

Medicine in the Body

VIEWING

Watch the video “*How Your Body Processes Medicine.*” Then, complete the assignments that follow.

Task 1. Sequence the events (1–6)

(Write 1–6 in the boxes.)

- ☐ The Ibuprofen tablet begins to disintegrate in the stomach’s acidic environment.
- ☐ Remaining active molecules circulate through the body and reach pain-affected tissues.
- ☐ The dissolved drug crosses the intestinal wall and enters nearby blood vessels.
- ☐ The person swallows an Ibuprofen tablet for a sore ankle.
- ☐ Blood carrying the drug passes through the liver, where enzymes react with part of it.
- ☐ The neutralized or inactive fraction is excreted by the kidneys in the urine.

Task 2. Multiple-choice comprehension

1. The central purpose of the video is to explain
 - A. why all drugs act in identical ways.
 - B. how a swallowed medicine is distributed, metabolized, and eliminated by the body.
 - C. how Ibuprofen is chemically manufactured.
 - D. why painkillers immediately remove pain upon contact with the stomach.
2. Once the tablet reaches the stomach, the first key process is
 - A. absorption through the tongue.
 - B. filtration through the kidneys.
 - C. disintegration and dissolution in acidic gastric fluid.
 - D. enzymatic neutralization by the liver.
3. Absorption primarily occurs when
 - A. bile acids trap the medicine in the liver.
 - B. the tablet remains intact in the stomach.
 - C. enzymes destroy the drug before circulation.
 - D. the dissolved drug diffuses through the intestinal wall into blood vessels.

4. During the liver's first-pass metabolism,
- A. the drug is converted into stomach acid.
 - B. the organ stores the medicine for future release.
 - C. no chemical changes occur.
 - D. enzymes attempt to modify or neutralize part of the drug.
5. Molecules that have been chemically altered and lost therapeutic activity are known as
- A. hormones.
 - B. metabolites.
 - C. antibodies.
 - D. catalysts.
6. Roughly thirty minutes after ingestion,
- A. all active molecules have been expelled.
 - B. part of the dose has already entered the systemic bloodstream.
 - C. the liver ceases to function.
 - D. pain receptors are fully restored.
7. Ibuprofen relieves pain because it
- A. produces new pain-receptor proteins.
 - B. increases neural activity in inflamed tissues.
 - C. suppresses circulation in the affected limb.
 - D. blocks the synthesis of compounds involved in transmitting pain signals.
8. According to the text, the half-life of Ibuprofen means that
- A. the drug's concentration in the blood decreases by half every two hours.
 - B. the medicine becomes twice as strong over time.
 - C. the kidneys stop filtering after two hours.
 - D. half the drug remains permanently stored in the body.
9. After detaching from their targets, Ibuprofen molecules
- A. transform into nutrients.
 - B. re-enter circulation and are processed again by the liver before excretion.
 - C. evaporate through the skin.
 - D. remain bound to receptors indefinitely.

- 10.** The repeated passage of blood from liver to body to kidneys occurs
- A.** about once per minute.
 - B.** unpredictably.
 - C.** once per hour.
 - D.** every half-day.
- 11.** The video states that these pharmacokinetic steps are
- A.** relevant only to intravenous therapy.
 - B.** determined solely by stomach acidity.
 - C.** generally the same for all orally administered drugs.
 - D.** unique to painkillers only.
- 12.** Variations in absorption and elimination depend on
- A.** whether the user is right- or left-handed.
 - B.** the color or flavor of the pill.
 - C.** temperature and packaging.
 - D.** the drug itself, the individual person, and the route of administration.
- 13.** Dosage precision is critical because
- A.** timing has no clinical relevance.
 - B.** an insufficient dose may fail therapeutically, while an excessive one can be toxic.
 - C.** overdosing always increases drug effectiveness.
 - D.** toxicity never depends on concentration.
- 14.** The group for whom accurate dosing is most challenging consists of
- A.** elderly adults with stable liver function.
 - B.** athletes, due to higher blood oxygen.
 - C.** children, since their enzyme levels and metabolism fluctuate rapidly.
 - D.** patients with perfect genetic balance.
- 15.** Future personalized medicine may rely on
- A.** replacing pharmacists with computers.
 - B.** routine DNA testing to determine an individual's optimal drug dose.
 - C.** complete elimination of medical supervision.
 - D.** universal tablets identical for everyone.