

Diabetes mellitus

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- After food intake, it will be absorbed and converted into glucose (blood sugar) in the gut. The pancreas secretes insulin hormone --> blood sugar absorbed and entered the cells to provide energy for the body.
- Diabetes mellitus is chronic metabolic disease. Causes = insufficient insulin secretion and/or impaired insulin action --> blood sugar cannot be absorbed and entered the cells --> hyperglycemia (high blood sugar), glucosuria (sugar excreted in urine).

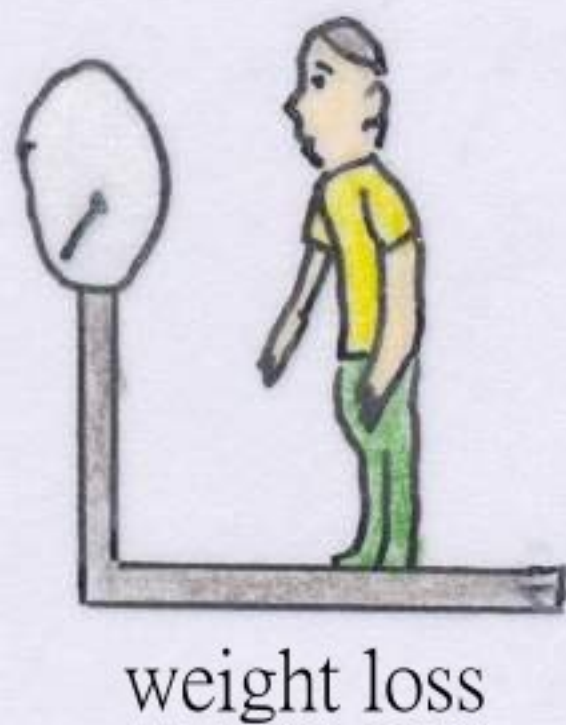
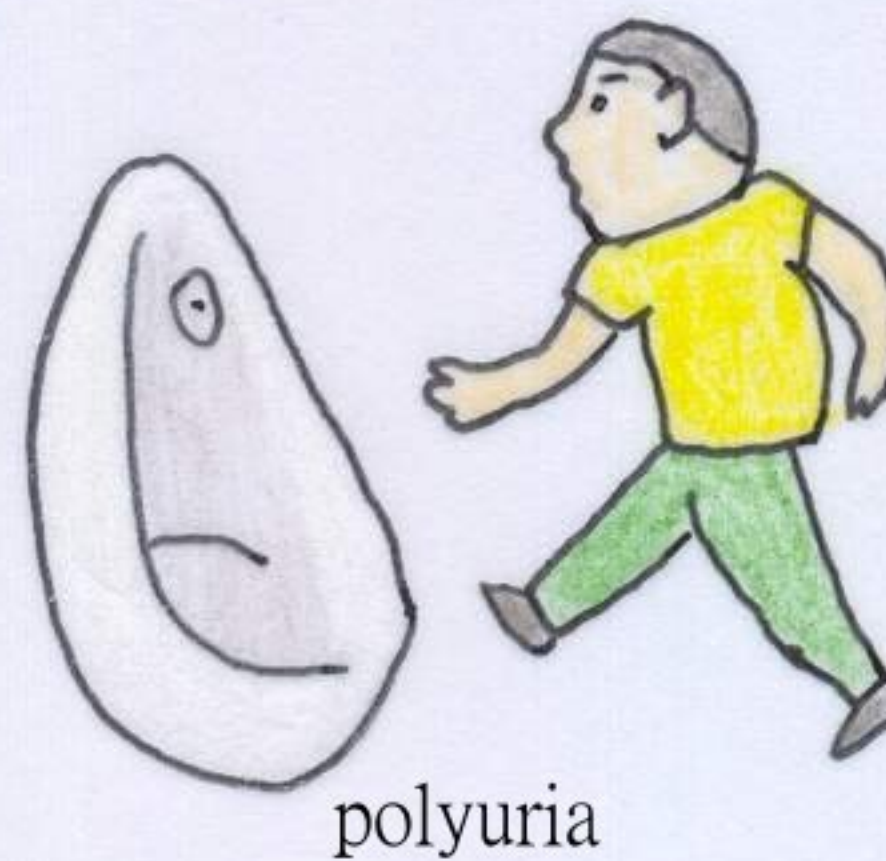
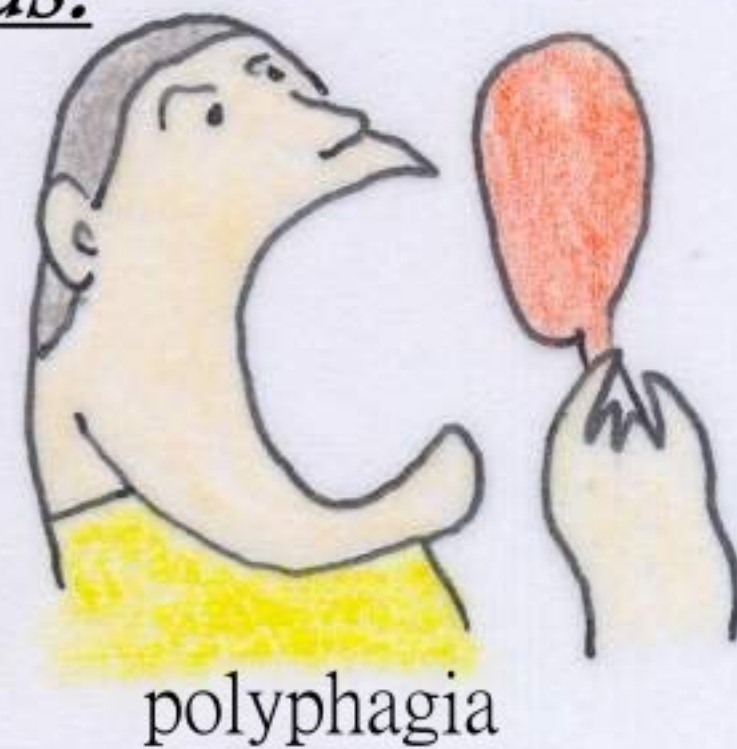
Diagnosis of diabetes mellitus:

1. fasting blood sugar > 126 mg/dl (normal blood sugar = 70-100 mg/dl)
2. blood sugar > 200 mg/dl 2 hours after 75 gm oral glucose challenge (intake)
3. random blood sugar > 200 mg/dl

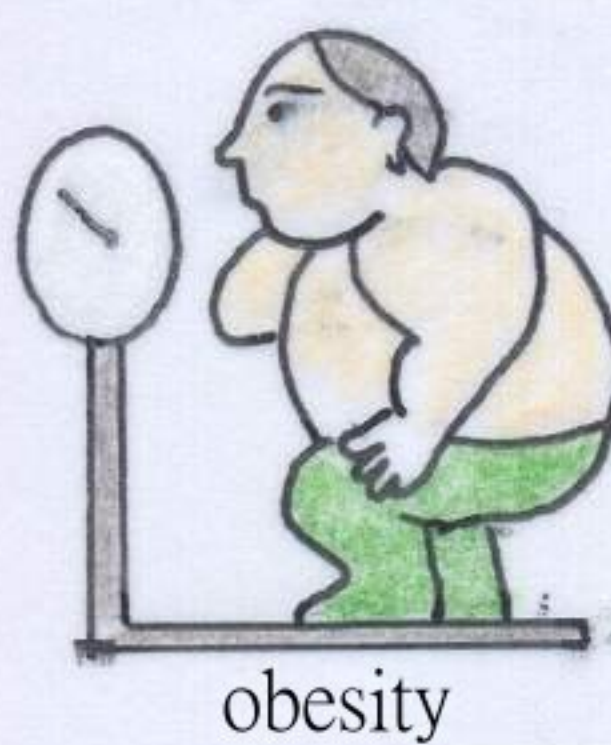
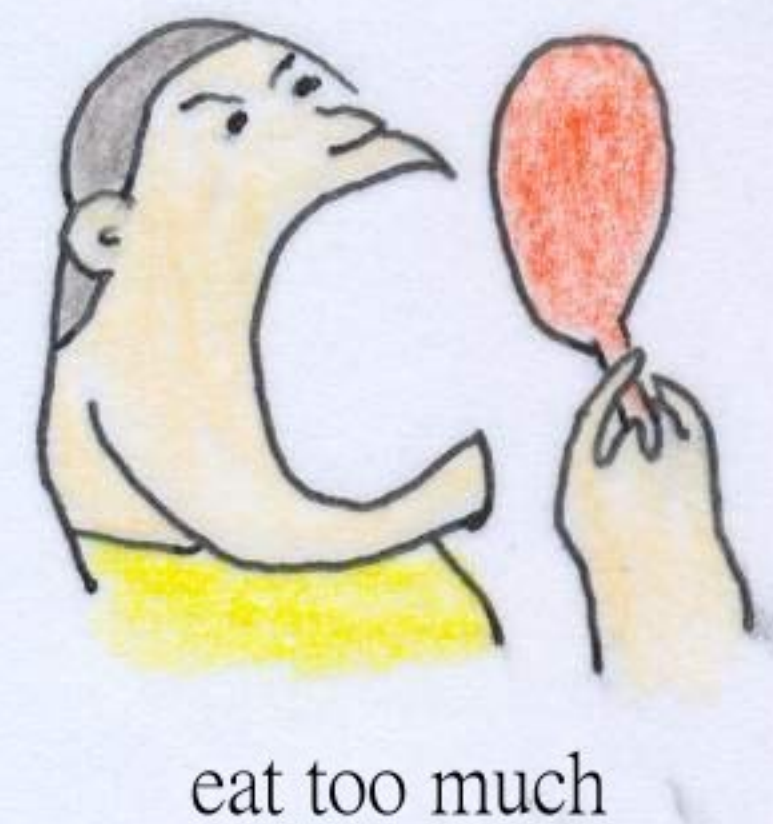
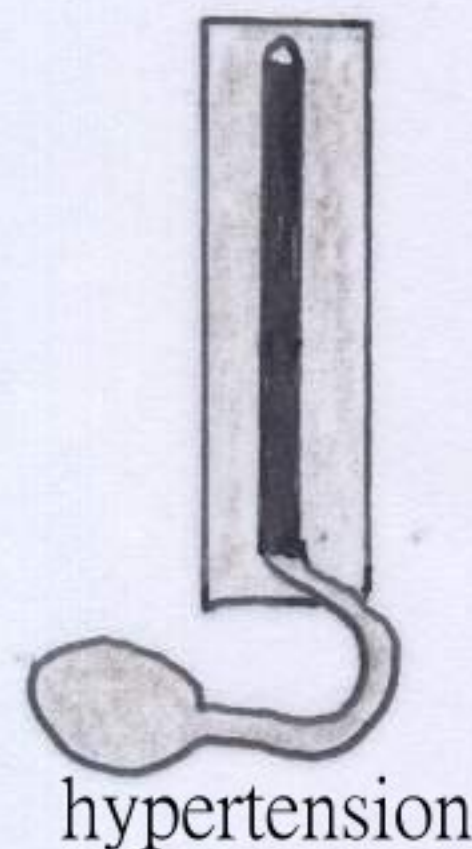
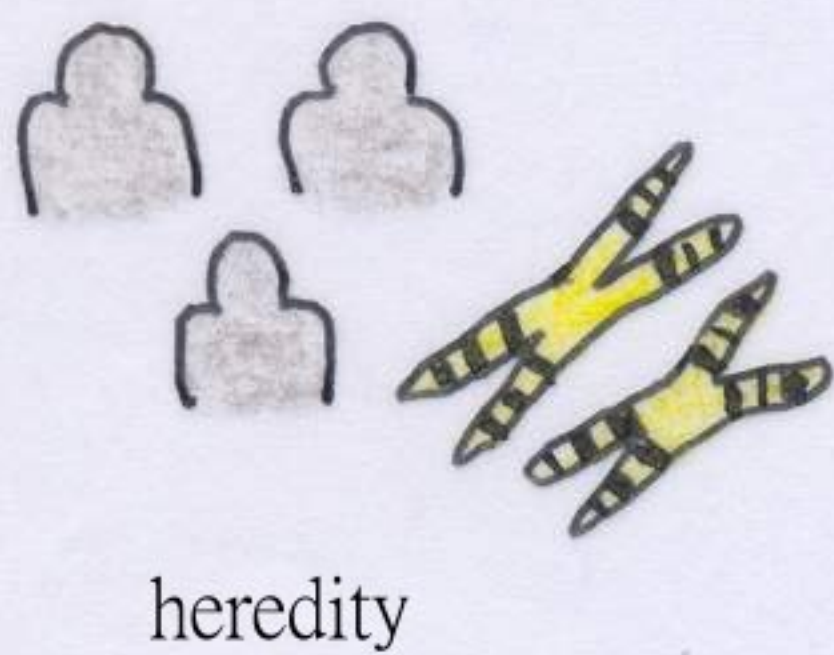
Types of diabetes mellitus:

1. Type 1 DM (5-10%): common in young age, caused by pancreatic cell destruction --> loss of insulin secretion
2. Type 2 DM (90-95%): common in > 40 years old, caused by insulin resistance and relative insulin deficiency
3. Other specific types of DM : caused by pancreatic disease, endocrine disease, drugs, infections, gestational DM.

Symptoms of diabetes mellitus:



Precipitating factors of diabetes mellitus:



Acute complications of diabetes mellitus

1. Hypoglycemia

(blood sugar \leq 45 mg/dl)

Symptoms:



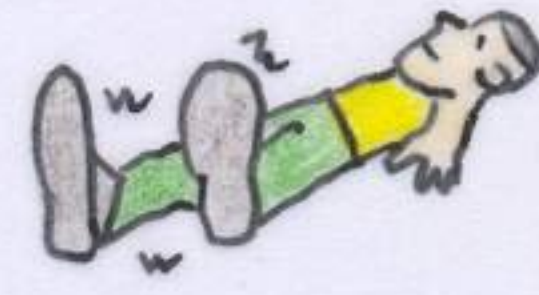
palpitation



hunger, tremor, fatigue



dizziness, anxiety,
pallor, diaphoresis



conscious change, seizure,
coma

Causes: excessive insulin or oral hypoglycemic drugs

- inadequate or delayed food intake
- sudden or prolonged exercise
- drugs
- coexistent medical illness eg. heart failure, sepsis etc.

Management: sugar supplement (candy, drinks etc) then consult doctors

2. Hyperglycemia

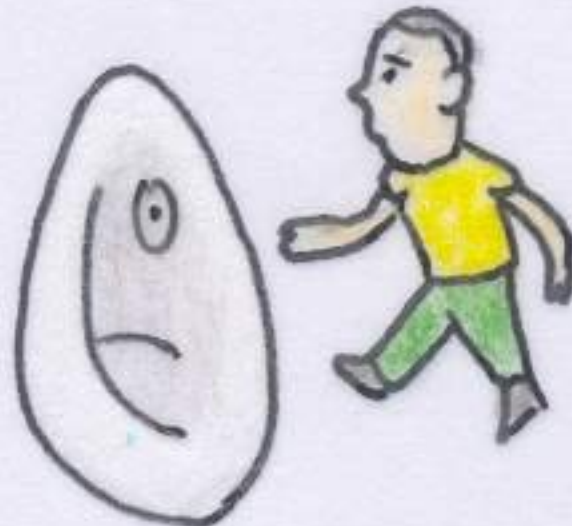
1. Diabetic ketoacidosis (DKA): commonly in type 1 DM. Blood sugar \geq 300 mg/dl

2. Hyperglycemic hyperosmolar syndrome (HHS): commonly in type 2 DM,
Blood sugar \geq 600 mg/dl

Symptoms:



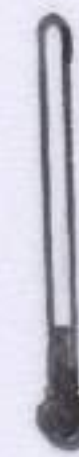
palpitation



polyuria, dehydration



nausea, vomiting,
abdominal pain



hypothermia



dyspnea (ketones on breath)



conscious change

Precipitating factors: coexistent medical illness eg. infection, stroke, myocardial infarction etc.

- drug omission
- other drugs eg. steroid, diuretic, sedative
- emotional disturbances

Management: consult doctors immediately

Chronic complications of diabetic mellitus

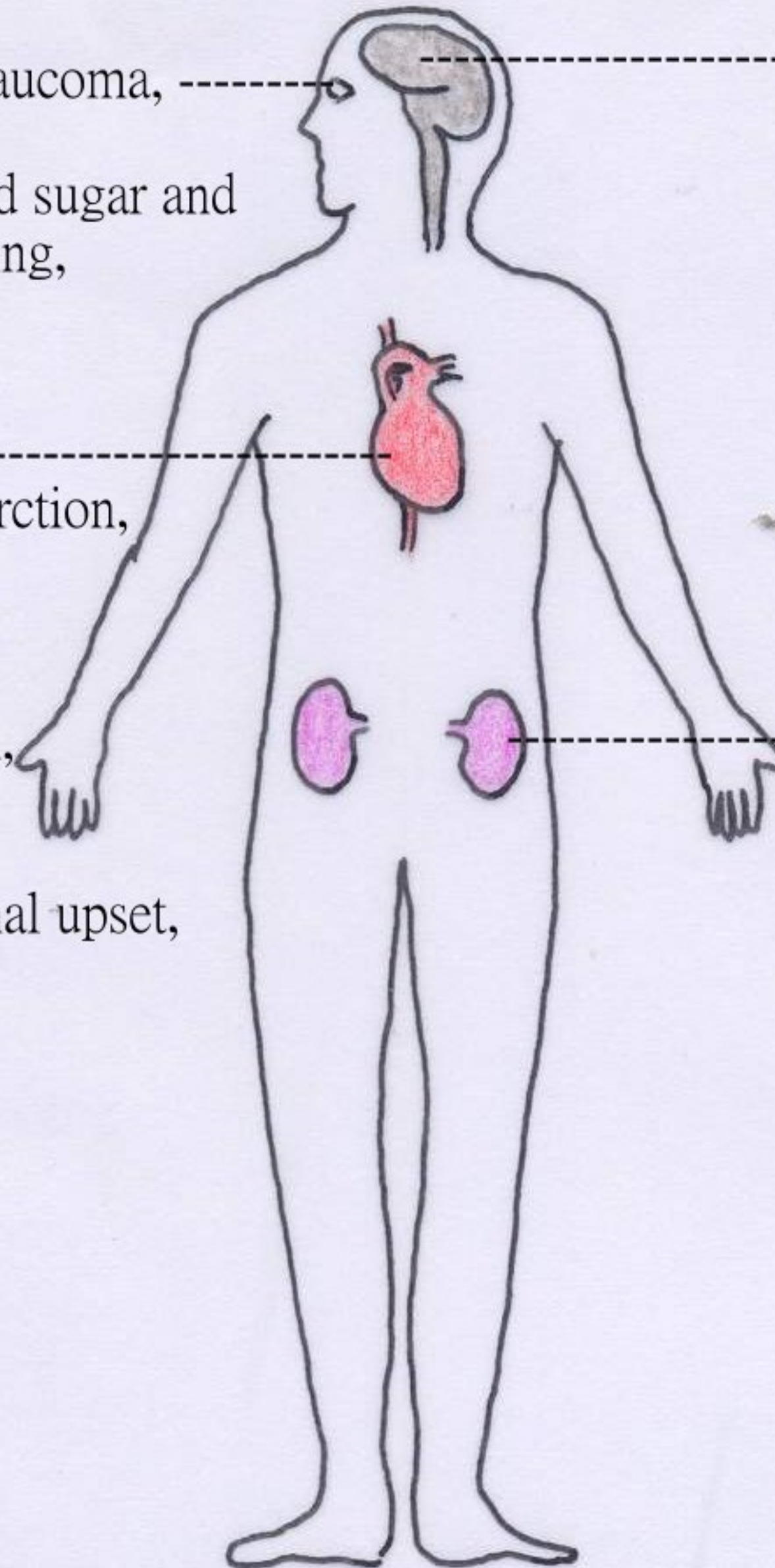
diabetic retinopathy: retinopathy, glaucoma, cataract

preventive measures: control blood sugar and blood pressure, no smoking, regular follow up

diabetic vascular complications:

symptoms: stroke, myocardial infarction, peripheral vascular disease, foot ulceration

precipitating factors: smoking, too much alcohol, eat too much, hypertension, poor diabetic control, lack of exercise, salty food, obesity, emotional upset, hyperlipidemia



diabetic neuropathy:

symptoms: painful feet, dizziness, habitual diarrhea or constipation, urine incontinence

preventive measures: control blood sugar and blood pressure, no smoking, regular follow up

diabetic nephropathy:

increased glomerular filtration in kidney (DM 2-3 years) --> proteinuria 30-300 mg (DM 7-15 years) --> proteinuria > 300 mg (DM 10-30 years) --> renal insufficiency (DM 20- 40 years) --> end stage renal disease (need dialysis or transplantation)

preventive measures: control blood sugar and blood pressure, avoid high protein food, drink ample water, no drug abuse