

ADHD Week 4 - Completion Quiz

Warning: The hard deadline has passed. You can attempt it, but you will not get credit for it. You are welcome to try it as a learning exercise.

- ☐ In accordance with the Coursera Honor Code, I (Matthew Kramer) certify that the answers here are my own work.

Question 1

What are things brain scans CANNOT do? (Select all that apply)

- ☐ A. Show damage to brain tissue, the skull, or blood vessels in the brain
- ☐ B. Be used with other medical tests to help doctors find the right diagnosis for mood and behavioral problems
- ☐ C. Help researchers study healthy brain development, effects of mental illnesses, or effects of mental health treatments on the brain
- ☐ D. Diagnose mental illness when used alone
- ☐ E. Predict risk of getting a mental illness

Question 2

TRUE OR FALSE: Functional imaging creates a "snapshot" of the brain's structure, including bone, tissue, blood vessels, tumors, infection, damage, or bleeding such as from a stroke.

Structural imaging, on the other hand, reveals the brain's ever-changing activity and chemistry by measuring the rate of blood flow, chemical activity, and electrical impulses in the brain during specific tasks.

- ☐ True
- ☐ False

Question 3

In the fMRI study discussed, what did 6 weeks of methylphenidate (Ritalin's active agent) therapy do to a region within the ACC of an ADHD brain?

- ☐ A. Changed its color
- ☐ B. Increased blood flow and metabolic activity at this region
- ☐ C. Enhanced myelination of the neurons at this region
- ☐ D. Damaged dendrites at this region
- ☐ E. Decreased blood flow and enhanced metabolic activity at this region

Question 4

For which sort of task is a PET scan ideal?

- ☐ A. Assessing the glucose metabolism (and thus activity) of certain brain regions
- ☐ B. Measuring the amount of actual neurotransmitters
- ☐ C. Identifying a skull fracture
- ☐ D. Seeing brain vessel abnormalities in flow

Question 5

In an adult PET study, brains of patients with ADHD showed ____% decrease in cortical activity.

- ☐ A. 3.2
- ☐ B. 5.7
- ☐ C. 7.3
- ☐ D. 8.1
- ☐ E. 15.4

Question 6

Which brain areas are generally reduced in size in an ADHD brain? (Select all that apply)

- ☐ A. Medulla
- ☐ B. Prefrontal cortex
- ☐ C. Basal ganglia
- ☐ D. Pons
- ☐ E. Midbrain
- ☐ F. Cerebellum

Question 7

Michael's parents wish for him to be a control for an ADHD MRI imaging study. He is a healthy 11 year old boy. He has a medical history of well-controlled asthma. He has never had surgery, but does have braces. He is not claustrophobic and can lie still for 2 hours without difficulty. Can he participate?

- ☐ A. Yes
- ☐ B. No, because of his asthma
- ☐ C. No, because of his braces
- ☐ D. No, because of his age

Question 8

TRUE OR FALSE: Medications for ADHD can help correct the structural abnormalities of the ADHD brain.

- ☐ True
- ☐ False

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