Revolutionary Cardiac Patch Could Mend a Broken Heart

Discussion > Advanced 9

Exercise 1 – Vocabulary

patch	A small piece of material that is used to cover something or make something (for example a material) stronger.
[noun]	*Ex: His old jeans are covered with **patches**.*

tissue	A collection of cells that form the different parts of humans, animals and plants.
[noun]	*Ex: Muscle **tissue** is about 15% more dense than fat.*

inflammation	A condition in which a part of the body becomes red, sore and swollen because of infection or injury.
[noun]	*Ex: My doctor gave me some medicine to treat the **inflammation** in my throat.*

remotely	From a distance.
[adverb]	*Ex: You can view images from the security cameras **remotely**, using a smartphone app.*

bionic	Having parts of the body that are electronic, and therefore able to do things that are not possible for normal humans.
[adjective]	*Ex: Scientists are now developing **bionic** hands for people who have suffered accidents.*

cyborg	A creature that is part human, part machine (in science fiction stories).
[noun]	*Ex: Robocop is probably the most famous **cyborg** in the history of cinema.*

Exercise 2 – Reading

Read the text aloud with your tutor and discuss the key points.

Revolutionary Cardiac Patch Could Mend a Broken Heart

Have you ever had a broken heart? Now there's a way to fix that… but perhaps not in the way you think.

Scientists in Israel have created a life-saving heart patch that can monitor and treat cardiac problems. Researchers at Tel Aviv University developed a revolutionary 3D printed patch, consisting of nanoelectronics and live heart tissue grown in a lab. The device, which is applied to a damaged heart, can actually regenerate the cardiac muscle by building up cells in the part with a defect.

Co-inventor Tal Dvir, a professor in the Department of Biotechnology, explained that "the role of the electronics is to sense the function of the tissue and then to activate the tissue when needed." The device can also release medication for heart problems relating to inflammation or a lack of oxygen. And because the patch can expand like the heart but is also a self-regulating machine, a doctor can treat his patient from afar.

“The patient is sitting in his house and not feeling well, and the physician immediately sees the condition of the heart on his computer, and can remotely activate the heart, provide electrical stimulation, and release drugs,” said Dvir.

For a heart permanently damaged by disease or a heart attack, the patch could become an alternative to a heart transplant. And it may lead to even more promising discoveries.

“We are trying to 3D print the whole heart, with the electronics within,” Dvir said. “And I believe that in the future, in 10-20 years, there would be such bionic organs in the market or in hospitals to be transplanted.”

This cyborg heart patch still needs to be tested and it could be years before it’s available. But in the future, it may provide an alternative for people with heart disease.

Exercise 3 – Discussion

Discuss the following questions with your tutor.

1. What do you think about the technology used to create the patch?
2. What are some of the causes of heart disease?
3. What do you think could be the next medical breakthrough?
4. Is health the most important asset that we have? Why or why not?
5. How can we stay healthy for a long period of time? Please explain your answer.
6. Do you agree that the only organ that we will never be able to replicate in a laboratory is the brain?
7. What do you think about the idea of cyborgs?
8. Do you like sci-fi movies? Why? Why not?