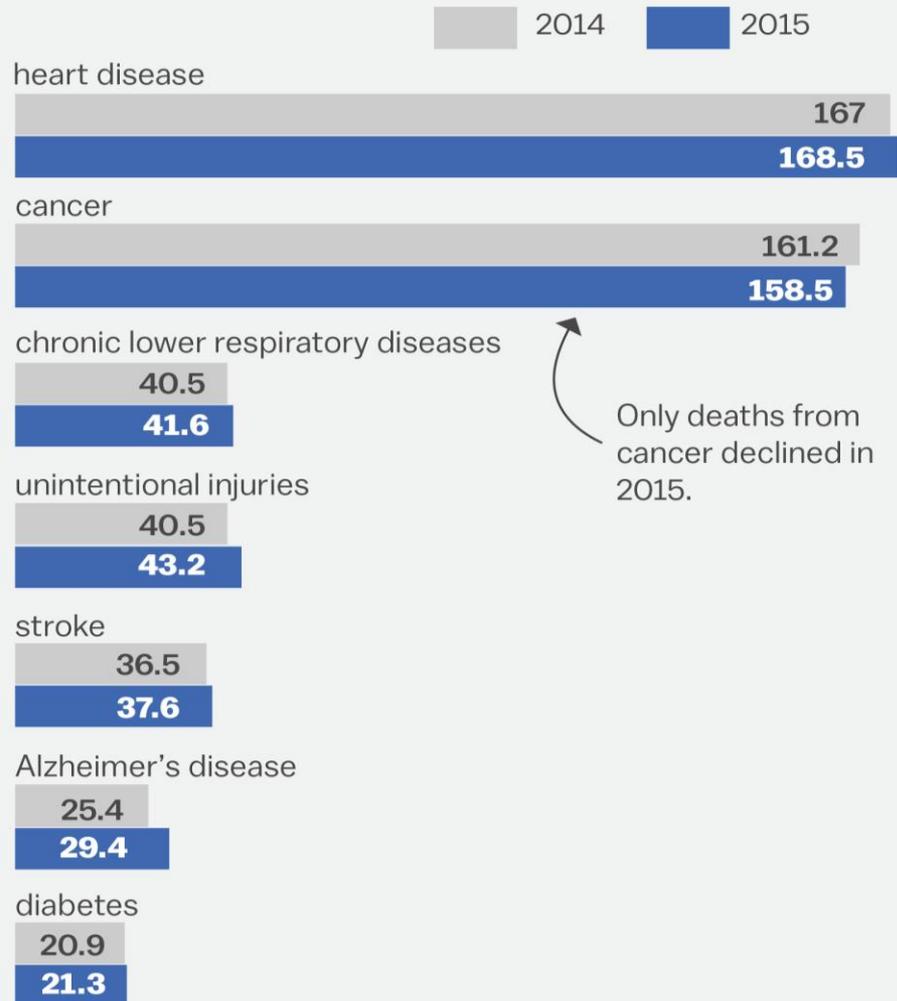




Diabetes

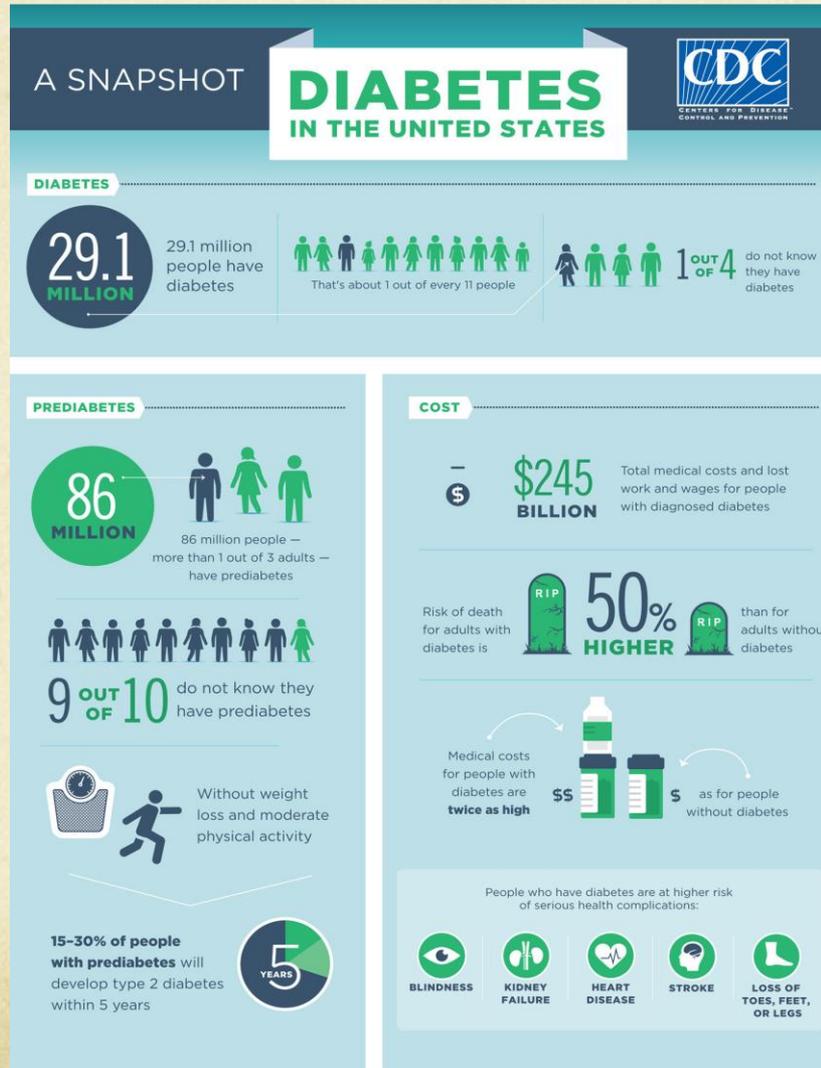
Only one major cause of death in the US saw a decline in 2015

Rate of death for every 100,000 people



- **Prevalence:** In 2015, 30.3 million Americans, or 9.4% of the population, had diabetes.
 - Approximately 1.25 million American children and adults have type 1 diabetes.
- **Undiagnosed:** Of the 30.3 million adults with diabetes, 23.1 million were diagnosed, and 7.2 million were undiagnosed.
- **New Cases:** 1.5 million Americans are diagnosed with diabetes every year
- **Deaths:** Diabetes remains the 7th leading cause of death in the United States in 2015, with 79,535 death certificates listing it as the underlying cause of death, and a total of 252,806 death certificates listing diabetes as an underlying or contributing cause of death.

2015 information



What is Diabetes

- **Diabetes mellitus:** -- a chronic disease associated with abnormally high levels of the sugar glucose in the blood.

○ <http://www.medicinenet.com/script/main/art.asp?articlekey=2974>

Risk Factors

- Weight – the higher the weight the more likely the body develops resistance to insulin
- Inactivity – the less active higher the risk
- Family history – tends to run in the family
- Race – African Americans, Hispanics, Native Americans or Asian Americans are at higher risk.
- Age – incidence increases with age
- Gestational diabetes – women that have had gestational diabetes at at a higher risk
- Hypertension – people with blood pressure over 140/90 are at increase risk for diabetes
- Abnormal cholesterol and triglyceride – low level of HDL (good cholesterol) and high triglycerides have a high risk for diabetes.

Ps 139: 14

- I will praise You; for I am fearfully and wonderfully made; Marvelous are Your works; and that my soul knows very well.

What is the pancreas?

The pancreas is a gland deep in the abdomen that performs two key functions.

Aids digestion

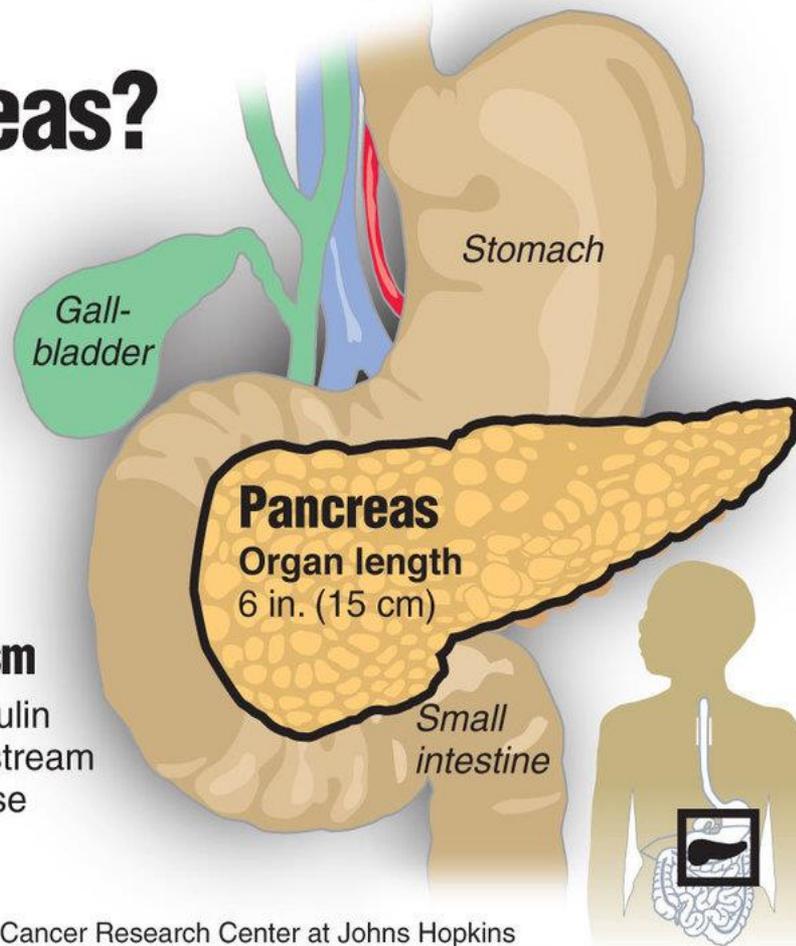
- Secretes enzymes into small intestine to help break down protein, carbohydrates, fats

Regulates metabolism

- Secretes hormones insulin and glucagon into bloodstream to maintain proper glucose (sugar) levels

© 2009 MCT

Source: Sol Goldman Pancreatic Cancer Research Center at Johns Hopkins



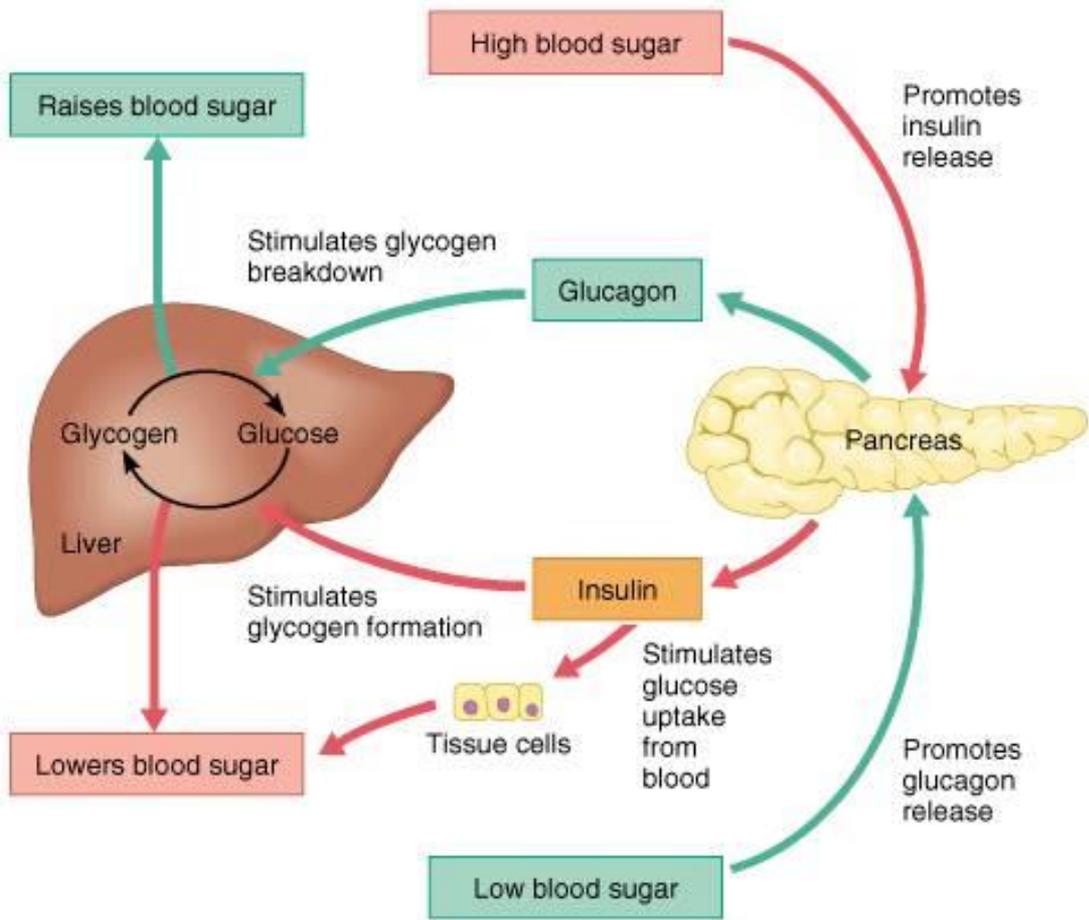


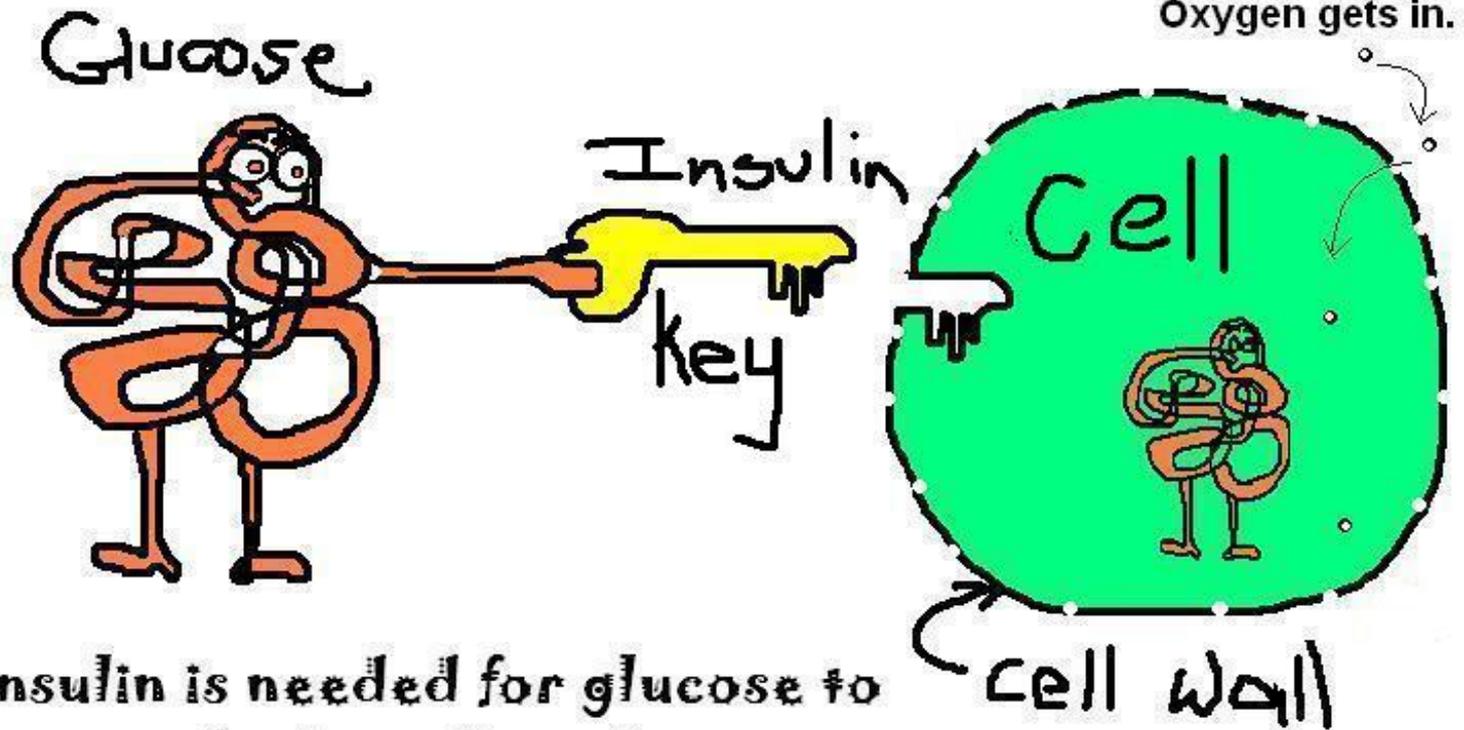
Carbohydrates



Fats

Proteins





Insulin is needed for glucose to get inside the cell so that it may be used up to make energy.

Diabetes

- **Diabetes mellitus:** ~ a chronic disease associated with abnormally high levels of the sugar glucose in the blood. Diabetes is due to one of two mechanisms:
- Inadequate production of insulin (which is made by the pancreas and lowers blood glucose), or
- Inadequate sensitivity of cells to the action of insulin.

○ <http://www.medicinenet.com/script/main/art.asp?articlekey=2974>

Symptoms

- 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

Main symptoms of Diabetes

blue = more common in Type 1

- Central**
- Polydipsia
 - Polyphagia
 - Lethargy
 - Stupor

- Eyes**
- Blurred vision

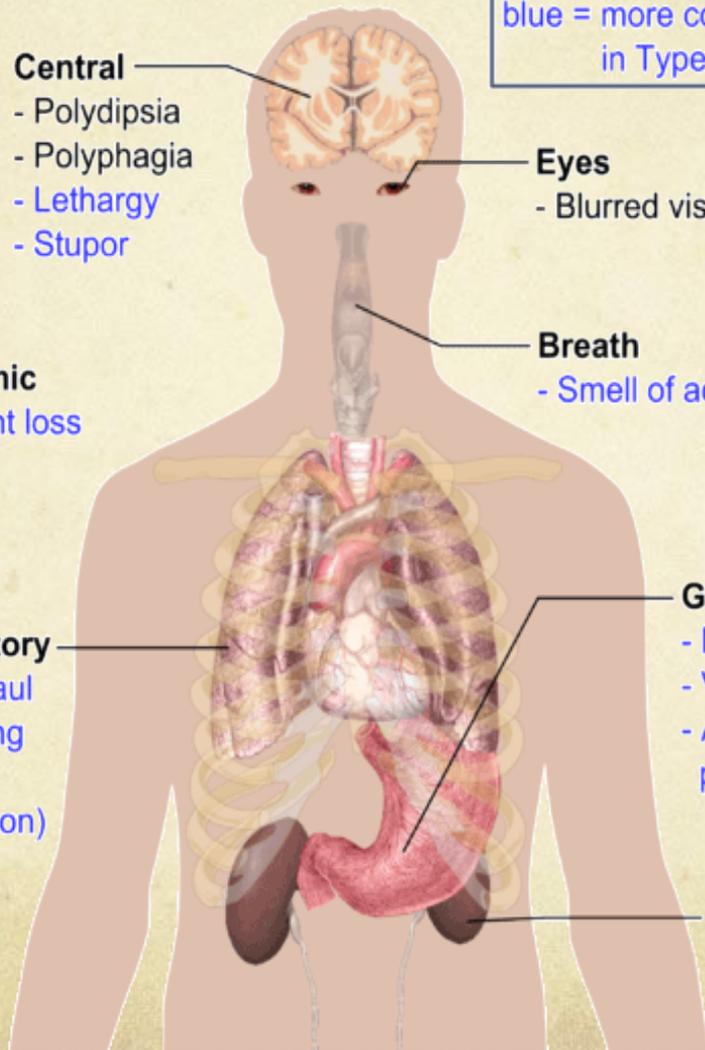
- Systemic**
- Weight loss

- Breath**
- Smell of acetone

- Respiratory**
- Kussmaul breathing (hyper-ventilation)

- Gastric**
- Nausea
 - Vomiting
 - Abdominal pain

- Urinary**
- Polyuria
 - Glycosuria



Types of diabetes

- Diabetes melitus type I
- Diabetes melitus type II
- Gestational diabetes
- Prediabetes
- Diabetes insipidus

Diabetes type I

- about 5-10% of the total number of diabetes (about 1.28 millions),
- pancreas is unable to produce insulin beta cells are destroyed or not working at all
- usually starts in childhood, but there is a very small numbers of adult onset for this type of diabetes
- require insulin administration (injection or pump) for the rest of life.

Diabetes Type II

- most common type of diabetes 90-95 % of people with diabetes
- this type of diabetes develops what is called insulin resistance
- Pancreas makes insulin, but this insulin is not enough to address the blood sugar level or there is a problem with the insulin.

Which diabetes is more serious?

Neither!!!

- No matter what type of diabetes because the high glucose content left in the blood will cause damage to other organs: eyes, heart, kidney, feet
- Diabetes is serious
- Diabetes needs to be treated properly so the blood sugar level stays at a safe and healthy level

What are the healthy blood sugar or blood glucose levels?

- Normal blood sugar is 70-120. This is the ideal state for the body.
- For people with diabetes the goal is to keep blood sugar:
 - 70-130 before meals
 - 180 2 hours after the meal
 - never under 70 and
 - Hemoglobin A1C under 7%

What is hemoglobin A1C?

- It is a blood test
- measures the amount of sugar attached to red blood cells in the body
- Test is to tell the average blood sugar level for the last 3 months.
- For example the goal for A1C is to be below 7% , this means that the blood glucose or sugar for the past 3 months averaged at 150.

Hypoglycemia

- means blood sugar is too low, usually bellow 70
- symptoms onset is sudden and they can progress quickly if no treatment or treatment is delayed
- Causes for people with diabetes:
 - too little food or skipping a meal,
 - too much insulin or DM meds, or
 - person being more active than usual

Hypoglycemia

- Symptoms can include:
 - blurry vision
 - rapid heartbeat
 - headache
 - shaking
 - dizziness,
 - headache,
 - irritable,
 - hungry
 - weakness or fatigue
 - sweating
- With no treatment may lead to
 - fainting
 - seizures
 - coma

Hypoglycemia

- Since this is a potentially life threatening situation immediate treatment is required.
- Check blood sugar if possible, if not treat anyway
- Treatment eat 3-4 glucose tablets, or 3-5 candies, or 1 tablespoon of sugar or honey or drink 4 oz of fruit juice, or ½ can of regular soda.
- Check blood sugar 15 min later if blood sugar is still below 70 treat again and call physician.
- Once the blood sugar is above 70 eat something more consistent (your meal or 1/2 sandwich, 3 peanut butter crackers)

Hyperglycemia

- high blood sugar or when blood sugar goes up and stays above the target level
- Causes for high blood sugar:
 - not taking the medicine,
 - illness,
 - eating too much,
 - not getting any exercise.

Hyperglycemia

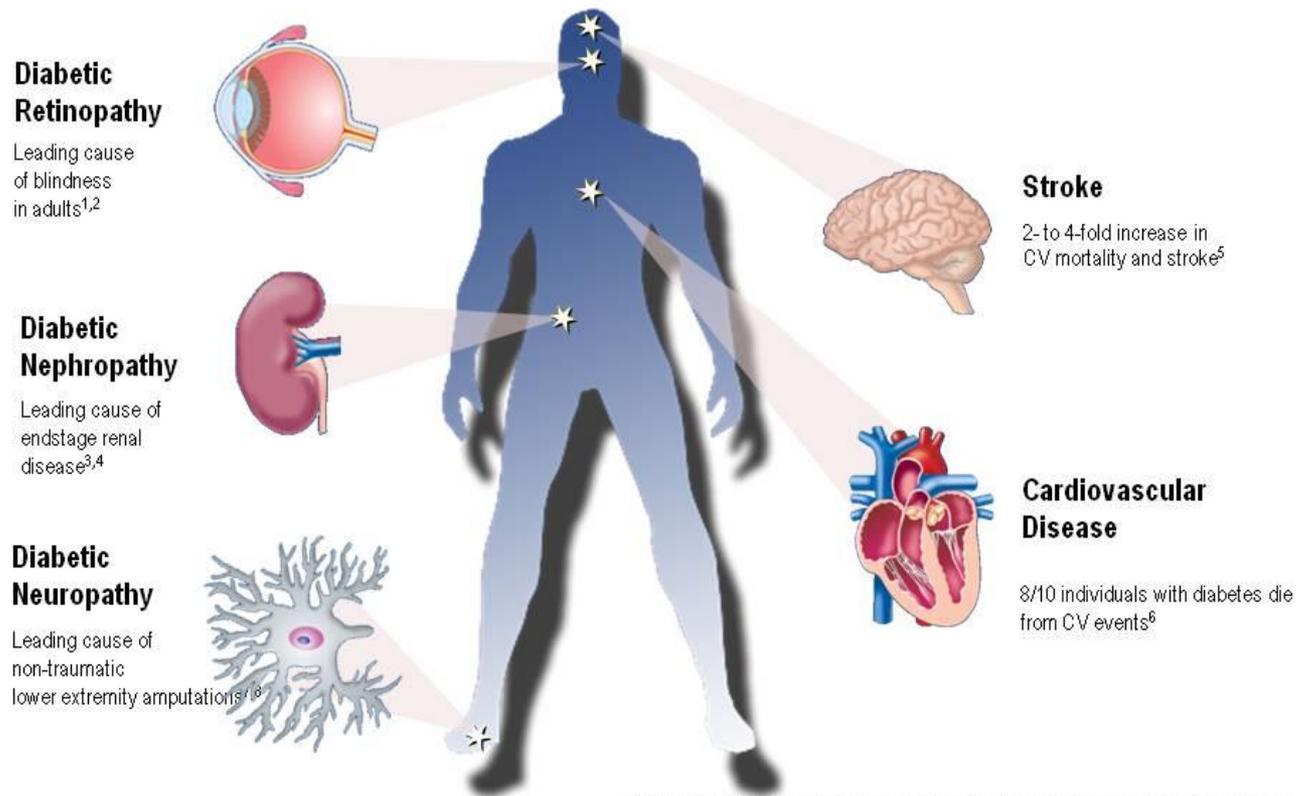
- Symptoms are:
 - thirst,
 - frequent urination,
 - weak,
 - tired,
 - dry itchy skin,
 - blurred vision,
 - cuts and sores heals slowly,
 - frequent infection,
 - unexplained weight loss.

Complications of high blood sugar

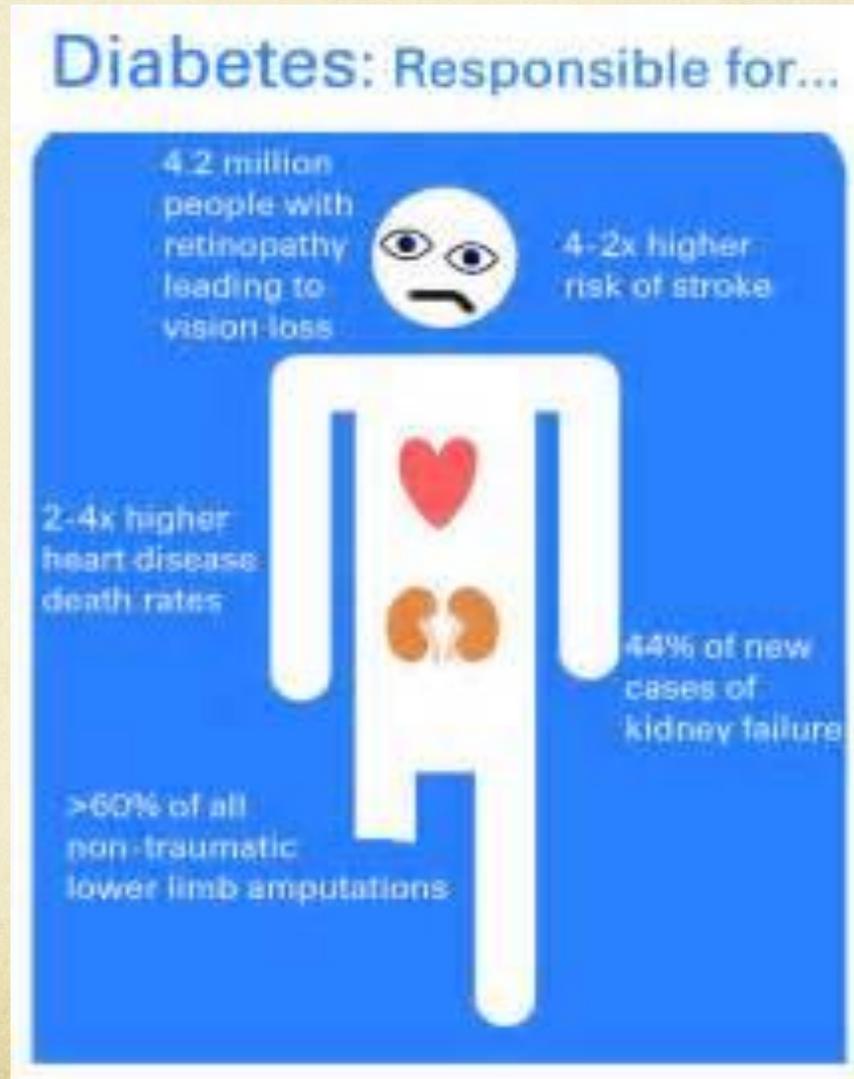
- High risk for:
 - heart disease
 - stroke
 - hypertension
 - blindness and eye problems
 - kidney disease
 - nervous system complications
 - amputations
 - foot problems
 - dental disease
 - pregnancy complications
 - mental health problems, such as depression
 - skin issues

Complications

Diabetes is a lifelong condition associated with serious complications



Complications

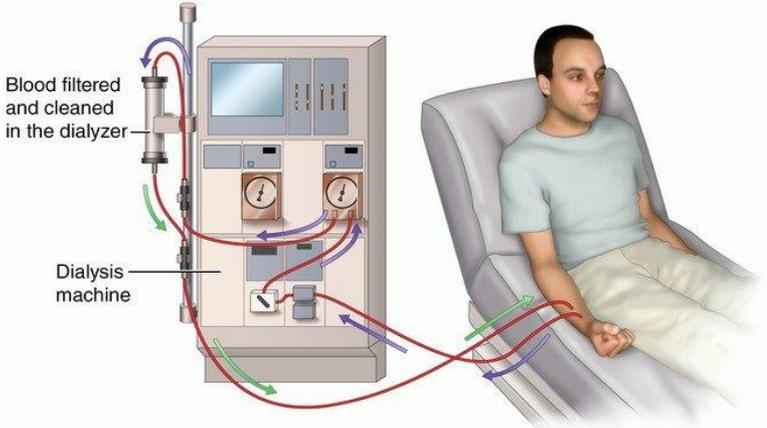


Eye diseases

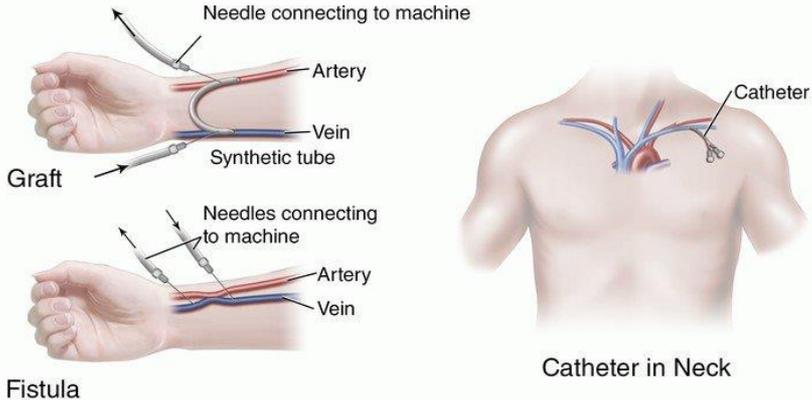
- Leading cause for blindness
- Eye disease caused by diabetes:
 - Glaucoma
 - Cataracts
 - Retinopathy

Kidney disease

Hemodialysis



Types of Access for Dialysis



Hosea 4:6

- My people are destroyed for the lack of knowledge. Because you have rejected knowledge, I will also reject you from being priest for me; because you have forgotten the law of your God, I will also forget your children.