ISSN: 2395 - 0471

International Journal of Clinical and Biomedical Research
Original Article

LIFESTYLE MODIFICATION - IMPACT OF WALKING ON FASTING BLOOD SUGAR

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Received: 27th Feb 2015, Accepted: 18th Mar 2015.

ABSTRACT

Background: An average person is interested in staying healthy and general well-being. The present study was conducted to know the effects of walking on Fasting blood sugar in healthy individuals who changed their lifestyle by motivating them. **Aim**: The primary objective of present study is to identify the changes in Fasting Blood Sugar in normal subjects before and after walking for 30 minutes. **Materials & Methods**: The present study was conducted in the department of Physiology, Siddhartha Medical College, at Vijayawada Andhra Pradesh. A total number of 25 male and female adult healthy individuals were selected. Fasting Blood Sugar levels were compared before and after walking. **Results**: in this study significant change with p value 0.001 in Fasting Blood Sugar in normal healthy individuals before walking and 30 minutes after walking is observed. **Conclusion**: our study demonstrated small changes in daily life help to prevent diseases of modern civilization.

KEYWORDS: Lifestyle, Fasting Blood Sugar, Walking.

INTRODUCTION

Advances in science and technology during last couple of centuries have brought about a radical change in man's life style. Labour saving devices have relieved us much of the physical activity which was earlier a part of life. The change has affected maximally the privileged sections of humanity. The human body adapted to new life style. Small changes that increase daily physical activity are believed to enable individuals to reduce the risk of chronic disease and may enhance their quality of life[1]. There is reasonable, experimental and epidemiological evidence that lack of exercise contributes to causation of many diseases of modern civilization. To prevent ill effects of lack of physical activity a brief bout of exercise over a short period of time is recommended. Walking regularly is quite adequate for staying healthy.

MATERIALS AND METHODS

Study place: The present study was conducted in the department of Physiology, Siddhartha Medical College, Vijayawada Andhra Pradesh.

Study design: The study was conducted in both sex groups aged 30 to 40 years age healthy individuals. The individuals were selected from staff of Siddhardha medical college VIJAYAWADA. The subjects were divided into control and case group. The case group subjects were advised to walk regularly for three months daily.

Ethics clearance and consent from: Prior to the commencement of the study consent was obtained from the College Ethical Committee and written consent was obtained from the individual. Each subject was informed in detail of its objective, the aim of the research protocol and the method to be used.

Inclusion criteria: Each individual history was carefully evaluated and medically examined for any illness and found to be normal. A total number of 25 adult healthy individuals were selected whose physical activities are minimal in their daily life and advised them to do walking for 30 minutes daily for 3 months. Age in years, height in cm. weight in kg of all subjects was recorded. Radial pulse, Blood Pressure measured with aid

of sphygmomanometer and both systolic blood pressure, diastolic blood pressure in mm of Hg. Along with routine lab investigations, Fasting Blood Sugar samples were taken in all subjects by capillary finger prick with help of a lancet under aseptic precaution and calculated before walking and 30 minutes after walking immediately by using optimum point of care (Abbott) Glucometer. Subject's Fasting Blood Sugar levels before walking and after walking were considered as control group and case group respectively.

STATISTICAL ANALYSIS

Data was presented as Mean and Standard Deviation **(MEAN±SD).** Means of FBS without walking and after walking were being compared. The data obtained was analyzed by using unpaired student's t- test. A p value of ≥ 0.05 was considered statistically significant.

RESULTS

A total of 25 adult male & female subjects were examined. FBS was significantly affected after 30 min walking.

Table 1. showing comparison of FBS before & after walking for 30 minutes.

Parameter	Without walking (MEAN±SD)	Walking after 30 minutes (MEAN±SD)	P VALUE
Fasting Blood Sugar mg/ dl	100±8.57	85±10.27	< 0.001

There was a significant decrease in FBS during 30 minutes of walking when compared to without walking in normal individuals.

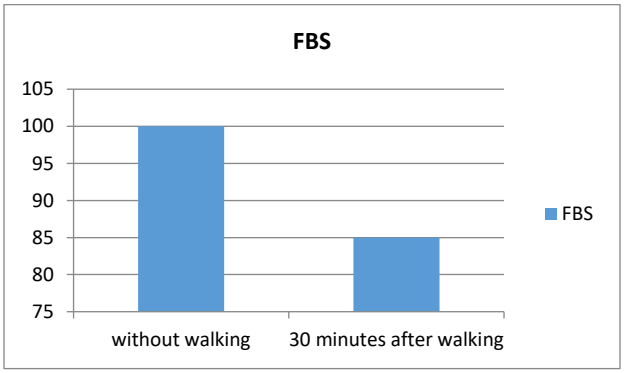

Figure 1. Effect of walking on Fasting Blood Sugar

DISCUSSION

In walking each limb passes rhythmically through a support or stance phase when foot is off the ground. The support phases of two legs overlap, so that two periods of double support occur during each cycle. There is a brief burst of activity in leg flexors at the start of each step and then the leg is swung forward with little more active contraction. Therefore muscles are active only for a fraction of each step, and walking for long periods causes relatively little fatigue.

At rest the major source of fuel for skeletal muscle is circulating free fatty acid derived from adipose tissue triglycerides. The use of glucose as fuel increases when a person exercises and the increase is greater as the intensity of exercise increases glucose transport into muscle cell and glycogen breakdown are increased, as is the flux of glucose through glycolytic pathway, the conversion of pyruvate to acetyl COA and oxidation of acetyl COA in citric acid cycle. Key enzymes whose activity is enhanced include glycogen phosphorylase, phosphofructokinase and pyruvate dehydrogenase.

Skeletal muscle is a major site for metabolic fuel consumption and increased muscle activity during exercise greatly increases fuel requirements. Exercise can place enormous metabolic demands on the human organism. With physical exercise, there is also increase in blood flow to the working muscle. This adaptation ensures delivery of glucose to the muscle and provides free fatty acids, which have been released by adrenergic stimulation of fat cell lipolysis.

In the liver there is net uptake of glucose when plasma glucose is high and a net discharge when it is low. The liver thus functions as a sort of **"Glucostat"** maintaining a constant glucose level. This function is not automatic and affected by the actions of numerous hormones. The liver is sensitive to actions of hormones involved in regulation of metabolic profile, such as insulin, glucagon, growth hormone, glucocorticoids. Regulation by substrate concentration and multiple hormones provide much finer regulation. Multi organ interactions appear to be very closely controlled in normal man. Thus blood glucose level varies during walking.

CONCLUSION

Decreased Fasting blood sugar after 30 minutes of walk is due to increased sensitivity and responsiveness insulin in skeletal muscle. Exercise can increase the number and intrinsic activity of glucose transporter proteins present in the plasma membrane of skeletal muscle. Walking for 30 minutes daily is adequate for the health benefits for all citizens. It is usually aimed at improving physical fitness, reducing disease risk. Compared to sedentary individuals, those who take regularly (more than 5 days a week) a brisk walk for 30 minutes a day are much healthier.

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