

GLOSSARY

The following is a list of commonly used terms and the meanings they have for neurophysiology.

- A band.** Anisotropic or dark band in striated muscle; contains actin and myosin.
- Absolute refractory period.** Time after an action potential during which the membrane cannot initiate another spike no matter how strong the stimulus.
- Accommodation.** In the eye: adjustment of the eye for near vision by contraction of ciliary muscle; in membranes: elevation of critical firing level with prolonged small hypopolarization.
- Acetylcholine.** An acetic acid ester of choline, a transmitter substance at many peripheral nervous system synapses and perhaps some central synapses.
- Acetylcholinesterase.** An enzyme present in nervous tissue, muscle, and erythrocytes that catalyzes hydrolysis of acetylcholine to choline and acetic acid.
- Actin.** A protein of the thin myofilament, localized to the I band of the sarcomere.
- Action potential.** The all-or-none, conducted voltage response of a nerve or muscle membrane that is used to communicate information from one cell to another, syn. Spike.
- Activation.** In EEG: reduction in amplitude and increase in frequency of the EEG accompanying alerting, syn. Alpha-blocking, Desynchronization; in membranes: opening of voltage-gated ionic channels.
- Acuity.** Clarity of vision measured as the minimum distance between two distinguishable points at a standard distance.
- Adaptation.** Decline in response of a sensory neuron to a maintained stimulus (see also light adaptation and dark adaptation).
- Adequate stimulus.** The form of stimulus to which a receptor is most sensitive.
- Adipsia.** Absence of drinking or abnormal avoidance of drinking.
- Adrenergic synapse.** A junction between two cells that employs as its substance one of the catecholamines: epinephrine, norepinephrine, and perhaps isoproterenol.
- A fiber.** A myelinated nerve fiber with conduction velocity in the range from 1 to 120 m/sec; a class of fibers divisible into alpha, beta, gamma and delta subgroups.
- Afferent.** Pathways leading to; in the case of peripheral nerves, those conducting to the central nervous system.
- After-hypopolarization.** A membrane potential more positive than the resting membrane potential that occurs following termination of the spike, syn. Hypopolarizing after-potential.
- After-hyperpolarization.** A membrane potential more negative than the resting membrane potential that occurs following termination of the spike, syn. Hyperpolarizing after-potential.
- Agnosia.** Loss of the power to recognize the import of sensory stimuli.
- Agraphesthesia.** Inability to recognize letters traced on the skin.
- Akinesia.** Absence of movement.

Alcoholic cerebellar degeneration. Degeneration of the cerebellum due to chronic over-consumption of alcohol.

Alexia. Inability to read.

Algesia. Suffix meaning pain; examples: hypalgesia, reduced pain sensation; hyperalgesia, heightened pain sensitivity; analgesia, no pain sensitivity.

All-or-none. Independence of action potential amplitude from stimulus strength; also refers to tendency of spikes to travel over the entire membrane of a cell, syn. All-or-nothing.

All-or-nothing. Independence of action potential amplitude from stimulus strength; also refers to tendency of spikes to travel over the entire membrane of a cell, syn. All-or-none.

Alpha adrenergic effects. A constellation of effects produced by circulating norepinephrine or norepinephrine released from postganglionic sympathetic nerve terminals. Also produced by epinephrine and isoproterenol, but effects are smaller in magnitude.

Alpha blocking. Disappearance of alpha rhythms from the EEG, syn. Activation, Desynchronization.

Alpha-gamma coactivation. The tendency for alpha- and gamma-motoneurons to be activated together.

Alpha motoneuron (α motoneuron). A motoneuron whose axon is an A α fiber, syn. Skeletomotor neuron.

Alpha rhythms. EEG records characterized by high-voltage waves occurring at 8-14 per sec.

Alpha spasticity. A tonic contraction of one muscle or a group of synergistic muscles at a joint, caused by excitation of alpha motoneurons innervating the muscles.

Amnesic syndrome. Inability to remember past events; defect in formation of new long-term memories.

Amplification. A circumstance in which the output signal is greater than the input signal.

Anesthesia. The lack of tactile sensation.

Angina pectoris. Pain due to infarction of the coronary blood vessels, referred to the chest and upper arm.

Anhidrosis. An abnormal deficiency of sweat.

Annulospiral ending. The termination of a group Ia afferent fiber in the equatorial region of a muscle spindle, syn. Primary muscle spindle ending.

Anomaloscope. A color-matching device used to detect anomalous trichromacy.

Anomalous rectification. A decrease in the ionic conductance of the cell membrane with hypopolarization of the membrane.

Anomalous trichromacy. Color vision involving three pigments but one is abnormal, producing a weakness in response to that primary color.

Anorexia. Lack or loss of the appetite for food.

Antagonist muscle. A muscle that acts in opposition to another at a joint.

Antidromic. In the direction opposite that normally taken by action potentials in the nervous system.

Aphagia. Abstention from eating.

Aphasia. Impairment of communication by language in any form; expressive aphasia - inability to speak or write; receptive aphasia - inability to understand spoken or written language.

Apraxia. Inability to carry out motor acts on command in the absence of paralysis.

Areflexia. Absence of reflexes.

Argyll Robertson pupil. Pupil shows miosis of accommodation, but no light reflex.

Ascending reticular activating system. A group of interconnected nuclei of the brain stem responsible for producing desynchronization of the EEG.

Asthenia. Weakness, lack of strength.

Astereognosis. Inability to recognize objects by feeling them.

Astigmatism. Unequal curvature of the refractive surfaces of the eye as a result of which a beam of light is not sharply focused on the retina.

Ataxia. Awkwardness and lack of fluidity in motor behavior associated with loss of control mechanisms of the cerebellum.

Athermesthesia. Loss of temperature sensation.

Atopognosis. Loss of ability to correctly locate a sensation.

Athetosis. Basal ganglion disease characterized by slow, sinuous movements.

Atrophy. A wasting away; a diminution in the size of a cell, tissue, or organ.

Audibility curve. A graph of a person's threshold for detection of various pitches in the range of human hearing, syn. Threshold of hearing curve.

Audiogram. A plot of a patient's hearing ability, either an audibility curve or a hearing loss curve.

Audiometry. The testing of the sense of hearing.

Audition. The act of hearing or ability to hear.

Aura. Sensations or feelings preceding an epileptic seizure.

Autogenic inhibition. Depression of the excitability of an α motoneuron by the groups Ia and Ib afferent fibers that innervate the same muscle as the α motoneuron.

Autonomic nervous system. The portion of the nervous system concerned with regulation of the activity of cardiac muscle, smooth muscle and glands.

Autonomous zone. The part of the receptive field or dermatome of a nerve or root not shared with other nerves or roots.

Axoaxonic synapse. The synaptic junction between two axons thought to mediate presynaptic hypopolarization or presynaptic inhibition.

Axodendritic synapse. A synaptic junction in which an axon's bouton is the presynaptic element and a dendrite is the postsynaptic element.

Axosomatic synapse. A synaptic junction in which an axon's bouton is the presynaptic element and a soma is the postsynaptic element.

Axon. The straight, relatively unbranched process of a nerve cell or the efferent process of a nerve cell, syn. Nerve fiber.

Axon hillock. The place where the axon arises from the soma of a neuron; thought to be the site of initiation of the spike.

Babinski sign. Dorsiflexion of the toes on stimulating the sole of the foot, sign of a pyramidal tract lesion.

Ballism. Basal ganglion disease characterized by violent, flinging movements of the limbs due to contraction of proximal limb muscles.

Bell-Magendie law. The notion that sensory fibers enter the spinal cord through dorsal roots, motor fibers exit the spinal cord through ventral roots.

Best frequency. The frequency of an auditory stimulus that gives the response of highest rate in an auditory neuron.

Beta adrenergic effect. A constellation of effects produced by circulating epinephrine, or isoproterenol released from postganglionic sympathetic nerve terminals (if they exist). Also produced by norepinephrine but effects are smaller in magnitude.

Beta rhythms. EEG records characterized by low-voltage waves occurring at 14 to 50 per sec.

Bias. Basically, the vertical offset of a stimulus-response curve.

Binasal hemianopsia. Hemianopsia or loss of vision involving the nasal visual fields of both eyes.

Bipolar. Having two poles; with respect to electrophysiology, stimulating or recording through two electrodes, cf., Monopolar.

Bitemporal hemianopsia. Hemianopsia or loss of vision involving the temporal visual fields of both eyes.

Bouton termina~~ux~~**ux.** A swelling of an axon near its termination; the presynaptic structure in most synapses, syn. End bulb, Synaptic knob, Terminal.

Bradykinesia. Slowness of movement.

Brightness. A quantitative measure of the intensity of light, the amplitude of its waves or the number of photons.

Broca's area. Areas 44 and 45 of the frontal cerebral cortex that plays a fundamental role in production of speech.

Brown-Sequard syndrome. Ipsilateral paralysis and loss of discriminatory and joint sensation and contralateral loss of pain and temperature sensation due to damage to one-half of the spinal cord.

Caloric test. A test of vestibular function involving the induction of nystagmus by putting warm or cold water in the external auditory meatus.

Capacitance. The ability of the nerve membrane to separate and store charge.

Cardiac muscle. Striated muscle found in the heart.

Causalgia. A burning pain due to injury of a peripheral nerve.

C fiber. Unmyelinated primary afferent neurons.

Channel. A passage in the membrane through which ions can flow, syn. Pore.

Chemically gated channel. A normally closed ionic channel that is opened by action of a chemical transmitter substance.

Cholinergic synapse. A junction between two cells that employs as its transmitter substance acetylcholine.

Chorea. Basal ganglion disease characterized by rapid, complex, jerky movements that are involuntary.

Chromatic aberration. Colored rings resulting from different amounts of refraction by a lens of light of different wavelengths.

Clasp-knife reflex. Sudden release of tension of a spastic muscle that occurs near the maximum length as the muscle is gradually lengthened, syn. Lengthening reaction.

Clonus. The alternating contraction and relaxation of a rapidly extended muscle in spasticity, syn. Myoclonus.

Coding. Process by which features of a stimulus or information about an event are expressed in

terms of nerve impulses or, in some cases, graded electrotonic potentials.

Cogwheel rigidity. The form of rigidity of Parkinsonism, in which the muscle lengthens in a series of little jerks when it is stretched.

Cold fibers. Cutaneous primary afferent fibers that have cooling as an adequate stimulus and respond to cooling the skin with an increase in frequency of discharge.

Collateral inhibition. Inhibition produced in a group of neurons by activity in some neurons of the group that excite inhibitory interneurons by way of collaterals of their axons; sometimes inaccurately used as syn. for Recurrent inhibition.

Color blindness. In vision, inability to detect or weakness in response to one or more of the three primary colors.

Color opponent cells. Visual neurons in which one part of the receptive field (e.g., the center) is sensitive to light in one part of the visible spectrum (e.g., red light), while another part of the field (e.g., the surround) is sensitive to another part of the spectrum (e.g., green light).

Complex cells. Neurons in visual cortex that are sensitive to bars of light moving in particular directions across the retina.

Compound action potential. The response of a peripheral nerve to an electrical stimulus; represents the sum of the action potentials of all active fibers in the nerve.

Conduction deafness. Hearing loss due to impairment of movement of the tympanum, the ossicles, or the membrane of the oval window.

Conductivity. The capacity of living matter to conduct action potentials.

Cones. Visual receptors in the retina specialized for photopic and color vision.

Conjugate eye movements. Refers to rotation of the eyes in the same direction at the same time.

Consensual light reflex. Constriction of the pupil of the eye opposite that into which a light is shown.

Contralateral. On the opposite side.

Control system. A mechanism that regulates the output of a device.

Convergent eye movements. Refers to rotation of the eyes toward each other.

Critical firing level. The value of the trans-membrane voltage to which a nerve or muscle cell must be hypopolarized in order for an action potential to be evoked.

Cross-bridge. The connection of the head of the myosin molecule with the thin filament in the A band of the sarcomere; according to the cross-bridge theory, the force generating apparatus of the muscle.

Crossed-extension reflex. Contraction of contralateral extensor muscles concomitant with initiation of a withdrawal reflex.

Crossed-innervation. Refers to the transplanting of one nerve onto a foreign muscle and the transplanting of the nerve from that muscle onto the muscle of the first nerve.

Cross-projection. The head of the myosin molecule projecting at right angles past the thin filaments; according to the electrostatic theory, the site of charge separation resulting in an electric field.

Crude touch. Touch sensations of higher threshold and poor localizability.

Cutaneous nerve. A nerve, most fibers of which innervate the skin.

Dale's principle. The concept that a neuron can synthesize only one chemical transmitter

substance.

Dark adaptation. An increase in the sensitivity of visual receptors as a function of time in the dark.

Decerebrate rigidity. A spasticity resulting from functional disruption of brain stem activities at the midcollicular level.

Decibel. A unit used to express the ratio of two sound pressures in hearing, equal to 1/10 the common log of the ratio of pressures.

Decomposition of movement. Lack of fluidity in movement characterized by the breaking down of composite movements into their component parts, a symptom of cerebellar disease.

Delayed rectification. During a spike, the change in potassium conductance due to membrane hypopolarization that occurs after the change in sodium conductance.

Delta rhythms. EEG records characterized by high voltage waves occurring at less than 4/sec.

Dementia. Loss of intellectual function.

Dendrite. Process of a neuron specialized to act as a receptor; the afferent process of a neuron.

Dendroaxonic synapse. The synaptic junction between a dendrite and an axon in which the dendrite is thought to be the presynaptic element.

Dendrodendritic synapses. The synaptic junction between two dendrites.

Dendrosomatic synapse. The synaptic junction between a dendrite and a cell soma in which the dendrite is presumed to be the presynaptic element.

Denervation hypersensitivity. Elevated response of a nerve or muscle membrane receptor to a transmitter substance following resection or removal of its afferent nerve supply.

Depolarization. A change in the transmembrane potential of a cell to the isoelectric point (e.g., zero voltage).

Depth of field. The range of distances from an observer over which images are in focus for a given strength of lens.

Dermatome. The area of skin innervated by a dorsal root.

Desynchronization. Reduction in amplitude and increase in frequency of the EEG accompanying alerting, syn. Activation, Alpha-blocking

Deuteranomaly. Color vision involving three pigments but the green one is abnormal, leading to reduced green sensitivity.

Deuteranope. A person who lacks response to green light, "green color-blind."

Diaschisis. A loss of function due to depression of activity at some distance from a lesion.

Dichromatism. Color vision involving only two pigments.

Difference threshold. The smallest change in the magnitude or quality of a stimulus that can be detected by an observer.

Diffusion. The process of becoming widely distributed that occurs because of molecular concentration differences only.

Diopter. A measure of the strength of a lens, the reciprocal of the focal length of the lens expressed in meters.

Diphtheritic neuritis. A neuritis occurring in the period after an infection by diphtheria bacteria.

Direct light reflex. Constriction of the pupil when light is shown into the same eye.

Doctrine of specific nerve energies. The concept that says that the modality of a sensation is

- determined not by the stimulus that elicits it, but by the nerve fiber that is excited by the stimulus.
- Doll's eye maneuver.** A test of the vestibulo-ocular reflex in which the opposite direction is observed.
- Dominant hemisphere.** The cerebral hemisphere that contains the speech centers.
- Dream sleep.** A stage of sleep characterized by desynchronized EEG patterns, REM, and dreaming, syn. Paradoxical sleep, REM sleep.
- Dynamic fusimotor neuron.** A γ motoneuron whose activity increases predominantly the dynamic response of primary spindle endings to muscle stretch.
- Dynamic index.** The difference in rate of discharge of a spindle receptor during active stretching and maintained stretch.
- Dynamic response.** The response of a primary spindle ending that signals rate of change of muscle length during stretch.
- Dyscalculia.** Impairment of ability to solve mathematical problems.
- Dysdiadochokinesia.** Impairment of ability to perform rapid alternating movements, a symptom of cerebellar disease.
- Dyesthesia.** A persistent, painful sensation, produced by gentle stimulation, that often occurs after destruction of CNS pathways.
- Dysgraphia.** Inability to write properly.
- Dyskinesia.** Impairment of the ability to move, resulting in fragmentary or incomplete movements.
- Dysmetria.** A condition in which there is improper measuring of distance in movement, disturbance of the power to control the range of movement, a symptom of cerebellar disease.
- Dyssynergia.** Disturbance of coordination in closely related muscles.
- Efferent.** Pathways leading from; in the case of peripheral nerves, those conducting away from the central nervous system.
- Electrical equivalent circuit.** A collection of electrical components assembled in a particular configuration that behaves like the cell membrane.
- Electrically excitable motor cortex.** That area of the cerebral cortex, the stimulation of which leads to movements, syn. Motor cortex.
- Electrical synapse.** The junction between two nerve cells at which communication is by direct transfer of charge not by release of a transmitter substance, syn. Electrotonic synapse.
- Electrochemical equilibrium.** A balance between chemical and electrical driving forces such that there is no net movement of ions across the cell membrane.
- Electroencephalogram.** Recording from the scalp of the changes in electrical potential in the brain, primarily in the cerebral cortex, abbr. EEG.
- Electrogenic pump.** An energy-requiring process in which there is a net transfer of charge across the membrane resulting in a membrane voltage.
- Electromyogram.** A recording of the electrical activity of muscle during contraction, abbr. EMG.
- Electrotonic synapse.** The junction between two nerve cells at which communication is by direct transfer of charge not by release of a transmitter substance, syn. Electrical synapse.

Emmetropia. The normal condition of the eye with respect to refraction.

End bulb. A swelling of an axon near its termination; the presynaptic structure in most synapses, syn. Bouton terminaux, Synaptic knob, Terminal.

End-plate potential. The hypopolarizing postsynaptic potential in the striated muscle that leads to the muscle spike.

Enteroceptor. A receptor that senses some aspect of the condition of the environment inside the body.

Epileptogenic. Producing or capable of producing seizures.

Equilibrium potential. The value of the transmembrane voltage at which the net driving force for an ion or a membrane event (e.g., an EPSP or IPSP) is zero.

Evoked potential. An electrical response of a group of neurons produced by a stimulus to a sensory receptor or neural pathway.

Excitability. The ability to generate action potentials.

Excitatory postsynaptic potential. A hypopolarizing change in the transmembrane potential of a neuron due to synaptic activity that tends to increase the probability of discharge of the neuron, abbr. EPSP.

Extensor thrust reflex. An automatic increase in the contraction of physiological extensor muscles of the leg when the plantar surface of the foot contacts some non-noxious object.

Exteroceptor. A receptor that senses some aspect of the condition of the environment outside the body.

Extrafusal muscle fiber. The regular contractile fibers that produce the shortening of a muscle; they lie outside the muscle spindle.

Facilitation. The addition of EPSPs in which the resultant is more than the algebraic sum of the individual EPSPs, cf., temporal summation.

Falling phase. The return of the membrane potential from the peak overshoot of the spike back to the resting potential, syn. Repolarization phase.

Far point. The remotest point at which an object is clearly seen when the eye is at rest.

Far-sightedness. A pathological condition of refraction in which the eyeball is too short for the refractive power of the lens and images come to a focus behind the retina, syn. Hyperopia.

Fasciculations. A small, local contraction of muscles visible through the skin; represents spontaneous discharge in one or more muscle fibers innervated by a motoneuron.

Fast axoplasmic transport. The active movement of substances down the axon of a neuron in the orthograde direction at up to 410 mm/day.

Fast muscle. Relative term, referring to the speed of twitch contraction and relaxation and to the relatively high rates of stimulation at which tetanic fusion occurs.

Feedback. The return of some of the output of a system as an input so as to exert some control over the process performed by the system.

Feedback inhibition. A situation in which the output of a neuron (or set of neurons) is used to inhibit (perhaps through an interneuron) further inputs to the neuron (or set of neurons).

Feedforward inhibition. A situation in which the output of a neuron (or set of neurons) is used to inhibit neurons subsequent to it in a particular pathway.

Finger agnosia. Inability to recognize or indicate on command the fingers on one's own hand or the hands of others.

Flaccidity. Weakness, laxness, softness.

Flexion reflex. Automatic contraction of the flexor muscles of a limb so as to remove the limb from a noxious stimulus, syn. Nocifensive reflex, Withdrawal reflex.

Flexor reflex afferent fibers. Nerve fibers stimulation of which evokes a flexion reflex, A δ and C-fibers and groups II, III and IV of muscle.

Flower-spray endings. The termination of group II afferent fibers on the nuclear chain fibers of muscle spindles, syn. Secondary muscle spindle endings.

Flux. Movement of ions due to concentration forces, syn. Diffusion.

Focal length. The distance from the center of a lens to the point of focus of light from a distant object.

Focus. The location of a group of cells in the cerebral cortex whose abnormal discharge initiates seizures.

Follow-up length servo mechanism. A process by which movements can be initiated indirectly by inputs to γ motoneurons rather than α motoneurons.

Fovea. The central region of the retina specialized for detail vision, i.e., for acuity.

Frequency theory. A theory that says the frequency of a sound wave is encoded by the auditory receptors in terms of their rate of discharge.

Frontal eye fields. Premotor areas of the cerebral cortex from which contraversive eye movements are evocable by electrical stimulation.

Fused tetanic contraction. A tetanic muscle contraction in which there is no trace of the individual twitches that have been summed.

Fusimotor neuron. A motoneuron whose activity results in contraction of intrafusal muscle fibers, syn. γ motoneuron.

Gamma bias. Refers to the ongoing discharge of fusimotor neurons, syn. Gamma tone.

Gamma motoneuron (γ motoneuron). A motoneuron whose axon is an Ag fiber, syn. Fusimotor neuron.

Gamma spasticity. A tonic contraction of one muscle or a group of synergistic muscles at a joint, caused by excitation of the gamma motoneurons innervating the muscles.

Gamma tone. Refers to the ongoing discharge of fusimotor neurons, syn. Gamma bias.

Gate theory of pain. A theory that says the perception of pain depends not only upon activity in nociceptors, but also upon the balance between activity in nociceptors and large myelinated cutaneous afferent fibers.

Generator potential. A non-propagated change in the membrane potential of a receptor that leads to the generation of action potentials within the receptor itself, cf., receptor potential.

Golgi tendon organ. A receptor located at the muscle-tendon junction that signals developed tension in the muscle.

Grand mal attacks. Epileptic seizures characterized by myoclonus, progressive myoclonus, loss of erect posture, and unconsciousness.

Gustation. The sense of taste.

H band. The lighter region in the center of the anisotropic or A band, from which the thin filaments are absent.

Hearing loss curve. A plot of the threshold of hearing for a patient as deviations from normal for different frequencies of sound.

Hemianopsia. Loss of vision in either the nasal or temporal half of the visual field.

Hering-Breuer reflex. The nervous mechanism that tends to limit inspiratory excursions, mediated by stretch receptors in the intercostal muscles whose activity leads to inhibition of inspiratory neurons in the brain stem.

Herpes zoster. An acute inflammatory disease of the dorsal root ganglion caused by the virus of chickenpox and characterized by small vesicles occurring on the skin supplied by the affected nerve.

Hertz. Cycles per sec, abbr. Hz.

Hodgkin cycle. The regenerative sequence in which hypopolarization leads to increased conductance, leading to sodium ion influx and further hypopolarization.

Homonymous hemianopsia. Hemianopsia involving either the left or right halves of the visual fields of both eyes.

Homonymous muscle. The muscle of origin of the nerve fibers being considered.

Horner's syndrome. Sinking in of the eyeball, ptosis of the upper eyelid, constriction of the pupil, anhidrosis and flushing of the affected side of the face caused by paralysis of the cervical sympathetic nerves.

Hue. A quality of light correlated with its wavelength. The color of the light.

Hypalgesia. Diminished pain sensation.

Hypercomplex cells. Neurons in visual cortex that are sensitive to bars of light moving in particular directions across the retina and that require the bar to be less than a certain maximum length.

Hyperphagia. Ingestion of a greater than optimal quantity of food.

Hyperopia. A pathological condition of refraction in which the eyeball is too short for the refractive power of the lens and images focus behind the retina, syn. Far-sightedness.

Hyperpathia. Abnormally exaggerated response to painful stimuli.

Hyperpolarization. From the resting potential, a change in the transmembrane potential of a cell away from the isoelectric point (i.e., zero voltage).

Hyperpolarizing after-potential. A membrane potential more negative than the resting membrane potential that occurs following termination of the spike, syn. After-hyperpolarization.

Hyper-reflexia. Exaggerated reflexes.

Hyperstimulation analgesia. A reduction or elimination of pain sensation brought about as a result of strong stimulation outside a damaged area.

Hypertonia. A condition of excessive muscle tone; increased resistance to passive stretch.

Hypesthesia. Reduced cutaneous sensation.

Hypophysectomy. Surgical removal or other destruction of the pituitary.

Hypopolarization. A change in the membrane potential, usually away from the resting potential, toward the isoelectric point (i.e., zero voltage).

Hypopolarization phase. The earliest positive-going portion of the nerve or muscle spike, syn. Rising phase, Upstroke.

Hypopolarizing after-potential. A membrane potential more positive than the resting membrane potential that occurs following termination of the spike, syn. After-hypopolarization.

Hyporeflexia. Weakening of the reflexes.

Hypotonia. A condition of diminished muscle tone.

I band. The isotropic or light band of striated muscle; contains only actin filaments.

Immediate recall. Memory of learned material or responses having a duration of minutes to perhaps hours, syn. Short-term memory.

Impedance matching device. A mechanism that compensates for differences in sound transmission through different media; in the ear, through air and perilymph.

Inactivation. Closure of the voltage-gated ionic channels.

Inhibitory postsynaptic potential. An hyperpolarizing change in the membrane potential of a neuron due to synaptic activity that tends to decrease the probability of discharge in the neuron, abbr. IPSP.

Integrate. To combine signals from a number of sources.

Integrative synapse. A synaptic junction at which the critical firing level is reached only by the summation of EPSPs from many sources; a point of integration.

Intention tremor. An involuntary trembling which is heightened when a movement is attempted.

Intermediate zone. The part of a dermatome or receptive field outside the autonomous zone.

Intrafusal muscle fiber. The contractile tissue of the muscle spindle; it lies inside the spindle.

Iontotropic transmission. Synaptic transmission in which the transmitter substance produces a change in ionic conductance of the postsynaptic membrane directly by interaction with a postsynaptic receptor.

Iontophoresis. The introduction by means of an electrical current of ions of soluble salts into the tissues of the body.

Ipsilateral. On the same side.

Irradiation. Spread of the flexion reflex to involve additional muscle groups and additional movements with stronger stimulation.

Isometric contraction. A contraction during which the muscle does not change length.

Isotonic contraction. A contraction of a muscle under constant load.

Kluver-Bucy syndrome. Behavior disturbances resulting from bilateral temporal lobe damage; characterized by a tendency to examine objects orally, depression of emotional reactions, and lack of sexual inhibitions.

Labeled lines. The notion that particular modalities and submodalities have their own special pathways to the brain and activity induced anywhere along one of these pathways is interpreted as a stimulus of the appropriate modality or submodality.

Latency. The time between application of a stimulus and appearance of a response.

Lateral inhibition. Refers to the inhibition of the discharge evoked by stimulation within a cell's excitatory receptive field that occurs when an area outside that receptive field is stimulated; alternatively inhibition of an element in a sensory system caused by activity in an adjacent element of the same type.

Left-right confusion. Confusion of laterality.

Lengthening reaction. Sudden release of tension of a spastic muscle that occurs near the maximum length as the muscle is gradually lengthened, syn. Clasp-knife reflex.

Leukotomy. The operation of cutting the white matter in the oval center of the frontal lobe of

the brain, syn. Lobotomy.

Light adaptation. A reduction in sensitivity of visual receptors as a function of time in the light.

Light reflex. Constriction of the pupils when a bright light is shown into an eye.

Limen. The psychological term for threshold.

Linear function or relation. The relationship between two variables such that the equal changes in one result in equal changes in the other; an equation of the form $y = ax + b$.

Lobectomy. Excision of a lobe.

Lobotomy. Incision into a lobe, cutting all the fibers in the white matter, syn. Leukotomy.

Logarithmic function or relation. The relationship between two variables such that equal percentage changes in one result in equal changes in the other; an equation of the form $y = a \log x + b$.

Long-term memory. Recall of learned responses or material having a duration of minutes to years.

Loudness. The "perceived intensity" of a sound related to both the amplitude of the sound wave and its frequency.

Lower motoneuron syndrome. A group of symptoms resulting from disease of either the motoneuron or the muscle or both.

Macula lutea. An irregular yellowish depression in the retina surrounding the fovea.

Macular sparing. Refers to the presence of visual sensation in entire macula in hemianopsias resulting from occipital cortex lesions.

Masking. An increase in the threshold for perception of a given stimulus caused by the presence of another stimulus.

Mask-like face. Refers to the lack of spontaneous facial expressions in the patient with basal ganglion disease, particularly parkinsonism.

Maximal response. The largest electrical response obtainable from a nerve, tract or nucleus.

Maximal stimulus. The stimulus strength that just yields the maximal response.

Membrane potential. The electrical potential that exists across the cell membrane as a result of inhomogeneous ion distributions.

Meniere's disease. Deafness, tinnitus, and vertigo resulting from accumulation of endolymph in the labyrinth.

Metabotropic transmission. Synaptic transmission in which the transmitter substance causes activation of a second messenger that causes the change in postsynaptic membrane potential.

Miniature end-plate potential. A tiny, spontaneous postsynaptic potential recorded near the end-plate in muscle fibers, abbr. MEPP.

Miosis. Constriction of the pupil of the eye.

Modality. One of the basic senses: somesthesia, vision, audition, gustation and olfaction.

Monopolar. Having a single pole; with respect to electrophysiology: stimulating or recording through one active electrode and one indifferent (or reference) electrode, cf. Bipolar.

Monosynaptic reflex. Reflex involving only one synapse within the central nervous system.

Motor cortex. That area of cerebral cortex, the stimulation of which leads to movements, syn. Electrically excitable motor cortex.

Motor end-plate. The specialized terminal of a motoneuron that forms a synaptic contact with the muscle membrane.

Motor unit. An alpha motoneuron and the muscle fibers it innervates.

Multiple sclerosis. A disease in which there are multiple patches of demyelination in the white matter of the central nervous system. These are repaired and new patches appear in different places in subsequent attacks.

Multi-unit smooth muscle. Smooth muscle containing few tight junctions, but richly innervated; responds as individual motor units, not as a single unit.

Muscarinic effect. The subset of actions normally produced by acetylcholine that can also be produced by muscarine.

Muscle nerve. A nerve most fibers of which innervate a muscle.

Muscle spindle. A fusiform mechanoreceptor found mixed with extrafusal muscle fibers and in parallel with them.

Myelinated fiber. A nerve fiber wrapped by a series of Schwann cells, resulting in greater conduction velocity.

Myoclonus. Clonus.

Myofibril. A muscle fibril; one of the slender threads in a muscle composed of numerous myofilaments.

Myofilament. Any of the small filaments that comprise a myofibril; either a thick or myosin filament, or a thin or actin filament.

Myogenic. Of muscle origin.

Myopia. A pathological condition of refraction in which the eyeball is too long for the refractive power of the lens and images focus in front of the retina, syn. Near-sightedness.

Myosin. The protein of the thick myofilament, localized to the A band of the sarcomere.

Myotatic reflex. An automatic contraction of a muscle elicited by stretching it, syn. Stretch reflex, Tendon jerk reflex.

Near point. The nearest point at which the eye can distinctly perceive an object.

Near-sightedness. A pathological condition of refraction in which the eyeball is too long for the refractive power of the lens and images come to a focus in front of the retina, syn. Myopia.

Negative feedback loop. A circuit in which part of the output is used to reduce the input to the circuit.

Nernst equation. A mathematical formula stating the voltage across a cell membrane that results from a difference in ion concentration inside and outside the cell.

Nerve. A collection of axons or nerve fibers.

Nerve cell. A cell specialized for excitability and conductivity, syn. Neuron.

Nerve deafness. Hearing loss due to damage to auditory receptors or auditory pathways of the central nervous system.

Nerve fiber. The straight, relatively unbranched process of a nerve cell, syn. Axon.

Nerve growth factor. A substance isolated from submaxillary glands that has the property of stimulating growth of sympathetic ganglion cells and, under certain circumstances, dorsal root ganglion cells.

Nervous system. The neurons and associated cells of the body.

Neuralgia. Paroxysmal pain that extends along the course of one or more nerves.

Neurogenic. Of nerve origin.

Neuromuscular junction. The synaptic contact between an α motoneuron and the muscle fiber it innervates.

Neuron. A cell specialized for excitability and conductivity, syn. Nerve cell.

Neurotrophic effect. Interactions between nerve cells or between nerve cells and other types of cells in which the nerve fibers initiate or control molecular and/or functional modification in the other cells.

Nicotinic effect. The subset of actions normally produced by acetylcholine that can also be produced by nicotine.

Nociceptor. A receptor whose adequate stimulus is strong enough to produce damage.

Nocifensive reflex. Automatic contraction of the flexor muscles of a limb so as to remove the limb from a noxious stimulus, syn. Flexion reflex, Withdrawal reflex.

Nodal synapse. The junction between any part of a nerve cell and a node of Ranvier of a nerve fiber.

Nonelectrogenic pump. An ion pump whose operation does not result in a net transfer of charge into or out of the cell.

Norepinephrine. A substance secreted as a transmitter substance by sympathetic postganglionic nerve terminals and as a hormone by the adrenal medulla.

Nuclear bag fiber. An intrafusal muscle fiber with nuclei accumulated in an equatorial swelling.

Nuclear chain fiber. an intrafusal muscle fiber with nuclei arranged in a line throughout its relatively uniform-diameter central region.

Nyctalopia. Congenital night-blindness caused by a lack of rod functioning in the retina.

Nystagmus. A slow deviation of the eyes either horizontally, vertically, rotatory or mixed, followed by a rapid return to the starting position. The sequence is repeated.

Obligatory synapse. A synaptic junction at which a single presynaptic action potential initiates a postsynaptic action potential.

Occlusion. In neurophysiology, the inability of two action potentials to occupy the same region of membrane at the same time; thus an antidromic impulse blocks a concomitant orthodromic impulse in the same fiber by occlusion.

Off-response. The discharge of a neuron initiated when a stimulus is turned off.

Olfaction. The sense of smell.

Olivocochlear bundle. A bundle of efferent nerve fibers originating in the superior olive and ending on hair cells in the basilar membrane. They are inhibitory in function.

On-off response. The discharge of a neuron initiated both when a stimulus is turned on and when it is turned off with silence in between.

On-response. The discharge of a neuron initiated when a stimulus is turned on.

Opisthotonos. A form of spasm in which the head and the heels are bent backward and the body bowed forward.

Orthodromic. Conduction in the direction normally taken by action potentials.

Otolith. Literally: stone in the ear; a calcium carbonate crystal found in the otolith organs of vertebrates, syn. Statoconium.

Otolith organ. A vestibular organ containing otoliths, the utricle, or saccule.

Overshoot. Refers to that portion of the action potential where the membrane polarity is reversed, i.e., where the membrane potential is positive inside with respect to outside.

Pacemaker cell. A cell that is rhythmically, spontaneously active, initiating activity in other cells in the same rhythm.

Pallesthesia. The sensation of vibration.

Papilla. A small nipple-shaped projection or elevation, as on the tongue.

Paradoxical sleep. A stage of deep sleep characterized by desynchronized EEG patterns, REM, and dreaming, syn. Dream sleep, REM sleep.

Paralysis. Loss of function in a part of the body due to lesion of the neural or muscular mechanisms controlling it.

Parasympathetic nervous system. The division of the autonomic nervous system made up of ocular, bulbar, and sacral segments.

Paresis. Weakness, partial paralysis; adjectival form: paretic.

Paresthesia. An abnormal sensation of burning, prickling or tingling.

Parkinsonism. Basal ganglion disease characterized by hypokinesia, tremor at rest, and muscular rigidity.

Past-pointing. An error in pointing to a target in the direction of a previous rotation, e.g., in a Barany chair.

Petit mal attacks. epileptic seizures characterized by fixed stare, unconsciousness, unresponsiveness, and lack of activity.

Phantom limb pain. Pain referred to a limb that has been removed.

Photophobia. Abnormal visual intolerance of light.

Photopic. Pertaining to vision in the light.

Physiological extensor muscle. Antigravity muscle.

Pitch. The quality of a sound determined by the frequency of its waves.

Place theory. A theory that says pitch is encoded in terms of the place on the basilar membrane that gives maximum vibration in response to a given frequency of sound.

Polarized. Imbued with poles; experiencing a separation of charge; refers to difference in potential across a cell membrane.

Polydipsia. Excessive drinking persisting for long periods of time as in diabetes mellitus.

Polymodal nociceptor. A receptor that responds to more than one type of noxious stimulus, e.g., noxious heat and noxious mechanical stimuli.

Polysynaptic reflex. A reflex involving more than one synapse in the central nervous system.

Pore. A passage in the membrane through which ions can flow, syn. Channel.

Postganglionic fiber. Nerve fibers originating in and running peripheral to an autonomic ganglion.

Postrotatory nystagmus. Nystagmus in the direction opposite to that of and due to a previous rotation, e.g., in a Barany chair.

Postsynaptic element. The component of a synapse that receives the transmitter substance and/or conducts impulses in the efferent direction with respect to the synapse.

Postsynaptic inhibition. Decrease in the probability of firing of a neuron because of the IPSPs generated in it.

Postural fixation. Assumption of unusual body positions as in basal ganglion disease.

Power function or relation. The relationship between two variables such that the equal percentage changes in one result in equal percentage changes in the other; an equation of the form $y = x^a$.

Preganglionic fiber. Nerve fiber originating in the central nervous system and running to an autonomic ganglion.

Presbycusis. Decrease or loss of sensitivity to high frequencies of sound with advancing age.

Presbyopia. Hyperopia due to loss of elasticity of the lens at about age 40.

Presynaptic element. The component of a synapse that releases the transmitter substance and/or conducts impulses in the afferent direction with respect to the synapse.

Presynaptic inhibition. Decrease in the probability of firing of a neuron due to decrease in transmission to it that results from hypopolarization of afferent terminals on it.

Primary afferent fiber. The first order fibers of a sensory system; those entering the dorsal roots of the spinal cord.

Primary evoked potential. The change in potential recorded in a primary sensory cortical area following stimulation of the receptors associated with that area.

Primary muscle spindle receptor. The termination of a group Ia afferent fiber in the equatorial region of a muscle spindle, syn. Annulospiral ending.

Protanomaly. Color vision involving three pigments, but the red one is abnormal leading to reduced red sensitivity.

Protanope. A person who lacks responses to red light; "red color-blind."

Psychomotor epilepsy. Seizures characterized by stereotyped behavior often with emotional outbursts and partial responsiveness, syn. Temporal lobe epilepsy.

Psychophysics. The science dealing with the quantitative relationships between stimuli and sensations.

Quadrantanopsia. Blindness in one quarter of the visual field.

Quantum. In optics: the unit of light; in synapses: the minimum amount of transmitter substance that can be released, probably the contents of a single synaptic vesicle.

Rapidly adapting. A rapid decline to zero of a response of a sensory neuron to a maintained stimulus.

Receptive field. The area of the periphery whose stimulation influence firing of a neuron.

Receptor. In sensory system: a structure specialized to be sensitive to certain forms of energy; in synaptic transmission: the site of binding of a transmitter substances with postsynaptic membranes.

Receptor potential. The nonpropagated change in membrane potential of a receptor that does not lead to action potentials in the receptor, but does generate them synaptically in another cell, cf., Generator potential.

Reciprocal inhibition. Interconnections of neurons arranged so that pathways that excite one group of motoneurons inhibit the antagonist motoneurons.

Reciprocal innervation. Interconnections of neurons arranged so that pathways that excite one group of motoneurons inhibit the antagonist motoneurons and those that inhibit a group of motoneurons excite the antagonist motoneurons.

Rectification. In synapses: the property of allowing transmission through a pathway in only one

- direction; in membranes: a change in ionic conductance with a change in membrane potential.
- Recurrent inhibition.** Inhibition of an element produced by its own output through excitation of an inhibitory interneuron, cf., Collateral inhibition.
- Red muscle.** Dark-red colored muscle tissue, composed of fibers rich in myoglobin; slow muscle fibers.
- Referred pain.** Pain due to damage to an internal organ that is referred to a structure on the surface of the body.
- Reflex.** A relatively stereotyped movement or response elicited by a stimulus applied to the periphery, transmitted to the central nervous system and then transmitted back out to the periphery.
- Refractive index.** A measure of the amount of bending of light on entering a medium; the speed of light in a vacuum/speed of light in the medium.
- Reinnervation.** Refers to the reattachment of a nerve fiber to a muscle or another nerve fiber after the original connection has been severed.
- Relative refractory period.** The period after a spike when greater than normal stimuli are required to excite a nerve or muscle cell.
- REM sleep.** The stage of sleep in which dreaming is associated with mild muscle jerks and rapid eye movements (REM), also characterized by a desynchronized EEG, thus the syn. Dream sleep, Paradoxical sleep.
- Renshaw inhibition.** A form of collateral inhibition of α motoneurons involving a special inhibitory interneuron, the Renshaw cell.
- Repolarization phase.** The return of the membrane potential from the peak overshoot of the spike back to the resting potential, syn. Falling phase.
- Resistance.** The opposition by a conductor to the passage of an electric current.
- Resting membrane potential.** The membrane potential of a cell that is not active, i.e., not generating spikes; the average membrane potential.
- Retrograde axoplasmic transport.** The active movement of substances up the axon of a cell (toward the soma) in the retrograde direction at up to 100 mm/day.
- Rhizotomy.** Interruption of a spinal root within the spinal canal.
- Rigidity.** Stiffness of a limb due to increased tone in both flexors and extensors, cf., spasticity.
- Rinne's test.** A hearing test in which a tuning fork is placed on the mastoid process to distinguish conduction deafness from nerve deafness.
- Rising phase.** The earliest positive-going portion of the nerve or muscle action potential, syn. Hypopolarization phase, Upstroke.
- Rods.** Visual receptors in the retina specialized for scotopic vision.
- Saccade.** An abrupt, rapid, small eye movement; usually occur in a series during scanning; also occurs as a part of nystagmus.
- Saltatory conduction.** Conduction of the nerve spike where the spike jumps from node to node.
- Sarcomere.** The serially repeating unit of muscle that gives it its striated appearance.
- Saturation.** Homogeneity or purity of wavelength of light.
- Scanning speech.** Speaking characterized by irregular volumes and speech rhythms; a symptom

- of cerebellar disease.
- Scotoma.** An area of depressed or absent vision within the visual field, surrounded by an area of normal vision.
- Scotopic.** Pertaining to vision in the dark.
- Secondary muscle spindle receptor.** The termination of group II afferent fibers on nuclear chain fibers of muscle spindles, syn. Flower-spray endings.
- Second messenger.** A substance, activated by interaction of a synaptic transmitter substance with the postsynaptic receptor, that causes either a change in membrane ionic permeability or activation of an electrogenic pump, leading to a change in postsynaptic membrane potential.
- Sham rage.** An outburst of behavior in an animal with a lesion somewhere above the tectum, resembling anger, but lacking direction.
- Short-term memory.** Recall of learned responses or material having a duration of minutes to hours, syn. Immediate recall.
- Simple cells.** Neurons in visual cortex that are sensitive to narrow bars of light oriented in a particular direction across the retina, but not sensitive to movement of the bar.
- Single-unit smooth muscle.** Smooth muscle containing many tight junctions that contracts as a unit and responds to stretch.
- Skeletomotor neuron.** A motoneuron whose axon is an A α fiber; contacts extrafusal muscle fibers, syn. Alpha motoneuron.
- Slow axoplasmic transport.** The movement of substances down the axon of a neuron in the orthograde direction at up to 12 mm/day.
- Slowly adapting.** A slow decline without complete cessation of a response of a sensory neuron to a maintained stimulus.
- Slow muscle.** Relative term, referring to the speed of twitch contraction and relaxation and to the relatively low rates of stimulation at which tetanic fusion occurs.
- Smooth muscle.** Muscle of the linings of internal organs and blood vessels that lacks cross-striations and is caused to contract by autonomic discharges.
- Sodium-potassium pump.** Mechanism for extrusion of sodium and uptake of potassium by cells against the concentration gradients for these ions, syn. Sodium pump.
- Sodium pump.** Mechanism for extrusion of sodium and uptake of potassium by cells against the concentration gradients for these ions, syn. Sodium-potassium pump.
- Soma.** Cell body.
- Somatosomatic reflexes.** Reflexes involving somatic stimuli and somatic responses.
- Somatotopic organization.** Pertaining to the orderly mapping of parts of the body onto the cerebral cortex and other parts of the nervous system.
- Somatovisceral reflexes.** Reflexes involving somatic stimuli and visceral responses.
- Somesthesia.** Consciousness of the body and bodily sensations resulting from activity in enteroceptors and exteroceptors.
- Space constant.** Distance along the membrane at which an imposed transmembrane voltage falls to 1/e of its initial value, abbr. λ .
- Spasticity.** Resistance of a limb to passive stretch due to increased tone in either flexors or extensors (usually extensors), but not both.

Spatial summation. Algebraic addition of generator potentials elicited by stimuli at two different points.

Spherical aberration. Formation of rings around images due to unequal refraction in the center and on the periphery of a lens.

Spike. The all-or-none, conducted voltage response of a nerve or muscle membrane that is used to communicate information, syn. Action potential; a 15-18 msec deflection characteristic of epileptic but not normal EEG.

Spike and dome complex. An EEG phenomenon: consisting of a rapid (15-18 msec) deflection with a return to baseline, followed by a much slower wave; a characteristic pattern, repeated frequently in epileptic cortex.

Spinal shock. A condition following functional disconnection of the spinal cord from higher centers, which is characterized by areflexia, anesthesia, and lack of movements.

Split-brain patient. A patient who has had her or his corpus callosum sectioned.

Static fusimotor neuron. Ag motoneuron whose activity increases the static responses of both primary and secondary spindle endings.

Static response. The response of spindle endings that signals maintained length of a muscle.

Statoconium. Calcium carbonate crystal found in the otolith organs of vertebrates, syn. Otolith.

Status epilepticus. Seizures that occur in series without intervening recovery periods.

Stereopsis. Depth perception.

Stereotaxic coordinates. A Cartesian system in which points in the brain are referenced by coordinates in horizontal, sagittal, and frontal planes.

Stretch reflex. An automatic contraction of a muscle elicited by stretching it, syn. Myotatic reflex, cf., Tendon jerk reflex.

Striated muscle. Any muscle whose fibers are divided by transverse bands into striations.

Subliminal fringe. A group of neurons that is excited during a reflex, but which does not reach critical firing level and does not discharge a spike.

Submodality. Any division of one of the modalities, example: touch is a submodality of somesthesia.

Substitution. Recovery of function due to use of alternate movements.

Subthreshold stimulus. A stimulus whose strength is too low to initiate a response.

Supramaximal stimulus. A stimulus whose intensity is greater than that which just gives a maximal response.

Suprathreshold stimulus. A stimulus that is of sufficient strength to give a response.

Surround inhibition. The inhibition of a cell's discharge that results from stimulation of an annular area around the excitatory receptive field.

Sympathetic nervous system. The division of the autonomic nervous system made up of thoracic and lumbar segments.

Sympathetic tone. Refers to the ongoing discharge in sympathetic nerve fibers that leads to a resting contraction of vascular smooth muscle.

Sympathectomy. The transection, resection or other interruption of transmission in some portion of the peripheral sympathetic pathways.

Synapse. The site at which neurons make functional contact.

Synaptic cleft. Space between pre- and postsynaptic cells at a chemical synapse across which

the transmitter substance must diffuse.

Synaptic delay. The time required for release of a chemical transmitter substance, its diffusion across the synaptic cleft, its interaction with the postsynaptic receptor, and the initiation of a change in postsynaptic membrane potential.

Synaptic knob. A swelling of an axon near its termination; the presynaptic structure in most synapses, syn. Bouton terminaux, End bulb, Terminal.

Synaptic vesicles. Small membrane-bound sacs in the presynaptic terminals that contain the transmitter substance.

Synergist muscle. A muscle that has the same action at the same joint as another muscle.

Tabes dorsalis. A syphilitic infection of the dorsal root ganglion.

Temporal lobe epilepsy. Seizures characterized by stereotyped behavior, often with emotional outbursts and partial responsiveness, syn. Psychomotor epilepsy.

Temporal summation. Algebraic addition of generator potentials elicited by two stimuli applied at the same point in rapid succession.

Tendon jerk reflex. An automatic contraction of a muscle elicited by stretching it, syn. Myotatic reflex; cf., Tendon jerk reflex.

Terminal. A swelling of an axon near its termination; the presynaptic structure in most synapses, syn. Bouton terminaux, End bulb, Synaptic knob.

Tetanic contraction. Sustained contraction of a muscle without intervals of relaxation.

Thalamotomy. The production of a circumscribed lesion in the thalamus.

Theta rhythms. EEG records characterized by high voltage waves occurring at 4-8 per second.

Thick filament. The larger diameter myofilament of the myofibrils of striated muscle.

Thin filament. The smaller diameter myofilament of the myofibrils of striated muscle.

Threshold. Minimal stimulus required for a response or sensation.

Threshold of hearing curve. A graph of a person's threshold for detection of various pitches in the range of human hearing, syn. Audibility curve.

Tic douloureux. Excruciating episodic pain in the dermatome of the trigeminal nerve often precipitated by gentle stimulation of certain trigger points, syn. Trigeminal neuralgia.

Time constant. The time over which the transmembrane voltage passively falls to 1/e of its initial value, abbr. τ .

Tinnitus. A sensation of ringing, buzzing, roaring, clicking in the ears, not of external origin, in some cases audible to people other than the patient.

Tonotopic representation. A distribution of sensitivity in auditory structures such that the range of audible tones is represented in sequence across the structure.

Tractotomy. Section of a tract.

Transmitter substance. A compound released at a synapse from the presynaptic element that effects a change in potential of the postsynaptic cell.

Transneuronal degeneration. Refers to the wasting of a nerve cell when the fibers that innervate it are severed.

Tremor at rest. An involuntary trembling which is suppressed or reduced when a movement is attempted.

Trichromatic theory. Theory of color vision that says there are three fundamental color sensations and three different color receptors; color sensation is the result of activity in this

ensemble, syn. Young-Helmholtz theory.

Trichromatism. Color vision involving three pigments.

Trigeminal neuralgia. Excruciating episodic pain in the dermatome of the trigeminal nerve often precipitated by gentle stimulation of certain trigger points, syn. Tic douloureux.

Tritanope. A person who lacks response to blue light.

Tropomyosin. A filamentous protein that is part of the thin filament of striated muscle.

Troponin. A globular protein that is part of the thin filament of striated muscle.

Tuning curve. A plot for auditory neurons of the threshold stimulus strength against the frequency of the auditory stimulus.

Twitch contraction. The all-or-none response of a muscle or muscle cell to a single brief stimulus.

Two-point threshold. The minimum distance between two stimuli to the skin at which they can be perceived as two stimuli instead of one.

Unfused tetanic contraction. A tetanic contraction in which individual twitch contributions can still be seen.

Unmyelinated fiber. A nerve fiber without myelin surrounding it.

Upper motoneuron syndrome. A group of symptoms resulting from removal of supraspinal influences on spinal mechanisms.

Upstroke. The earliest positive-going portion of the nerve or muscle spike, syn. Hypopolarization phase, Rising phase.

Vertigo. A sensation as if the world were revolving around the person or the person is revolving in space.

Vestibular-ocular reflex. Refers to the automatic movement of the eyes in the direction opposite to that in which the head is rotated.

Vicarious function. Recovery of function due to assumption of control by another neurological structure.

Visceral afferent fibers. Fibers carrying sensory information from visceral organs to the central nervous system.

Viscerosomatic reflexes. Reflexes involving visceral stimuli and somatic responses.

Viscerovisceral reflexes. Reflexes involving visceral stimuli and visceral responses.

Visibility curve. A plot of the threshold for vision against the wavelength of light in the stimulus.

Vision. The act of seeing; sight; sensations induced through photoreceptors.

Visual axis. A line perpendicular to a tangent to the cornea through the centers of the lens and the fovea.

Visual field. The total extent of the visual world seen by one eye at rest.

Voltage clamp. A device for fixing the transmembrane voltage of a cell at a constant value.

Voltage-gated channel. A normally closed ionic channel that is opened by a change in transmembrane voltage (usually a hypopolarization).

Warm fibers. Cutaneous thermoreceptors that increase their discharge rate with increasing skin temperature.

Weber fraction. The ratio of the just-noticeable-difference in stimulus strength to the standard stimulus strength.

Weber-Fechner function. The magnitude of the sensation evoked by a stimulus is proportional to the logarithm of the stimulus strength.

Weber's test. A hearing test using a tuning fork employed to distinguish conduction deafness from nerve deafness.

Wernicke's area. Area 22 of the temporal cerebral cortex that plays a fundamental role in reception and comprehension of speech.

White muscle. A paler colored muscle consisting of fibers lacking high myoglobin concentrations; fast muscle fibers.

Withdrawal reflex. Automatic contraction of the flexor muscles of a limb so as to remove the limb from a noxious stimulus, syn. Flexion reflex, Nocifensive reflex.

Young-Helmholtz theory. Theory of color vision that says there are three fundamental color sensations and three different color receptors; color sensations are the result of activity in this ensemble, syn. Trichromatic theory.

Z line. The boundary of the sarcomere and point of attachment of thin filaments of adjacent sarcomeres.