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REGULAR PHYSICAL ACTIVITY OR PHYSICAL EXERCISES CONTROLLING DIABETES

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Exercise is important for everyone but it can be especially important for health. If you have a diabetes people who exercise or physical activity regularly are better able to control their diabetes ,thereby reducing their risk of diabetes complications. Physical activity helps your blood glucose also called blood sugar, stay in your target range. Physical activity also helps the hormone insulin absorb glucose into all your body's cells including your muscle for energy.

Key words : Exercise, Physical activity, Diabetes, glucose, insulin

INTRODUCTION:

During physical activity, whole-body oxygen consumption may increase by as much as 20-fold, and even greater increases may occur in the working muscles. To meet its energy needs under these circumstances, skeletal muscle uses, at a greatly increased rate, its own stores of glycogen and triglycerides, as well as free fatty acids (FFAs) derived from the breakdown of adipose tissue triglycerides and glucose released from the liver. To preserve central nervous system function, blood glucose levels are remarkably well maintained during physical activity. India, the second most populous country of the world, has been severely affected by the global diabetes epidemic. As per the International Diabetes Federation (2013), approximately 50% of all people with diabetes live in just three countries: China (98.4 million), India (65.1 million) and the USA (24.4 million)· There is clear evidence to show that diabetes prevalence is rapidly increasing, especially in urban India. The conventional risk factors of urbanization, unhealthy eating habits and physical inactivity, coupled with inherent genetic attributes and differences in body composition are propelling the increase in cases of diabetes. Indians seem to be at higher risk for diabetes.. Diabetes can cause serious health complications including heart disease ,blindness, kidney failure and lower-extremity amputations. Diabetes is the seventh leading cause of death.

What is diabetes?

Diabetes is the condition in which the body does not properly process food for use as energy. Most of the food we eat is turned into glucose or sugar, for our bodies to use for energy. The pancreas, an organ that lies near the stomach, makes a hormone called insulin to help glucose get into the cells of our bodies. When you have diabetes, your body either doesn't make enough insulin or can't use it. This causes sugars to build up in your blood. This is why many people refer to diabetes as "sugar."

Types Of Diabetes :

1.Type 1 Diabetes : The body does not produce insulin. Some people may refer to this type as insulin-dependent diabetes, juvenile diabetes, or early-onset diabetes. People usually develop type 1 diabetes before their 40th year, often in early adulthood or teenage years.

2.Type 2 diabetes : The body does not produce enough insulin for proper function, or the cells in the body do not react to insulin (insulin resistance).

Approximately 90% of all cases of diabetes worldwide are type 2.

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3. Gestational diabetes : This type affects females during pregnancy. Some women have very high levels of glucose in their blood, and their bodies are unable to produce enough insulin to transport all of the glucose into their cells, resulting in progressively rising levels of glucose.

How to determine whether you have diabetes:

The A1C test

at least 6.5% means diabetes

between 5.7% and 5.99% means prediabetes

less than 5.7% means normal

The FPG (fasting plasma glucose) test

at least 126 mg/dl means diabetes

between 100 mg/dl and 125.99 mg/dl means prediabetes

less than 100 mg/dl means normal

An abnormal reading following the FPG means the patient has impaired fasting glucose (IFG)

The OGTT (oral glucose tolerance test)

at least 200 mg/dl means diabetes

between 140 and 199.9 mg/dl means prediabetes

less than 140 mg/dl means normal

An abnormal reading following the OGTT means the patient has impaired glucose tolerance (IGT)

Causes: Apart from the conventional risk factors propelled by urbanization, industrialization, globalization and aging, other factors may also contribute. It has been proposed that obesity, regional adiposity, higher percentage body fat, early life influences including foetal programming and genetic factors contribute to increased risk. The variables independently associated with diabetes in adults include age, BMI, WHR, income and family history of diabetes.

Controlling diabetes – treatment : All types of diabetes are treatable. Diabetes type 1 lasts a lifetime, there is no known cure. Type 2 usually lasts a lifetime, however, some people have managed to get rid of their symptoms without medication, through a combination of exercise, diet and body weight control. Special diets can help sufferers of type 2 diabetes control the condition. Patients with type 1 are treated with regular insulin injections, as well as a special diet and exercise.

Patients with Type 2 diabetes are usually treated with tablets, exercise and a special diet, but sometimes insulin injections are also required.

If diabetes is not adequately controlled the patient has a significantly higher risk of developing complications.

Term Benefits of Exercise? • Improved insulin sensitivity • Reduced daily insulin dosage • Enhanced glucose and fat metabolism • Health-related changes – Body morphology/mass/fat – Lipids/Lipoproteins – Blood pressure – Psycho emotional • No consistent change in glucose

Term Benefits of Exercise? • Improved insulin sensitivity • Improved glucose control • Reduction of diabetes medications • Predictor of successful wt. mgmt. • Related to prevention/reversing • Health-related benefits – Blood Pressure – Lipids/Lipoproteins – Psychomotor

• Aerobic • Frequency – 3-7 d/wk – DAILY? • Intensity – 50-80% HR Reserve – RPE: 4-6 (1-10 scale) • Time – 20-60 min • Type (aerobic) • Resistance • Frequency • > 3 d/wk • Intensity • moderate • Repetitions • 8-10 per exercise • Sets • > 3 sets per exercise • Type • major muscle groups: 8-10 exercises

Type 2 Diabetes: Exercise Program Exercise Program

NO Diabetes Complications NO Diabetes Complications Aerobic Frequency 3-7 d/wk Intensity 40-60% HR Reserve RPE (4-6 on 10) Time expend > 200 - 300 Kcals/d Kcals/wk > 1,500 - 2,000 At least 150 mins/wk Type (aerobic) Resistance Frequency > 2 d/wk, preferably 3 d/wk Intensity moderate-to-vigorous Repetitions 8-10 per exercise Sets > 3-4 sets per exercise Type major muscle groups: 5-10

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