Physical Education, Kerala University, Thiruvananthapuram, Kerala, India

Body mass index and a body shape index of adult sedentary men & women

Jisha Abraham and Bipin Balan

Abstract
Background: The Body Mass Index (BMI) and a body shape index (ABSI) are anthropometric predictors for many lifestyle diseases and also evaluate the physical health status of adolescents. The Body Mass Index (BMI) and a body shape index (ABSI) are currently recommended by several guidelines to classify overweight and obesity. The study aimed to assess the Body Mass Index and Body Shape Index of adult sedentary men & women.
Methods: For the study, a total of thousand (N=1000) sedentary adult men and women were selected from all parts of Kerala ages ranged from 20 to 25 years. The following variables were selected for the present study. Body height, body weight, waist circumference are used to assess the derived variables Body Mass Index and Body Shape Index of adult sedentary men &women. The body weight is measured through the electronic weighing machine, height is measured with a stadiometer and waist circumference is measured through anthropometric tape.
Results and Conclusion: The findings of the study revealed that means a score of BMI and ABSI is well within the normal ranges for both men and women. The majority of sedentary men and are characterized by normal BMI and ABSI. The majority of men 80.65% and women 77% come under normal values.

Keywords: Body height, bodyweight, waist circumference, ABSI (a body shape index), BMI (body mass index)

1. Introduction
At present obesity is recognized as the main cause of type 2 diabetes, cardiovascular disease and an important contributing factor to some cancer, in consequence, precise obesity criteria and diagnosis are of special importance in medical practice. There is a wide range of methods for body fat determination, which are suitable in laboratory practice (BIA, DEXA, CT, and MRI) however, they require costly equipment which is not always available. Much simpler skin fold measurements are time-consuming and have to be performed by experienced technicians. Thus they are not suitable either for everyday medical practice or in population-based studies.
Recently a new simply calculated index of body composition a body shape index (ABSI) has been introduced as an index more reliable than BMI of association between body composition and all causes of mortality. Ascending to WHO recommendations, the body weight and height and waist circumference (WC) are valid of fatness and this assumption has been supported by many studies concerning their association with health risk. Many doubts exist concerning the association between BMI and mortality. BMI is reasonably well correlated with fat mass and percent body fat in heterogeneous samples of youth, but has limitations (Groan *et al.* 1995) it is also related to fat-free mass. Nevertheless, youth with the same BMI can differ considerably in fat mass and present body fat so care is essential when enterprising BMI is more approximately, an indicator of fitness in youth. BMI is more appropriately, an indicator of heaviness and indirectly, of adiposity at the extremes of heaviness, BMI is probably a reasonable indicator of fatness, in general, a population survey. But its limitations must be recognized (Pictrobelli *et al.* 1998) waist circumference is an emergent measure of body composition. Its use as a dimension of body composition is justified for various reasons. First, it is an indicator of abdominal fat as opposed to waist to hip circumference ratio, which is an indicator of fat distribution (Despres *et al.* 1989) second criterion measurement that relate to health have already been established in certain populations of youth (Liu *et al.* 2010) waist

circumference is strongly associated with intra-abdominal (visceral) adipose tissue (r = 0.84) and subcutaneous abdominal adipose tissue (r = 0.93) in prepubertal children (Goran and Gower, 1998). On other hand, it has been suggested that waist circumference has no advantage over BMI for diagnosing high-fat mass in youth aged 9-10 (Reilly *et al.* 2010).

Krakauer proposed a new simply calculated index of body composition (a body shape index ABSI) as more reliable than BMI in the determination of association between all-cause of mortality and body composition however, data concerning the relationship of ABSI with health risk are controversial. ABSI was found to predict resting blood pressure in adolescents more precisely than BMI. On the contrary ABSI predictive ability was not better than BMI for type 2 diabetes, hypertension, and cardiovascular diseases in Chinese and Iranian populations. The reason for this discrepancy is unknown; however, it may be due to ethnic differences in body fat distribution. Thus this study was undertaken and aimed at the evaluation of the relationship between ABSI and BMI in adult sedentary men & women. According to a consensus statement on the clinical usefulness of WC further studies are needed to establish we cut point that can assess cardiometabolic risk, not adequately captured by BMI and routine clinical Assessment. Scaling we via decor analysis to produce the quantity that is independent of BMI offer on means of separating the impact on the health of the body shape (degree of the central bulge, presumably correlating with abdominal fat deposits) from that of body size (as measured by height, weight, BMI). In this study our objective is developed a body shape index ABSI) based on that is approximately independent of height, weight, BMI and evaluate ABSI as a predictor of mortality across age, sex, ethnicity, and BMI categories in a population sample, compared to conventional predictors BMI/WC.

The purpose of the study was to assess the Body Mass Index and Body Shape Index of adult sedentary men & women. BMI correlates of health risks in adult sedentary men and women. Assessment of these variables may help find out the health risk among the present adult population. Waist circumference and the body shape index values could be indicators for many lifestyle diseases; similar studies could be conducted to find out the relationship of a body shape index (ABSI) values to biochemical parameters of the subjects.

2. Material and Methods

2.1 Participants

1000 sedentary adult men and women from Kerala were selected as the subject for the study and the sample size is selected by the descriptive sampling formula. There subject' sage ranged from 20-25 years. Body mass index and body shape index are used as variables for this study.

2.2 Study Design

Following variables body height, body weight, waist circumference, are used to assess the derived variables Body Mass Index and Body Shape Index of adult sedentary men & women. The purpose of the study was explained to the subjects briefly by the investigator. The procedure of each test was explained clearly and demonstrated.

2.2.1 Variables Selected

2.2.2 Body height

It is derived from standing height and body weight to measure the body height from the sole to the top of the head with a stadiometer. The subject was asked to stand barefoot on the platform with heels, buttocks, back, and head touching the upright of the stadiometer. The measurement was measured to the nearest point.

2.2.3 Bodyweight

To measure the total body weights an electronic weighing machine. The subject was asked to wear minimum clothing and asked to stand barefoot without any movement. The weight was measured in the nearest half of a kilogram.

2.2.4 Waist circumference

To measure the waist circumference anthropometric tape was used the circumference measured the midpoint between the lower margin of the last palpable rib and the top of the iliac crest perpendicular to the long axis of the trunk and the subject will be asked to stand relaxed and abduct the arms. Pass the tape around the abdomen the stub of the tape and the housing are then both held in the right hand while the tester uses the left hand to adjust the level of the tape at the back to the adjudged level of narrowest point.

2.2.5 Derived variables

Body mass index (BMI) is calculated using this formula

*Weight (kg)

Height ^{2} (m ^{2})

(ABSI) calculated using this formula

$$ABSI = \frac{WC}{BMI^{2/3} \times height^{1/2}}$$

2.3 Statistical Analysis

Descriptive statistics such as mean, SD, were used a minimum and maximum scores are analyzed using SPSS PC software.

3. Results

Table 1: Descriptive statistics of body mass index and body shape index of sedentary men and women

Category	Nos	Minimum	Maximum	Mean	Std. Deviation
BMI(Men)	500	14.22	31.67	21.68	2.58
BMI(Women)	500	13.78	31.84	20.41	2.41
ABSI(Men)	500	.05	.09	.067	.006
ABSI(Women)	500	.05	.10	.069	.005

Descriptive of body mass & body shape from table 1 that a minimum value = (14.22) maximum value (31.67) and a mean (21.68+_ 2.58) of BMI in men and that a minimum value (13.78) maximum value (31.84) and mean (20.41+_2.41) of BMI in women. ABSI a minimum value women (0.05) and mean value (0.09) and a mean (0.067+_0.006) of ABSI in men and that a minimum value (0.05) and maximum value (0.10) and a mean (0.69+_ 0.005).

Table 2: BMI distribution of healthy sedentary men and women

SI.NO	Category	Men (N=500) (%)	Cumulative (%)	Women (N=500) (%)	Cumulative (%)
1	Very severely underweight (>15)	0.2	0.2	0.2	0.2
2	severely underweight (15-16)	0.2	0.4	0.4	.60

3	Under weight (16-18.5)	8.8	9.20	19	19.60
4	Normal (18.5-25)	80.6	89.80	77	96.60
5	Over weight(25-30)	9.6	99.40	2.8	99.40
6	Obese I (Moderately)(30-35)	0.6	100	0.6	100
7	Obese II (Severely obese)(35-40)	0	100	0	100
8	Obese III (Very Severely obese)(<40)	0	100	0	100

From this table, we found that 0.2% of men & women are very severely underweight. 0.2% men and 0.4% are severely underweight category. 8.8% men and 19% women are underweight respectively. The majority of men 80.65% and women 77% have come under normal values. 9.6% men and 2.8% women under overweight category. 0.6% men and women moderately obese nobody was found obese and very severe obese category. The majority of the subjects are characterized by normal BMI and ABSI. The additional parameter, the waist circumference which was a component of (ABSI) was an indicator of many of the lifestyle diseases. Waist circumferences and body shape index (ABSI) values could be indicators for many lifestyle diseases.

4. Discussion

The variable of BMI(Body mass index is in agreement with the findings of Chen Y, Copeland WK, Vendanthn R, *et al.* Association between body mass index and cardiovascular disease mortality in east Asians and south Asians: A pooled analysis of prospective data from the Asia Cohort Consortium.

ABSI (A body shape index) is in agreement with the findings of Krakauer NY, Krakauer JC.A new body shape index predicts mortality hazard independently of body mass index. PLOS One. 2012;7:e39504 and Mc Carthy,H.D., K.V. Jarrett, and H.F. Crawley. "The development of waist circumference percentiles in British children" European Journal of Clinical Nutrition, 2001.

5. Conclusion

The findings of the study revealed that means a score of BMI and ABSI is well within the normal ranges for both men and women. The majority of men 80.65% and women 77% have come under normal values. The mean of men was 21.68 and in females was 20.14 the mean score of a body shape index (ABSI) in men was 0.67 and in women was 0.68. Their values are also close to the normal ranges.

6. Reference

1. Ferrera A Linda, Pasquale Abete *et al.* Body mass index and health, nova science publishers New York 2005.
2. Lynn Ammanda, Relationship between BMI and health related physical fitness knowledge, Arkansas 2006.
3. Philips, Allen, James. Measurment and evaluation in physical education, John Wiley and sons publication, New York 1942.
4. Chen Y, Copeland WK, Vendanthn R *et al.* Association between body mass index and cardiovascular disease mortality in east Asians and south Asians: Pooled analysis of prospective data from the Asia Cohort Consortium
5. Duncan MJ, Mota J, Vale S, Santos MP, Ribeiro JC. Association between body mass index, waist circumference and body shape index with resting blood pressure in Portuguese adolescents. Am J Hum Bio 2013.
6. Feller, Rexorde KM *et al.* Body mass index, waist circumference, and risk of coronary heart disease: a prospective study among men & women Obese Res Clin Pract 2010.
7. He S, Chen X. Could the new body shape index predict the new onset of diabetes mellitus in the Chinese population. PLOS One.
8. Krakauer NY, Krakauer JC. A new body shape index predicts mortality hazard independently of body mass index. PLOS One 2012;7:e39504.
9. Maynard, LM, Wisemandle W, Roche AF, Chumlea WC, Guo SS, Siervogel RM. Childhood body composition in relation to body mass index. Pediatrics 2001;107(2):344-350.
10. McCarthy HD, Jarrett KV, Crawley HF. The development of waist circumference percentiles in British children European Journal of Clinical Nutrition 2001.
11. Parr Richard B *et al.* Comparison of present body fat to body mass index and waist-to-hip ratio with various categories of obesity "Research quarterly for exercise and sports 1995, 66(1).
12. Qiao Q, Nyamdorj R. Is the association of type II diabetes with wait circumference or waist-to-hip ratio stronger than that with body mass index. Eur J Clin Nutr 2010.