SPINAL TRACTS

1/28/86, 20 Jan 98, 18 Jan 00, 29 Jan 03, 26 Jan 05, 30 Jan 08, 31 Jan 11, 25 Jan 12
Martini’s 6th: 519-, 7th: 422-447, 9th: 502-513

SENSORY PATHWAYS: (p 504)
- first order neuron: cell body in dorsal root ganglion
- second order: cell body in posterior grey horn (or medulla), goes to thalamus
- third order: cell body in thalamus, transmits to cerebrum, becomes conscious.

Four types of ascending tracts: (p 504-505)
- two in posterior funiculus:
  1. fasciculus gracilis (slender bundle) (p 503) muscle position
  2. fasciculus cuneatus (wedge bundle) fine touch localization: upper limb and neck, upper trunk

- a pair in the lateral and anterior funiculus:
  3. spinothalamic tract: (p 504) lateral: pain and temperature ventral: touch and pressure

- one in the lateral funiculus
  4. spino-cerebellar: (p 505) 2 dorsal and 2 ventral: proprioceptors to Purkinje cells in the cerebellum, do not reach cerebrum, therefore unconscious (p 486)

MOTOR PATHWAYS:
- two descending tracts:
  - pyramidal: corticospinal tracts: two branches: lateral funiculus (p 509) ventral funiculus
  - extrapyramidal: influence coordination, posture, balance, visual and auditory, stimulation, etc.

REFLEXES:
- monosynaptic: patellar reflex (a postural reflex, helps maintain posture): (p 444)
  tap patellar ligament, stretches muscle spindle (p 442), generates sensory impulse
  Sensory neuron in DRG sends message to anterior horn cell
  Anterior horn cells transmit message to contract to quadriceps

- polysynaptic: withdrawal reflex (step on a tack): (p 445)
  pain from tack generates sensory impulse
  Sensory neuron in DRG sends message to internuncial cell (association)
  Internuncial cell sends messages to inhibitory and motor neurons
  Motor neuron (anterior horn cell) stimulates flexors
  Inhibitory neuron inhibits extensors

- Babinski sign: infant fans toes when sole is stroked,
  adult curls (because of inhibitory impulses) (p 443)
  Fanning in adults indicate lack of inhibitory impulses, damage to CNS.