



Daily Article (Bharath's Reading list) - Answers and Explanations 03.07.2023

Article link : <https://bit.ly/3D3vb6l> (Memories Help Brains Recognize New Events Worth Remembering)

1. According to the article, long-term memory formation is a challenge because:

- A. The brain must determine whether this highly energetic process is worth it
- B. The 'learning-rich' period in which the threshold for memory formation is lower persists only for a maximum of 4 hours
- C. Unless an averse stimulus is experienced, the brain does not forge more durable synaptic connections between neurons
- D. All the above

Explanation : A

Note the lines, 'Though we often aren't aware of the challenge, long-term memory formation is "an incredibly energetic process," said Michael Crossley, a senior research fellow at the University of Sussex and the lead author of the new study....To conserve resources, a brain must therefore be able to distinguish when it's worth the cost to form a memory and when it's not.'

Option B, while true, is not related to why the article says long-term memory formation is a challenge. Option C is factually incorrect, based on the article: even with favourable stimulus being used for training, the snails formed long-term memories.

2. The researchers involved in the study worked with snails due to all the following reasons except:

- A. Snails have giant neurons which are more accessible for study
- B. The mechanisms behind learning and memory are conserved and exactly alike in mollusks such as snails and humans
- C. Though snails have much fewer neurons, their brain circuitry is well mapped
- D. Snails are remarkable learners who can remember something after a single exposure to it

Explanation: B

All options except B are true. Option B is incorrect: 'The mechanisms behind learning and memory are surprisingly similar in mollusks and mammals such as humans, Glanzman said. As far as the authors know, this exact mechanism hasn't been shown in humans, Crossley said.'

3. Which of the following, if true, is not in line with the contents of the article?

- A. When the snails were given a weak training with banana flavouring followed hours later by strong training with coconut flavouring, they did not form a memory of the strong training
- B. When the snails were given a strong training with coconut flavouring followed hours later by weak training with banana flavouring, they learned from the weak training too
- C. When the snails were given a weak training with banana flavouring followed hours later by strong training with coconut flavouring, it failed to impart a memory
- D. When the snails were given a strong training with banana flavouring followed hours later by weak training with coconut flavouring, they were much more willing to swallow the water

Explanation: A

According to the article, swapping the flavors used in the strong and weak training had no effect on the results. So, ignoring this point, if we look at options B, C and D, we see that they are in line with the findings of the study.

Option A is incorrect: 'When the researchers switched the order and did the weak training first, it again failed to impart a memory. The snails still formed a memory of the strong training, but that didn't have a retroactive strengthening effect on the earlier experience. '

