

Training Your Caregiver: Diabetes

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), and become increasingly thirsty (polydipsia) and hungry (polyphagia).

As they age, men and women who have served in the military may develop diabetes. There are many reasons for this that can include metabolic changes due to stress and poor diet when in deployment or in combat zones. After discharge, activity levels decline when the veteran no longer has the mandatory once or twice a day PT exercise regimens. As a result, many veterans experience a major weight gain within five years of their discharge or retirement. All of these may contribute to a veteran becoming diabetic.

Key Points about Diabetes:

- Diabetes is a long-term condition that causes high blood sugar levels.
- In 2013 it was estimated that over 382 million people throughout the world had diabetes (Williams textbook of endocrinology).
- Approximately 10% of all diabetes cases are Type 1 Diabetes (the body does not produce insulin).
- Approximately 90% of all cases of worldwide are Type 2 Diabetes (the body does not produce enough insulin for proper function).
- Gestational Diabetes 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.
- Those who have Type 1 and follow a healthy eating plan, get adequate exercise, and take insulin, 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.
- Diabetics should stop smoking due to its effects on cardiovascular health.
- Hypoglycemia (low blood glucose) can lead to seizure, loss of consciousness, and even death as the brain needs glucose to function properly.
- Hyperglycemia (high blood glucose) can damage to nerves, blood vessels and various organs, lead to cataracts, infections and even coma.

Overweight people have a much higher risk of developing Type 2 Diabetes compared to those with a healthy body weight. People with a lot of visceral fat, also known as central obesity, belly fat, or abdominal obesity, are especially at risk. Being overweight/obese causes the body to release chemicals that can destabilize the body's cardiovascular and metabolic systems.

Being overweight, physically inactive and eating the wrong foods all contribute to the risk of developing Type 2 Diabetes. Drinking just one can of (non-diet) soda per day raises our risk of developing Type 2 Diabetes by 22% (Journal Diabetologia). The scientists believe that the impact of sugary soft drinks on diabetes risk may be a direct one, rather than simply an influence on body weight.

Diabetes is a Metabolic Disorder

Diabetes (diabetes mellitus) is classed as a metabolic disorder. Metabolism refers to the way bodies use digested food for energy and growth. Most food is broken down into glucose (a form of sugar in the blood) the principal source of fuel for our bodies.

When food is digested, the glucose makes its way into the bloodstream. The cells use glucose for energy and growth. However, glucose cannot enter cells without insulin being present - insulin makes it possible for our cells to absorb the glucose.

Insulin is a hormone produced by the pancreas. After eating, the pancreas automatically releases an adequate quantity of insulin to move the glucose present in blood into the cells, as soon as glucose enters the cells, blood-glucose levels drop.

A person with diabetes has a condition in which the quantity of glucose in the blood is too elevated (hyperglycemia). This is because the body either does not produce enough insulin, produces no insulin, or has cells that do not respond properly to the insulin the pancreas produces. This results in too much glucose building up in the blood. This excess blood glucose eventually passes out of the body in urine. Consequently, even though the blood has plenty of glucose, the cells are not receiving it for essential energy and growth requirements.

Controlling Diabetes - Treatment is Effective and Important

All types of diabetes are treatable. Type 1 Diabetes lasts a lifetime and there is no known cure. While Type 2 Diabetes *usually* lasts a lifetime, some people can manage the symptoms without medication, through a combination of exercise, diet and body weight control.

Diabetes Equipment and a Healthy Breakfast

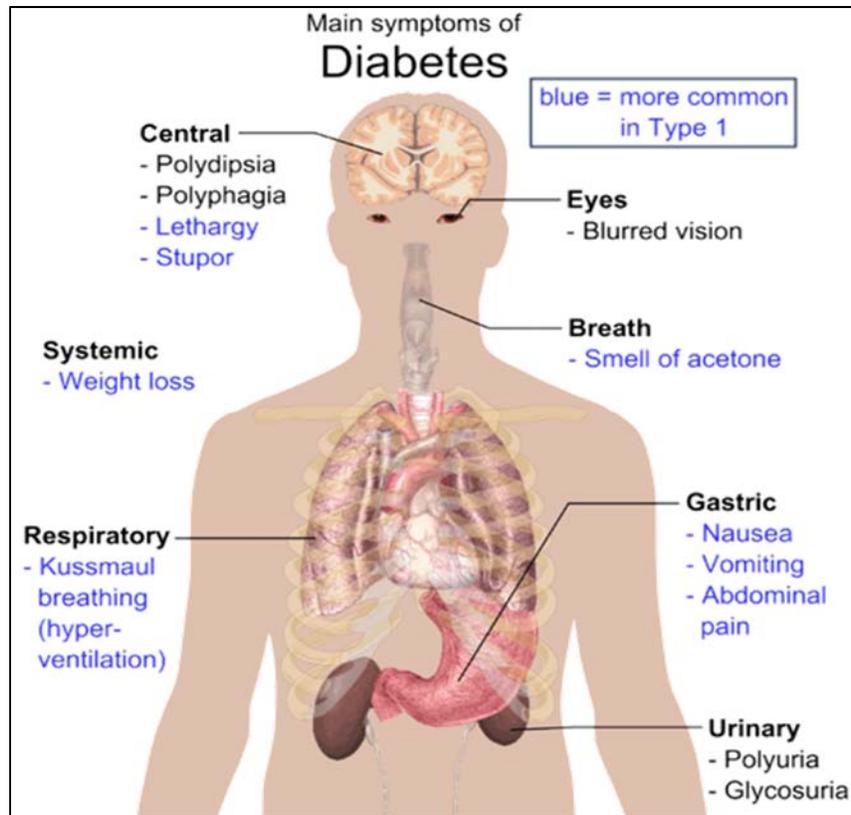
Special diets can help Type 2 Diabetics control their condition. Researchers from the Mayo Clinic Arizona in Scottsdale proved that gastric bypass surgery can reverse Type 2 Diabetes in a high proportion of patients. However, that research also showed that within 3 – 5 years, the disease recurs in approximately 21% of those tested. Yessica Ramos, MD, said, "The recurrence rate was mainly influenced by a longstanding history of Type 2 Diabetes before the surgery. This suggests that early surgical intervention in the obese, diabetic population will improve the durability of remission of Type 2 Diabetes."

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.

Complications linked to badly controlled diabetes:

- Eye complications - glaucoma, cataracts, diabetic retinopathy, and some others.
- Foot complications - neuropathy, ulcers, and sometimes gangrene which may require that the foot be amputated.
- Skin complications - people with diabetes are more susceptible to skin infections and skin disorders.

- Heart problems such as ischemic heart disease, when the blood supply to the heart muscle is diminished.
- Hypertension is common in people with diabetes, which can raise the risk of kidney disease, eye problems, heart attack and stroke.
- Mental health - uncontrolled diabetes raises the risk of suffering from depression, anxiety and some other mental disorders.



- Hearing loss - diabetes patients have a higher risk of developing hearing problems.
- Gum disease - there is a much higher prevalence of gum disease among diabetes patients.
- Gastroparesis - the muscles of the stomach stop working properly.
- Ketoacidosis - a combination of ketosis and acidosis; accumulation of ketone bodies and acidity in the blood.
- Neuropathy - diabetic neuropathy is a type of nerve damage which can lead to several different problems.

- HHNS (Hyperosmolar Hyperglycemic Nonketotic Syndrome) - blood glucose levels shoot up too high, and there are no ketones present in the blood or urine. This leads to dehydration, seizures, coma and even death.
- Nephropathy - uncontrolled blood pressure can lead to kidney disease.
- PAD (peripheral arterial disease) - symptoms may include pain in the leg, tingling and sometimes problems walking properly.
- Stroke - if blood pressure, cholesterol levels, and blood glucose levels are not controlled, the risk of stroke increases significantly.
- Erectile dysfunction - male impotence.
- Infections - people with badly controlled diabetes are much more susceptible to infections.
- Healing of wounds - cuts and lesions take much longer to heal.

Complications to the foot

Complications affecting the foot (often referred to as "diabetic foot") result from neuropathy, nerve damage that causes tingling sensations, burning or stinging pain, weakness or loss of feeling. The nerves become damaged due to restricted blood supply.

The phenomenon can also affect the hands, but it is the feet that are most commonly affected. Because of the loss of sensation for heat, cold or pain, and a lack of attention given to the feet, they are at risk from injury, wounds, blisters or ulcers going unnoticed. If left unnoticed, this condition can lead to infection and even gangrene and potential amputation.



Nerve damage leads to skin changes, making the foot dry and prone to cracking or peeling. Poor circulation to the feet caused by vessel narrowing can also mean that any infections or wounds heal less readily.

The key to preventing foot complications is to monitor the feet so that problems are spotted at the first opportunity. Seeking medical attention for any problems is important, as is getting the feet checked by a health care professional, such as a podiatrist, at least annually.

Other practical measures include:

- Keeping the feet clean and dry
- Ensuring the nails are well-maintained
- Wearing socks and shoes that fit comfortably and do not rub or squeeze the feet.

Resources:

- <http://www.medicalnewstoday.com/info/diabetes> .
- American Diabetic Association www.diabetes.org.

Exam Follows on Next Page



Training Your Caregiver: Diabetes

Employee Name: _____

Date: _____

Mark the correct response or fill in the blank.

1. Because the military personnel live healthy lives, veterans are not at much risk for diabetes.
 - a. Yes.
 - b. No.

2. Which of these is not a type of diabetes?
 - a. Type I – Insulin Dependent.
 - b. Type 2 – Late Onset.
 - c. Gestational Diabetes.
 - d. Situational Diabetes.

3. Of all diabetics, 90% suffer from Type 1?
 - a. Yes.
 - b. No.

4. Type 1 Diabetics do not produce insulin and can never live a productive life.
 - a. Yes.
 - b. No.

5. Type 2 Diabetics are usually treated with tablets, exercise and a special diet, but sometimes insulin injections are also required.
 - a. Yes.
 - b. No.

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

- a. Yes.
- b. No.

7. Hypoglycemia is:

- a. Low blood glucose.
- b. High blood glucose.

8. List five complications of diabetes that can affect the physical health of the diabetic veteran:

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

9. In some cases, there is damage to the diabetic's feet due to restricted blood flow resulting in nerve damage that causes tingling sensations, burning or stinging pain, weakness or loss of feeling. This is called:

- a. Neuropathy diabeticus.
- b. Drop foot.
- c. Dead foot.
- d. Diabetic foot.

Exam continued on next page.

10. A major issue for many diabetics is the loss of sensation for heat, cold or pain as well as a lack of attention given to the feet. What is the ensuing danger to the diabetic?

- a. risk from injury.
- b. slow healing wounds.
- c. blisters or ulcers going unnoticed.
- d. All of the above.

11. Failure to treat injuries, wounds, blisters or ulcers can lead to infection and even gangrene and potential amputation.

- a. Yes.
- b. No.

12. Nerve damage leads to skin changes, making the foot dry and prone to cracking or peeling. Poor circulation to the feet caused by vessel narrowing can also mean that any infections or wounds heal less readily. List five keys to preventing foot complications:

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

In order to receive your state-required home caregiver CEUs, you must mail this test along with your signed FORM 1732 Management and Training of Service Provider (on the next page) to:

**CTADVRC – VDHCBS
PO Box 729
Belton TX 76513**

Score: _____ of 20

Pass – Fail

