

Organization of the Peripheral Nervous System

Peripheral Nervous System			
by neuron function		by kind of nerves	
sensory neurons	(afferent)	cranial nerves	12 pairs
	conducts impulses toward CNS		sensory, motor and mixed
	2-3 Million neurons		
motor neurons	(efferent)	spinal nerves	31 pairs
	conducts impulses away from CNS		all mixed
	~350,000 neurons		

Kinds of Motor Neurons in PNS		
Somatic Motor Neurons	Autonomic Motor Neurons	
voluntary effectors: striated muscles	involuntary effectors: smooth & cardiac muscles, glands	
somatic reflexes	visceral reflexes	
single motor neuron to target organ	usually 2 neurons with synapse from spinal cord (ganglion) between from spinal cord to target organ	
NT always stimulatory	NT stimulatory or inhibitory	
ACh released at synapse	ACh and NE released at synapses	
No firing at rest	Baseline firing → speeds up when stimulated	
effector at rest is flaccid	effector at rest has <i>intrinsic tone</i>	
motor neurons cut causes paralysis	motor neurons cut produces exaggerated response	
	Sympathetic Fibers	Parasympathetic Fibers
	formed by neurons from spinal nerves T1 to L2	formed by neurons in cranial nerves: III, VII, IX, X & fibers in some sacral spinal nerves
	form interconnected ganglia (= chain ganglia)	no chain ganglia, fibers not interconnected; ganglia are usually near organs they innervate
	NT are ACh and NE	NT = ACh only
	adapts body for intense physical activities	controls many normal day to day activities
	acts as an emergency system	most active in nonstressful, nonemergency situations
	" <i>fight or flight</i> "	" <i>resting and digesting</i> "
	acts as a unit= mass activation	organs are individually activated; no mass activation
	increases alertness, blood pressure, air flow, blood sugar concentrations, & blood flow to heart and skeletal muscles	promotes normal daily activities: GI tract works to process food; > glandular secretions; > peristalsis; lowers blood pressure, heart rate & respiratory rate