

THE ARTICLE

From <https://breakingnewsenglish.com/2105/210516-brain-implants.html>

A man who cannot move his arms or hands has used his thoughts to write on a computer screen. The man has been paralyzed from the neck down for almost a decade. Scientists from Stanford University in the USA implanted two tiny sensors into the man's brain. The scientists gave this method two names - "brain-to-text" and "mindwriting". The man wants to remain anonymous, so scientists have called him T5. He became paralyzed after suffering a spinal cord injury ten years ago. The implants have allowed T5 to use his mind to write. He can write 90 characters (about 18 words) per minute. This is five words slower than the average person writing a text message on a smartphone.

The mindwriting system is very simple, but it involved a lot of advanced technology. Scientists asked T5 to imagine holding a pen and then writing a sentence on a paper. The sensors in T5's brain detected the activity in his brain as he imagined writing. A computer decoded this activity into text on a screen. The scientists used a special algorithm to do this. Professor Jaimie Henderson, a Stanford University researcher, hopes this research could help millions of paralyzed people, and those who have lost the ability to speak, to write again. He said: "The goal is to restore their ability to communicate by text." This technology may one day help anyone to write at the speed of thought.

Sources: <https://edition.cnn.com/2021/05/13/americas/paralyzed-handwriting-scn-scli-intl/index.html>
<https://www.the-scientist.com/news-opinion/brain-computer-interface-user-types-90-characters-per-minute-with-mind-68762>
<https://www.nature.com/articles/d41586-021-00776-8>

WARM-UPS

1. THE BRAIN: Students walk around the class and talk to other students about the brain. Change partners often and share your findings.

2. CHAT: In pairs / groups, talk about these topics or words from the article. What will the article say about them? What can you say about these words and your life?

arms / screen / neck / tiny / names / mindwriting / paralyzed / implants / average / system / simple / advanced / technology / sentence / brain / millions / communicate

Have a chat about the topics you liked. Change topics and partners frequently.

3. BRAIN IMPLANTS: Students A **strongly** believe brain implants will help us download whole languages in the future; Students B **strongly** believe this is impossible. Change partners again and talk about your conversations.

4. IMPLANTS: How could brain implants help us? What do you think? Complete this table with your partner(s). Change partners often and share what you wrote.

	How Implants Could Help	Your Thoughts?
Learning English		
Walking disabilities		
Music		
Mental Health		
Peacemaking		
Business		

5. SCREEN: Spend one minute writing down all of the different words you associate with the word "screen". Share your words with your partner(s) and talk about them. Together, put the words into different categories.

6. COMMUNICATION: Rank these with your partner. Put the best ways to communicate at the top. Change partners often and share your rankings.

- Face-to-face speech
- Writing
- Body language
- SMS
- Social media posts
- Letters
- Phone calls
- Mind reading

VOCABULARY MATCHING

Paragraph 1

- | | |
|--------------|---|
| 1. paralyzed | a. Anything about the spine (backbone). |
| 2. decade | b. Very, very small. |
| 3. tiny | c. A period of ten years. |
| 4. anonymous | d. Normal; usual. |
| 5. spinal | e. Of a part of the body that the person cannot move. |
| 6. injury | f. Of a person not identified by name; of unknown name. |
| 7. average | g. An instance of being harmed or damaged. |

Paragraph 2

- | | |
|-----------------|---|
| 8. involved | h. A computer program that can calculate things or solve problems. |
| 9. sensor | i. Share or exchange information, news, or ideas. |
| 10. detect | j. Bring something back to the way it was before. |
| 11. algorithm | k. A small machine or device that can measure and record something. |
| 12. restore | l. How fast or slow something is. |
| 13. communicate | m. Having something as a necessary part or result. |
| 14. speed | n. Find whether or not something is there. |

BEFORE READING / LISTENING

From <https://breakingnewsenglish.com/2105/210516-brain-implants.html>

1. TRUE / FALSE: Read the headline. Guess if a-h below are true (T) or false (F).

- a. The man in the article cannot move his body below his neck. **T / F**
- b. Scientists from Yale University in the USA helped the paralyzed man. **T / F**
- c. The scientists called their system "mindwriting" and "brain-to-text". **T / F**
- d. The man can write about 18 words per minute using his mind. **T / F**
- e. The man was able to hold a pen after scientists asked him to. **T / F**
- f. A special algorithm was used to translate the man's thoughts into text. **T / F**
- g. A scientist hopes the technology will help people who cannot speak. **T / F**
- h. The technology might allow us to write at the speed of thought. **T / F**

2. SYNONYM MATCH: (The words in **bold** are from the news article.)

- | | |
|---------------------|--------------------|
| 1. decade | a. noticed |
| 2. implanted | b. procedure |
| 3. method | c. ordinary |
| 4. suffering | d. assist |
| 5. average | e. 10 years |
| 6. simple | f. words |
| 7. detected | g. experiencing |
| 8. text | h. capacity |
| 9. ability | i. inserted |
| 10. help | j. straightforward |

3. PHRASE MATCH: (Sometimes more than one choice is possible.)

- | | |
|--|---------------------------|
| 1. A man who cannot | a. spinal cord injury |
| 2. The man has been paralyzed from | b. average person |
| 3. The man wants to remain | c. by text |
| 4. paralyzed after suffering a | d. text on a screen |
| 5. five words slower than the | e. the neck down |
| 6. it involved a lot of advanced | f. of thought |
| 7. A computer decoded this activity into | g. move his arms or hands |
| 8. scientists used a special | h. technology |
| 9. restore their ability to communicate | i. anonymous |
| 10. help anyone to write at the speed | j. algorithm to do this |

COMPREHENSION QUESTIONS

From <https://breakingnewsenglish.com/2105/210516-brain-implants.html>

1. For how long has the man been paralyzed?
2. How many sensors did scientists implant into the man's brain?
3. What did scientists call their method besides "brain-to-text"?
4. What did scientists nickname the man?
5. How many words per minute can the man write with his mind?
6. What does the article say the mindwriting system involves a lot of?
7. What detected activity in the man's brain?
8. What special thing did the scientists use to decode the man's thoughts?
9. Who else could the technology help besides paralyzed people?
10. How fast could we be able to write in the future?

AFTER READING / LISTENING

From <https://breakingnewsenglish.com/2105/210516-brain-implants.html>

1. WORD SEARCH: Look in your dictionary / computer to find collocates, other meanings, information, synonyms ... for the words 'brain' and 'thought'.

brain	thought

- Share your findings with your partners.
- Make questions using the words you found.
- Ask your partner / group your questions.

2. ARTICLE QUESTIONS: Look back at the article and write down some questions you would like to ask the class about the text.

- Share your questions with other classmates / groups.
- Ask your partner / group your questions.

3. GAP FILL: In pairs / groups, compare your answers to this exercise. Check your answers. Talk about the words from the activity. Were they new, interesting, worth learning...?

4. VOCABULARY: Circle any words you do not understand. In groups, pool unknown words and use dictionaries to find their meanings.

5. TEST EACH OTHER: Look at the words below. With your partner, try to recall how they were used in the text:

<ul style="list-style-type: none">• arms• neck• tiny• remain• ten• slower	<ul style="list-style-type: none">• simple• paper• text• millions• goal• speed
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THE BRAIN DISCUSSION

STUDENT A's QUESTIONS (Do not show these to student B)

1. What did you think when you read the headline?
2. What images are in your mind when you hear the word 'brain'?
3. What do you think of the brain?
4. What do you know about brain implants?
5. What do you think of putting sensors in the brain?
6. How will technology be able to help people who are paralyzed?
7. What do you think of brain-to-text technology?
8. What do you think of writing messages on smartphones?
9. Are there any dangers with brain implants?
10. What advice do you have for T5?

Brain implant lets man write using thoughts – 16th May, 2021
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THE BRAIN DISCUSSION

STUDENT B's QUESTIONS (Do not show these to student A)

11. Did you like reading this article? Why/not?
12. What do you think of when you hear the word 'implant'?
13. What do you think about what you read?
14. What do you think of the idea of 'mindwriting'?
15. What advanced technology do you like?
16. What do you think of brain implants allowing us to learn languages?
17. Might brain implants mean governments could control us?
18. What would change if we could write at the speed of thought?
19. What do you think of never needing to use a pen again?
20. What questions would you like to ask the scientists?