

Starving Could Impact Immune System: Shocking Science Finds

Description

When you feel hungry, your body might change. A study in mice showed that just thinking you're hungry can affect your immune system. This happens even if you haven't skipped a meal. Your brain's idea of hunger can influence how your immune system works.

The study, published in Science Immunology, suggests that your brain, not just changes in food levels, can shape your immunity. Special brain cells called AgRP neurons and POMC neurons control feelings of hunger and fullness. When hunger neurons were turned on in well-fed mice, they wanted to eat more.

Surprisingly, this artificial hunger also decreased certain immune cells in the blood. The brain communicates with the liver to control energy levels, affecting immune cells. Hunger signals cause a stress hormone release, amplifying immune changes. The brain might help prepare for food shortages by adjusting energy and immune responses early on.

This research could impact diseases like heart disease, multiple sclerosis, and cancer. It also sheds light on obesity and eating disorders, showing how the brain can influence the immune system.

Vocabulary List:

- 1. Immunity /I'mju:.n1.ti/ (noun): The ability of an organism to resist disease or infection.
- 2. Neurons /'njʊə.rɒnz/ (noun): Specialized cells that transmit nerve impulses; fundamental units of the brain and nervous system.
- 3. **Amplifying** /'æmplɪfaɪɪŋ/ (verb): Increasing or making something stronger.

ESL-I

- 4. **Influence** /'Influens/ (verb): To have an effect on the development or behavior of someone or something.
- 5. Signals /'sɪgnəlz/ (noun): Things that are used to convey information or instructions.
- 6. **Disorders** /dɪs'ɔ:dərz/ (noun): Abnormal conditions affecting health often involving significant functional impairment.

Comprehension Questions

Multiple Choice

1. What can affect your immune system even without skipping a meal?



Option: Thinking about hunger Option: Exercising Option: Drinking water Option: Sleeping

2. Which brain cells control feelings of hunger and fullness?

Option: AgRP neurons and POMC neurons Option: Olfactory neurons Option: Motor neurons Option: Visual neurons

3. What can hunger signals cause in the body?

Option: Release of stress hormones Option: Improved vision Option: Lower heart rate Option: Stabilization of blood sugar

4. How does the brain communicate with the liver in terms of energy levels?

Option: Through hormonal signals Option: Direct electrical signals Option: Through the spinal cord Option: By sending neurotransmitters

5. What is one of the impacts of the research mentioned?

Option: Impacting heart disease Option: Improving eyesight Option: Enhancing muscle strength Option: Boosting memory

6. What condition does the research shed light on?

Option: Obesity and eating disorders Option: Diabetes and hypertension Option: Skin conditions Option: Respiratory diseases

True-False

7. Thinking you're hungry has no effect on the immune system.



8. Hunger neurons being activated in well-fed mice led them to want to eat more.

9. The brain does not help prepare for food shortages by adjusting energy and immune responses.

10. This research may not have any impact on diseases like multiple sclerosis.

11. The brain has no influence on the immune system according to the study.

12. More studies are not needed to understand the link between the brain and the immune system fully.

Gap-Fill

14. The brain communicates with the ______ to control energy levels, affecting immune cells.

15. More studies are needed to understand the link between the brain and the immune system

17. This research sheds light on how the brain can influence the immune system in cases of obesity and

eating _____.

18. When hunger neurons were activated in well-fed mice, they showed an increased desire to

Answer

Multiple Choice: 1. Thinking about hunger 2. AgRP neurons and POMC neurons 3. Release of stress hormones 4. Through hormonal signals 5. Impacting heart disease 6. Obesity and eating disorders **True-False:** 7. False 8. True 9. False 10. False 11. False 12. False **Gap-Fill:** 14. liver 15. fully 17. disorders 18. eat more

CATEGORY

1. Health - LEVEL2

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