

9.01 Study Questions

Sessions 19-21 Lecture Questions

1. What is the S>R model? Why is it important?
2. The work of Bizzi argues for force fields. What are they? What do the force fields suggest for degrees of movement?
3. What is a monosynaptic arc? What would it be used for?
4. What are the main reasons people do not fall down when they pick up one foot? How does the system work?
5. How do the Pyramidal system and Extrapyramidal system differ? Compare the two.
6. What conclusion can you draw from the work of Lawrence and Kuypers?
7. What are two clinical syndromes of basal ganglia dysfunction? Describe what they are and how movement is affected.

Sessions 19-21 Reading Questions

Rosenzweig chapter 11

1.1, 1.2, 1.3,

1.4 (but the classification of “movements” vs. “acts” is not very useful),

2.1, 2.2, 3.1, 3.2, 3.4, 3.5, 4.1, 4.2, 7.1, 7.2, 7.3, 7.5, 8.1, 8.2,

8.3 (note difference from lecture talk on PTP, in which a different synapse was considered),

8.5, 9.1, 10.1, 10.5, 10.6, 11.2, 11.2, 11.3, 12.1, 13.1, 13.2, 13.4, 14.1, 14.3, 16.1, 16.3, 17.1, 17.2, 20.3, 22.1, 22.3, 23.1, 23.2, 24.1, 24.2, 25.1, 25.2

Important terminology: alpha motoneurons, amyotrophic lateral sclerosis, antagonist, apraxia, ataxia, central pattern generators, closed-loop control, denervation supersensitivity, electromyography, end-plate potential, extrafusal fiber, extrapyramidal system, final common pathway, flaccid paralysis (flaccid=limp, relaxed), gamma motoneurons, Golgi tendon organs, Huntington’s disease, innervation ratio, intrafusal fiber, L-dopa, motor plan, muscle spindles, myosin and actin, neuromuscular junction, nonprimary motor cortex, open-loop control, paresis, Parkinson’s disease, post-tetanic potentiation, premotor cortex, primary motor cortex, proprioception, pyramidal system, reflex, reticular formation, reticulospinal tracts, spasticity, spinal shock, stretch reflex, striatum, supplementary motor cortex, synergists (muscles), tendons, vestibulospinal tract. (Just read and understand the short definitions in the Study Guide.)