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Effect of Swimming Exercise on Lipid Profile in Type 2 Diabetes Mellitus

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Abstract: ***The aim of this study was to observe the effect of swimming exercise on lipid profile typez diabetic patients we all known swimming exercise may well be the perfect exercise for diabetes type 1 or type 2 diabetes for everyone with diabetes swimming can keep active and healthy swimming exercise mobilize and improve metabolic body function. The diabetes disease development of hypertension in diabetic patients so keeping of this point of view twenty(N=20) diabetic patients aged 45 to 55 years were selected for experimentation purpose and the variable such as systolic diastolic blood pressure body weight and lipid profile including TG.TC, HDLC, LDLC, VLDLC, They were randomly divided into two groups such as controle group experimentation groups. The blood sample collected before swimming exercise serves as control groups while sample collected after swimming exercise serve as experimental group of diabetic patients. Patients were suggested for swimming exercise two hour per daily for a period of 12 weeks. The systolic, diastolic blood pressure, body weight and lipid profile including TG,TC,LDLC,VLDLC,(except HDLC) were significantly low in swimming exercise groups (P=<0.005) compared to the control groups. The present studies show that lipid profile value can be effectively control in diabetic patients type 2 through the swimming exercise daily in the morning .***

Keywords: Diabetise mellitus, lipid profile, diabetic patients, swimming exercise.

I. INTRODUCTION

Diabetes is a chronic metabolic syndrome caused by body's inability to produce enough insulin or to use insulin that is available as a result there is an increase in the concentration of glucose metabolic abnormalities (1). Diabetes has beome a wide spread epidemic primarily because lack of exercise and awareness and stress diet exercise has been considered a cornerstone of diabetes management (5). Swimming keeps you moving for a length of time rather than having you expend energy then rest. This important for cardiovascular fitness in that it allow one-two pump blood and oxygen mode efficiently Exercise burns 350 to 420 calories per hour (2). Physical exercise has been conceded as one of the cornerstone in the treatment of diabetes mellitus along with nutrition and medication since from the past 100 year ago (14). Swimming exercise to improve blood glucose control in type 2 diabetes,reduces cardiovascular risk factor contribute to weight loss and improve well being (riddle) (7). It has long known that exercise have substantial benefits for people with both the type of diabetes (T1DM) and type (T2DM) It can increase insulin sensitivity,improve cardiovascular fitness and help sustain weight loss (10). Guidlines recommended that patients with T2DM should perform atleast 150 min resistance exercise minimum 3 times per week (8). Scintific pedestal and popularize at among the general public we planned to undertake study of effect of swimming exercise on lipid profile (VLDLC) cholesterol (TC) VLDLC,HDLC and triglycerides (T6) in type 2 diabetic patients.

II. MATERIAL AND METHOD

A 3 month exercise two groups of twenty (N=20)diabetic patients(age 45 to 65 years)have been selected from single center in diabetic camp in Amravati district we conducted a study involving the swimming at selected adult patients of T2DM. The systolic, diastolic blood prtessure and body weight were measured at visit .The sample were collected from people involved in the experiment before and after 3 month. The physiological parameter like systolic and diastolic blood pressure measured by using standard Sphygmomanometer (ISI mark) and body weight by weighing machine. Experiment for testing lipid profile parameters such as TC, LDLC,VLDLC, HDLC and TG by using kit method (Foosati 1982 and Richmond 1973 (3-6). and obtained data compared with control readings. The mean of the difference of values and standard deviation obtained of these two groups were calculated and statistically analyzed by utilizing the student "s" "t" test.

III. RESULT AND DISCUSSION

Table No.1- Mean values of lipid profile systolic, diastolic blood pressure and body weight(wt) in subjects participated before and after swimming exercise.

	Biochemical parameter	Before	After
1	Sytsolic blood pressure	158.5 ±9.39	127.36±10.43***
2	Diastolic blood pressure	108.80 ± 10.11	86.00±79.32***
3	Body weight	55.84 ± 10.43	98.26±09.32****
4	Total Cholestrol mg/dl(TC)	181.2 ±39.92	168.0±37.92*
5	Serum Triglycerides mg/dl (TG)	75.29 ± 28.26	81.02±33.89
6	Very low density lipoproteins mg/dl (VLDL)	15.32 ± 05.42	17.52±10.02
7	Low density lipoproteins mg/dl(LDL)	108.70 ± 38.22	95.61±28.42***
8	High density lipoproteins(HDL)	50.00 ± 9.92	55.52±8.62

***P<0.001, P<0.005, Non significant as compare to swimming exercise

Table No.1 – Show that systolic,diastolic blood pressure, body weight and lipid profile's level in control groups did not show any significant variation (P<0.005) Where as the experimental groups which underwent swimming exercise (P<0.001) show reduction in systolic and diastolic blood pressure (Table1) which is quite significant after swimming exercise. The data was analyzed by using student paired 't' test and P values of less than 0.005 were accepted as significant difference between the compared values.The TC (P,0.005) and VLDL (P,0.001) was significantly decreased.

Graph- Show the percentage (%) of lipid profile in subjects participated before and after swimming exercise.

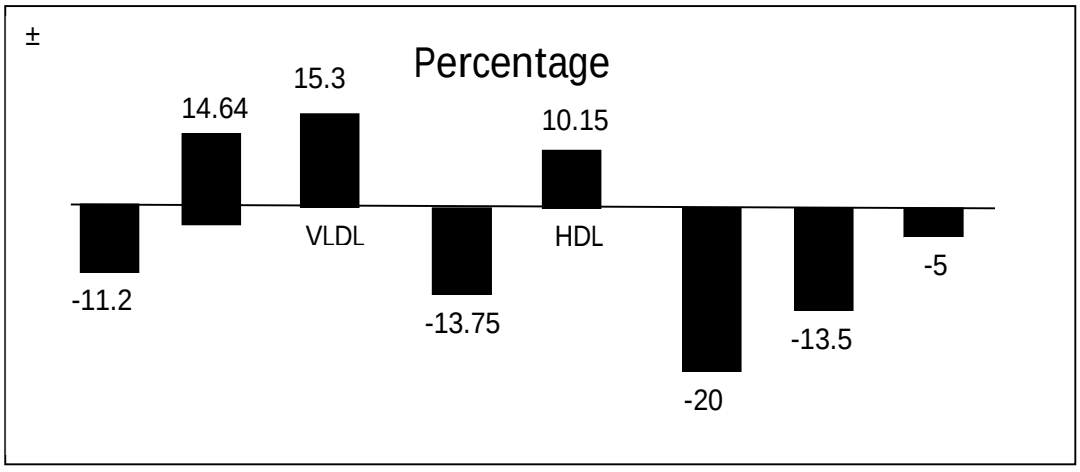

Figure no 1- Percentage change (%) of mean values of lipid profile blood pressure and body weight in subjects participates before and after swimming exercise.

The review show that swimming exercise had beneficial effect on body weight,blood pressure,blood glucose level and cholesterol (13). Aerobic exercise improve the physiological parameters including glycemic control,fasting blood glucose level and lipid profile (11). Regarding management T2DM reserches have highlighted the use of modern medicine alternative or herbal medicine and exercise management therapy. The entire management prove to have positive impact on the disease. Therefore physical activity or exercise is considered as the benificfial treatment regiment for the treatment. T2DM.The aim of present systematic review was to focus on positive effect of exercise towards (T2DM) (12).However most of the randomized trial studies showed that high volume aerobic exercise produced weight loss with significant improvement in insulin sensitivity(9).The practice of exercise was associated with significant decrease in cholesterol among subjects with cardiovascular disease, hypertension angina ,arteriosclerosis and type 2 diabetes at different duration practice of exercise (4).Present Investigation confirm that swimming practices control the lipid profile in T2DM.

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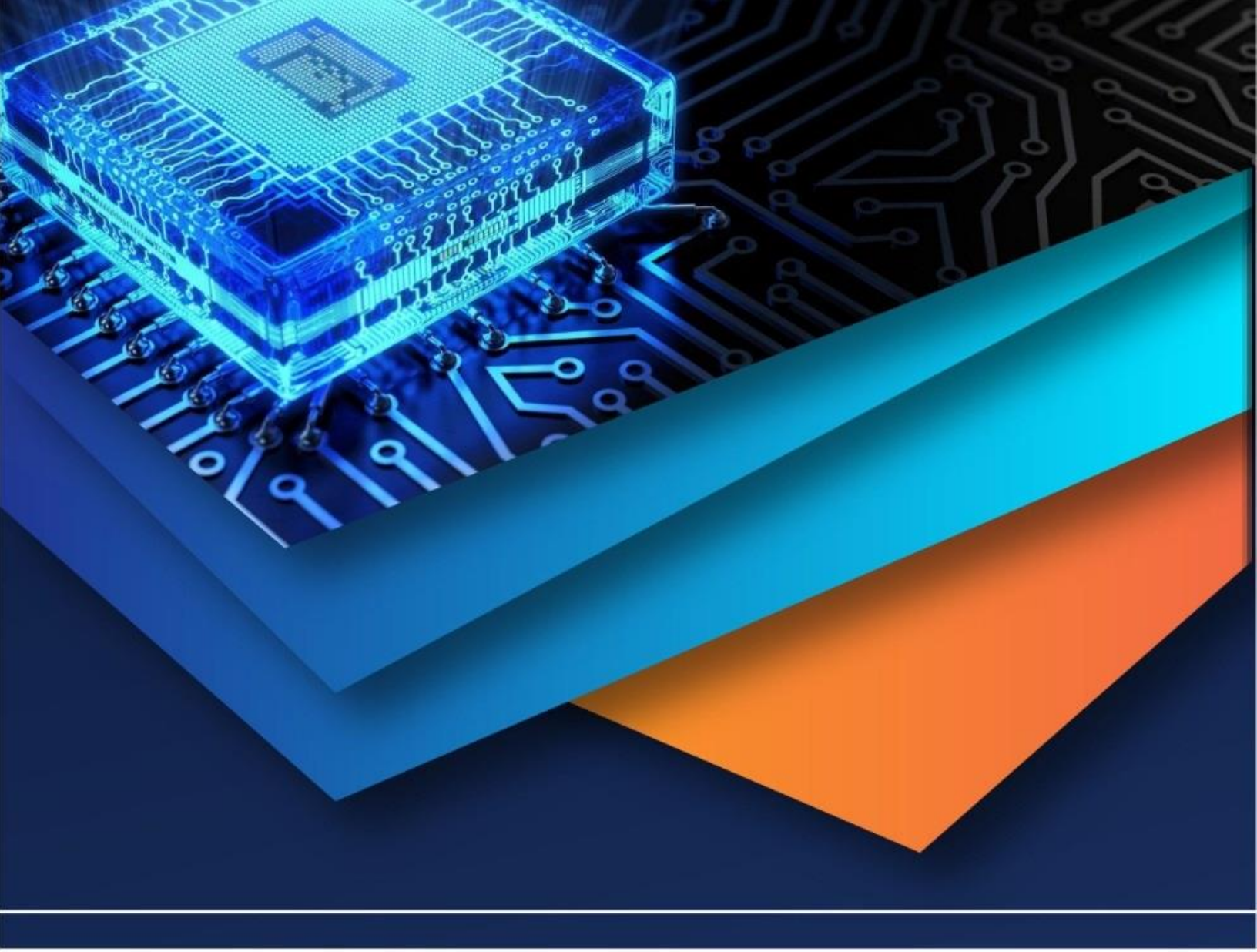

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