Patient education: Diabetes mellitus type 2: Alcohol, exercise, and medical care (Beyond the Basics)

Author: David K McCulloch, MD
Section Editor: David M Nathan, MD
Deputy Editor: Jean E Mulder, MD

All topics are updated as new evidence becomes available and our peer review process is complete.
Literature review current through: Feb 2017. | **This topic last updated:** Feb 27, 2017.

TYPE 2 DIABETES OVERVIEW — 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 sugar 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.

ALCOHOL AND TYPE 2 DIABETES — Drinking a moderate amount of alcohol (up to one serving per day for women, up to two servings per day for men) with food does not affect blood sugar levels significantly. People who take oral diabetes medications do not usually need to adjust their medication, as long as the alcohol is consumed in moderation and with food. Alcohol may cause a slight rise in blood sugar, followed hours later by a decrease in the blood sugar level.

Mixers, such as fruit juice or regular cola, can increase blood sugar levels and increase the number of calories consumed in a day. Also, calories from alcohol have little nutritional value and may interfere with efforts to lose weight or contribute to weight gain.

EXERCISE AND TYPE 2 DIABETES — Exercise is beneficial for all individuals, with or without diabetes. Even people 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 sugar control in some cases, and leads to an overall sense of well-being. When combined with dietary lifestyle intervention, it will 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. (See "Patient education: Foot care in diabetes mellitus (Beyond the Basics)".)
- Drink adequate liquids before, during, and after exercise to prevent dehydration, which can upset blood sugar levels.

Diabetics who use insulin should also:

- Measure blood sugar before, during, and after exercise to determine their body's typical response to exercise. If the pre-exercise blood sugar reading is 250 mg/dL (13.9 mmol/L) or higher, exercise should be postponed until the level is under control.
- Consider a decrease in insulin dose by approximately 30 percent during exercise.
- Choose an insulin injection site away from exercising muscles (for example, avoid the legs if running).
- Keep 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 postexercise drop in blood sugar levels.

The pre-exercise examination — People with diabetes who want to start an exercise program should consult with their health care provider first. We typically perform a physical examination and a resting electrocardiogram (ECG) in sedentary adults (age >50 years) with diabetes prior to beginning an exercise program. It is best to begin a gentle exercise program and to gradually progress to a more vigorous program as tolerated.

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 sugar 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 health care 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 weightlifting, 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. (See "Patient education: Diabetic neuropathy (Beyond the Basics)".)

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 experiences 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 sugar 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.

QUITTING SMOKING — Over 25 percent of people newly diagnosed with diabetes are smokers. Quitting smoking is one of the most important things a patient can do to improve their health. (See "Patient education: Quitting smoking (Beyond the Basics)".)

Smokers with diabetes have an increased risk of the following:

- Death, especially from heart attacks and strokes
- High low-density lipoprotein (LDL) ("bad") cholesterol levels
- Worsened blood sugar controlled, compared with nonsmokers
- Nerve damage from diabetes
- Kidney disease leading to dialysis
- Foot ulcer and amputation of toes, feet, or legs, caused by peripheral vascular disease (see "Patient education: Peripheral artery disease and claudication (Beyond the Basics)")

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. Health care 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.

DIET AND TYPE 2 DIABETES — Changing the type and amount of food eaten can help people with diabetes to lose weight, improve blood sugar control, and lower blood cholesterol levels and blood pressure. A separate topic discusses these issues in detail. (See "Patient education: Type 2 diabetes mellitus and diet (Beyond the Basics)".)

MEDICATIONS AND BLOOD SUGAR MONITORING IN TYPE 2 DIABETES — The day-to-day management of blood sugar levels can be complicated. The daily regimen may include oral medications and/or insulin, blood sugar 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, although many people find that the routine becomes second nature over time. 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 sugar 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 IN TYPE 2 DIABETES — Making changes in diet and exercise are an important step in diabetes management. However, routine medical care is also important to long-term health for people with diabetes, particularly when it comes to preventing, detecting, and slowing the progression of complications. A health care provider can recommend a regular schedule for visits, screening, and monitoring tests based upon the duration of the disease, any complications, and other medical problems.

Your health care team will periodically reevaluate your management plan and can work to detect health problems that do not cause symptoms in the early stages.

Regular screening for nondiabetes-related health problems is also recommended.

- For women, this may include a cervical cancer screening, mammogram and clinical breast exam, and bone density testing. (See "Patient education: Cervical cancer screening (Beyond the Basics)" and "Patient education: Breast cancer screening (Beyond the Basics)" and "Patient education: Bone density testing (Beyond the Basics)".)

- For men, prostate cancer screening may be recommended after age 50 years. (See "Patient education: Prostate cancer screening (Beyond the Basics)".)

- For both men and women, colon cancer screening is recommended after age 50 years. (See "Patient education: Colon and rectal cancer screening (Beyond the Basics)".)

WHERE TO GET MORE INFORMATION — Your health care provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our website (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for health care professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

Patient education: Type 2 diabetes (The Basics)
Patient education: Treatment for type 2 diabetes (The Basics)
Patient education: Diabetes and diet (The Basics)
Patient education: Preventing type 2 diabetes (The Basics)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

Patient education: Foot care in diabetes mellitus (Beyond the Basics)
Patient education: Self-blood glucose monitoring in diabetes mellitus (Beyond the Basics)
Patient education: Diabetic neuropathy (Beyond the Basics)
Patient education: Quitting smoking (Beyond the Basics)
Patient education: Peripheral artery disease and claudication (Beyond the Basics)
Patient education: Type 2 diabetes mellitus and diet (Beyond the Basics)
Patient education: Cervical cancer screening (Beyond the Basics)
Patient education: Breast cancer screening (Beyond the Basics)
Patient education: Bone density testing (Beyond the Basics)
Patient education: Prostate cancer screening (Beyond the Basics)
Patient education: Colon and rectal cancer screening (Beyond the Basics)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

Effects of exercise in adults with diabetes mellitus
Nutritional considerations in type 1 diabetes mellitus
Nutritional considerations in type 2 diabetes mellitus
Overview of medical care in adults with diabetes mellitus

The following organizations also provide reliable health information.

- National Library of Medicine

  (www.nlm.nih.gov/medlineplus/healthtopics.html)

- National Institute of Diabetes and Digestive and Kidney Diseases

  (www.niddk.nih.gov)

- American Diabetes Association (ADA)

  (800)-DIABETES (800-342-2383)
  (www.diabetes.org)

- Hormone Health Network

  (www.hormone.org/diseases-and-conditions/diabetes)

[1-4]

Topic 1740 Version 14.0