



Effect On SpO₂ Level In Overweight Individuals After Mild Walking

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The obesity is one of the global epidemic with increasing numbers of affected people worldwide, more and more people are now considered as an overweight and obese **Wang Y, Lobstein T et al., 2006.**

The overweight and the people suffering from the obesity are always at the higher risk of respiratory like breathlessness and that is mainly during the exercise and physical activity, even when do not have any respiratory illness **Bai J et al., 1998 and Sahebjami H et al., 1998.**

The overweight and the obese are vulnerable to have a direct impact of their respiratory wellness, because it increases the oxygen consumption and the production of carbon dioxide, at same time also stiffens the respiratory system and increases the needed mechanical work on the respiratory system for breathing **Salome et al., 2010.** The obesity effects the lung function and reduces the functional residual capacity **Jones et al., 2006.** “The effect reflects a shift in the balance of inflationary and deflationary pressures on the lung due to mass load of adipose tissue around the rib cage and abdomen and visceral cavity” **Sharp et al., 1964.**

The obesity impacts on many areas but it is still debated that whether obesity is linked with asthma or whether the overweight is decreasing the lung volumes and airway resistance **Thomson CC et al., 2003.** Several figure 1 previous study shows that the increased body weight decreases the volumes of the lung and other morbidities such as some cardiac disease. **Jinkins et al., 1991.**

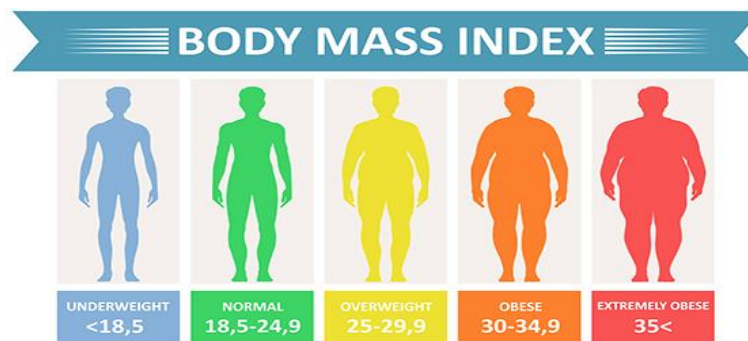
Overweight is considered when the body-mass index (weight divided by square of the height) is 25 and above but below 30. When the Body mass index is above 30 is considered as the Obesity. The obesity is also called as an excess accumulation of the body fat **Mason et al., 2007.** Obesity is termed as an extra accumulation of the body fat, and the extra fat on the body all correlates with the ill health.

In latest, the advices says that waist circumference (WC) has somewhat related to the BMI in international guidelines and clinical assessments. The BMI is a well established educational and appropriate tool to measure the ratio of the body to the mass or the fat. There are so many different methods to detect that height can be related to the weight and can be compared. Unfortunately the results from the different studies can be rarely compared directly because different methods of relating weight and height have been used, or because no definition of “relative weight-for-height” or “relative weight-for-age” is given **Thomson et al., 2004.**

However, like all anthropometric measurements, it is only a factors measure of body fatness. Obesity is defined as an excess accumulation of body fat, and it is the amount of this excess fat that correlates with ill-health. **Khowailed et al., 2014** “This masses loyalty to a pragmatic indicator was challenged first by the waist–hip ratio (WHR) and then by the promoters of waist circumference (WC). The current situation is that recommendations based on WC sit somewhat uneasily alongside BMI in international guidelines and clinical assessments, but are generally accepted as providing a valuable additional insight into the problem” **Mokhlesi et al., 2010**.

Measurements show large intra- and inter-observer changeability in inexperienced hands. Some children are so obese that skinfolds cannot be raised, or are too thick, for the gape of the calipers **Davidson et al., 2014**. Further, there is no consent at any age on the skinfold thicknesses which represent obesity. Thus most epidemiologists and clinicians resort to using some clarification of weight-for-height and/or age, to define and quantify obesity.

The global prevalent of obesity results from a combination of genetic susceptibility, increased availability of high-energy foods and decreased requirement for physical activity in modern society. Obesity should really be defined as an excess accumulation of body fat”**Mokhlesi et al., 2008**. It is the excess adipose tissue that is the cause of the comorbid conditions, not the excess weight. There are many probable approaches for assessing body fat, none of which is completely reasonable. Specific methods which measure body fat tend to be difficult, time consuming, expensive and of unreliable investigation



SIGNIFICANCE OF THE STUDY

Severely overweight and obese people are more prone for risk of illness and reduced life expectancy. The Body Mass Index has direct impact upon the resistance in airways and pulmonary mechanics. The higher the BMI the lower will be the thoracic lung volumes. So, we are doing this study to observe the effect of walking on finger oxygen saturation.

METHODOLOGY

STUDY DESIGN: - Quasi- Experimental Study Design.

STUDY PARTICIPANTS:- A quasi-experimental study was conducted. Total 56 Subjects suffering from heavy body weight and fulfilling the international classification of BMI over 25 were included in the study. All participants read and signed a consent form prior to their participation.

CONSENT AND ETHICAL CLEARANCE

Ethical approval will be obtained from the institutional Ethical Committee, Department of Physiotherapy of GJUS&T Hisar. Informed consent from each participant will be taken prior to the intervention.

SAMPLE SIZE AND SAMPLE SOURCE

Sample size is 56 participants will be selected for the study.

INCLUSION CRITERIA

General age group

20-50 years

Normal blood pressure

BMI>25

EXCLUSION CRITERIA

- Abdominal surgery
- Un-cooperative patient
- Neurological diseases
- Cardiovascular diseases
- Psychiatric disease
- Pregnant women
- Recent history of chest wall deformities and trauma.
- Musculoskeletal disorders
- Mental retardation

VARIABLES

Independent variable: Aerobic exercise

Dependent Variable: Treadmill and Pulse oximeter

INSTRUMENTS USED

Measuring tape

Weighing machine

Pulse oximeter

Treadmill



Fig 2 Treadmill



FIGURE 3 PULSE OXYMETER

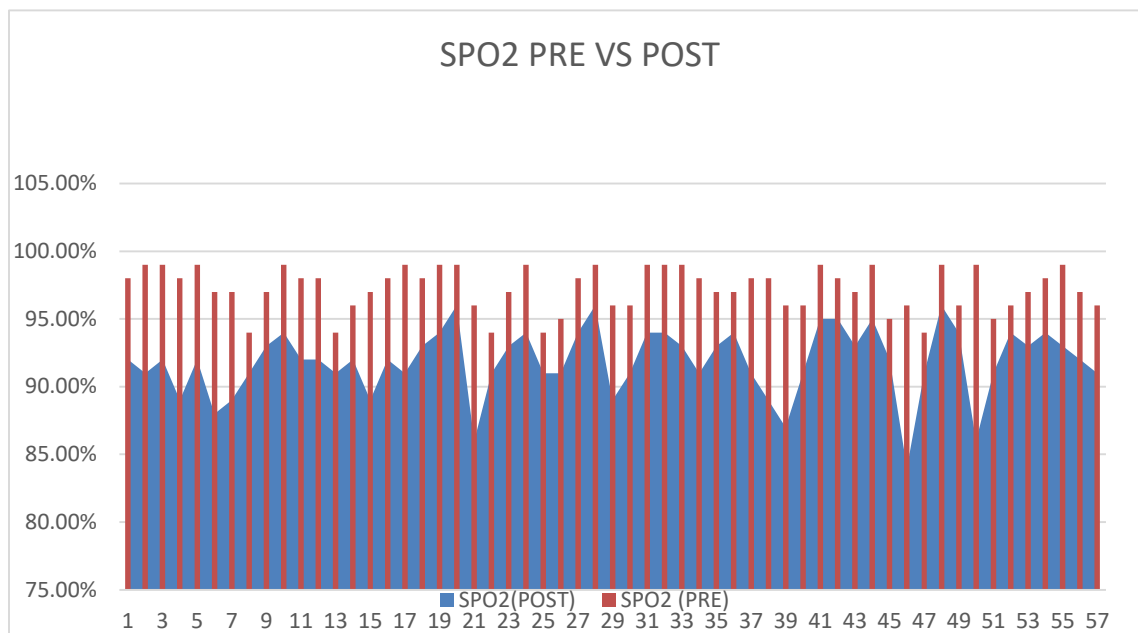
Procedures

In this study we include the subjects and give the rest for 15 minutes prior to testing. During that time, demographics and weight and BMI are calculating. The arterial oxygen saturation is measured from the fingertip. Subjects then walked on the treadmill and saturation and heart rate are measure.

The walking was done on a treadmill and the treadmill was adjusted to 4.8 kmph at an angle of 3 degrees. The spo2 was calculated after the 5 minutes of the walking

If saturation dropped below 60% or heart rate above 140 beats per minute, the walking are terminate.

The readings after the 5 minutes of the test is taken and noted.



Age The mean age of the Participants were 39.21 ± 8.61 years.

Height The mean height of the Participants were 164 ± 8.66 cm.

Weight The mean weight of the Participants were 73.71 ± 9.64 kg.

BMI The mean BMI of the Participants were 27.05 ± 26 .

Correlation :-

BMI VS SPO2 as the BMI increases the SPO2 after the mild activity will decrease. It is a significant weak negative correlation at $r -0.0054$ and significant at p value 0.96 .

DISSCUSSION

- We have tried the best to make this study more reliable and accurate. The number of population in our study was 56 was selected with random selection. The obesity is one of the global epidemics with increasing numbers of affected people worldwide, more and more people are now considered as an overweight and obese.
- The current scenario shows that the waist circumference is uneasily an long side BMI from the guidelines from the international researchers and clinical assessments. Severely overweight and obese people are more prone for risk of illness and reduced life expectancy. The Body Mass Index has direct impact upon the resistance in airways and pulmonary mechanics. The higher the BMI the lower will be the thoracic lung volumes. So we are doing this study to observe the effect of walking on finger oxygen saturation. Obesity has significant effects upon the pulmonary mechanics; body mass index (BMI) has a direct relationship with the degree of airways resistance and work of breathing, and is inversely correlated with thoracic lung volumes . We will be observing in this study the oxygen saturation in individual with rest or during walking on a treadmill at 5 minutes.
- The BMI affects the oxygen saturation at rest and during the mild walking. The number of population included in the study was eighty one. All the participants was examined and correlated the BMI, atrial oxygen and body fat and the arterial po_2 after the rest. All the subjects did a 5 minutes of walking on a treadmill with a speed of 3 miles per hour at an incline angle of 3 degrees. Every participants included were free from all types of cardiovascular diseases and pulmonary diseases and also all the participants had an normal blood pressure. The study showed that there is some sort of negative relationship in fingertip oxygen saturation in the partuiciipants having the BMI above 25.

- **Conclusion:** The conclusion of the study was that the excess body fat can impair the ability to breathe.

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