

Somatic Pain & Thermal Sensation

1)

Pain receptors in the skin are typically classified as which of the following?

- A) Encapsulated nerve endings
- B) A single class of morphologically specialized receptors
- C) The same type of receptor that detects position sense
- D) Free nerve endings

Answer: D

2)

Which of the following is an important functional parameter of pain receptors?

- A) Exhibit little or no adaptation
- B) Not affected by muscle tension
- C) Signal only flexion at joint capsules
- D) Can voluntarily be inhibited

Answer: A

3)

The first-order (primary afferent) cell bodies of the dorsal column–medial lemniscal system are found in which structure?

- A) Spinal cord dorsal horn
- B) Spinal cord ventral horn
- C) Dorsal root ganglia
- D) Nucleus cuneatus

Answer: C

4)

Stimulation of which brain area can modulate the sensation of pain?

- A) Superior olivary complex
- B) Locus ceruleus
- C) Periaqueductal gray area
- D) Amygdala

Answer: C

5)

The highest degree of pain localization comes from which of the following?

- A) Simultaneous stimulation of free nerve endings and tactile fibers
- B) Stimulation of free nerve endings by bradykinin
- C) Nerve fibers traveling to the thalamus by way of the paleospinothalamic tract
- D) Stimulation of δ -type A fibers

Answer: A

6)

Position sense, or more commonly proprioceptive sensation, involves muscle spindles and which of the following?

- A) Skin tactile receptors
- B) Deep receptors in joint capsules
- C) Both tactile and joint capsule receptors
- D) Pacinian corpuscles

Answer: C



7)

Which statement accurately describes a feature of temperature sensation by the nervous system?

- A) Cold receptors continue to be activated even if skin temperature is lowered well below its freezing point
- B) Both cold and warm receptors each have very specific, nonoverlapping ranges of temperature sensitivity
- C) Warm and cold receptors respond to both steady state temperatures and to changes in temperature
- D) Temperature receptor function is the result of ion conduction changes and not changes in their metabolic rate

Answer: C

8)

The sensation of temperature is signaled mainly by warm and cold receptors whose sensory fibers travel in association with the sensory fibers carrying pain signals. Which statement best characterizes the transmission of signals from warm receptors?

- A) Warm receptors are well characterized histologically
- B) Signals from warm receptors are mainly transmitted along slow-conducting type C sensory fibers
- C) Warm receptors are located well below the surface of the skin in the subcutaneous connective tissue
- D) There are 3 to 10 times more warm receptors than cold receptors in most areas of the body

Answer: B

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