



Study Links Common Dental Issue to Breast Cancer

Description

A new study has found a surprising connection between oral health and breast cancer. Researchers discovered that a common bacterium related to gum disease can enter the bloodstream and settle in breast tissue. There, it causes DNA damage and helps tumours grow and spread faster.

The study, by John Hopkins Kimmel Cancer Center and Bloomberg-Kimmel Institute, also showed that this bacterium makes cancer cells more aggressive and resistant to treatment. Dr Dipali Sharma explained that the team wanted to explore the connection between this oral microbe and breast cancer because previous studies suggested a link.

Dr Sheetal Parida, a researcher, said they aimed to uncover the deeper connections. Their work involved using mouse models and human breast cancer cells to understand how the bacterium affects tissue. When the bacterium entered breast ducts, it caused inflammation and DNA damage, boosting tumour growth.

The research identified a biological process where the bacterium damaged DNA and triggered repair systems that could lead to errors. These errors, combined with increased levels of a protein linked to cancer cell movement, make cells more resistant to chemotherapy.

The study highlighted the need for more research to see if good oral health can impact breast cancer risk. Dr Sharma noted that their findings point to multiple risk factors, with the bacterium possibly working alongside genetic mutations to increase breast cancer development.

Vocabulary List:

1. **bacterium** //bæk'tɪriəm// (noun): a tiny single-cell organism, can cause disease
2. **bloodstream** //ˈblʌd,stri:m// (noun): the blood flowing through a person's body
3. **inflammation** //,ɪnflə'meɪʃən// (noun): swelling and redness in a part of the body
4. **DNA** //,di:ɛn'eɪ// (noun): material in cells that carries genetic information
5. **resistant** //rɪ'zɪstənt// (adjective): not easily harmed or changed by something
6. **chemotherapy** //,ki:məθ'erəpi// (noun): treatment using strong drugs to kill cancer cells

Comprehension Questions



Multiple Choice

1. Which institution conducted the study on the connection between oral health and breast cancer?
Option: Harvard University
Option: Johns Hopkins Kimmel Cancer Center
Option: Stanford University
Option: Mayo Clinic
2. What type of microbe is related to gum disease and linked to breast cancer?
Option: Virus
Option: Fungus
Option: Bacterium
Option: Parasite
3. What is one effect of the bacterium found in breast tissue?
Option: Reduces tumour size
Option: Causes DNA damage
Option: Enhances immune response
Option: Lowers inflammation
4. Who explained the connection between the oral microbe and breast cancer?
Option: Dr John Hopkins
Option: Dr Dipali Sharma
Option: Dr Sheetal Parida
Option: Dr Bloomberg
5. What does the bacterium do to cancer cells according to the study?
Option: Makes them less aggressive
Option: Makes them more resistant to treatment
Option: Halts their growth
Option: Decreases their spread
6. What was used to study the bacterium's effects in the research?
Option: Cell cultures only
Option: Mouse models and human breast cancer cells
Option: Human trials
Option: Mathematical models



True-False

7. The study found that good oral health is definitively linked to lower breast cancer risk.
8. The researchers used mouse models to understand how the bacterium affects breast tissue.
9. Dr Sheetal Parida is a researcher involved in the study.
10. The bacterium makes cancer cells less aggressive according to the findings.
11. The study showed clear evidence that genetic mutations are unrelated to breast cancer development.
12. Inflammation and DNA damage caused by the bacterium boost tumor growth.

Gap-Fill

13. The bacterium can enter the bloodstream and settle in breast tissue, causing DNA damage and boosting tumor _____.
14. Researchers found a connection between oral health and breast cancer through a common _____ related to gum disease.
15. The study highlighted the need for more research to see if good oral health can impact breast cancer _____.
16. When the bacterium entered breast ducts, it caused _____ and DNA damage.
17. The research identified a biological process where the bacterium damaged DNA and triggered repair _____ that could lead to errors.
18. The study aimed to explore deeper connections, particularly how the bacterium might work alongside genetic _____ to increase breast cancer development.



Answer

Multiple Choice: 1. Johns Hopkins Kimmel Cancer Center 2. Bacterium 3. Causes DNA damage 4. Dr Dipali Sharma 5. Makes them more resistant to treatment 6. Mouse models and human breast cancer cells

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

Gap-Fill: 13. growth 14. bacterium 15. risk 16. inflammation 17. systems 18. mutations

Vocabulary quizzes

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

1. Which term refers to a microorganism that can cause disease in the bloodstream?

Option: Virus

Option: Bacterium

Option: Fungus

Option: Protozoa

2. What biological response is characterized by redness, heat, swelling, and pain?

Option: Infection

Option: Inflammation

Option: Allergy

Option: Necrosis

3. What molecule carries genetic information in living organisms?

Option: RNA

Option: Proteins

Option: DNA

Option: Lipids

4. What term describes bacteria that are not affected by antibiotics?

Option: Sensitive

Option: Resistant

Option: Dormant

Option: Virulent

5. What treatment uses chemical substances to kill or slow the growth of cancer cells?



- Option: Radiation
- Option: Surgery
- Option: Chemotherapy
- Option: Immunotherapy

6. What is the term for the temperature at which a solid becomes a liquid?

- Option: Boiling point
- Option: Melting point
- Option: Freezing point
- Option: Sublimation point

7. Which mineral is essential for muscle and nerve function?

- Option: Calcium
- Option: Magnesium
- Option: Potassium
- Option: Iron

8. What type of function refers to mental processes such as thinking and remembering?

- Option: Cognitive
- Option: Emotional
- Option: Physical
- Option: Creative

9. Who is a professional that advises on nutrition and diet planning?

- Option: Physician
- Option: Dietitian
- Option: Chef
- Option: Nurse

10. What term describes the brain's ability to adapt and change?

- Option: Neurotransmission
- Option: Neuroplasticity
- Option: Neurogenesis
- Option: Neuroscience

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

11. The _____ effect relates to the impact of ions on caloric content.

12. The _____ is used in air conditioning and refrigeration systems.



13. Water is commonly known as a universal _____.
14. High levels of _____ can adversely affect health.
15. Some chemicals are known to be _____ and can cause harm.
16. The Mediterranean diet is known for its numerous health _____.
17. Meat, fish, and dairy are rich sources of _____.
18. The _____ of a material affects its buoyancy in water.
19. Exercise can _____ cognitive function and memory.
20. The _____ components of a cell include its membrane and organelles.

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

21. The Mediterranean diet is renowned for its health benefits and balance of nutrients.
22. Maintaining proper nutrition is essential for optimal brain health throughout life.
23. The nervous system transmits signals throughout the body via network of nerves.
24. Regular exercise helps to strengthen and build muscles, enhancing physical capacity.
25. Personal stories can serve as powerful sources of inspiration for others.
26. Achieving a balance between physical, mental, and emotional well-being is vital for overall health.
27. Different cultures can shape one's perception of beauty and success.
28. Chemotherapy can be an effective treatment for certain types of cancer.
29. Regular practice can help enhance skills and improve performance.
30. Exposure to toxic substances can lead to serious health issues.

Answer

Multiple Choice: 1. Bacterium 2. Inflammation 3. DNA 4. Resistant 5. Chemotherapy 6. Melting point
7. Magnesium



8. Cognitive 9. Dietitian 10. Neuroplasticity

Gap-Fill: 11. ionocaloric 12. refrigerant 13. solvent 14. stress 15. toxic 16. benefits 17. proteins 18. density
19. enhance 20. structural

Matching sentence: 1. Mediterranean 2. brain health 3. nerves 4. muscles 5. inspiration 6. health 7.
perception 8. chemotherapy 9. enhance 10. toxic

CATEGORY

1. Health - LEVEL3

POST TAG

1. B1
2. breast cancer
3. Common dental problem
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