CEREBELLUM

Date: February 8, 2016

Resources:
Abbreviated and focused recording from – Cerebellum PPT – Gruener
Complete – Cerebellum PPT – Gruener
UBC Learning Module on the Cerebellum http://www.neuroanatomy.ca/module_list.html (Don’t use IE and you need the adobe flash plugin)
TeachSheet on the Cerebellum
Essential Neuroscience, 3rd edition by Siegel & Sapru: Chapters 20

KEY CONCEPTS & LEARNING OBJECTIVES (What you need to demonstrate to pass a test!)

I. Demonstrate the ability to:
   a.) Outline the major organizational divisions of the cerebellum (transverse and longitudinal)
   b.) Identify the cerebellar peduncles and deep nuclei
   c.) List the afferent and efferent contributions to each cerebellar peduncle
   d.) Define the origins of the mossy and climbing fibers
   e.) Describe the “wiring diagram” of the cerebellum
   f.) Describe the functional components of the cerebellum
   g.) Describe the somatotopic maps of the cerebellum

II. As the course progresses you need to demonstrate the integration of anatomical and clinical knowledge by:
   a.) Suggest a site of dysfunction that would explain signs and symptoms in a clinical case presentation
   b.) Based on a clinical presentation identify the (expected) site of abnormality on an MRI (or CT) scan of the brain
   c.) Develop 2-3 potential diagnoses, appropriate to the patients’ clinical scenario, course and medical history, which would explain the etiology of their difficulty.

Additional resources for those who are really (we mean really) interested!

Biller J. Practical Neurology, 4th Ed., Lippincott Williams & Wilkins 2012

Barmack NH, Yakhnitsa Y. Topsy Turvy: Functions of climbing and mossy fivers in the vestibulo-cerebellum. Neuroscientist 2011;17:221-226
Buckner RL. The cerebellum and cognitive function: 25 years of insight from anatomy and neuroimaging. Neuron 2013;30:807-815
Hicks TP, Onodera S. The mammalian red nucleus and its role in motor systems, including the emergence of bipedalism and language. Prog Neurobiol 2012;96:165-175
Koziol LF, Budding DE, Chidekel D. From movement to thought: Executive function, embodied cognition, and the cerebellum. Cerebellum 2012;11:505-525
Martini K, Monchi O. Cortico-basal ganglia and cortico-cerebellar circuits in Parkinson’s disease: Pathophysiology or compensation? Behav Neurosci 2013;127:222-236