



Study suggests sleep deprivation worsens brain changes when combined with caffeine

Description

A recent study suggests that caffeine could worsen the negative effects of lack of sleep on the brain. Researchers found that people who consumed caffeine while sleep-deprived had more significant decreases in brain grey matter compared to those who didn't have caffeine. Caffeine is known for boosting alertness and counteracting cognitive issues caused by sleep deprivation. However, both insufficient sleep and regular caffeine intake have been linked to reductions in brain grey matter volume, which is crucial for processing information. The study explored how chronic sleep restriction, combined with caffeine consumption, affected grey matter volume. The research, led by Yu-Shiuan Lin and David Elmenhorst, focused on adenosine receptors in the brain affected by caffeine. The findings could have implications for understanding brain plasticity and the impact of sleep deprivation on brain structure.

Vocabulary List:

1. **Caffeine** /'kæfi:n/ (noun): A stimulant substance found in coffee tea and various energy drinks.
2. **Deprivation** /,dɛprɪ'veɪʃən/ (noun): The state of being deprived of something especially basic necessities like sleep.
3. **Cognition** /kɒg'nɪʃən/ (noun): The mental action of acquiring knowledge and understanding through thought experience and the senses.
4. **Implication** /,ɪmplɪ'keɪʃən/ (noun): A conclusion that can be drawn from something although it is not explicitly stated.
5. **Plasticity** /plæ'stɪsɪti/ (noun): The ability of the brain to change and adapt as a result of experience.
6. **Volume** /'vɒljʊ:m/ (noun): The amount of space that a substance or object occupies often used in a scientific context regarding brain matter.

Comprehension Questions

Multiple Choice

1. What negative effects could caffeine worsen on the brain according to the study?

Option: Memory loss



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- Option: Decrease in brain grey matter
Option: Increased brain plasticity
Option: Improved cognitive function
2. Which researchers led the study on caffeine and its effects on brain grey matter?
Option: Yu-Shiuan Lin and David Elmenhorst
Option: John Smith and Mary Johnson
Option: Emily Chang and Michael Lee
Option: Alex Rodriguez and Sarah White
3. What is the consequence of chronic sleep restriction combined with caffeine consumption?
Option: Improved brain plasticity
Option: No impact on brain structure
Option: Decreased brain grey matter volume
Option: Enhanced memory
4. What is the role of adenosine receptors in the brain related to caffeine consumption?
Option: Boost cognitive function
Option: Have no impact on brain structure
Option: Affected by caffeine
Option: Improve sleep quality
5. Why is brain grey matter volume considered crucial for processing information?
Option: It regulates emotions
Option: It enhances creativity
Option: It is involved in decision-making
Option: It processes and stores information
6. What could be the potential implications of the study findings on brain plasticity and sleep deprivation?
Option: Improved brain plasticity with caffeine intake
Option: No impact on sleep deprivation effects
Option: Better understanding of brain plasticity and sleep deprivation effects
Option: Increased cognitive decline

Answer

Multiple Choice: 1. Decrease in brain grey matter 2. Yu-Shiuan Lin and David Elmenhorst 3. Decreased brain grey matter volume 4. Affected by caffeine 5. It processes and stores information 6. Better understanding of brain plasticity and sleep deprivation effects



Vocabulary quizzes

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

1. What is the key principle behind maintaining a balanced lifestyle?
Option: A) Hydration
Option: B) Moderation
Option: C) Aggressiveness
Option: D) Deprivation
2. Which approach involves taking actions to prevent issues before they occur?
Option: A) Reactive
Option: B) Proactive
Option: C) Injuries
Option: D) Incidence
3. What term refers to the total number of individuals within a specific area?
Option: A) Concerning
Option: B) Population
Option: C) Well-being
Option: D) Demographics
4. What are indications of a condition or disease experienced by an individual?
Option: A) Symptoms
Option: B) Caffeine
Option: C) Exposure
Option: D) Plasticity
5. Which term refers to the quantity or amount of something?
Option: A) Volume
Option: B) Balanced
Option: C) Manage
Option: D) Contracted
6. Accidents or traumas that cause harm to the body are commonly known as:
Option: A) Injuries
Option: B) Proactive
Option: C) Equating
Option: D) Deprivation
7. Which term refers to making two things equal or equivalent to each other?



- Option: A) Persistent
- Option: B) Equating
- Option: C) Volume
- Option: D) Symptoms

8. What term describes the mental action or process of acquiring knowledge?

- Option: A) Implication
- Option: B) Significantly
- Option: C) Caffeine
- Option: D) Cognition

9. Which word is used to describe being subjected to something especially something unpleasant?

- Option: A) Exposure
- Option: B) Well-being
- Option: C) Outbreak
- Option: D) Crucial

10. What term represents something of great importance or necessary significance?

- Option: A) Population
- Option: B) Crucial
- Option: C) Moderation
- Option: D) Persistent

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

11. It is important to stay _____ especially during hot weather to maintain good health.

12. An _____ of a contagious disease can lead to widespread panic and health concerns in a community.

13. The discovery of new evidence had serious _____ for the outcome of the trial.

14. She _____ the flu after being in close contact with an infected individual.

15. His _____ cough was a cause for concern prompting him to visit the doctor.

16. The latest reports about the environmental impact of the factory are very _____.

17. The _____ of diabetes has been increasing steadily in the past decade.

18. Marketers study the _____ of their target audience to tailor their advertising



strategies.

19. The new regulations will _____ impact how businesses operate in the region.

20. Sleep _____ can have negative effects on a person's mood and cognitive function.

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

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| 21. A diet that includes a variety of nutrients in the right proportions is necessary for good health. |
| 22. Effective time is crucial for maintaining productivity and reducing stress. |
| 23. Regular exercise and proper nutrition are essential for overall health and . |
| 24. The team adopted an marketing strategy to gain a competitive edge in the market. |
| 25. Anticipating challenges and taking preventive measures is part of being in problem-solving. |
| 26. The brain's ability to adapt and reorganize itself is known as neuroplasticity or brain . |
| 27. His efforts paid off as he finally achieved his long-term goal. |
| 28. Many people rely on for the temporary boost in alertness it provides. |
| 29. The loud of the music at the concert caused discomfort to some attendees. |
| 30. She was to new ideas and experiences during her travels broadening her perspectives. |

Answer

Multiple Choice: 1. B) Moderation 2. B) Proactive 3. B) Population 4. A) Symptoms 5. A) Volume 6. A) Injuries 7. B) Equating 8. D) Cognition 9. A) Exposure 10. B) Crucial

Gap-Fill: 11. Hydrated 12. Outbreak 13. Implication 14. Contracted 15. Persistent 16. Concerning 17. Incidence 18. Demographics 19. Significantly 20. Deprivation

Matching sentence: 1. Balanced 2. Manage 3. Well-being 4. Aggressive 5. Proactive 6. Plasticity 7. Persistent 8. Caffeine 9. Volume 10. Exposed

CATEGORY

- 1. Health - LEVEL1

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