LEARNING ABOUT MEDICATIONS

UTHealth™ | School of Public Health
Brownsville Regional Campus
The University of Texas
Health Science Center at Houston

https://www.uclahealth.org/marc/mindful-meditations

Salud y Vida
Diabetes Self-Management Education Classes
Cameron County

Brownsville Schedule

Su Clínica

105 E. Alton Gloor Blvd.

Español: Martes de 5:30-7:30 pm

Tony Gonzalez Recreational Park

Start : September 12, 2019

34 Tony Gonzalez Drive

Español: Jueves de 10:00 – 12:00pm

Brownsville Community Health Center

191 East Price Road

Español: Sábados de 9-11 am

Harlingen Schedule

Su Clínica

1706 Treasure Hills Blvd.

English: Thursday from 6-8 pm

Rio Grande State Center

1401 South Rangerville Road

Español: Martes de 9:30 -11:30 am

San Benito Schedule

San Benito C.I.S.D. Landrum Educational Complex

450 South Dowling St

San Benito, TX 78586

Español: Miercoles de 6–8 pm

Español: Jueves de 10 am–12 pm

Salud y Vida
Diabetes Self-Management Education Classes
Hidalgo County

Alton Schedule

Alton Recreational Center

349 Dawes Ave, Alton, TX 78573

Español: Miércoles de 10 am – 12 pm

McAllen Schedule

Hope Family Health Clinic

2332 Jordan Rd.

Español: Martes de 10 am – 12 pm

OBJECTIVES

To learn about available medications for:

- Diabetes
- Hypertension/blood pressure
- Cholesterol and elevated triglycerides,
- Purpose of each medication, recommendations, and side effects.
- Improve communication with health care providers.

QUESTION

Why do we need medication to lower blood glucose (sugar)?

MEDICATION

Besides exercising and proper nutrition, people with diabetes also need to take medications to control blood glucose levels.

Medications are need to:

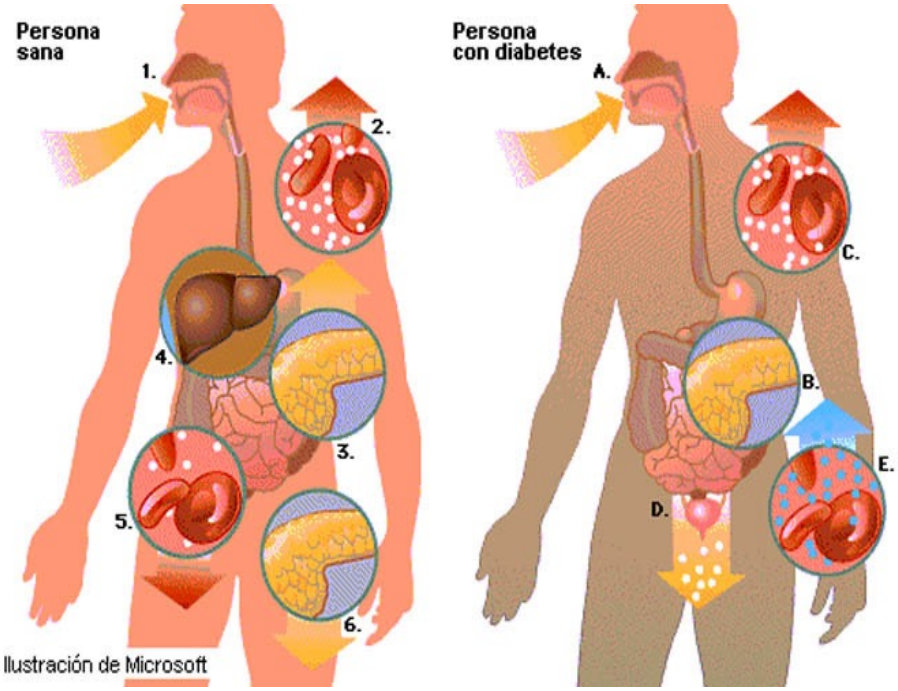
- Lower or control blood pressure,
- Control blood lipids
- Prevent or control a complication
- Other diseases

MEDICATION

- **Medication helps lower blood glucose levels**
- Medications are needed to control diabetes because the pancreas has lost its ability to control glucose levels .
- There are two ways to administer these medications.
  - Pills
  - Injections

HAPPENS WITH TYPE 2 DIABETES?

- Pancreas does not produce enough insulin
- Liver sends too much glucose into the blood
- Muscles and other body cells are resistant to insulin
- Insulin does not find cells easily



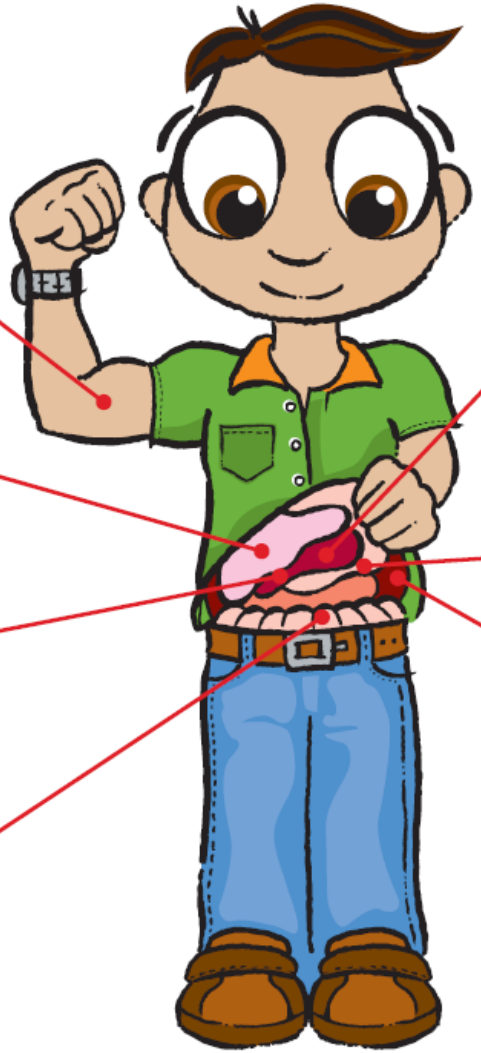
WHAT DO MEDICATIONS DO?

- Help the **pancreas** produce **insulin**
- Help the **muscles** absorb more **glucose**
- Prevent the **liver** from releasing stored glucose
- Prevent the **stomach** and the **intestines** from absorbing more glucose.

QUESTION

What is a generic drug?

How Do My Medicines Work?



Muscle Cells

Pioglitazone (Actos)

- *Makes muscle cells more sensitive to the insulin*

Liver

Metformin (Glucophage)

- *Slows glucose release from liver*

Liver and Pancreas

Sitagliptin (Januvia)

- *Helps balance insulin levels between the liver and the pancreas*

Intestines

Acarbose (Precose, Glyset)

- *Slows breakdown of food*

Pancreas

Repaglinide (Prandin), Glyburide (Diabeta, Micronase), Glipizide (Glucotrol), Glimepride (Amaryl)

- *Helps pancreas release more insulin*

Insulin

- *Used when your pancreas cannot make enough insulin*

Kidneys

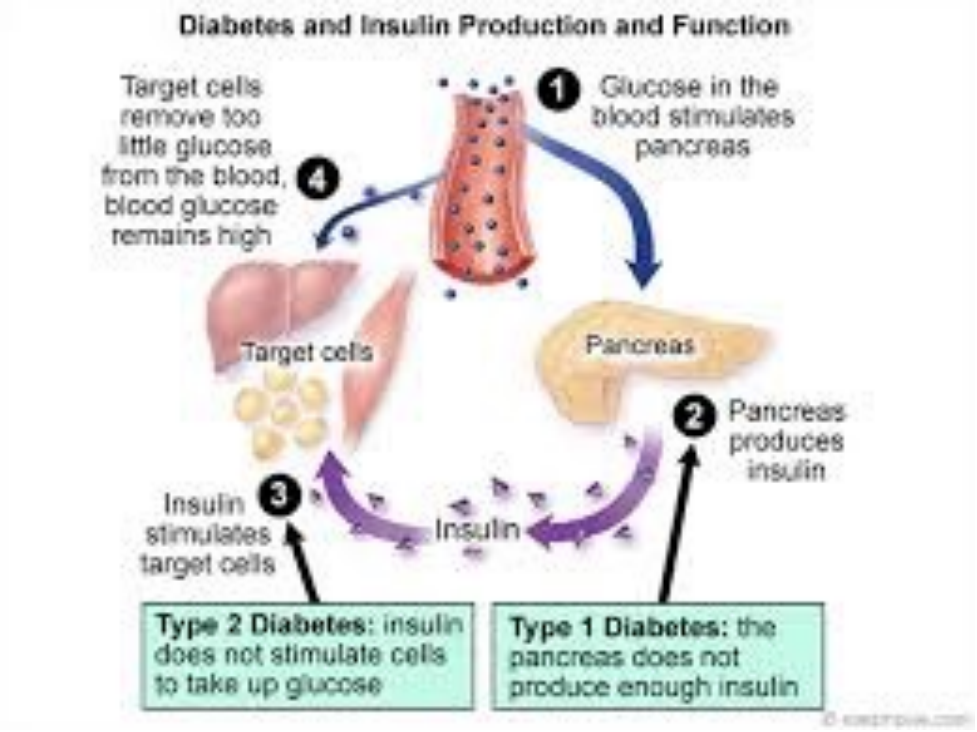
Canagliflozin (Invokana)

- *blocks the reabsorption of glucose in the kidneys.*

Generic is listed first, followed by brand name in parenthesis.

WHAT IS INSULIN?

It's a hormone produced by the pancreas, that helps the body use the glucose to produce energy.

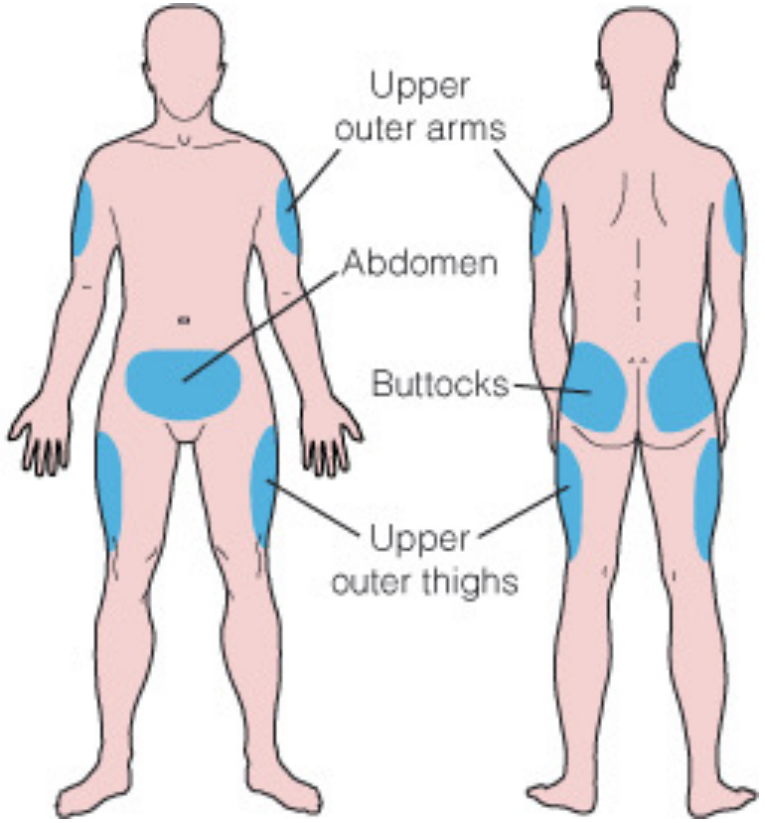


QUESTION

How and when do you apply insulin?

INSULIN INJECTION SITES

- Insulin is absorbed faster in the subcutaneous layer in the abdomen (stomach), and it is absorbed slower in the arms, thighs and buttocks.



QUESTION

What have you heard in the community about insulin?

MYTHS AND REALITY

Myths or rumors	Reality
Insulin causes blindness and other complications.	Insulin does not cause blindness. Diabetes complications might cause blindness.
Insulin should be injected in the vein.	No. Injecting insulin in the vein can be dangerous. Only a doctor in the emergency room can do it.
Insulin causes weight gain.	Yes, the patient can gain weight at the beginning of treatment but it can be managed with a healthy diet and exercise.

RECOMMENDED GLUCOSE LEVELS

Values	ADA
A1C (every 3-6 months)	<7%
During fasting	80-130 mg/dl
1-2 hours after eating	<180 mg/dl

A1C%	eAG mg/dl
5	97
5.5	111
6	126
6.5	140
7	154
7.5	169
8	183
8.5	197
9	212
9.5	226
10	240
10.5	255
11	269
11.5	283
12	298

MEDICATIONS TO LOWER BLOOD PRESSURE

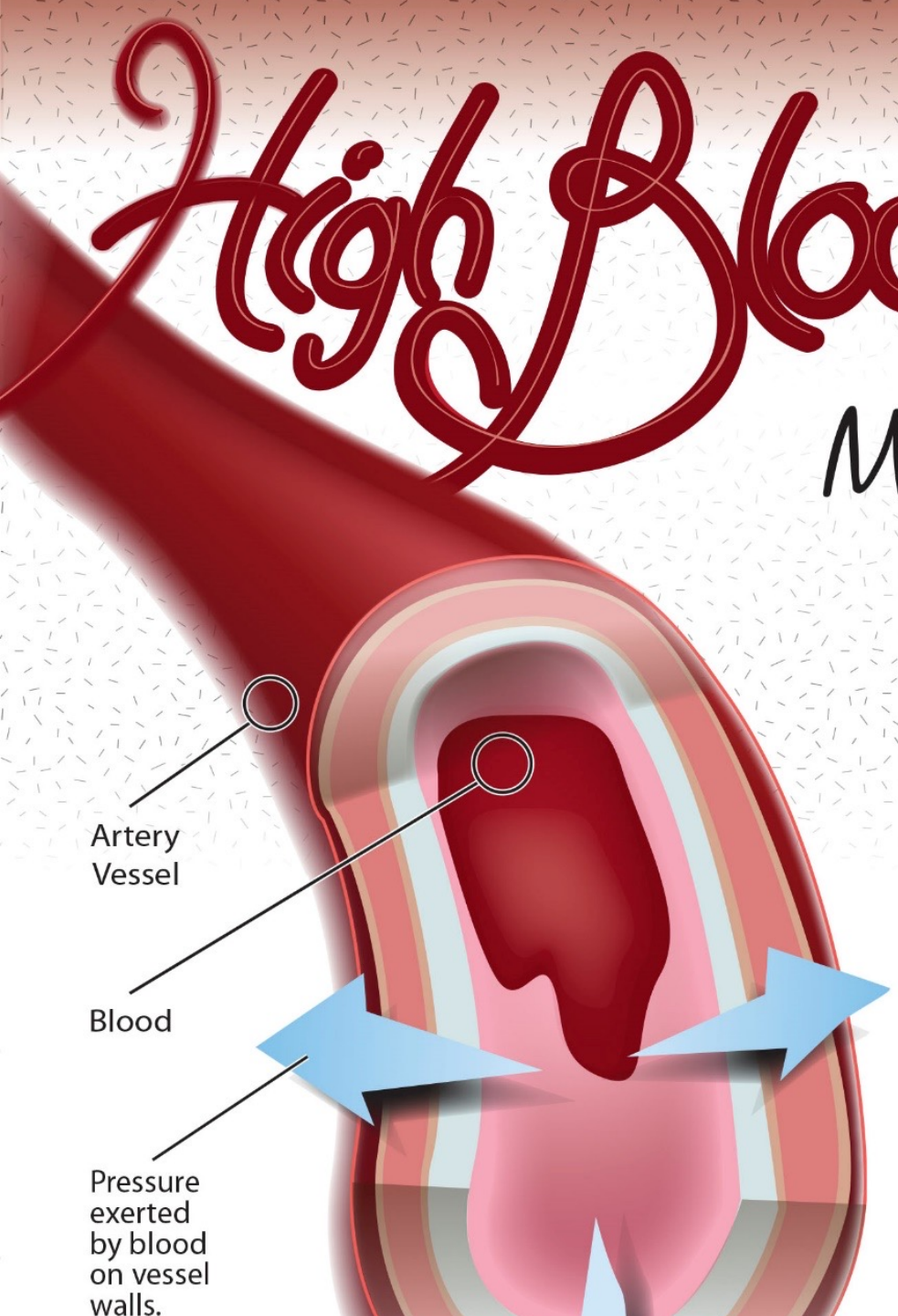
QUESTION

Why do we need to take medications for high blood pressure?

High Blood Pressure

Medications and You

Lowering your pressure. How various hypertension drugs do their job.

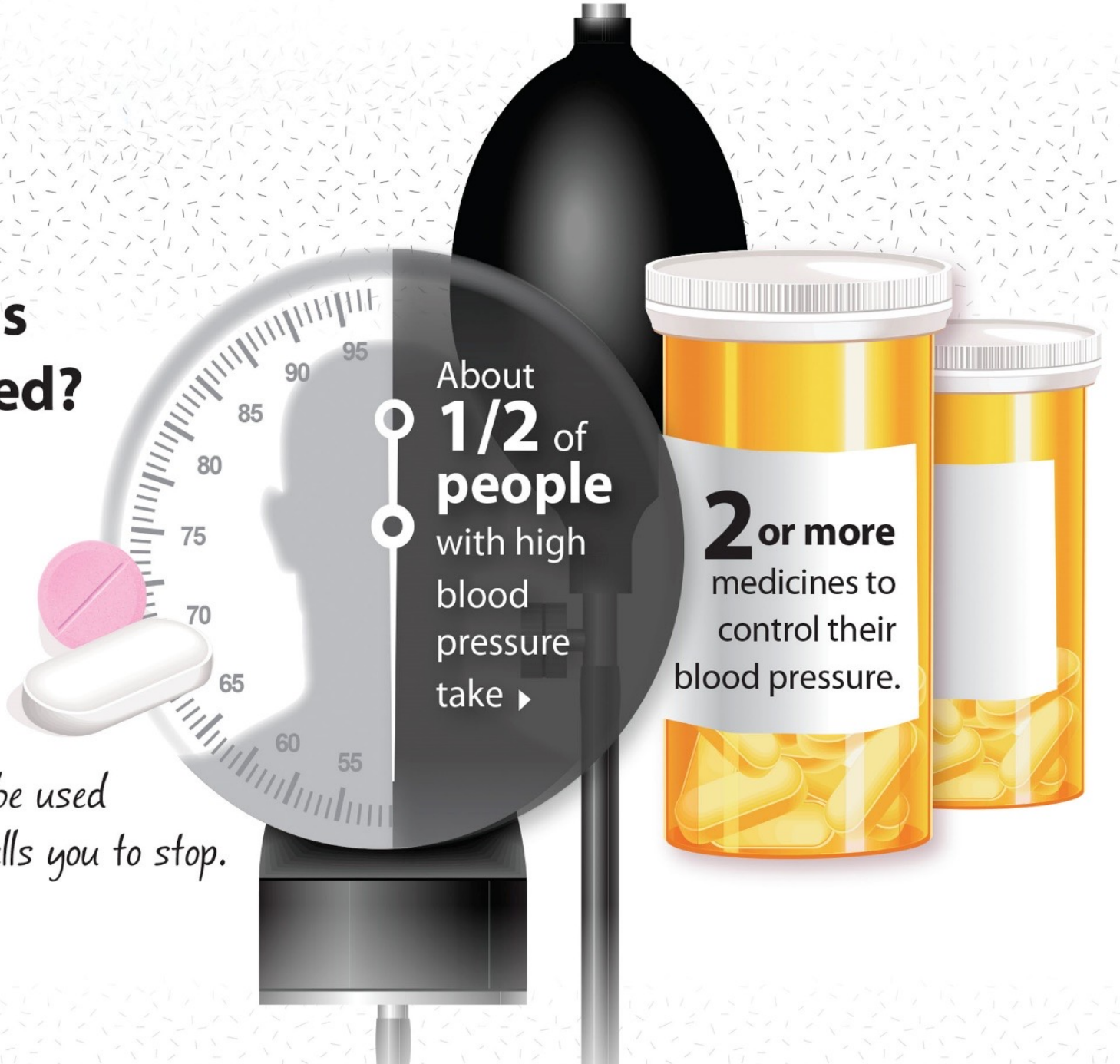


What is blood pressure?

Blood pressure is the force that moves blood through your arteries. Arteries are the blood vessels that carry blood from your heart to the rest of your body. High blood pressure is when your blood pressure is usually higher than it should be. It is also called **hypertension.**

How are medications administered?

Blood pressure medication should begin to work within days. Once started, the medication should be used until your doctor tells you to stop.

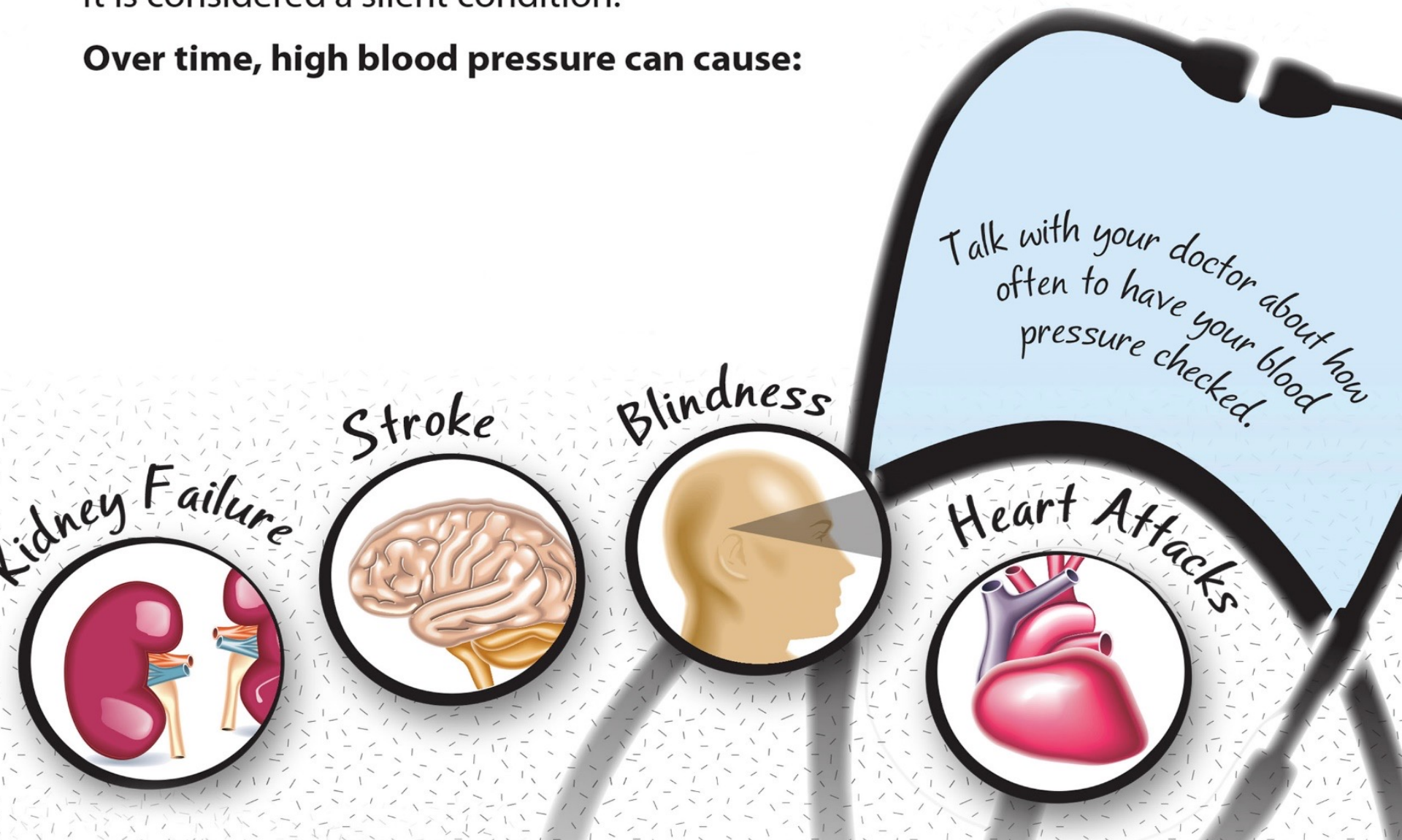


What can occur if not treated?

High blood pressure often has no symptoms.

It is considered a silent condition.

Over time, high blood pressure can cause:



BLOOD PRESSURE LEVELS

Blood Pressure Categories

American Heart Association | American Stroke Association

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Blood pressure target: less than 130/80

4 COMMON BLOOD PRESSURE MEDICATIONS

ACE Inhibitors

Works by: Dilating blood vessels to increase the amount of blood pumped by the heart, while also lowering blood pressure.

Typical suffix: -pril

Common Drugs:
Enalapril (Vasotec)
Lisinopril (Prinivil, Zestril)
Quinapril (Accupril)
Benazepril (Lotensin)

Beta Blockers

Works by: Making the heart beat slower and less forcefully, which in turn lowers blood pressure.

Typical suffix: -olol

Common Drugs:
Metoprolol (Lopressor, Toprol-XL)
Atenolol (Tenormin)
Propranolol (Inderal LA, InnoPran XL)
Bisoprolol (Zebeta)

Calcium Channel Blockers

Works by: Relaxing and widening the arterial blood vessel walls. Some also slow heart rate.

Typical suffix: -pine

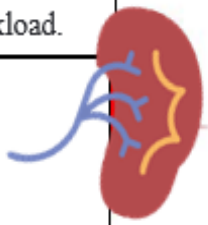
Common Drugs:
Nifedipine (Procardia)
Nisoldipine (Sular)
Amlodipine (Norvasc)
Diltiazem (Cardizem, Tiazac)

Diuretics

Works by: Causing the body to rid itself of excess fluids and sodium through urination. Helps to relieve the heart's workload.

Typical suffix: - ide

Common Drugs:
- Amiloride (Midamor)
- Bumetanide (Bumex)
- Furosemide (Lasix)



COMMON SIDE EFFECTS

- Emotional alterations such as anxiety or irritation
- Increases the risk of hypoglycemia
- Loss of potassium and other essential minerals from the body
- Sexual impotence
- Frequent cough

MEDICATIONS THAT LOWER CHOLESTEROL LEVELS

QUESTION

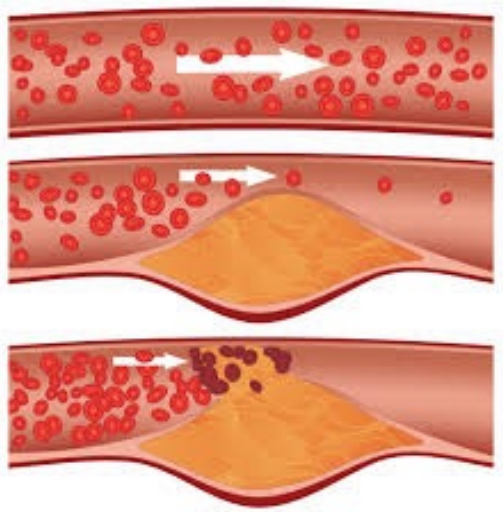
Why do cholesterol levels affect the body?

Why should we control cholesterol?

MEDICATIONS THAT LOWER CHOLESTEROL LEVELS

- Let's remember that fat adheres to the arterial walls making them thicker.
- Having high cholesterol levels is a risk factor for heart attacks and can lead to sudden death.

Total Cholesterol	**<200 mg/dl**
LDL cholesterol	<100 mg/dl
Triglycerides	<150 mg/dl
HDL Cholesterol	>40 mg/dl

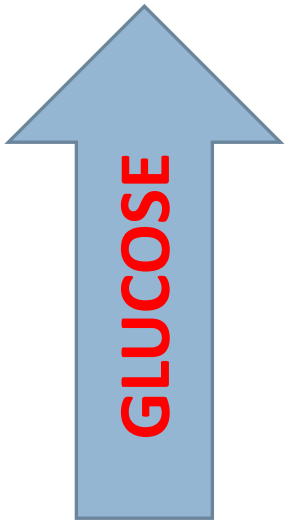


COMMON SIDE EFFECTS

- Sensation of feeling full soon, nausea, indigestion
- Alteration in liver lab values
- Cramps and muscular pain in the legs
- Facial redness

REMEMBER!

- Some medications can increase glucose. This is why it is important to **not** self-medicate. Always seek medical advice.



QUESTIONS TO ASK YOUR DOCTOR

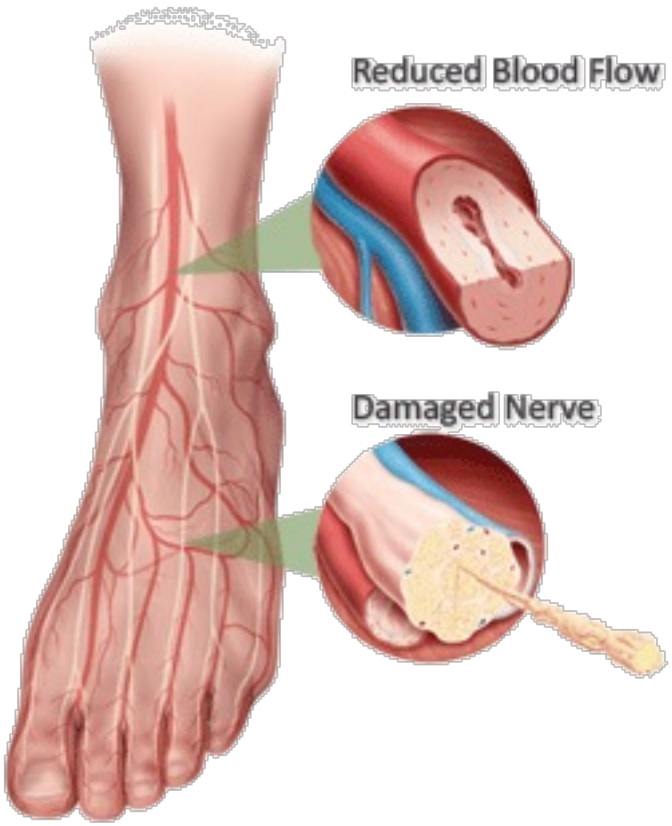
- What is the medication's name? Is there a generic brand?
- Why am I taking this medicine?
- When should I take it?
- How much should I take?
- Can I take it with an empty stomach?
- What should I do if I forget to take it?
- If I can't take it, what should I do?
- Can I drink alcohol while I am on this medication?
- For how long would I be taking it?
- When does the drug begin to have an effect?
- How do I know if it is working? Can I measure it with a glucometer?
- What problems should I anticipate? When do the side effects vanish?
- What should I do if my glucose levels or blood pressure fall too low?

QUESTION

What are some of the complications of diabetes and high blood pressure that you are aware of?

DIABETES COMPLICAITONS

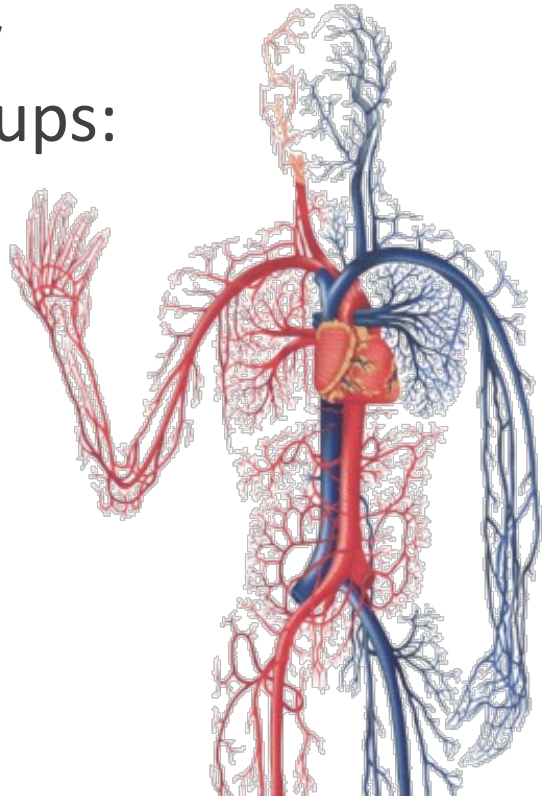
- Diabetes can cause complications through:
  - Damage to the blood vessels.
  - Damage to the nerve endings.



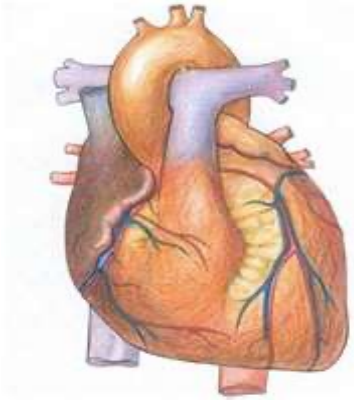
CIRCULATORY SYSTEM

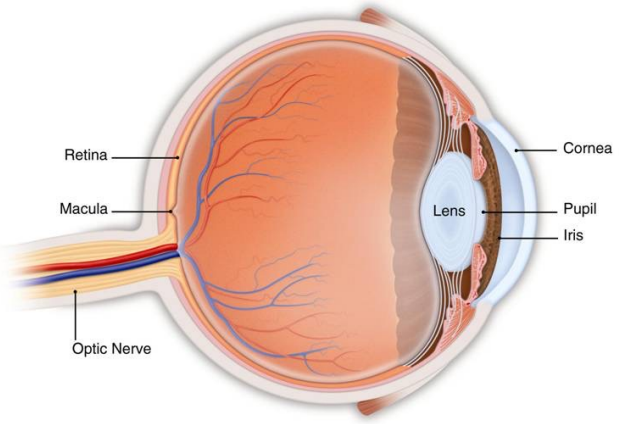
Complications of the circulatory system are divided into two groups:

- Those that damage the large vessels or macrovascular.
- Those that damage the small vessels or microvascular.

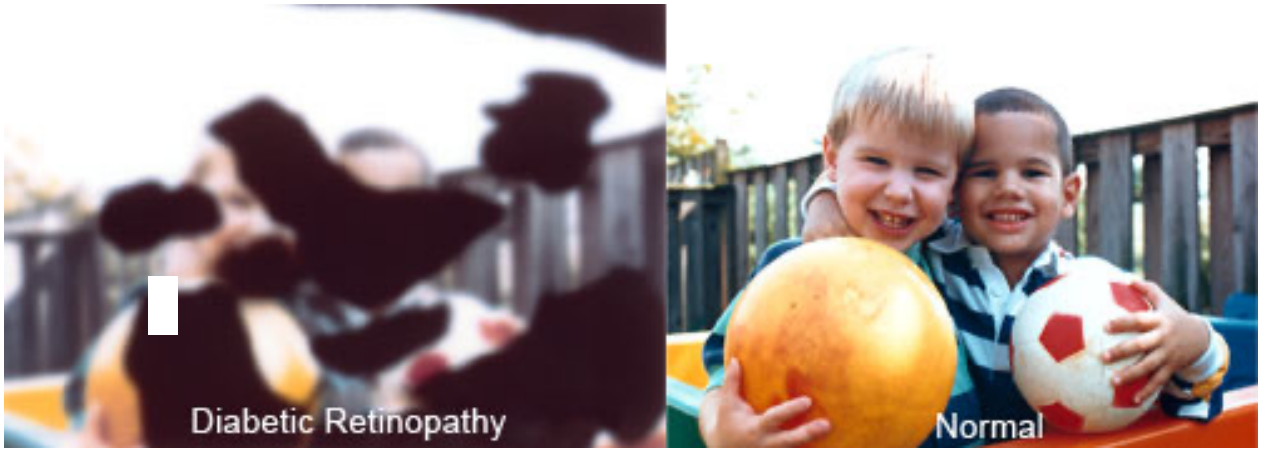


What organs are affected by complications of the circulatory system?





Diabetic Eye Disease



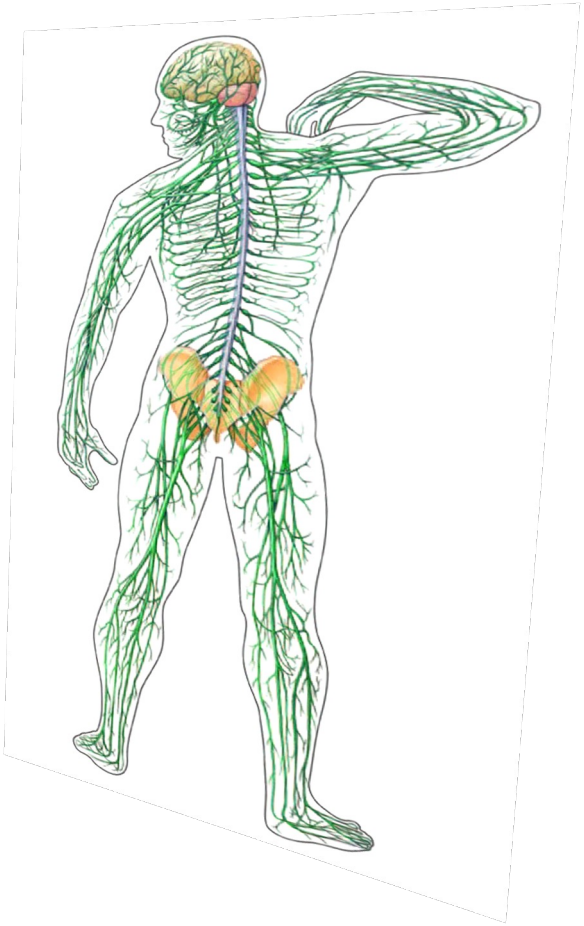
Glaucoma

Cataratas

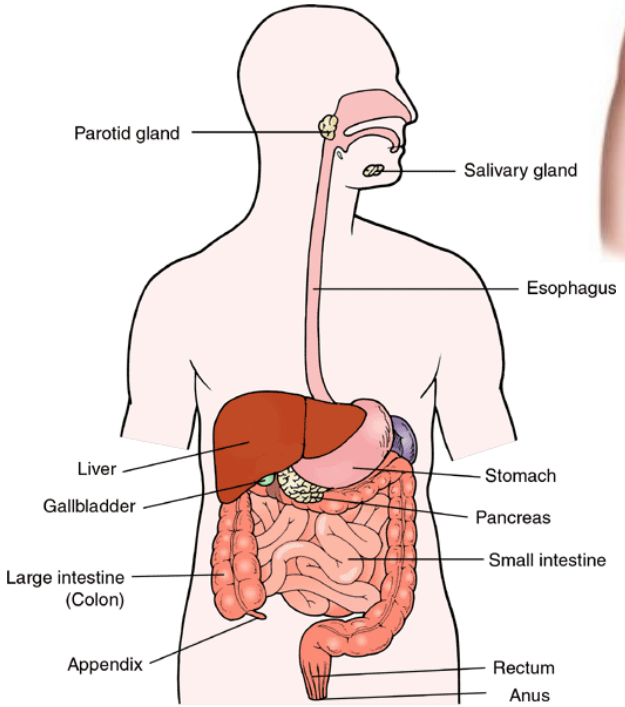
Nervous System: Neuropathy

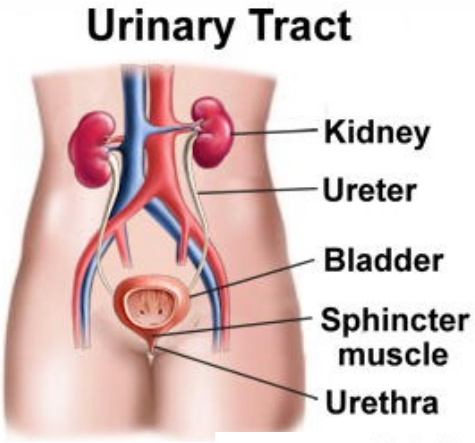
Neuropathy is the term used to indicate damage to the nerves.

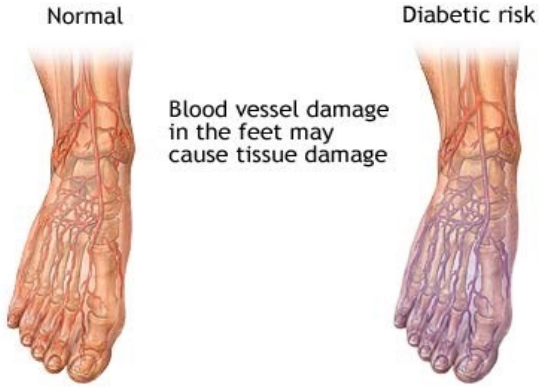
- All parts of the body have nerve endings meaning that every part of the body can be affected by diabetes.
- High blood glucose readings damage the tissue that covers the nerves causing the nerves to respond abnormally to external stimuli. They may also give incorrect signals or not transmit signals at all.

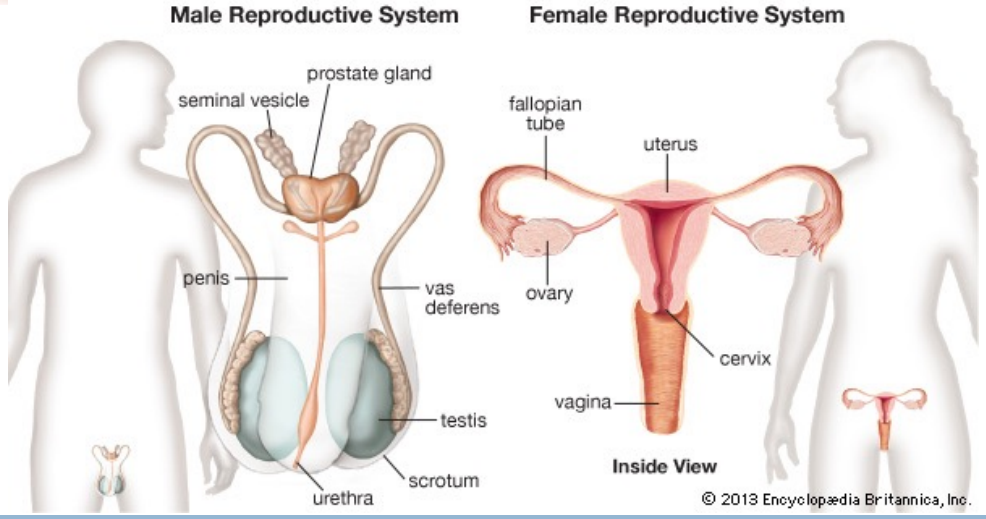


Which organs are affected by complications of the nervous system?









RECOMMENDATIONS

- To lose weight.
- Have a healthy eating plan, low in fats and high in fiber.
- Increase physical activity.
- Keep blood glucose and blood pressure levels under control.

Conclusion