



# Groundbreaking Test Able to Predict Dementia Nearly a Decade Before Diagnosis

## Description

Queen Mary University researchers have developed a groundbreaking method for predicting dementia with impressive accuracy up to nine years before diagnosis. By analyzing brain network connectivity through functional MRI scans, the team has achieved over 80% accuracy in identifying early signs of dementia.

Led by Professor Charles Marshall, the researchers focused on analyzing changes in the brain's 'default mode network' (DMN), which is the first neural network affected by Alzheimer's disease. By examining functional MRI scans from over 1,100 volunteers in the UK Biobank database, the team estimated the effective connectivity between different brain regions within the DMN.

Their predictive test assigns each patient a probability value based on their brain connectivity pattern, enabling the early detection of dementia years before clinical diagnosis. The model not only accurately predicted the onset of dementia but also showed a strong association between genetic risk factors for Alzheimer's disease and connectivity changes in the DMN.

This research holds immense potential for future treatments and interventions for dementia. By identifying high-risk individuals and understanding the impact of environmental factors on dementia risk, the team aims to revolutionize early diagnosis and prevention strategies. With fMRI being a non-invasive imaging tool, the findings could easily be integrated into existing diagnostic pathways, offering hope for improved outcomes in dementia management.

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## Vocabulary List:

1. **Groundbreaking** // (adjective): Innovative or pioneering introducing new ideas or methods.
2. **Connectivity** // (noun): The state or extent of being connected or interconnected.
3. **Accuracy** // (noun): The quality or state of being correct or precise.
4. **Neural** // (adjective): Relating to a nerve or the nervous system.
5. **Estimate** // (verb): Calculate or assess an approximate value or extent of something.
6. **Interventions** // (noun): Actions taken to improve a situation or condition.

## Vocabulary quizzes

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

1. Which area is at risk of being entirely covered by water during a flood?  
Option: Mountains  
Option: Desert  
Option: Valley  
Option: Island
2. What medical condition results in the body converting sugary foods into alcohol internally?  
Option: Type 2 Diabetes  
Option: Auto-brewery Syndrome  
Option: Celiac Disease  
Option: Asthma
3. Which term refers to the quality of being correct or precise?  
Option: Confidence  
Option: Intuition  
Option: Accuracy  
Option: Guesswork
4. What type of medication is used to treat fungal infections?  
Option: Antibiotic  
Option: Antiviral



- Option: Antifungal
- Option: Anti-inflammatory

5. Which type of supplements contain live beneficial bacteria?

- Option: Vitamins
- Option: Probiotics
- Option: Minerals
- Option: Painkillers

6. What term describes something about to happen soon?

- Option: Finished
- Option: Postponed
- Option: Resolved
- Option: Impending

7. Which word describes something innovative and revolutionary?

- Option: Traditional
- Option: Outdated
- Option: Groundbreaking
- Option: Conventional

8. What is a traditional story that may or may not be based on reality?

- Option: Fact
- Option: Legend
- Option: Myth
- Option: Biography

9. Which term refers to a magical or medicinal potion believed to have powers?

- Option: Serum
- Option: Placebo
- Option: Elixir
- Option: Potion

10. Which device is used to conduct electricity between a nonmetallic part of a circuit?

- Option: Transistor
- Option: Fuse
- Option: Resistor
- Option: Electrode

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



11. \_\_\_\_\_ to his craft the artist spent hours every day perfecting his skills.
12. To avoid any \_\_\_\_\_ the judge recused himself from the case involving his cousin.
13. The organization launched several \_\_\_\_\_ to promote environmental sustainability.
14. The brain communicates through complex networks of \_\_\_\_\_ pathways.
15. A well-thought-out \_\_\_\_\_ is crucial for a successful marketing campaign.
16. \_\_\_\_\_ is the hard outer surface of teeth that protects them from damage.
17. The process of choosing a new leader through an \_\_\_\_\_ is a fundamental part of democracy.
18. A specialized doctor called a \_\_\_\_\_ interprets medical images like X-rays and MRIs.
19. The ability to remain calm under pressure is an \_\_\_\_\_ that many successful leaders possess.
20. High-speed internet has greatly improved global \_\_\_\_\_ and communication.

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

21. Intoxication caused by the consumption of alcohol.
22. When a medical condition is incorrectly identified by healthcare professionals.
23. An approximate calculation or assessment of something.
24. Thorough exhaustive and carefully detailed in approach.
25. Something that occurs repeatedly or is frequent in its appearance.
26. A stimulus that initiates a reaction response or chain of events.
27. A meeting or discussion to seek advice or exchange ideas.
28. Essential or influential in causing a desired outcome or process.



29. Preventive treatment to protect against a disease or condition.

30. Situations where a person's duties or interests may be at odds with each other.

## Answer

**Multiple Choice:** 1. Valley 2. Auto-brewery Syndrome 3. Accuracy 4. Antifungal 5. Probiotics 6. Impending  
7. Groundbreaking 8. Myth 9. Elixir 10. Electrode

**Gap-Fill:** 11. Dedication 12. Conflict of Interest 13. Initiatives 14. Neural 15. Strategy 16. Enamel 17. Election  
18. Radiologist 19. Attribute 20. Connectivity

**Matching sentence:** 1. Drunkness 2. Misdiagnosed 3. Estimate 4. Rigorous 5. Recurrent 6. Trigger 7.  
Consultation 8. Instrumental 9. Prophylaxis 10. Conflicts of Interest

## CATEGORY

1. Health - LEVEL4

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