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REMEDIAL EFFORTS AND PREVENTIVE APPROACHES IN RELATION TO  
DIABETES MELLITUS

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**ABSTRACT:**

Diabetes, often referred to by doctors as diabetes mellitus, describes a group of metabolic diseases in which the person has high blood glucose (blood sugar), either because insulin production is inadequate, or because the body's cells do not respond properly to insulin, or both. Patients with high blood sugar will typically experience polyuria (frequent urination), they will become increasingly thirsty (polydipsia) and hungry (polyphagia). The paper designed to approach the rehabilitative and preventive exercised in relation to limit Diabetes undertaking the field approach of strength training, aerobic training and Yogic Exercises.

*Key Words: Diabetes, Strength Training, Aerobic and Yogic Asanas.*

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## INTRODUCTION

Diabetes, describes a group of metabolic diseases in which the person has high blood glucose because insulin production is inadequate, or because the body's cells do not respond properly to insulin, or both. In 2013 it was estimated that over 382 million people throughout the world had diabetes. Commonly referred as of three types:

- Type 1 Diabetes - the body does not produce insulin. Approximately 10% of all diabetes cases are type 1.
- Type 2 Diabetes - the body does not produce enough insulin for proper function. Approximately 90% of all cases of diabetes worldwide are of this type.
- Gestational Diabetes - this type affects females during pregnancy.

The most common diabetes symptoms include frequent urination, intense thirst and hunger, weight gain, unusual weight loss, fatigue, cuts and bruises that do not heal, male sexual dysfunction, numbness and tingling in hands and feet. If one have Type 1 and follow a healthy eating plan, do adequate exercise, and take insulin, you can lead a normal life. Type 2 patients need to eat healthily, be physically active, and test their blood glucose. They may also need to take oral medication, and/or insulin to control blood glucose levels. As the risk of cardiovascular disease is much higher for a diabetic, it is crucial that blood pressure and cholesterol levels are monitored regularly. As smoking might have a serious effect on cardiovascular health, diabetics should stop smoking. Hypoglycemia - low blood glucose - can have a bad effect on the patient. Hyperglycemia - when blood glucose is too high - can also have a bad effect on the patient.

Diabetes becomes a major problem now days all over the world. It's a big issue to discuss and advance research should be conducted on this topic. Exercises are key to control diabetes. One suffers from diabetes when the blood cells do not respond to insulin produced in the body. When we follow a regular exercise routine, our body starts responding to insulin, helping to lower the blood glucose. Exercise also helps improve blood circulation in your body, particularly in the upper and lower limbs, where diabetic patients most commonly facing problems. It is an effective way to fight stress, both at the body and mind level, which in turn helps keep one's glucose, levels down. Studies have shown that exercises are as effective as the medications are while treating diabetes. Add more and more activity every day to the daily routine. This helps you metabolize your food in such a way that blood sugar does not stay in the blood streams for too long and reduces the impact of high blood sugars bringing it to a normal much faster. An exercise routine as daily workout adds best diabetes management. Consult a fitness trainer if you want to excel and this will help you with your heart health which becomes extremely important as a diabetic patient. Exercise can help to prevent diabetes in a number of ways:-

- Exercises help to burn calories, which will help you to maintain an ideal weight.
- Exercises leads to decrease the blood glucose level which ultimately leads to less requirement of medication.
- Exercise also helps improve blood circulation in your body, particularly in the upper and lower limbs, where diabetic patients most commonly facing problems.
- Exercises lower the level of cholesterol in blood which ultimately leads to lowers the chances of heart attack or heart stroke.
- Exercise helps reduce stress, which can raise your glucose level.

- The energy required for exercises helps to burn the excessive weight on the body.
- Exercises will leads to increase the sensitivity of the insulin in the body which ultimately helps to control the root cause of diabetes.

## **EXERCISES AND OTHER FIELD APPROACHS**

Unlike other diseases diabetes, if you can take part in any physical activities some precautions should be taken, that for instance if your blood glucose isn't under control you may adversely affected by the exercises like high intensity exercises or exercises for longer duration. You should also wear comfortable shoes and insoles to protect your feet.

According to the American Diabetes Association, an effective diabetes exercise plan should include aerobic, strength training and flexibility exercises.

### **1. Aerobic Exercises**

Aerobic exercise has very significant and effective benefits for people with diabetes. It increases sensitivity to insulin, lowers blood pressure, improves cholesterol levels, and decreases body fat. Walking is one of the best exercises for diabetes. Here are five other aerobic activities that give you the biggest results for your efforts:

- Stair climbing
- Cycling
- Swimming
- Skipping (or jump rope).

### **2. Strength-training Exercises**

Strength training helps you to build muscle, which will increases your metabolism and allows you to burn more calories - even when you're at rest. Studies also show that dynamic strength training improves insulin sensitivity, fasting blood glucose and insulin, and glucose tolerance. It can decrease peak blood glucose levels, especially in women with diabetes. Here are some you can try at home:

- Resistance exercises using elastic bands, exercise tubing or a Pilates reformer
- Body exercises such as squats, lunges, and push ups
- Free weights using adjustable weights for your comfort level
- Resistance exercise three times a week. Build up to three sets of 8 - 10 repetitions using weight that you cannot lift more than 8 - 10 times without developing fatigue. Be sure that your strength training targets all of the major muscle groups.

### **3. Flexibility Exercises**

Flexibility exercises or stretches keep joints flexible, improve your balance and range of motion, and reduce your risk of injury during exercise and other activities. Stretching also reduces stress, which can make diabetes worse. It also helps to burn calories and improve muscle tone. Some of the best flexibility exercises for diabetes are:

- Static stretches for all major muscle groups
- Dynamic stretches, which include speed and movement during the stretch such as side bends, arm swings, or alternate toe touches.
- Yoga
- Pilates
- While stretching is one of the best exercises for diabetes, it's not as simple as you may think. Do a warm up before practicing static stretches. Practice dynamic stretches only

if your diabetes is under control and you're otherwise fit. Avoid ballistic stretches, which include bouncing during the stretch, as they're more likely to cause injury.

#### 4. Asans of Yoga

- Pranayam:

Breathing in deeply and breathing out helps oxygenate your blood, and improves circulation. It also calms the mind and gives your rattled nerves some much needed rest.

- Setubandhasana: This pose not only helps keep one's blood pressure in control it also helps to relax the mind, improves digestion, relieves the symptoms of [menopause](#) in women and stretches the neck and spine.
- Bal asana: Known quite aptly as the child's pose this is a great stress buster. It gently stretches the hips, thighs and ankles, calms the mind and helps relieve stress and fatigue. It is also a great remedy for that lower back pain you might have from long hours of sitting..
- Vajrasana: This is a simple pose that is great to relax the mind, improve digestion and massages the kanda. According to Ayurvedic principles, kanda is a spot about 12 inches above the anus that is the point of convergence for over 72,000 nerves..
- . Sarvangasana: This pose is essentially known for its ability to regulate the working of the thyroid glands. These glands are responsible for the proper functioning of the entire body including the digestive, nervous, reproductive system, regulating metabolism and respiratory system. Apart from that, it nourishes the spine with a good supply of blood and oxygen, helping you beat nervous system disorders, and improving your all round health.
- Halasana: This pose is great for those who sit for long hours and tend to have bad posture. It stimulates the thyroid glands, parathyroid glands, lungs and abdominal organs, therefore helping the blood rush to your head and face, improves digestion and keeps the hormonal levels in check. Read more about how halasana can beat bad posture and backache.
- Dhanurasana: This pose is great to strengthen your back and spine, stimulate the reproductive organs, beats stress and fatigue, relieves menstrual pain and [constipation](#)..
- Chakrasana: This pose is great to stretch the spine and relax the muscles of the back. Moreover it helps relax the mind and make it stress free.
- Paschimotasana: This is a forward bending pose that helps the blood to flow to the face. Apart from that, it helps the stomach function better, strengthens the thigh muscles and relaxes the back and arms.
- Ardha Matsyendrasana: This asana is specifically designed to increase the capacity of your lungs so it can inhale and hold more oxygen. It also loosens up the spine and relieves backaches and discomfort in the back.
- Even a little extra activity each day can help. Some basic steps can really help to make a difference if they become a regular habit, such as walking to the shops rather using the car or getting off the bus a stop early. Exercise checklist for people who have diabetes

General Awareness to regular noteon:

- Check your blood sugar level before and after exercising.
- Check your feet for blisters or sores before and after exercising.
- Wear the proper shoes and socks.

- Drink plenty of fluid before, during and after exercising.
- Warm up before exercising and cool down afterward.
- Have a snack handy in case your blood sugar level drops too low

## CONCLUSION

Diabetes becomes a major problem now days all over the world. It's a big issue to discuss and advance research should be conducted on this topic. Exercises are key to control diabetes. One suffers from diabetes when the blood cells do not respond to insulin produced in the body. When we follow a regular exercise routine, our body starts responding to insulin, helping to lower the blood glucose. Exercise also helps improve blood circulation in your body, particularly in the upper and lower limbs, where diabetic patients most commonly facing problems. Exercises and Asana of Yoga which will help a person to control and prevent diabetes but proper care should be taken and done under the supervision of experts only.

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