

# Active Reading

## Section: Two Lines of Nonspecific Defenses

Read the passage below. Then answer the questions that follow.

When the body is invaded, four important nonspecific defenses take action: the inflammatory response; the temperature response; proteins that kill or inhibit pathogens; and white blood cells, which attack and kill pathogens.

**Inflammatory Response:** Injury or local infection, such as a cut or a scrape, causes an inflammatory response. An **inflammatory response** is a series of events that suppress infection and speed recovery. Imagine that a splinter has punctured your finger, creating an entrance for pathogens. Infected or injured cells in your finger release chemicals, including histamine. **Histamine** causes local blood vessels to dilate, increasing blood flow to the area. Increased blood flow brings white blood cells to the infection site, where they can attack pathogens. The increased blood flow also causes swelling and redness in the infected area. The whitish liquid, or pus, associated with some infections contains white blood cells, dead cells, and dead pathogens.

**Temperature Response:** When the body begins its fight against pathogens, body temperature increases several degrees above the normal value of about 37°C (98.6°F). This higher temperature is called a fever, and it is a common symptom of illness that shows the body is responding to an infection. Fever is helpful because many disease-causing bacteria do not grow well at high temperatures.

### SKILL: READING EFFECTIVELY

Read each question, and write your answer in the space provided.

1. What four nonspecific defenses are caused by pathogens invading the body?

the inflammatory response, temp. response, producing proteins that kill or inhibit pathogens; sending WBC's to attack + kill the pathogens

2. What is an inflammatory response?

A series of events that suppress infection + speed recovery

3. What three effects does increased blood flow have on an infection site?

- ↑ blood flow brings WBC's to infected area  
- Causes swelling to the area  
- Causes redness in the area

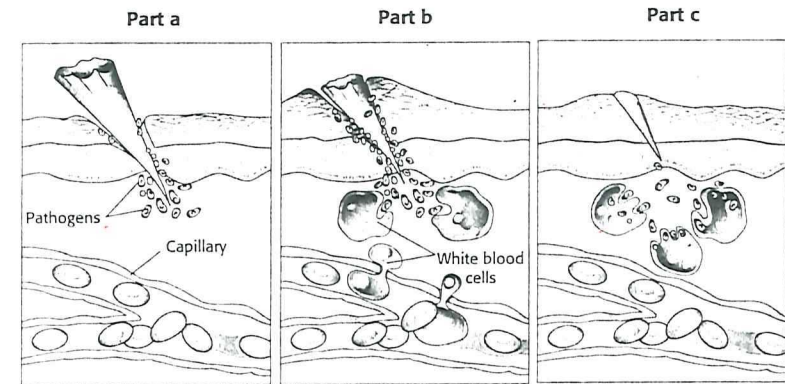
### Active Reading *continued*

4. What effect does fever have on many disease-causing bacteria?

Fever slows the growth of certain bacteria that do not grow well in high temperatures

### SKILL: INTERPRETING GRAPHICS

The figure illustrates the inflammatory response. In the space provided, describe what is occurring in each part of the figure.



5. Part a: Pathogens invade the body through a puncture in the skin
6. Part b: The release of histamine causes ↑ blood flow, which triggers redness + swelling
7. Part c: WBC's attack + destroy the invading pathogens

In the space provided, write the letter of the term or phrase that best completes the statement.

- D 8. Release of the chemical histamine causes  
 a. the production of white blood cells.  
 b. a decrease in blood flow.  
 c. a decrease in body temperature.  
 d. blood vessels to dilate.