

Study Guide — PBS Unit 2: Clinical Care (Pretest / Diagnostic Preview)

Principles of Biomedical Science · Unit 2 — Clinical Care · Modeled on the PLTW Guided Review format

Vocabulary to know cold

Term	Definition
Insulin	Hormone made by pancreatic beta cells that lowers blood glucose by helping cells take in glucose.
Glucose	The simple sugar that circulates in blood and is the body's main fuel.
Pancreas	Endocrine/exocrine organ; its islet beta cells make insulin and alpha cells make glucagon.
Hyper- (prefix)	Above normal, excessive, increased (e.g., hyperglycemia = high blood sugar).
Hypo- (prefix)	Below normal, deficient, decreased (e.g., hypoglycemia = low blood sugar).
-emia (suffix)	Condition of the blood (e.g., hyperglycemia, anemia).
Cardi/o (root)	Combining form meaning heart (e.g., cardiology, cardiac).
Atherosclerosis	Buildup of fatty plaque inside artery walls that narrows and stiffens arteries.
Blood pressure	Force of blood against artery walls; written as systolic/diastolic in mmHg.
Hemoglobin A1c (HbA1c)	Blood test reflecting average blood glucose over the prior 2–3 months.
LDL cholesterol	'Bad' cholesterol; high levels promote arterial plaque.
Type 1 diabetes	Autoimmune destruction of pancreatic beta cells, so the body makes little or no insulin.

Worked examples (follow the reasoning)

Example 1. Break down the medical term 'hyperglycemia' into its parts and state what it means.

- Identify the prefix: hyper- = above/excessive.
- Identify the root: glyc/o = sugar/glucose.
- Identify the suffix: -emia = condition of the blood.
- Combine: above-normal sugar in the blood.

Answer: Hyperglycemia = high blood glucose (above-normal sugar in the blood).

Example 2. A patient's blood pressure is 118/76 mmHg. Identify each number and whether the reading is in a healthy range.

- Top number 118 = systolic pressure (heart contracting).
- Bottom number 76 = diastolic pressure (heart relaxing).
- Normal is below 120/80 mmHg.
- Both numbers are under the thresholds.

Answer: Systolic 118, diastolic 76; this is a normal/healthy blood pressure.

Practice questions (with reasoning)

1. Which hormone RAISES blood glucose when it gets too low?

- A. insulin
- B. glucagon
- C. estrogen
- D. melatonin

Answer: B. Glucagon (also from the pancreas) raises blood glucose, opposing insulin.

2. The term 'cardiology' most nearly means:

- A. study of the heart
- B. study of the blood
- C. study of the kidney
- D. study of sugar

Answer: A. Cardi/o = heart, -logy = study of.

3. Which lifestyle factor is a major risk for BOTH Type 2 diabetes and cardiovascular disease?

- A. adequate sleep
- B. obesity and physical inactivity
- C. drinking water
- D. regular handwashing

Answer: B. Obesity and inactivity raise the risk of both Type 2 diabetes and heart disease.