**Lesson: *How we could teach our bodies to heal fast***

**Level: B2+-C1**

**Text Source:** [**https://www.ted.com/talks/kaitlyn\_sadtler\_how\_we\_could\_teach\_our\_bodies\_to\_heal\_faster?utm\_source=whatsapp&utm\_medium=social&utm\_campaign=tedspread**](https://www.ted.com/talks/kaitlyn_sadtler_how_we_could_teach_our_bodies_to_heal_faster?utm_source=whatsapp&utm_medium=social&utm_campaign=tedspread)

**Warm Up**

**Directions:** What does prefix *re-* means in the following verbs?

* **re**generate
* **re**grow
* **re**build

In today’s lesson, we’ll present the research by a renowned immunologist about our body’s ability to *regenerate* and *regrow* naturally by *rebuilding* their tissues.

**1. Vocabulary (5 min)**

**Directions:** Before watching the lesson video, make sure to get familiar with the meaning and pronunciation of the following words in English. The original text use has been included in each case as a example.

a) **feat** (n.) /fit/: a noteworthy act or achievement.

**Example:** Now, regrowing body parts might seem like magic, but there are several organisms that can achieve this feat.

b) **mere** (v.) /mɪr/: minor or unimportant.

**Example:** We, mere humans, can regrow our liver after losing more than half of its original mass.

c) **scrape** (n.) /skreɪp/: to scratch or injure by brushing against something rough or sharp.

**Example:** From a scrape on your knee to that annoying sinus infection, our immune system defends our body from danger.

d) **scaffold** (n.) /ˈskæfəld/: A framework or structural element that holds cells or tissues together.

Example: So, when I place that material, or scaffold in the body, the immune system creates a small environment of cells and proteins.

e) **binge-watch** (v.): /bɪndʒ wɑtʃ/ watch multiple episodes of (a television program) in rapid succession.

**Example:** Now, just like binge-watching an entire TV show on Netflix, the immune environment of a scaffold affects the way our stem cells grow and develop.

f) **moldable** (adj.) /ˈmoʊldəbəl/: capable of being easily molded or modeled.

**Example:** In the future, we could see a moldable muscle filler or even a wound-healing vaccine.

g) nanofiber (n.) /ˈnanōˌfībər/: a fiber of material with a thickness or diameter of only a few nanometers.

**Example:** These scaffolds are made of a variety of different things, from plastics to naturally derived materials, nanofibers of varying thicknesses.

h) props (n.) /prɑp/: a usually movable item used onstage or on a film set.

**Example:** So, in other words, we can orchestrate this Broadway show of cells by giving them the correct stage, cues and props that can be changed for different tissues.

**2. Listening Comprehension (10 min)**

**1. General Comprehension**

**Question:** What health issue is the author addressing?

**2. Specific Comprehension**

**Directions:** Watch again and answer the following specific questions.

**a)** What is the presenter’s opinion about our natural healing system?

**b)** What new research is she working on? What’s the aim?

**c)** What are the T cells?

**d)** Do you think Ms. Kaitlyn’s research could draw satisfactory results?

**3. Meaning in Context: Video Transcript (15 mins)**

**Directions:** Under your teacher’s supervision, read aloud for pronunciation purposes. What do you think the author means by the **bolded** phrases? You might need to analyze the context to share your interpretation of the phrases.

***What if you could take a pill or a vaccine and, just like getting over a cold, you could heal your wounds faster****? Today, if we have an operation or an accident, we're in the hospital for weeks, and often left with scars and painful side effects of our inability to regenerate or regrow healthy, uninjured organs. I work to create materials that instruct our immune system to give us the signals to grow new tissues. Just like vaccines instruct our body to fight disease, we could instead instruct our immune system to build tissues and more quickly heal wounds.*

***Now, regrowing body parts out of nowhere might seem like magic, but there are several organisms that can achieve this feat****. Some lizards can regrow their tails, the humble salamander can completely regenerate their arm, and even us mere humans can regrow our liver after losing more than half of its original mass.*

*To make this magic a bit closer to reality, I'm investigating how our body can heal wounds and build tissue through instructions from the immune system.* ***From a scrape on your knee to that annoying sinus infection, our immune system defends our body from danger.*** *I'm an immunologist, and by using what I know about our body's defense system, I was able to identify key players in our fight to build back our cuts and bruises.*

*When looking at materials that are currently being tested for their abilities to help regrow muscle, our team noticed that after treating an injured muscle with these materials, there was a large number of immune cells in that material and the surrounding muscle.* ***So, in this case, instead of the immune cells rushing off towards infection to fight bacteria, they're rushing toward an injury.*** *I discovered a specific type of immune cell, the helper T cell, was present inside that material that I implanted and absolutely critical for wound healing.*

*Now, just like when you were a kid and you'd break your pencil and try and tape it back together again, we can heal, but it might not be in the most functional way, and we'll get a scar. So, if we don't have these helper T cells, instead of healthy muscle, our muscle develops fat cells inside of it, and if there's fat in our muscle, it isn't as strong.* ***Now, using our immune system, our body could grow back without these scars and look like what it was before we were even injured****.*

*I'm working to create materials that give us the signals to build new tissue by changing the immune response. We know that any time a material is implanted in our body, the immune system will respond to it. This ranges from pacemakers to insulin pumps to the materials that engineers are using to try and build new tissue. So, when I place that material, or scaffold, in the body, the immune system creates a small environment of cells and proteins that can change the way that our stem cells behave.* ***Now, just like the weather affects our daily activities, like going for a run or staying inside and binge-watching an entire TV show on Netflix, the immune environment of a scaffold affects the way that our stem cells grow and develop.*** *If we have the wrong signals, say the Netflix signals, we get fat cells instead of muscle. These scaffolds are made of a variety of different things, from plastics to naturally derived materials, nanofibers of varying thicknesses, sponges that are more or less porous, gels of different stiffnesses. And researchers can even make the materials release different signals over time.* ***So, in other words, we can orchestrate this Broadway show of cells by giving them the correct stage, cues and props that can be changed for different tissues****, just like a producer would change the set for "Les Mis" versus "Little Shop of Horrors." I'm combining specific types of signals that mimic how our body responds to injury to help us regenerate.* ***In the future, we could see a scar-proof band-aid, a moldable muscle filler or even a wound-healing vaccine.***

***Now, we aren't going to wake up tomorrow and be able to heal like Wolverine****. Probably not next Tuesday, either. But with these advances and working with our immune system to help build tissue and heal wounds, we could begin seeing products on the market that work with our body's defense system to help us regenerate,* ***and maybe one day be able to keep pace with a salamander.***

**4. Grammar in Use (10 min)**

**4.1. Modal Verbs**

**Directions:** Identify the modal verb in the following sentences as well as their meaning. Keep in mind that some sentences may contain more than one modal form. The first item has been done for you as an example.

1. *What if you could take a pill or a vaccine and, just like getting over a cold, you could heal your wounds faster?*

*Answer: We found the modal verb could in “could take” and “could heal”. In both cases. It expresses probability or future possibility.*

1. *Regrowing body parts out of nowhere might seem like magic, but there are several organisms that can achieve this feat.*
2. *Some lizards can regrow their tails, the humble salamander can completely regenerate their arm, and even us mere humans can regrow our liver after losing more than half of its original mass.*
3. *Now, just like when you were a kid and you'd break your pencil and try and tape it back together again, we can heal, but it might not be in the most functional way, and we'll get a scar.*
4. *Now, using our immune system, our body could grow back without these scars.*
5. *We know that any time a material is implanted in our body, the immune system will respond to it.*
6. *We can orchestrate this Broadway show of cells by giving them the correct stage, cues and props that can be changed for different tissues, just like a producer would change the set for "Les Mis" versus "Little Shop of Horrors."*

**4.2. Passive Voice**

**Directions:** Identify whether the voice is active or passive in the following sentences. Then, revert the voice direction in each case. Keep in mind that some sentences may contain more than one clause. The first item has been done for you as an example.

**a)** *What if you could take a pill or a vaccine and you could heal your wounds faster?*

**Answer:** *The voice is active. In the opposite voice (passive), it would be: “What if a pill or a vaccine could be taken, and wounds could be healed faster?*

***b)*** *We are often left with scars and painful side effects.*

***c)*** *We could instead instruct our immune system to build tissues and more quickly heal wounds.*

***d)*** *our body can heal wounds and build tissue through instructions from the immune system.*

***e)*** *Our immune system defends our body from danger.*

***f)*** *Some materials are currently being tested for their abilities to help regrow muscle.*

***g)*** *I discovered a specific type of immune cell, the helper T cell.*

***h)*** *Any time a material is implanted in our body, the immune system will respond to it.*

***i)*** *When I place that material, or scaffold, in the body, the immune system creates a small environment of cells and proteins.*

***j)*** *Now, just like the weather affects our daily activities, the immune environment of a scaffold affects the way that our stem cells grow and develop.*

***k)*** *These scaffolds are made up of a variety of different things.*

***l)*** *We can orchestrate this Broadway show of cells by giving them the correct stage, cues and props.*

**5. Speaking: Oral Presentations (15 min)**

**Directions:** Answer the following questions in the form of a brief monologue. Feel free to add any information on the topics presented.

**5.1. Healing Wounds**

* Some people have a faster healing process than others. What do you think influences our natural healing process?
* What about you? Do you typically heal fast when you get wounded?
* Do you use any type of healing aids? Do you use any natural product?
* Have you heard about T cells before, or T-cell products? if so, when and where?
* Do you have any basic knowledge on first aid in case someone gets wounded?
* Do you remember any experience on treating wounds? Tell us about it!

**5.2. Medical Research** (Giving Opinion)

* Do you think scientists will be able to find the cure many of today’s diseases? If so, which diseases do you think a cure will be found for?
* Should medical research be limited in some fields? If so, which types of research should be banned (or strictly controlled), in your opinion?
* Do you support the use of animals in medical research?
* Should vaccinations (resulted from medical research) be mandatory or optional?
* Should people’s access to healthcare (or pharmaceutical products) be free in the case of some terminal diseases (e.g.: cancer, HIV, dementia, etc.)? Tell us your opinion!