



Sound Stimulation May Help Remove Alzheimer's Plaques, Study Finds

Description

Scientists in China have discovered that sound stimulation at 40 Hertz (Hz) can help clear amyloid levels in aged monkeys. This finding shows promise for developing a new, non-invasive therapy for Alzheimer's disease. Researchers from the Kunming Institute of Zoology tested this method on nine elderly rhesus macaques that naturally develop brain changes similar to those seen in humans with Alzheimer's.

During the study, the monkeys received daily one-hour sessions of 40-Hz sound stimulation for seven days. After this treatment, levels of specific proteins related to amyloid, named A β 42 and A β 40, increased significantly in their cerebrospinal fluid (CSF). The effects lasted for over five weeks, which is longer than in previous studies with mice.

This research supports using 40-Hz sound therapy as a possible alternative to existing Alzheimer's treatments, which can have serious side effects like swelling in the brain. The results suggest that this sound stimulation could be a safer and less costly option for managing Alzheimer's disease.

The study highlights the importance of using aged monkeys in research to test new therapies before they are considered for human use.

Vocabulary List:

1. **Amyloid** /'eɪ.mɪ.lɔɪd/ (noun): A protein that can accumulate in the brain and is associated with Alzheimer's disease.
2. **Stimulation** /,stɪm.jə'leɪ.ʃən/ (noun): The act of raising levels of activity in a system or organism often through external means.
3. **Cerebrospinal** /,ser.ə.brəʊ'spaɪ.nəl/ (adjective): Relating to the brain and spinal cord particularly in fluids or conditions affecting them.
4. **Therapy** /'θerəpi/ (noun): Treatment intended to relieve or heal a disorder.
5. **Non-invasive** /,nɒn.ɪn'veɪ.sɪv/ (adjective): Describing a procedure that does not require entering the body or penetrating the skin.
6. **Alternative** /ɔ:l'tɜːnətɪv/ (noun): A different option or choice that can be used instead of another.

Comprehension Questions



Multiple Choice

1. What frequency of sound stimulation was used in the study?
 - Option: 20 Hz
 - Option: 30 Hz
 - Option: 40 Hz
 - Option: 50 Hz

2. How many rhesus macaques were tested in the study?
 - Option: 5
 - Option: 7
 - Option: 9
 - Option: 11

3. Which specific proteins related to amyloid increased in the study?
 - Option: A β 40 and A β 42
 - Option: B β 40 and B β 42
 - Option: C β 40 and C β 42
 - Option: D β 40 and D β 42

4. How long did the effects of the sound stimulation last?
 - Option: Two weeks
 - Option: Three weeks
 - Option: Over five weeks
 - Option: One month

5. What concern does the research aim to address?
 - Option: High cost of therapies
 - Option: Serious side effects of existing treatments
 - Option: Lack of research on aged monkeys
 - Option: Ineffectiveness of sound therapy

6. Where was the research conducted?
 - Option: Japan
 - Option: United States
 - Option: China
 - Option: India



True-False

7. The study involved young monkeys.
8. The sound stimulation lasted for seven days.
9. Research was conducted at the Kunming Institute of Zoology.
10. The protein A β 42 is related to the amyloid levels studied.
11. Sound therapy is a new invasive treatment for Alzheimer's disease.
12. The effects of sound stimulation were shorter than those observed in previous studies with mice.

Gap-Fill

13. Scientists in China discovered that sound stimulation at 40 Hertz (Hz) can help clear amyloid levels in aged monkeys. This shows promise for developing a new, non-invasive therapy for _____.
14. The study tested nine elderly rhesus macaques that develop brain changes similar to those in _____ with Alzheimer's.
15. The monkeys received daily one-hour sessions of 40-Hz sound stimulation for _____ days.
16. Levels of amyloid proteins A β 42 and A β 40 increased significantly in the cerebrospinal fluid (CSF) after treatment, lasting for over _____ weeks.
17. The study highlights the importance of using aged monkeys in research to test new therapies before they are _____ for human use.



18. This sound stimulation could be a safer and less costly option for managing _____ disease.

Answer

Multiple Choice: 1. 40 Hz 2. 9 3. A?40 and A?42 4. Over five weeks 5. Serious side effects of existing treatments 6. China

True-False: 7. False 8. True 9. True 10. True 11. False 12. False

Gap-Fill: 13. Alzheimer's disease 14. humans 15. seven 16. five 17. considered 18. Alzheimer's

Vocabulary quizzes

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

1. What type of cancer is characterized as a carcinoma?

- Option: Lung cancer
- Option: Skin cancer
- Option: Breast cancer
- Option: All of the above

2. What is the primary purpose of chemotherapy?

- Option: To relieve pain
- Option: To remove tissue
- Option: To kill cancer cells
- Option: To diagnose disease

3. What does a biopsy involve?

- Option: Taking a tissue sample
- Option: Imaging tests
- Option: Monitoring symptoms
- Option: Blood tests

4. What can genetic mutations lead to?

- Option: Development of hair
- Option: Increased energy
- Option: Cancer
- Option: Weight loss



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5. What is a common symptom of periodontitis?
- Option: Tooth decay
 - Option: Swelling of the gums
 - Option: Cavities
 - Option: Broken teeth
6. What role do bacteria play in the mouth?
- Option: Only harmful
 - Option: Only beneficial
 - Option: Both harmful and beneficial
 - Option: No role at all
7. What is gingivitis?
- Option: A severe form of tooth decay
 - Option: Swelling of the gums
 - Option: Breaking of teeth
 - Option: Nerve pain
8. What is the purpose of therapy in a medical context?
- Option: To treat disease
 - Option: To educate patients
 - Option: To conduct research
 - Option: To administer medication
9. What does non-invasive mean?
- Option: Involving surgery
 - Option: Not causing harm or damage
 - Option: Using sharp instruments
 - Option: Involves significant risk
10. What does 'endurance' refer to in physical activity?
- Option: Strength
 - Option: Speed
 - Option: Stamina
 - Option: Flexibility

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

11. A mastectomy is a surgical procedure to remove one or both _____ of the breasts.
12. Regular exercise can improve your overall _____ and flexibility.
13. Gingivitis often results in _____ of the gums and may lead to more serious dental



issues.

14. The _____ fluid surrounds the brain and spinal cord, providing protection.
15. Practicing mindfulness can help you _____ and reduce stress levels.
16. Nerve _____ can promote healing in injured tissues.
17. Lifting weights can help build your _____ and improve muscle tone.
18. The therapy session was a _____ experience for all the participants.
19. _____ exercises involve contracting muscles without changing their length.
20. Staying in a mountain _____ can be a great way to disconnect and rejuvenate.

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

21. To relax effectively, it's important to create a peaceful environment.
22. Swelling can often indicate infection or injury in the body.
23. A mastectomy is commonly performed to treat breast cancer.
24. Movement is essential for maintaining physical health and mobility.
25. Chemotherapy is a widely used treatment option for various types of cancer.
26. Bacteria can be both harmful and beneficial to human health.
27. Periodontitis typically results in gum inflammation and can affect overall oral health.
28. Isometric exercises are effective for building muscular strength without joint movement.
29. Cerebrospinal fluid plays a crucial role in protecting the brain and spinal cord.
30. Endurance training builds stamina and increases physical performance over time.

Answer

Multiple Choice: 1. All of the above 2. To kill cancer cells 3. Taking a tissue sample 4. Cancer 5. Swelling of the gums



6. Both harmful and beneficial 7. Swelling of the gums 8. To treat disease 9. Not causing harm or damage
10. Stamina

Gap-Fill: 11. breasts 12. movement 13. swelling 14. cerebrospinal 15. relax 16. stimulation 17. strength
18. pleasant 19. Isometric 20. cabin

Matching sentence: 1. relax 2. swelling 3. mastectomy 4. movement 5. chemotherapy 6. bacteria
7. periodontitis 8. isometric 9. cerebrospinal 10. endurance

CATEGORY

1. Health - LEVEL2

POST TAG

1. Alzheimer's plaques
2. breakthrough study
3. ESL learning
4. esl news
5. Level 2
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