SN EDUCATOR GUIDE

September 16, 2017

Flex Time

Article-Based Observation: Q

Directions: Read the article "Flex time" and then answer these questions.

1. What is a synapse and how do synapses change during learning?

2. How do the new studies reported in the article differ from previous neuroscience studies of synapses? What metaphor is used to describe the comparison between the studies?

3. What do the researchers mean when they say that a brain region is flexible? Do scientists think that all brain regions are flexible?

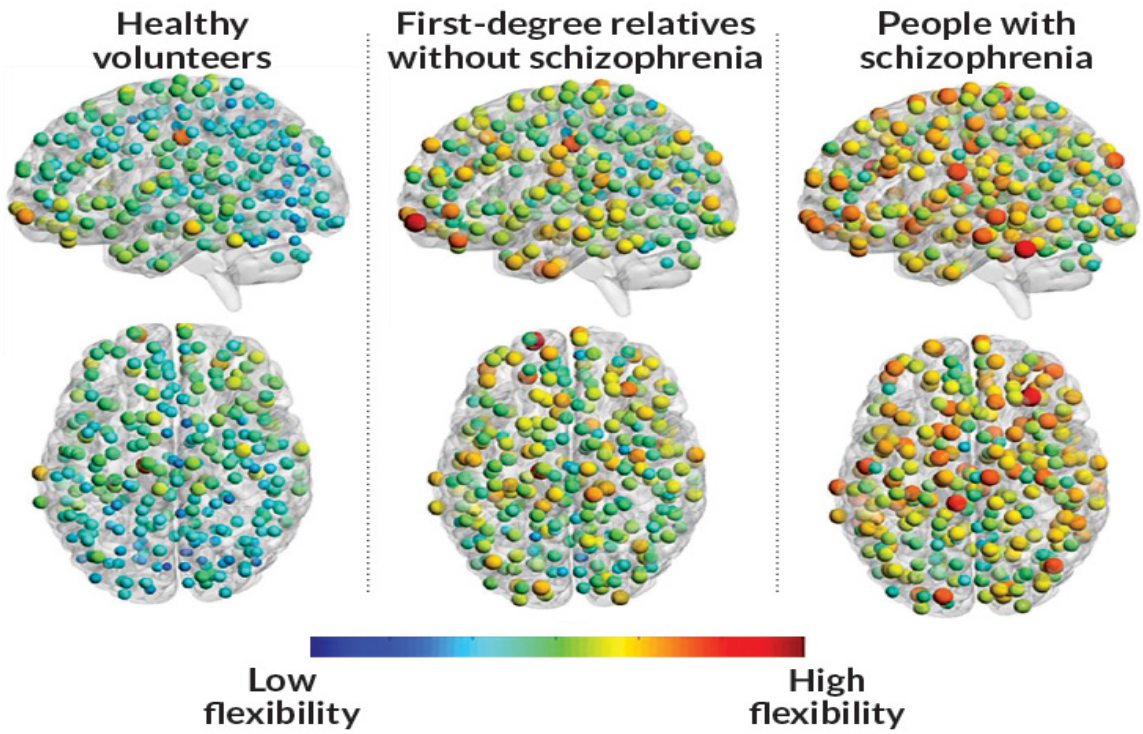
4. How did cognitive neuroscientist Raphael Gerraty and colleagues use associations between faces to study learning, and what did they find?

5. What did neuroscientist Vinod Menon and colleagues find when they scanned the brains of children with and without disabilities doing math?

6. What did Danielle Bassett and colleagues find when they scanned the brains of volunteers learning to tap out sequences on a keyboard? What could their finding imply about fast learners?

7. How is learning efficiency generally related to brain flexibility?

8. Use the diagram, called "Too much of a good thing," to describe how schizophrenia relates to flexibility in brain regions in this study.



U. Braun* et al/PNAS *2016

Too much of a good thing Compared with healthy people (top row), people with schizophrenia (bottom) and their close relatives (middle) showed signs of more flexibility across their brains. The greater the flexibility, the larger the spheres and redder the color.

9. What important gap remains between the previous studies of synapses and the studies reported in this article?

10. What positive aspect can you take away from this article as you move forward in your own learning this year?