

New Study Shows Link Between Gut Microbiome and Stress Response: Shots

Description

Research into the gut microbiome has revealed intriguing links to mental health, with a recent study shedding light on the relationship between **resilience** and the **microbiome**. The study, published in *Nature Mental Health*, found distinct biological signatures in the microbiomes of individuals who show high resilience in the face of stress. Led by neuroscientist Arpana Church from UCLA, the study analyzed brain imaging, stool samples, and psychological questionnaires to identify key associations in the high resilience group.

The findings highlighted increased features related to improved **emotion regulation** and **cognition** in the brain of highly resilient individuals. Additionally, the microbiome of resilient individuals showed reduced inflammation and improved gut barrier integrity. This connection between the microbiome and resilience opens up opportunities for future research that could lead to potential treatments and the development of biomarkers to guide decisions around mental health care.

As scientists delve deeper into the brain-gut connection, the hope is to uncover more insights into how the microbiome influences our mental well-being. While the road to actionable treatments may be long and complex, promising evidence from studies targeting the microbiome through specific diets provides hope for the future. The power of these studies lies in the potential discovery of **biomarkers** that could revolutionize clinical care in the coming years.

Vocabulary List

1. **Resilience** /rɪ'zɪl.jəns/ (noun): The ability to recover quickly from difficulties; toughness.
2. **Microbiome** /maɪkrobaim/ (noun): The collection of all the microorganisms living in association with the human body.
3. **Emotion regulation** /'emənʃən rɪ'juleɪʃən/ (noun): The ability to influence one's own emotional state.
4. **Cognition** /kə'nɔːɡɪʃən/ (noun): The mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.
5. **Biomarkers** /baɪ'mɑːkəz/ (noun): Biological measures that indicate a medical state observed from outside the patient.

Vocabulary List:

1. **Resilience** //rɪ'zɪl.jəns// (noun): The ability to recover quickly from difficulties; toughness.
2. **Microbiome** //maɪkrobaim// (noun): The collection of all the microorganisms living in association with the human body.

3. **Inflammation** //ɪn.flə'meɪ.ʃən// (noun): A localized physical condition characterized by redness swelling heat and pain as a reaction to injury or infection.
4. **Cognition** //kəg'nɪʃ.ən// (noun): The mental action or process of acquiring knowledge and understanding through thought experience and the senses.
5. **Biomarkers** //baɪ.ɔɪ,ma:r.kərz// (noun): Biological measures that indicate a medical state observed from outside the patient.
6. **Integrity** //ɪn'teɡ.rɪ.ti// (noun): The state of being whole and undivided; the quality of being honest and having strong moral principles.

Comprehension Questions

Multiple Choice

1. What is defined as the ability to recover quickly from difficulties or toughness?

- Option: Cognition
- Option: Biomarkers
- Option: Resilience
- Option: Microbiome

2. Which term refers to the mental action or process of acquiring knowledge and understanding through thought experience and the senses?

- Option: Emotion regulation
- Option: Cognition
- Option: Biomarkers
- Option: Resilience

3. What is the collection of all the microorganisms living in association with the human body called?

- Option: Cognition
- Option: Biomarkers
- Option: Resilience
- Option: Microbiome

4. Biological measures that indicate a medical state observed from outside the patient are known as:

- Option: Cognition
- Option: Biomarkers
- Option: Resilience
- Option: Microbiome

5. Which of the following is related to the ability to influence one's own emotional state?

- Option: Biomarkers
- Option: Resilience
- Option: Emotion regulation
- Option: Microbiome

6. Considering the context of the microbiome study on resilience what biological signatures were found in the microbiomes of individuals with high resilience?

- Option: Reduced inflammation and weakened gut barrier integrity
- Option: Increased features related to emotion regulation and cognition
- Option: Increased inflammation and weakened gut barrier integrity
- Option: Reduced features related to emotion regulation and cognition

Answer

Multiple Choice: 1. Resilience 2. Cognition 3. Microbiome 4. Biomarkers 5. Emotion regulation 6. Increased features related to emotion regulation and cognition

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. What term describes the ability to recover from difficulties?

- Option: Inflammation
- Option: Resilience
- Option: Integrity
- Option: Perseverance

2. What is the term for the collection of microorganisms in a particular environment?

- Option: Bacteria
- Option: Addiction
- Option: Microbiome
- Option: Crosstalk

3. What term refers to the mental action or process of acquiring knowledge and understanding?

- Option: Achievement
- Option: Cognition
- Option: Transplant
- Option: Obesity

4. What are measurable substances that indicate the presence of a biological process or condition?

- Option: Therapies
- Option: Incurable
- Option: Biomarkers
- Option: Devastating

5. What term describes a complex condition characterized by compulsive drug use?

- Option: Incurable
- Option: Achievement
- Option: Addiction
- Option: Prognosis

6. What is the term for a medical condition in which excess body fat has accumulated to an extent that it may have a negative effect on health?

- Option: Prognosis
- Option: Crosstalk
- Option: Integrity
- Option: Obesity

7. What are specialized plant fibers that nourish the good bacteria already in the colon?

- Option: Prebiotics
- Option: Bacteria
- Option: Resistant
- Option: Mitigate

8. What term describes the ability of a microorganism to withstand the effects of medication?

- Option: Resistant
- Option: Complex
- Option: Prognosis
- Option: Mitigate

9. What term refers to the temporary or permanent disappearance of the signs and symptoms of cancer?

- Option: Remission
- Option: Perseverance
- Option: Biodiversity
- Option: Acidity

10. What term describes a community of living organisms interacting with one another and their physical environment?

- Option: Mitigate
- Option: Ecosystems
- Option: Interconnectedness

Option: Acidity

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. _____ is the quality of being honest and having strong moral principles.

12. The disease had a _____ effect on his ability to perform daily tasks.

13. Multiple _____ is a type of cancer that forms in a type of white blood cell called a plasma cell.

14. The discovery held great _____ for the field of medicine.

15. The Amazon rainforest is known for its rich _____ of plant and animal species.

16. Efforts to _____ the effects of climate change are crucial for the future of the planet.

17. The immune system is a highly _____ network of cells and proteins.

18. The doctor provided a positive _____ for the patient's recovery.

19. His success was a result of hard work and _____ in the face of challenges.

20. Despite advances in medicine some diseases remain _____.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. Chronic has been linked to various health conditions including heart disease and diabetes.
22. The earthquake had a impact on the small island nation destroying homes and infrastructure.
23. A kidney can improve the quality of life for patients with end-stage renal disease.
24. Winning the Nobel Prize was a significant for the scientist after years of research.
25. The concept of global highlights the idea that actions in one part of the world can have far-reaching effects.
26. Various medical are available to treat different types of cancer.

27. Cellular plays a crucial role in coordinating responses to external stimuli.

28. The pH level measures the degree of or alkalinity in a substance.

29. The loss of biodiversity in the rainforest would be to the delicate ecosystem.

30. Probiotics are live bacteria and yeasts that are good for your health especially your digestive system.

Answer

Multiple Choice: 1. Resilience 2. Microbiome 3. Cognition 4. Biomarkers 5. Addiction 6. Obesity 7. Prebiotics 8. Resistant 9. Remission 10. Ecosystems

Gap-Fill: 11. Integrity 12. Debilitating 13. Myeloma 14. Significance 15. Biodiversity 16. Mitigate 17. Complex 18. Prognosis 19. Perseverance 20. Incurable

Matching sentence: 1. Inflammation 2. Devastating 3. Transplant 4. Achievement 5. Interconnectedness 6. Therapies 7. Crosstalk 8. Acidity 9. Devastating 10. Bacteria

CATEGORY

1. Health - LEVEL4

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