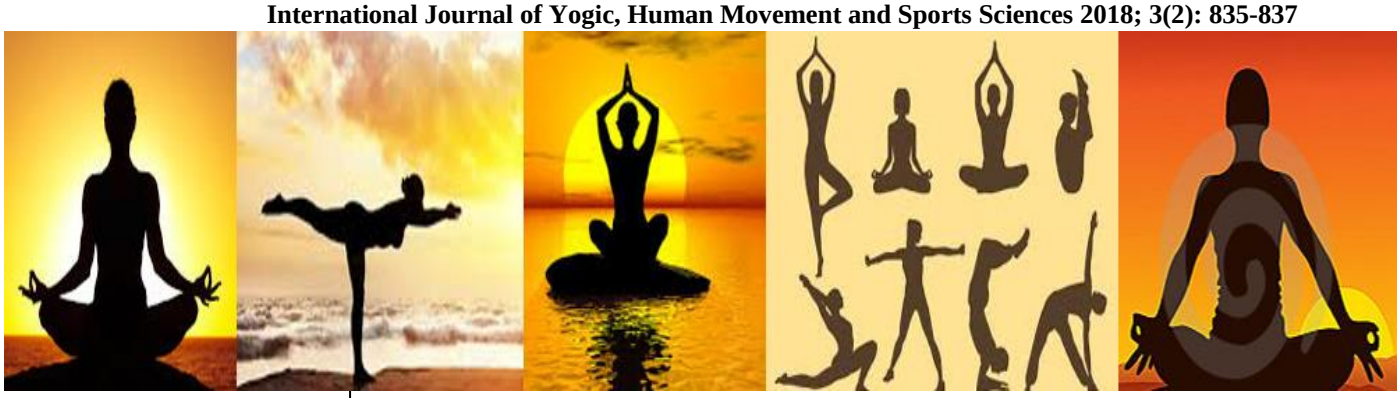
International Journal of Yogic, Human Movement and Sports Sciences 2018; 3(2): 835-837



ISSN: 2456-4419
Impact Factor: (RJIF): 5.18
Yoga 2018; 3(2): 835-837

www.theyogicjournal.com
Received: 16-05-2018
Accepted: 18-06-2018

Dr. M Angel Robert
Assistant Professor & Head, Department Of Physical Education, CMS College of Science and Commerce, Coimbatore. Tamil Nadu, India

Correspondence
Dr. M Angel Robert
Assistant Professor & Head, Department Of Physical Education, CMS College of Science and Commerce, Coimbatore. Tamil Nadu, India

Vital capacity and metabolic risk factors of type II diabetes

Dr. M Angel Robert

Abstract
The purpose of this study was to find out the relationship between vital capacity and metabolic risk factors of type II diabetics. Further, an attempt was made to find out the difference in relationship among men and women type II diabetics. 30 men and 30 women diabetes were selected as subjects and their age ranged between 40 and 55 years. The collected data on Vital capacity, Resting pulse rate, Blood pressure, Fast blood glucose, Post prandial blood glucose, Total cholesterol, High density lipo protein and Low Density lipo protein. These variables have been assessed by standardized lab tests. It was analyzed by multiple regression analysis. Correlation 'r' was applied to find out significant relationship if any, 0.01 level of confidence was fixed to test the level significance. From the results of the present study, it was observed that the Vital Capacity had significant relationship with metabolic risk factors of resting pulse rate, systolic Blood pressure, Diastolic Blood Pressure, Fasting Blood Glucose and Post Prandial Blood Glucose of type II diabetics. Further, no significant relationship was observed between Vital Capacity and other metabolic risk factors of Total Cholesterol, High Density Lipoprotein, Low Density Lipoprotein and it was no significant difference in relationship between vital capacity and metabolic risk factors among men and women type II diabetic patients.

Keywords: Diabetic, vital capacity, resting pulse rate, blood pressure, blood glucose, total cholesterol

Introduction
The term metabolic syndrome describes a cluster of risk factors that increase the chances of developing heart disease, stroke, and diabetes (high blood glucose, also called high blood sugar). The exact cause of metabolic syndrome is not known but genetic factors, too much body fat (especially in the waist area, the most dangerous type of fat), and lack of exercise add to the development of the condition. Having three or more risk factors is a sign that the body is resistant to insulin, an important hormone produced by the pancreas. This resistance to insulin means that more insulin than normal is needed to keep the body working. Increasing physical activity and losing weight are the best ways to begin to manage your condition. Medications can also be used to treat risk factors such as high blood pressure or high blood glucose. If you think you have risk factors for metabolic syndrome. The blood tests and measure your waist circumference to see if you have metabolic syndrome, and determine the best treatment option for you. Finding out if you have metabolic syndrome can give you a peek into your future health and see if you are headed down the path to heart disease. It will also give you time to make important lifestyle changes before serious complications develop (Fady Hannah-Shmouni, 2017).

Vital capacity is always related to breathing. It means in fact the ability to take in oxygen and distribute it to all cells in body. Factors like weight, sex, age, and exercise are important to determine the lung capacity, can be considered as good or not. Breathing on the right way is important to increase the lung capacity. The term "metabolic" refers to the biochemical processes involved in the body's normal functioning. Risk factors are traits, conditions, or habits that increase your chance of getting a disease (Petty, 2006).

Diabetes is very strongly associated with cardiovascular disease morbidity and mortality and therefore effective management of the condition could minimise the incidence of diabetic and cardiovascular complications. Currently there is no cure for diabetes. All available intervention and lifestyle guidelines aim to manage the condition by keeping glucose levels stable within normal limits.

Recommendations for optimal management include a combination of pharmaceutical, diet and exercise interventions. (American diabetes association, 2004). (Wilson *et al*. 2006) [4].

Methodology

This study was to find out the relationship between vital capacity and metabolic risk factors of type II diabetics and it was made to find out the difference in relationship among men and women type II diabetics. 30 men and 30 women diabetes were selected as subjects and their age ranged between 40 and 55 years. Men and women under going treatment for type II diabetes at Coimbatore diabetic foundation, Coimbatore, Tamil Nadu. The investigator explained the purpose of research work, nature of study and subject involvement. All the patients volunteered to act as subject.

Table 1: Tests Selection

S. No	Variables	Equipments/Test	Unit of measurement
1	Vital capacity	Wet Spiro meter	cubic centimeters
2	Resting pulse rate	Bio monitor	beats/min
3	Blood pressure	Sphygmomanometer	mm/Hg
4	Fasting Blood glucose	Blood analysis	mg/dl
5	Post prandial Blood glucose	Blood analysis	mg/dl
6	Total Cholesterol	Blood analysis	mg/dl
7	High Density Lipoprotein	Blood analysis	mg/dl
8	Low density lipoprotein	Blood analysis	mg/dl

Statistical analysis and result of the study

The collected data on Vital capacity, Resting pulse rate, Blood pressure, Fast blood glucose, Post paandial glucose, Total cholesterol, High density lipo protein and Low Density lipo protein was analyzed by multiple regression analysis. Correlation 'r' was applied to find out significant relationship if any, 0.01 level of confidence was fixed to test the level significance.

Multiple regression analysis of Vital Capacity and Metabolic risk

Table 2: Factors variables of Type II Diabetics

Variable	Group	Mean	'r'
Pulse rate	Men	78.70	0.492*
	Women	79.03	0.362*
Systolic Blood Pressure	Men	125.30	0.418*
	Women	124.13	0.474*
Diastolic Blood Pressure	Men	80.10	0.496*
	Women	79.43	0.407*
Fasting Blood Glucose	Men	216.97	0.761*
	Women	201.47	0.608*
Post Prandial Blood Glucose	Men	272.83	0.620*
	Women	269.93	0.378*
Total cholesterol	Men	1.85	0.319
	Women	1.79	0.215
High Density lipo protein	Men	38.16	0.088
	Women	40.33	0.096
Low Density lipo protein	Men	1.27	0.260
	Women	1.13	0.180

Above table revealed that the relationship between vital capacity and pulse rate, systolic blood pressure, Diastolic blood pressure, fasting blood glucose and post prandial blood glucose 'r' values were higher than the required table value 0.355 it was found to be statically significant at 0.01 level for the degrees of freedom 1 and 29. The results clearly indicated that there was significant relationship between the vital capacity and pulse rate, systolic blood pressure, Diastolic blood pressure, fasting blood glucose and post prandial blood glucose of type II diabetes. Further, there was no significant difference in relationship between vital capacity and resting pulse rate among men and women type II diabetes.

And it was the relationship between vital capacity and total cholesterol, high density lipo protein and low density lipo protein 'r' values were less than the required table value 0.355 it was found to be not statically significant at 0.01 level for the degrees of freedom 1 and 29. The results clearly indicated that there was significant relationship between the vital capacity and total cholesterol, high density lipo protein and low density lipo protein of type II diabetics. Further, there was no significant difference in relationship between vital capacity and resting pulse rate among men and women type II diabetes.

Discussion on findings

This study analyzed the relationship between the vital capacity and metabolic risk factors of type II diabetes.

From the results of the present study, it was observed that the Vital Capacity had significant relationship with metabolic risk factors of resting pulse rate, systolic Blood pressure, Diastolic Blood Pressure, Fasting Blood Glucose and Post Prandial Blood Glucose of type II diabetes. Further, no significant relationship was observed between Vital Capacity and other metabolic risk factors of Total Cholesterol, High Density Lipoprotein and Low Density Lipoprotein.

Further, the results was inferred that the vital capacity influenced the physiological variables such as Resting Pulse rate, Systolic Blood Pressure, Diastolic Blood Pressure of type II diabetes. However it was also observed that the bio chemical variables except fasting blood glucose and post prandial glucose all other bio chemical variables such as Total Cholesterol, High density lipoprotein and low density lipoprotein has no relationship with vital capacity.

Further, insignificant difference in relationship between men and women was also observed. The reason for this may be the subjects selected for the present investigation were all diabetic patients.

Ych H C (2005) Inferred that lower vital capacity is an independent predictor of type II duabetucs.

Oda et.al (2009) found that percentage of vital capacity was independently associated with fasting glucose in men but not in women.

Kawai R et.al (2009) [6] found that vital capacity was an independent marker of diabetics and associated with metabolic syndrome and CRP.

Engstrom G (2003) interred that the subjects with a moderately reduced foce vital capacity have an increased risk of developing IR and diabetes.

Conclusions

Based on the results of the present study the following conclusions have been drawn.

1. There was significant relationship between vital capacity and resting pulse rate of type II diabetic patients.
2. There was significant relationship between vital capacity and Systolic and Diastolic Blood Pressure of type II diabetic patients.
3. There was significant relationship between vital capacity and fasting blood glucose and post prandial Blood glucose of type II diabetic patients.
4. There was no significant relationship between vital capacity and Total cholesterol, High density lipo protine and Low density lipo protine.
5. Further, it was also concluded that, there was no significant difference in relationship between vital capacity and metabolic risk factors among men and women type II diabetic patients.

Reference

1. Knop FK. Diabetes, USA, American diabetes association, 2007.
2. Avogaro A. Diabetes & Metabolism University of Padova, Italy. Padova University press, 2008.
3. Ztripathy. Role of lipids in diabetic Mumbai. Indian college of physicians, Maharshi publication, 2002.
4. Wilson P *et al*. Changes in insulin resistance and weight over time are associated with changes in metabolic risk factor clustering. American Diabetes Association Washington, 2006, 942.
5. Yeh H-C *et al*. Cross-sectional and prospective study of lung function in adults with type 2 diabetes: the Atherosclerosis Risk in Communities (ARIC) studfrom the International Diabetes Federation. Diabet Med. 2008; 23:469-80.
6. Kawai R. A cross-sectional relationship between vital capacity and Metabolic syndrome and diabetes. Division of Cardiology, School of Medicine, University of California, Irvine, 2009; 136(1):171-6.
7. Adminl. Type 2 Diabetes Reduces the Lung Capacity and Mars Vital Strength. The Journal of Clinical Endocrinology & Metabolism. 2008, 160-165.
8. Litonjua AA *et al*. Lung function in type 2 diabetes the Normative Aging study. Respir Med. 2005; 99:1583-1590.
9. Marije Van Dijk *et al.* Risk Factors for Diabetes Mellitus Type 2 and metabolic Syndrome Are Comparable for Previously Growth Hormone-treated Young Adults Born Small for Gestational Age (SGA) and untreated Short SGA Controls. The Journal of Clinical Endocrinology & metabolism, Erasmus Medical Center, The Netherlands. 2007, 160-165.