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## Lifestyle Modifications in Type 2 Diabetes

### **Introduction**

Diabetes mellitus is a chronic condition, but people with diabetes can lead a full life while keeping their diabetes under control. Lifestyle modifications (changes in day-to-day habits) are an essential component of any diabetes management plan.

Lifestyle modifications can be a very effective way to keep diabetes in control. Improved blood glucose control can slow the progression of long-term complications. Multiple small changes can lead to improvements in diabetes control, including a decreased need for medication.

Diabetes requires a lifelong management plan, and persons with diabetes have a central role in this plan. Lifestyle modifications are an opportunity for diabetics to take charge of their health. Therefore, it is important to learn as much as possible about diabetes and to take an active role in making decisions about health care and treatment.

### **DIETARY CHANGES**

Changing the type and amount of food eaten can help people with diabetes to lose weight, improve blood glucose control, and lower blood cholesterol levels and blood pressure.

**Establishing healthy dietary habits** – To get started with healthy eating habits, a person may be asked to keep a food diary, discuss current eating patterns, attend a dietary class for people with diabetes, or meet with a dietitian. Eating habits should be changed slowly.

**Alcohol use** – The recommendations for alcohol use in persons who are diabetic are similar to those for non-diabetics. On a daily basis, no more than two alcoholic beverages for men or one alcoholic beverage for women are recommended. One alcoholic beverage is defined as 12 ounces of beer, 5 ounces of wine, 1.5 ounces of spirits (all of which contain 15 grams of alcohol).

Alcohol can cause either low or high blood glucose, depending upon the amount of alcohol consumed, if food was eaten at the same time, and the history of prior alcohol use or abuse. Persons with diabetes who choose to drink alcohol should drink moderately.

A moderate intake of alcohol may lower blood pressure and decrease the risk of coronary artery disease and stroke. However, excessive use of alcohol can increase the risk of neurologic and liver disease and high blood pressure.

## **QUITTING SMOKING**

Over 25 percent of people newly diagnosed with diseases are smokers. Quitting smoking is one of the most important things a patient can do to improve their health.

Smokers with diabetes have an increased risk of the following:

- Death, especially from heart attacks and strokes
- High “bad” cholesterol levels
- Worsened blood glucose controlled, compared to non-smokers
- Neurologic complications from diabetes
- Kidney disease leading to dialysis
- Foot ulcer and amputation of toes, feet or legs caused by peripheral vascular disease

Diabetics who quit smoking can decrease their risks. Most people who smoke find it difficult to quit; assistance is available from a number of sources. Healthcare providers have access to self-help materials, and can help select a quit date, provide contact information for local support groups, and prescribe nicotine replacement treatment, if needed.

## **EXERCISE**

Exercise is beneficial for all individuals, with or without diabetes. Even persons with longstanding diabetes or diabetic complications can benefit from exercise.

For diabetics, exercise promotes cardiovascular fitness and weight loss, lowers high blood pressure, improves lipid profiles, improves blood glucose control in some cases, and leads to an overall sense of well-being. It may even help prevent type 2 diabetes in some people.

**General exercise precautions** – It is important to balance enthusiasm and common sense when beginning an exercise program. These precautions encourage patients to stay safe and ensure that exercise is productive.

- Wear well-fitting, protective footwear
- Drink adequate liquids before, during, and after exercise to prevent dehydration, which can upset blood glucose levels.

Diabetics who use insulin should also:

- Measure blood glucose before, during and after exercise to determine their body's typical response to exercise. If the pre-exercise blood glucose reading is 250mg/dl or higher, exercise should be postponed until the level is under control.
- Consider a decrease in insulin dose by about 30 percent during exercise.
- Choose an insulin injection site away from exercising muscles (for example, avoid the legs if running)
- Keeping rapidly absorbed carbohydrates on hand (glucose tablets, hard candies, or juice).
- Eat a snack 15 to 30 minutes before exercise, and again every 30 minutes during exercise.
- Eat a source of slowly absorbed carbohydrates (dried fruit, fruit jerky, granola bars, or trail mix) immediately after exercise. This will counter a post-exercise drop in blood glucose levels.

**The pre-exercise examination** – People with diabetes who want to start an exercise program should consult with their healthcare provider first. A pre-exercise examination, including a supervised exercise stress test, may be needed for persons over the age of 35 and those who have had diabetes for more than 10 years.

**Type of exercise** – Gentle aerobic exercises, which increase the heart rate for a sustained period of time, are often the best choice for diabetics. Examples of aerobic exercise include walking cycling, swimming, or rowing. Diabetics with well-controlled blood glucose levels and no complications can usually participate in most any type of exercise.

Choose exercise that is enjoyable and can be performed comfortably, making it easier to stay motivated and stick with a program over time. People who are accustomed to a sedentary lifestyle may find it particularly challenging to start and continue with an exercise program. Talk with a healthcare provider about any barriers that stand in the way of exercise; he or she may be able to suggest solutions.

People with diabetic eye complications (proliferative retinopathy) may be advised to avoid high-impact activities and strenuous weight-lifting, which can increase blood pressure and cause bleeding in the eye. People with neurologic complications (peripheral neuropathy) are usually advised to avoid traumatic weight-bearing exercises such as running, which can lead to foot ulcers and stress fractures although this depends on the severity of the nerve damage.

**Intensity** - Exercise does not have to be intense to be beneficial. Persons who want to increase the intensity of exercise should do so gradually, and should stop if he or she experience worrisome symptoms, such as chest discomfort or nausea.

**Duration** – A reasonable exercise session consists of 10 minutes of stretching and warm-up, followed by 20 minutes of gentle aerobic exercise. Eventually, you may wish to exercise for more than 30 minutes at a time. You should increase the duration of exercise gradually.

**Timing** – People who take insulin should try to exercise at the same time of the day. This practice can help to maintain predictable blood glucose levels.

**Frequency** – Most of the benefits of exercise for people with diabetes require a regular, long-term exercise program. Patients should commit to exercising 30 minutes a day most days of the week.

## **MEDICATIONS AND BLOOD GLUCOSE MONITORING**

The day-to-day management of blood glucose levels can be complicated. Management may require a schedule of oral medications and/or insulin, frequent blood glucose monitoring, and carefully planned meals and snacks.

However, successful management of diabetes does not have to take the enjoyment out of life. It can be difficult to establish a routine that incorporates all aspects of diabetes care, though many people find that the routine becomes second nature once established. Written schedules may help patients to remember the details of a routine until they are committed to memory. It is also important to carefully manage situations that can complicate blood glucose control, such as sick days and vacations.

People with diabetes may need to take several medications throughout the day. Medications to lower high blood pressure, lower cholesterol levels, and low-dose aspirin may be used to manage and prevent complications. Each prescription should be taken exactly as directed on a daily basis. If the medication schedule is complex, a pill organizer or written outline may be helpful in remembering to take specific medications at specific times.

## **ROUTINE MEDICAL CARE**

Making lifestyle changes is an excellent step towards diabetes management. However, routine medical care is important for people with diabetes; this may include frequent medical appointments and screening tests. Your healthcare team will periodically reevaluate the diabetes management plan, and can work to detect health problems that do not cause symptoms in the early stages.

Finally, it is important to listen to your body and seek care if questions or problems arise. This may require calling and seeing a clinician between scheduled appointments. Even persons who have had diabetes for many years have difficulty some times, and clinicians are skilled in helping to solve problems.

## **WHERE TO GET MORE INFORMATION**

Your healthcare provider is the best source of information for questions and concerns related to your medical problem. Because no two patients are exactly alike and recommendations can vary from one person to another, it is important to seek guidance from a provider who is familiar with your individual situation.