The Cerebellum: Read pages 486-4487 in Chapter 14 & “Modulation by the Cerebellum on page 564- Chapter. 16. Study Figure 16.9. Most of this should be done on your own. I will only touch on this in lecture. You learned the important associated structures in lab.

1. The ___________________ is the 2nd largest part of the brain.
2. Where is it located?
3. Identify these associated structures:
   a) Cerebellar hemispheres
   b) Transverse fissure
   c) Vermis
   d) Gyri
   e) Falx cerebelli and tentorium cerebelli (see dural reflections of meninges)
   f) Cerebellar cortex (gray matter) vs. arbor vitae (white matter)
      • Folia—parallel ridges of gray matter
      • Cerebellar nuclei—deep within white matter are clusters of gray matter—
        give rise to impulses that travel to brain and spinal cord
      • Arbor vitae (“tree of life”)—white fiber tracts
      • Cerebellar peduncles—pairs of white fiber bundles (tracts) that connect
        cerebellum with spinal cord and brain stem. May be motor, sensory, or both:
        * Inferior cerebellar peduncle (c. ← medulla and s.c=m&s)
        * Middle cerebellar peduncle (c. ← pons = sensory)
        * Superior cerebellar peduncle (c. → midbrain = mostly motor)

4. Functions of cerebellum: a mostly motor area—coordinates movements and receives
   proprioceptive information to compare what is actually happening with intended
   movements. Where is movement initiated?
   a) Coordinates movements (gross and fine motor skills)
   b) Posture and normal muscle tone
   c) Proprioception
   d) Monitors and regulates equilibrium (VIII Vestibular Branch of
      __________________________ cranial nerve, proprioceptors, and eyes needed as well)
   e) Monitors reality with intended action (see numbered points on page 564 and Fig.
      16.9) Be sure to complete this...and know this!
      • intentions
      • actual
      • compares
      • corrects

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5. Injury to cerebellum
   
a) Each hemisphere of the cerebellum controls muscles on the same side (ipsilateral) of the body. Therefore, injury to one side of cerebellum would result in loss of function on the ___________ side.

b) Ataxia
   
   ➢ Define
   
   ➢ How is this related to speech and Hypoglossal Cranial Nerve (XII)?

c) Disturbance of gait

d) Dizziness (connection with inner ear vs. Vestibular Branch of Cranial Nerve VIII)

e) Why is speech slurred when a person is under the influence of alcohol? (This is an important thing to know)