

Ch.34 Vocabulary – Nervous System

acetylcholine (ACh)	Neurotransmitter; acts on brain, spinal cord, glands, and muscles.
action potential	Abrupt, brief reversal in the resting membrane potential of excitable cells.
autonomic nerve	One of the nerves from central nervous system to smooth muscle, cardiac muscle, and glands of viscera.
axon	Neuron's signal-conducting zone.
blood-brain barrier	Mechanism that controls which solutes enter cerebrospinal fluid.
brain	Of most nervous systems, integrating center that receives and processes sensory input and issues coordinated commands for responses by muscles and glands.
brain stem	Most ancient nerve tissue in the vertebrate hindbrain, midbrain, and forebrain.
central nervous system	Brain and spinal cord.
cerebellum	Hindbrain region with reflex centers for maintaining posture and smoothing out limb movements.
cerebral cortex	Thin surface layer of cerebral hemispheres; receives, integrates, and stores sensory information; coordinates responses.
cerebrum	Forebrain region that generally deals with olfactory input and motor responses. In mammals, it evolved into the most complex integrating center.
chemical synapse	Thin cleft between a presynaptic neuron and a postsynaptic cell. Neurotransmitter molecules diffuse across it.
dendrite	Short, slender extension from cell body of a neuron; commonly a signal input zone.
drug addiction	Dependence on a drug, which assumes an "essential" biochemical role in the body following habituation and tolerance.
hypothalamus	Forebrain center of homeostatic control over the internal environment (e.g., salt-water balance, core temperature); influences hunger, thirst, sex, other viscera-related behaviors, and emotions.
interneuron	Neuron of brain or spinal cord.
limbic system	In cerebral hemisphere, centers that govern emotions; has roles in memory.
medulla oblongata	Hindbrain region with reflex centers for basic tasks (e.g., respiration); coordinates motor responses with complex reflexes (e.g., coughing); influences sleeping.
memory	The capacity to store and retrieve information about past sensory experience.
motor neuron	Neuron that relays signals from brain or spinal cord to muscle or gland cells.
nerve	Sheathed, cordlike bundle of the axons of sensory neurons, motor neurons, or both.
nerve net	Simple nervous system in epidermis of cnidarians and some other invertebrates; a diffuse mesh of simple, branching nerve cells interacts with contractile and sensory cells.
nervous system	Integrative organ system with nerve cells interacting in signal-conducting and information-processing pathways. Detects and processes stimuli, and elicits responses from effectors (e.g., muscles and glands).
neural tube	The embryonic and evolutionary forerunner of brain and spinal cord.
neurotransmitter	Any of a class of signaling molecules secreted by neurons. It acts on cells next to it, then is rapidly degraded or recycled.
parasympathetic nerve	An autonomic nerve. Its signals slow down overall activities and divert energy to basic tasks; they also help make small adjustments in internal organ activity by acting continually in opposition to sympathetic nerve signals.
peripheral nervous system	All nerves leading into and out from the spinal cord and brain. Includes ganglia of those nerves.
pons	A hindbrain traffic center for signals between cerebellum and forebrain centers.
positive feedback mechanism	Homeostatic control; it initiates a chain of events that intensify change from an original condition, then intensification reverses the change.
reflex	Stereotyped, simple movement in response to stimuli. In the simplest reflex arcs, it results from sensory neurons synapsing directly on motor neurons.
resting membrane potential	Of a neuron and other excitable cells, a voltage difference across the plasma membrane that holds steady in the absence of outside stimulation.

reticular formation	A mesh of interneurons extending from the upper spinal cord, through the brain stem, and into the cerebral cortex; it is a low-level pathway of information flow.
sensory neuron	Type of neuron that detects a stimulus and relays information about it toward an integrating center (e.g., a brain).
sodium-potassium pump	Type of membrane transport protein that, when activated by ATP, selectively transports potassium ions across a membrane against its concentration gradient, and passively allows sodium ions to cross in the opposite direction.
somatic nerve	Nerve leading from a central nervous system to skeletal muscles.
spinal cord	Part of central nervous system, in a canal inside the vertebral column; site of direct reflex connections between sensory and motor neurons; has tracts to and from the brain.
stimulus	A specific form of energy (e.g., pressure, light, and heat) that activates a sensory receptor able to detect it.
sympathetic nerve	An autonomic nerve; deals mainly with increasing overall body activities at times of heightened awareness, excitement, or danger; works continually in opposition with parasympathetic nerves to make minor adjustments in internal organ activities.
synaptic integration	Moment-by-moment combining of all excitatory and inhibitory signals arriving at the trigger zone of a neuron or some other excitable cell.
thalamus	A forebrain region that is a coordinating center for sensory input and a relay station for signals to the cerebrum.

Ch.35 Vocabulary – Sensory Reception

acoustical receptor	Specialized mechanoreceptor that is sensitive to vibration.
action potential	Abrupt, brief reversal in the resting membrane potential of excitable cells.
astigmatism	<i>a distortion of the image on the retina caused by irregularities in the cornea or lens</i>
camera eye	Of cephalopods and vertebrates, a camera-like eyeball with an inner darkened chamber, a single opening for light, and a retina (like film) on which visual stimuli are focused.
cataract	<i>cloudiness of the natural lens inside the eye that can blur vision</i>
chemoreceptor	Sensory receptor that detects ions or molecules dissolved in fluid bathing it.
cochlea	The snail-shaped portion of the inner ear that houses the receptors for sound.
compound eye	Crustacean or insect eye with multiple rodlike units, each of which samples part of the visual field.
cone cell	In a vertebrate eye, a photoreceptor that responds to intense light and contributes to sharp daytime vision and color perception.
cornea	Transparent cover over front of eye.
echolocation	Use of echoes from self-generated ultrasounds as a navigational mechanism.
encapsulated receptor	Skin mechanoreceptor; detects pressure, temperature, low vibrations.
external ear	Among mammals, one of a pair of sound-collecting flaps on the sides of the head.
eye	Sensory organ that incorporates a dense array of photoreceptors.
free nerve ending	Simplest sensory receptor in skin, internal tissues; has unmyelinated or thinly myelinated branched endings.
glaucoma	<i>A medical condition in which the fluid pressure inside the eye increases, damaging the eye and distorting vision</i>
hair cell	Hairlike mechanoreceptor that is activated when sufficiently bent or tilted.
hearing	Perception of sound.
hyperopia	<i>Condition in which the length of the eye is too short, causing light rays to focus behind the retina rather than on it, resulting in blurred near vision.</i>
inner ear	Primary organ of equilibrium, and hearing, includes vestibular apparatus, cochlea.
lens	A transparent body that bends light rays so that they converge onto photoreceptors.

mechanoreceptor	Sensory cell or nearby cell that detects mechanical energy (changes in pressure, position, or acceleration).
middle ear	Structures (ear drum, ear bones) that transmit air waves to the inner ear.
myopia	<i>Condition in which the length of the eye is too long, causing light rays to focus in front of the retina rather than on it, resulting in blurred distance vision.</i>
olfactory receptor	Chemoreceptor for watersoluble or volatile substance.
ommatidium (-a)	<i>a single unit or visual section of an insect's compound eye</i>
osmoreceptor	Sensory receptor; detects shifts in water volume (solute concentration).
otolith	In organ of static equilibrium, a mass of calcium carbonate crystals embedded in a membrane that is sensitive to fluid movement.
pain	Perception of injury to some body region.
pain receptor	A nociceptor; a sensory receptor that detects tissue damage.
perception	The conscious interpretation of some aspect of the external world created by the brain from nerve impulses generated by sensory receptors.
pheromone	Hormone-like, nearly odorless exocrine gland secretion. A signaling molecule between individuals of the same species that integrates social behavior.
photoreceptor	Light-sensitive sensory cell.
retina	Dense array of photoreceptors in an eye.
rod cell	Vertebrate photoreceptor sensitive to very dim light. Contributes to the coarse perception of movement across visual field.
sensation	Conscious awareness of a stimulus.
sensory adaptation	Decrease in response to a stimulus maintained at constant strength.
sensory system	The "front door" of a nervous system; it detects external and internal stimuli and relays information to integrating centers that issue commands for responses.
somatic sensation	Perception of touch, pain, pressure, temperature, motion, or positional changes of body parts.
somatosensory cortex	Part of the outermost gray matter of the cerebral hemispheres.
special sense	Vision, hearing, olfaction, or another sensation that arises from a particular location, such as the eyes, ears, or nose.
stimulus	A specific form of energy (e.g., pressure, light, and heat) that activates a sensory receptor able to detect it.
taste receptor	A chemoreceptor for substances dissolved in fluid bathing it.
thermoreceptor	Sensory cell or specialized cell next to it that detects radiant energy (heat).
vestibular apparatus	Organ of equilibrium.
vision	Perception of visual stimuli. Light is focused on a dense layer of photoreceptors that sample details of a light stimulus, which are sent to the brain for image formation.
visual accommodation	Adjustments in lens position or shape that focus light on a retina.
visual field	The part of the outside world that an animal sees.