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Efficacy of Physio Ball Exercises on Obesity among Type II Male Diabetes Mellitus.

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ABSTRACT

An increase alarm with obesity and related health care cost. To analyse the efficacy of Physioball exercises on obesity among male type II diabetes mellitus. Control group n=50, experimental group n=50 randomly allotted in two groups. Study conducted between January 2012 to april 2012 at sree Balaji college of physiotherapy, Chennai – 100. for 12 weeks. Pre and Post BMI, HbA₁C were recorded. Reductions in BMI by 6% and HbA₁C by 7% among experimental group were proven statistically.

Keywords: BMI = Body Mass Index, ADA – American diabetic association, ACSM – American College of sports medicine. HbA₁C – Glycodelated Haemoglobin, Physioball – an inflated ball between 55cm to 65cms.

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INTRODUCTION

Diabetic patients in India are estimated at 62.4 million [1] health care cost of obese person is 25% more than some of the same age (Lancet 2010) ADA 2002 recommends Type 2 diabetic patients should perform 90 minutes of vigorous aerobic exercises per week. Physical activities helps to improve long term glycemic control among type 2 diabetic patients (boule etal 2001). Resistance training is effective in improving glycemic control and decreasing BMI, can be included into the standard care of type 2 diabetic patients (Carmen castenda 2002) objective of this research is to analyse the efficacy of Physioball exercises on BMI and glycemic control.

MATERIAL AND METHODS

With due approval of the ethical committee for this research special diabetic camps were conducted and this study was conducted at sree Balaji college of physiotherapy, Chennai – 100, from January 2012 to April 2012 out of 107 participants 100 have completed the full study duration of 12 weeks. All the participants were informed about this research, their consent was obtained and they were adviced to continue this duly prescribed diabetic medication.

Inclusion Criteria

Diagnosed Type II male diabetic patients on medication between 30-60 years.

Exclusion Criteria

Type I diabetic, type II female diabetic patients, haemo dynamically unstable diabetic patients.

Design

This study was an experimental design with all the participants were randomly allotted in two groups control group n=50 and experimental group n=50

METHODOLOGY

Baseline anthropometrical data such as height in centimeters, weight in kilograms and fasting venous sample of all the subjects for HbA₁C were taken twice once at the beginning and after 12 weeks completion of the study. While control group subjects continued their daily physical routines, experimental subjects have performed ten specific activity with Physioball under the supervision of physiotherapist with a frequency of thrice a week for 12 weeks period. Progression was made in line with ADA and ACSM.

RESULTS

100 subjects have completed the study. Pre and Post BMI and HbA₁C of all the subjects were estimated, recorded and using SPSS software statistical analysis were made.

FINDINGS: TABLE: 1

Showing results of pre and post mean values and test of significance of group I and II on BMI

Group	Mean	Result	SD	SE	Result
I	Pre 28.22 Post 28.48	↑By.26 (↑ By.1%)	.44	.06	P>.1
II	Pre 27.50 Post 26.04	↓By 1.54 (↓ By 6%)	4.12	.44	P<.001

TABLE: 2

Showing results of pre and post mean values and test of significance of group I and II on HbA₁C

Group	Mean	Result	SD	SE	Result
I	Pre 7.72 Post 8	↑By.28 (↑By 3%)	.28	.04	P>.1
II	Pre 8.02 Post 7.45	↓By .67 (↓By 7%)	1.25	.18	P<.001

DISCUSSION

A reduction of BMI by a mean of 1.54 kg/m² (↓by 6%) among Physioball subjects is a significant finding in this research. A reduction in BMI by 1kg/m² (paul martins etal 2010) sedantry individual following resisted exercises and .5kg/m² reduction of BMI with resisted exercises among type II diabetic patients (Ekta Arora etal 2009) which indicate the results of this research study to a decreased blood pressure, better lipid profile and an improved glycemic control (Frank etal 2001) among Physioball subjects. A reduction in BMI with health benefits also improves economy of the individual and the nation , as printed out by (Mohan etal 2006) possible mechanism of reduction in BMI could be due to fiber shift in exercising muscle with a hyper trophic response (Carmen 2002) and an increase in GLUT₄ protein (selvin 2004) .

A reduction in mean HbA₁C by .58 (7% ↓) among Physioball group subjects as pointed in the table 2 is another major finding of this research. 1 % reduction in HbA₁C (Dustan 2002) and 1.6 % decrease following resisted exercises (salama bweir etal 2009) supports findings of this study. 1% decrement on HbA₁C reduces the risk of myocardial ischemia among Type II diabetes (strattan etal 2006) and a reduction in major cardio vasalar events (selvin etal 2004)
The mechanism of action could be related to a decrease in visceral ade positivity (salama etal 2002) and muscle hypertrophy (Goodyear 1991)

CONCLUSION

As a key findings of this research study with a decrease in BMI by 6% and an improved glycemic control by 7 % highly indicative of physioball exercises to be prescribed in the holistic diabetic care with a stronger impact on obesity and type II diabetes. Further studies among female Type II diabetes , Male type I diabetic with a larger sample size longer duration other physical modalities are recommended .



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