

Common Sleep Aid Linked to Lower Alzheimer's Protein Buildup

Description

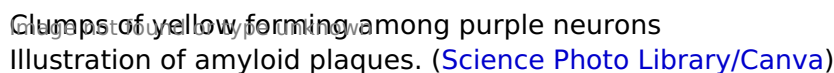
Despite the extensive research surrounding Alzheimer's disease, numerous enigmatic aspects remain, particularly the intriguing correlation between inadequate sleep and the advancement of the disease, a connection that has garnered significant scholarly interest.

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 [suvorexant](#), a widely used insomnia treatment, for merely two nights at a sleep clinic exhibited a modest reduction in the levels of two pivotal proteins—[amyloid-beta](#) and [tau](#)—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.


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** /ˈmɪt.ɪ.geɪt/ (verb): To make less severe serious or painful.
3. **Cerebrospinal** /ˌserəbrəʊˈspaɪnəl/ (adjective): Relating to the brain and spinal cord.
4. **Nexus** /ˈnek.səs/ (noun): A connection or series of connections linking two or more things.
5. **Pathology** /pəˈθɒl.ə.dʒi/ (noun): The scientific study of disease.
6. **Hypothesis** /haɪˈpɒθ.i.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 zenith 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?



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- 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
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?
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- Option: A) Synaptic
- Option: B) Trajectory
- Option: C) Enigmatic
- Option: D) Valuation

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 the process in which a solid holds molecules of a gas or liquid on its surface.

13. The unexpected power outage caused the company to _____ its production schedule.

14. Proper _____ of the antique vase required the expertise of a skilled appraiser.

15. Before conducting the experiment the scientist formulated a _____ to test.

16. The process of _____ can preserve the remains of animals and plants for millions of years.

17. The study of the causes and effects of diseases is known as _____.

18. Communication between neurons occurs at the _____ junction.

19. The discovery of water _____ raised 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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