NEWS BREAK

Article: Can an athlete’s blood enhance brainpower?

Section: MAIN, A17

Sunday’s News Break selects an article from Sunday, December 12, 2021 of The Seattle Times print replica for an in-depth reading of the news. Read the selected article and answer the attached study questions.

You are encouraged to modify this lesson to fit the needs of your students. For example, some teachers might use this as a take-home assignment and others might read and answer the questions in a small group or larger, class discussion.

*Please be sure to preview all NIE content before using it in your classroom to ensure it is appropriate for your students.

Standards:

CCSS.ELA-Literacy.RI.4.1

- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-Literacy.RI.4.2

- Determine the main idea of a text and explain how it is supported by key details; summarize the text.

Objectives:

Students will discuss if the blood of an athlete could boost the brainpower of someone who doesn’t or can’t exercise? Could a protein that gets amplified when people exercise help stave off symptoms of Alzheimer’s and other memory disorders? Students will debate whether this study will be able to translate into help for humans with dementia, after studying impacts on animals. Students will talk about the health and brain impacts of exercise on the human body. Students will also discuss whether animal testing is important and necessary before human experimentation begins.
Pre-Reading Discussion:

What do you think the article will be about, using only this picture?
Are there any clues?
What can you infer?

Vocabulary Building:

Read this sentence, what do you think the highlighted words mean using context clues? A context clue is a word or words that are hints and refers to the sources of information outside of words that readers may use to predict the identities and meanings of unknown words.

“Protein generated by exercise could stave off memory disorders.”

Stave Off Guess:

Stave Off Definition:

Comprehension Questions:

1. That’s the tantalizing prospect raised by a new study in which researchers injected sedentary mice with blood from mice that ran for miles on exercise wheels, and found that the sedentary mice then did better on tests of ________ and ____________.
2. The study, published Wednesday in the journal Nature, also found that the type of brain inflammation involved in ______________ and other
neurological disorders was reduced in sedentary mice after they received their athletic counterparts’ blood.

3. Scientific results with mice don’t necessarily translate to _______________.

4. He led a 2018 study that found _______________ helped the brains of mice engineered to have a version of Alzheimer’s.

5. The most promising outcome would be if exercise generated _______________ can become the basis for treatments, experts said.

6. The study, led by researchers at Stanford School of Medicine, found that one protein — _______________, produced in the liver and in heart muscle cells — seemed to account for most of the anti-inflammatory effects. But several experts noted that recent studies have found benefits from other proteins.

7. The study was led by Tony Wyss-Coray, a professor of neurology and neurological sciences at Stanford, who had previously done research finding that the blood of young mice can reverse age-related _______________ in old mice.

8. Wyss-Coray said he wanted to see “if exercise produced factors that would also accumulate in the blood and that you could then _______________ them.”

9. The study involved mice that were about 3 months old — roughly the equivalent of ____- to ____-year-olds for humans.

10. Some of the mice, _______________ animals that love to run, could freely use exercise wheels in their cages and logged about 4 to 6 miles on the wheels each night.

11. Mice receiving _______________ blood did better on two tests of learning and memory than those receiving blood from the nonrunner mice.

12. The team also found that the brains of mice with runner blood produced more of several types of brain cells, including those that generate new _______________ in the hippocampus, a region involved in memory and spatial learning.

13. A genetic analysis showed that about _______________ genes had changed in response to the infusion of runner blood, becoming either more or less activated.

Discussion Questions (small/large groups), Journal Prompts or Essay Questions:

- What surprised (or stood out to) you in the article?
- At first I thought _______________, but now I think _______________?
- What things did you already know from prior experience?

What if something in the blood of an athlete could boost the brainpower of someone who doesn’t or can’t exercise? Could a protein that gets amplified when people exercise help stave off symptoms of Alzheimer’s and other memory disorders?
• Do you think this study will be able to translate into help for humans with dementia? Why or why not?

“We’re seeing an increasing number of studies where proteins from outside the brain that are made when you exercise get into the brain and are helpful for improving brain health, or even improving cognition and disease,” said Rudolph Tanzi, a professor of neurology at Massachusetts General Hospital and Harvard Medical School.

• Why do you think exercise improves your brain health?

In one test, which measures how long a mouse will freeze in fear when it is returned to a cage where it previously received an electric foot shock, mice with runner blood froze 25% longer, indicating they had better memory of the stressful event, Wyss-Coray said.

• Do you think animal testing is necessary before human experiments take place? Why or why not?

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