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# How Oral Bacteria Influence Dementia Risk: New Insights.

## Description

Recent research has shed light on a fascinating connection between the bacteria residing in our mouths and our risk of developing dementia. It appears that these oral bacteria could potentially influence the aging process of our brains, thereby impacting whether we age normally or succumb to dementia in our later years.

Scientists have uncovered intriguing correlations between the oral microbiome, the diverse community of bacteria in our mouths, and brain health. A study conducted by myself and my colleagues involved analyzing saliva samples from over 50-year-old adults. The results revealed that individuals with high levels of certain bacteria, such as *Neisseria* and *Haemophilus*, exhibited better memory, cognitive skills, and attention span. These individuals also had increased levels of nitrite in their mouths, a byproduct of bacteria breaking down nitrate found in vegetable-rich diets.

Conversely, other groups of bacteria, like *Porphyromonas* and *Prevotella*, were associated with poorer brain health and memory function. *Prevotella*, in particular, was linked to lower nitrite levels and an increased risk of Alzheimer's disease in individuals with the APOE4 gene.

These findings suggest a promising avenue for potential interventions to maintain brain health and prevent dementia. By encouraging the growth of beneficial bacteria while suppressing harmful ones through dietary adjustments, probiotics, oral hygiene practices, or targeted treatments, we could potentially mitigate the risk of cognitive decline as we age.

While further research is needed to fully comprehend the intricate relationship between oral bacteria and brain health, these discoveries offer promising prospects for the future of dementia prevention. In the meantime, maintaining good oral hygiene, consuming nitrate-rich foods, and regularly visiting the dentist are recommended practices to support the beneficial bacteria in our mouths.

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## Vocabulary List:

1. **Microbiome** /ˌmaɪ.krəʊˈbaɪ.əsm/ (noun): The collection of microorganisms residing in a particular environment such as the mouth.
2. **Cognitive** /ˈkɒg.nɪ.tɪv/ (adjective): Relating to the mental processes of perception memory judgment and reasoning.
3. **Correlation** /ˌkɔː.rəˈleɪ.ʃən/ (noun): A mutual relationship or connection between two or more things.
4. **Intervention** /ˌɪn.təˈven.ʃən/ (noun): The action of becoming involved in a situation to alter the outcome.
5. **Beneficial** /ˌbɛn.ɪˈfɪ.əl/ (adjective): Having a good effect; advantageous.
6. **Decline** /dɪˈklaɪn/ (verb): To become smaller fewer or less; to deteriorate over time.



## Comprehension Questions

### Multiple Choice

1. Which of the following bacteria were associated with better memory, cognitive skills, and attention span?  
Option: Neisseria and Haemophilus  
Option: Porphyromonas and Prevotella  
Option: Streptococcus and Staphylococcus  
Option: E. coli and Salmonella
2. What byproduct is found in the mouths of individuals with high levels of certain bacteria breaking down nitrate?  
Option: Carbon dioxide  
Option: Nitrogen gas  
Option: Nitrite  
Option: Oxygen
3. Which group of bacteria was linked to an increased risk of Alzheimer's disease in individuals with the APOE4 gene?  
Option: Neisseria and Haemophilus  
Option: Porphyromonas and Prevotella  
Option: Lactobacillus and Bifidobacterium  
Option: Clostridium and Bacillus
4. What is recommended to support beneficial bacteria in our mouths?  
Option: Consuming sugary foods  
Option: Skipping dental check-ups  
Option: Regularly visiting the dentist  
Option: Avoiding brushing teeth
5. What could potentially mitigate the risk of cognitive decline as we age according to the text?  
Option: Consuming more sugar  
Option: Decreasing physical activity  
Option: Encouraging the growth of beneficial bacteria  
Option: Ignoring oral hygiene practices



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6. Which dietary adjustment is mentioned as a potential intervention to maintain brain health?

Option: Increase in processed foods consumption

Option: Consuming nitrate-rich foods

Option: Eliminating fruits and vegetables

Option: Solely consuming sugary snacks

### True-False

7. Oral bacteria have no influence on the aging process of our brains.

8. Consuming nitrate-rich foods is not recommended for brain health according to the text.

9. Maintaining good oral hygiene is a recommended practice to support beneficial bacteria in our mouths.

10. Suppressing harmful bacteria through probiotics is not mentioned as a potential intervention for dementia prevention.

11. Further research is deemed unnecessary to comprehend the relationship between oral bacteria and brain health.

12. Regularly visiting the dentist has no impact on brain health according to the text.

### Gap-Fill

13. Individuals with high levels of certain bacteria exhibited better memory, cognitive skills, and attention span, along with increased levels of \_\_\_\_\_ in their mouths.

14. Other groups of bacteria associated with poorer brain health and memory function included \_\_\_\_\_ and Prevotella.

15. By encouraging the growth of beneficial bacteria while suppressing harmful ones through dietary adjustments, probiotics, oral hygiene practices, or targeted treatments, we could potentially mitigate the risk of \_\_\_\_\_ decline as we age.

16. \_\_\_\_\_ practicing good oral hygiene and consuming nitrate-rich foods are



recommended to support the beneficial bacteria in our mouths.

17. Maintaining good oral hygiene, consuming nitrate-rich foods, and regularly visiting the dentist are practices to support the \_\_\_\_\_ bacteria in our mouths.

18. Further research is needed to fully comprehend the intricate relationship between oral bacteria and \_\_\_\_\_ health.

## Answer

**Multiple Choice:** 1. Neisseria and Haemophilus 2. Nitrite 3. Porphyromonas and Prevotella 4. Regularly visiting the dentist 5. Encouraging the growth of beneficial bacteria 6. Consuming nitrate-rich foods

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

**Gap-Fill:** 13. nitrite 14. Porphyromonas 15. cognitive 16. Regularly 17. beneficial 18. brain

## Vocabulary quizzes

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

1. Which field of study focuses on the Earth's structure materials and processes?

Option: Physics

Option: Astronomy

Option: Geological

Option: Chemistry

2. Which term describes a material that resembles glass in texture and appearance?

Option: Foamy

Option: Vitreous

Option: Metallic

Option: Rubbery

3. What refers to the community of microorganisms that live in and on the human body?

Option: Atmosphere

Option: Microbiome

Option: Biosphere

Option: Lithosphere



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4. Which term describes a mutual relationship or connection between two or more things?
- Option: Isolation
  - Option: Contrast
  - Option: Correlation
  - Option: Variation
5. What is the act of removing or separating something from a larger unit or body?
- Option: Attachment
  - Option: Adornment
  - Option: Detachment
  - Option: Confinement
6. Which term is used to describe a deep crack in a glacier?
- Option: Ravine
  - Option: Canyon
  - Option: Crevasse
  - Option: Plateau
7. Which term means to increase in speed or amount?
- Option: Decelerate
  - Option: Stagnate
  - Option: Accelerate
  - Option: Regress
8. Which term refers to a localized physical condition in which part of the body becomes reddened swollen hot and often painful?
- Option: Regeneration
  - Option: Inflammation
  - Option: Congestion
  - Option: Degeneration
9. In glaciology what process involves the breaking off of ice chunks from the edge of a glacier?
- Option: Melting
  - Option: Freezing
  - Option: Calving
  - Option: Condensation
10. Which term means exposed to danger suspicion or disrepute?
- Option: Defended
  - Option: Compromised
  - Option: Enhanced
  - Option: Protected



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

11. Studying history provides valuable \_\_\_\_\_ into human behavior.
12. Some individuals have a heightened \_\_\_\_\_ to certain foods.
13. The \_\_\_\_\_ of the new drug in treating the disease is being carefully studied.
14. Climate change is \_\_\_\_\_ the rate of glacier melt in polar regions.
15. \_\_\_\_\_ pressure measurements are important for weather forecasting.
16. The surgeon performed the \_\_\_\_\_ of the appendix to treat the patient.
17. The company's profits showed a significant \_\_\_\_\_ last quarter.
18. Consuming fruits rich in \_\_\_\_\_ can help neutralize free radicals in the body.
19. The journey ended at the \_\_\_\_\_ station in the city center.
20. Early \_\_\_\_\_ can help prevent the spread of infectious diseases.

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

21. The forest was teeming with a variety of wildlife and plant species.
22. The artist described the of his latest masterpiece in detail.
23. Many people experience the phenomenon of floaters in their vision.
24. The committee a new policy to address environmental concerns.
25. Regular exercise has a effect on overall health and well-being.
26. During the winter bears often to their dens to hibernate.
27. Lack of sleep can feelings of stress and anxiety.
28. The device has a high level of able to detect even subtle changes.



29. Hawaii is known for its activity with several active volcanoes.

30. Many athletes use dietary to enhance their performance.

## Answer

**Multiple Choice:** 1. Geological 2. Vitreous 3. Microbiome 4. Correlation 5. Detachment 6. Crevasse 7. Accelerate 8. Inflammation 9. Calving 10. Compromised

**Gap-Fill:** 11. Insights 12. Sensitivity 13. Efficacy 14. Accelerating 15. Barometric 16. Detachment 17. Decline 18. Antioxidants 19. Terminus 20. Intervention

**Matching sentence:** 1. Abundance 2. Genesis 3. Muscae volitantes 4. Proposed 5. Beneficial 6. Retreat 7. Exacerbate 8. Sensitivity 9. Volcanic 10. Supplements

## CATEGORY

1. Health - LEVEL5

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### Author

aimeeyoung99

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