

Common Sleep Aid Linked to Lower Alzheimer's Protein Buildup

Description

Despite the extensive research surrounding Alzheimer's disease, numerous enigmatic aspects remain, particularly the intriguing correlation between inadequate sleep and the advancement of the disease, a connection that has garnered significant scholarly interest.

A recent study, published in 2023, elucidates that the administration of hypnotic medications can mitigate the accumulation of deleterious protein aggregates in the cerebrospinal fluid, which plays a crucial role in the brain's nightly cleansing process.

Researchers affiliated with Washington University in St. Louis discovered that participants who ingested <u>suvorexant</u>, a widely used insomnia treatment, for merely two nights at a sleep clinic exhibited a modest reduction in the levels of two pivotal proteins—<u>amyloid-beta</u> and <u>tau</u>—which are notorious for their role in the pathology of Alzheimer's.

Although the study's short duration and limited sample comprised only healthy adults devoid of cognitive impairments, it offers compelling insights into the nexus between sleep quality and Alzheimer's-related molecular markers.

Sleep disturbances often serve as precursors to Alzheimer's, manifesting long before cognitive decline becomes apparent. By the time initial symptoms arise, levels of abnormal amyloid-beta are typically near their zenith, forming plaques that obstruct neuronal function.

Glampstoftyellow/forming/among purple neurons
Illustration of amyloid plaques. (Science Photo Library/Canva)

Researchers posit that enhancing sleep quality may be a promising strategy for potentially delaying the onset of Alzheimer's by facilitating the brain's ability to cleanse itself of residual proteins and other metabolic waste.

Nonetheless, caution is warranted; neurologist Brendan Lucey of Washington University's Sleep Medicine Center warns against interpreting these findings as a rationale for habitual suvorexant use among individuals harboring concerns about Alzheimer's. The study's brevity and the small cohort necessitate a prudent perspective on the therapeutic use of sleeping pills.

Despite the potential advantages, prolonged reliance on sleeping medications poses risks of dependency and may induce suboptimal sleep architecture, undermining the restorative benefits of deep sleep phases. Prior investigations have highlighted a correlation between diminished quality of slow-wave sleep and elevated levels of tau tangles and amyloid-beta.

Future research, particularly involving older populations over extended periods, is crucial in assessing the long-term efficacy of sleeping aids on protein levels while weighing their potential drawbacks.

Fundamentally, the prevailing hypothesis surrounding Alzheimer's disease, which implicates aberrant



protein aggregation in its pathophysiology, is currently facing rigorous scrutiny. Despite the years of research aimed at reducing amyloid levels yielding limited therapeutic success, the relationship between sleep disturbances and Alzheimer's becomes increasingly compelling amidst the broader quest to elucidate the disease's etiology.

In summary, while the prospective application of sleeping medications as a preventative measure against Alzheimer's remains speculative, maintaining proper sleep hygiene and addressing sleep disorders can significantly enhance overall brain health.

"I remain hopeful for the development of pharmacological interventions that leverage the relationship between sleep and Alzheimer's to stymie cognitive decline," remarks Lucey, albeit acknowledging that we have yet to reach a definitive solution.

The findings are published in the *Annals of Neurology*.

An earlier version of this article was published in April 2023.

Vocabulary List:

- 1. Elucidates /ɪˈluː.sɪ.deɪts/ (verb): To make something clear or easy to understand.
- 2. Mitigate /'mɪt.ɪ.geɪt/ (verb): To make less severe serious or painful.
- 3. **Cerebrospinal** /ˌsɛrəbrəʊˈspaɪnəl/ (adjective): Relating to the brain and spinal cord.
- 4. Nexus /'nɛk.səs/ (noun): A connection or series of connections linking two or more things.
- 5. **Pathology** /pə'θpl.ə.dʒi/ (noun): The scientific study of disease.
- 6. **Hypothesis** /haɪˈpɒθ.ɪ.sɪs/ (noun): A proposed explanation made on the basis of limited evidence as a starting point for further investigation.

Comprehension Questions

Multiple Choice

1. What is the correlation discussed in the text?

Option: Alzheimer's disease and sleep quality

Option: Alzheimer's disease and medication side effects

Option: Amyloid-beta and tau protein levels

Option: Alzheimer's disease and brain region involvement

2. Which proteins were found to have reduced levels with suvorexant treatment?



Option: Beta-amyloid and melatonin Option: Tau protein and amyloid-beta

Option: Serotonin and gamma-aminobutyric acid

Option: Glutamate and dopamine

3. What did researchers suggest could potentially delay the onset of Alzheimer's?

Option: Physical exercise

Option: Enhancing sleep quality Option: Oil supplementation

Option: Limiting cognitive activities

4. Who cautioned against habitual suvorexant use?

Option: Dr. Brendan Lucey
Option: Dr. Katherine Smith
Option: Prof. Michael Johnson

Option: Dr. Sarah Lee

5. What risk is associated with prolonged reliance on sleeping medications?

Option: Memory Improvement

Option: Risk of Arthritis

Option: Dependency and sleep architecture disruption

Option: Increased Immunity

6. What publication contains the findings discussed?

Option: Journal of Medicine

Option: Journal of Sleep Research

Option: Annals of Neurology Option: Alzheimer's Journal

True-False

- 7. Sleep disturbances are not linked to Alzheimer's disease according to the text.
- 8. Enhancing sleep quality may delay the onset of Alzheimer's according to the article.
- 9. The study discussed in the text involved only participants with cognitive impairments.
- 10. Dr. Brendan Lucey emphasizes the need for caution regarding the use of suvorexant.



- 11. Reduced quality of deep sleep phases is correlated with higher levels of amyloid-beta.
- 12. Long-term efficacy of sleeping aids on protein levels has not been fully assessed as per the text.

Gap-Fill

| 13. According to the text, disturbances in sleep quality are often $ $ | precursors to | | | |
|--|--|--|--|--|
| disease. | | | | |
| 14. Dr. Brendan Lucey is affiliated with Washington University's $_$ | Center. | | | |
| 15. The study participants ingested suvorexant for only | nights at a sleep clinic. | | | |
| 16. Levels of abnormal amyloid-beta are typically near their zenit | th by the time initial symptoms of | | | |
| Alzheimer's | | | | |
| 17. According to the text, future research should involve older populations over | | | | |
| periods to assess long-term efficacy of sleeping aids. | | | | |
| 18. Reducing amyloid levels has yielded | _ therapeutic success according to the | | | |
| article. | | | | |

Answer

Multiple Choice: 1. Alzheimer's disease and sleep quality 2. Tau protein and amyloid-beta 3. Enhancing sleep quality 4. Dr. Brendan Lucey 5. Dependency and sleep architecture disruption 6. Annals of Neurology **True-False:** 7. False 8. True 9. False 10. True 11. True 12. True

Gap-Fill: 13. Alzheimer's 14. Sleep Medicine 15. two 16. arise 17. extended 18. limited

Vocabulary quizzes

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

1. What is the term used to describe the relationship or connection between two or more things?



Option: A) Cognitive Option: B) Correlate Option: C) Cerebrospinal Option: D) Contamination

2. Which word means to make something clear or explain something?

Option: A) Innovative Option: B) Elucidates Option: C) Pathology Option: D) Fossilization

3. What is the term for taking steps to lessen the severity or extent of something?

Option: A) Mitigate Option: B) Infiltration Option: C) Precipitated Option: D) Nexus

NEWS.COM 4. Which word describes introducing new ideas or methods?

Option: A) Synchronized Option: B) Mitigate Option: C) Innovative Option: D) Unearthed

5. To cause something to happen suddenly or unexpectedly is to ...

Option: A) Taxonomy Option: B) Epitomizes Option: C) Adsorption Option: D) Precipitated

6. Which term refers to a practice that can be maintained over the long term without depleting resources?

Option: A) Trajectory Option: B) Correlate Option: C) Sustainable Option: D) Amalgamation

7. What is the process of combining or uniting multiple entities into one?

Option: A) Annihilation Option: B) Mitigate Option: C) Amalgamation

Option: D) Infiltration

8. Which word describes the path followed by a projectile or an object moving under the action of given forces?



| Option: A) Synaptic |
|-------------------------|
| Option: B) Trajectory |
| Option: C) Enigmation |
| Option: D) Valuation |
| What is a central or |
| Option: A) Infiltration |
| Option: B) Nexus |
| |

9. What is a central or most important point?

Option: A) Infiltration
Option: B) Nexus
Option: C) Elucidates
Option: D) Contamination

10. Which word refers to a single item example or representative of a group?

Option: A) Taxonomy
Option: B) Contamination
Option: C) Specimen
Option: D) Synchronized

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

| 11. The | puzzle has puzzled | scientists for decades. | |
|---------------------------------|---------------------------|-------------------------|-----------------------------------|
| 12 is | s the process in which a | a solid holds molecules | of a gas or liquid on its surface |
| 13. The unexpected power out | age caused the compar | ny to | its production |
| schedule. | | | |
| 14. Proper | of the antique va | se required the expert | tise of a skilled appraiser. |
| 15. Before conducting the expe | eriment the scientist for | rmulated a | to test. |
| 16. The process of | can pres | erve the remains of an | imals and plants for millions of |
| years. | | | |
| 17. The study of the causes and | d effects of diseases is | known as | · |
| 18. Communication between no | eurons occurs at the _ | | junction. |
| 19. The discovery of water | | aised concerns about | the safety of the local |



| population. | | |
|---|--|--|
| 20. Total destruction or of the enemy forces was the primary objective of the | | |
| battle. | | |
| Matching Sentences (Match each definition to the correct word from the vocabulary list.) | | |
| 21. The sudden appearance of a double rainbow after the rain shower amazed everyone. | | |
| 22. The fluid surrounds the brain and spinal cord protecting them from injury. | | |
| 23. Archaeologists ancient artifacts buried beneath the temple ruins. | | |
| 24. Biologists use to classify and organize living organisms into hierarchical groups. | | |
| 25. The of the new treatment in reducing pain was proven in clinical trials. | | |
| 26. The spy's mission involved a secret into the enemy's headquarters. | | |
| 27. His dedication and hard work the values of the company. | | |
| 28. The merger of the two companies resulted in a successful of resources and expertise. | | |
| 29. The dancers performed a beautifully routine that captivated the audience. | | |
| 30. An accurate of the artwork required knowledge of art history and current market trends. | | |

Answer

Multiple Choice: 1. B) Correlate 2. B) Elucidates 3. A) Mitigate 4. C) Innovative 5. D) Precipitated 6. C)

Sustainable 7. C) Amalgamation 8. B) Trajectory 9. B) Nexus 10. C) Specimen

Gap-Fill: 11. Enigmatic 12. Adsorption 13. Disrupt 14. Valuation 15. Hypothesis 16. Fossilization 17.

Pathology 18. Synaptic 19. Contamination 20. Annihilation

Matching sentence: 1. Phenomenon 2. Cerebrospinal 3. Unearthed 4. Taxonomy 5. Efficacy 6. Infiltration

7. Epitomizes 8. Amalgamation 9. Synchronized 10. Valuation

CATEGORY

1. Health - LEVEL6

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