

QA 4

Lab-Grown Meat: To Eat or Not to Eat



Mini-Challenge

Task 1: Weighing the Pros and Cons of Lab-Grown Meat

Task 2: Weighing the Pros and Cons of Designer Babies

英文字幕

中英字幕

無字幕版

Thinking Ahead

A 1. Watch the video and write T (true) or F (false) before each statement.

- _____ (1) Cultured meat is plant-based, meaning it does not require killing animals for food.
- _____ (2) In-vitro meat is estimated to have a lower impact on the environment.
- _____ (3) Whether people can accept a new way to produce the food they eat is one of the challenges that will determine the success of cultured meat.
- _____ (4) Cultured meat will never ever replace animal meat.



Scan and Watch

A 2. Look at the picture below. What's special about this package of beef? What do you think about it?

The sticker on the package says.... I think....



Reading Selection

英文字幕

中英字幕

無字幕版

課文聽講
譯文朗讀

Reading Strategy

Discussion Essay vs. Argumentative Essay

In this lesson, a discussion essay is written in a neutral tone to provide readers with information.	An argumentative essay, however, is written to convince readers of a certain position held by the author.
Both have an introduction paragraph with positive and negative opinions on a certain issue to attract readers' attention, like the first paragraph of the following essay.	
The body, from the second to the third paragraph in the same essay, is filled with pros and cons, analysis for and against the issue.	
In the conclusion, a discussion essay reviews the pros and cons, leaving readers space to think.	On the other hand, the author of an argumentative essay will confirm his or her position with a call to action to change the current situation.

Note the Details

1. What rising trend have many start-ups been interested in?

Can you imagine taking a bite of a steak that was grown from a **Petri dish*** instead of on a farm? It may sound like a scene in a sci-fi movie, but this is already a reality! Many **start-ups*** have begun to develop a special new production process in which meat is created by taking animal **stem cells***, changing them into **primitive*** **fibers***, and combining the fibers to form muscle **tissue***. The final product is known as "lab-grown meat," and it's a thought-provoking* **recent*** trend that is backed by both Bill Gates and agricultural giant Cargill.

The widespread support for producing meat in this way is due to the fact that it holds several **substantial*** advantages compared to more traditional methods. Firstly, one could argue that traditional or old-fashioned meat production facilities, such as farms or factories, hardly ever have the animals' best interests **at heart**. Growing meat in a **laboratory*** instead would help eliminate the need for **slaughterhouses*** and the **unethical*** treatment of these animals. In other words, you could **rest assured** that the so-called lab-grown beef **patty*** on your plate didn't come from a cow that had to endure physical or mental **torment***. **Better still**, it could help make meat production more

2. Why could growing meat in a lab help make meat production more sustainable?



The final product is known as "lab-grown meat."

“
Lab-grown beef patty
on your plate didn't
come from a cow that
had to endure physical
or mental torment.”



- ⊕ sustainable. The raising of **livestock**¹⁶ needed to fulfill the
 ♻️ current global demand for meat actually **takes a heavy**
 🗑️ **toll**¹⁸ on the environment. According to **FAO**^{*}, it accounts
 for nearly 15 percent of **greenhouse gas**^{*} emissions. Experts
estimate¹³ that, by **switching**¹³ to lab-grown meat, emissions
 could be lowered by up to 96 percent. In addition, many
 claim it won't just be the environment that benefits.
 30 Scientists can actually make lab-grown meat healthier and
 more nutritious for humans by adding **vitamins**¹⁴ and
minerals¹⁵ that are not always found in natural meat.
 ⚠️ Despite the evident advantages that this new type of
 ♻️ **forward-thinking**^{*} food may hold, there are some
 🗑️ **concerns**¹⁶ surrounding this meat of tomorrow. For a start,
 certain studies show that the impact of lab-grown meat
 could actually have **far-reaching**^{*} negative effects over the

A 3. Why might man-made
meat not taste as
appealing as real meat?

- ⚠️ long term. While advocates for lab-grown meat say it can
 ♻️ help fight climate change, some research suggests that
 🗑️ maintaining the **infrastructure**^{*} of lab-grown cell cultures
 also requires significant **quantities**¹⁷ of energy and gas
 emissions. Another issue to consider is whether this type of
 artificial meat is actually healthy and safe for humans to
 consume. Although great **in theory**¹⁸, lab-grown meat is
 45 “unnatural,” or “similar to **genetically**¹⁹ **modified**” (GM)
 food.” Since the **latter**²⁰ sometimes **induces**²¹ **allergic**²²
reactions²³ or even leads to more serious health problems
 like cancer, some people are warning against man-made
 meat for fear that it might have similar side effects. One last
 50 area of concern is the actual taste of lab-grown meat.
 ⚠️ Without the naturally occurring **connective**^{*} fat, tissue and
 bones that are present in real meat, lab-grown meat is
somewhat²⁴ lacking in taste and texture and might thus be



“
Lab-grown meat is
“unnatural,” or
“similar to genetically
modified (GM)
foods.”

- unappealing to most consumers. Presently, more extensive research is thus needed to determine how the flavor and composition²⁵ of the new meat might be altered²⁶ to better suit²⁷ consumers' tastes.
- Whether we like it or not, lab-grown meat is a rising trend that could have a long-term impact on a global scale²⁸.
- It might, however, come at a price. To ensure that future foods are both sustainable and healthy, it is therefore essential for us to conduct more all-inclusive²⁹ research first before we jump to any conclusions. For now, all we can do is keep a close eye on this rapidly growing trend as it takes us further and deeper into the unknown.

—Written by Catherine Shih

Reading Strategy

Facts vs. Opinions

A statement of fact is something that one can prove true or not by evidence. A factual statement is written in a neutral tone, showing no personal favor or emotion. Authors use facts to convince readers from an objective position.

An opinion is also a statement revealing one's belief or feelings on an issue which cannot be proved with evidence. Opinions are used to make readers empathize* or sympathize* to support a certain idea or actions. Emotions and values are frequent elements in the opinion statement.

Word Bank factual 事實的 empathize 有同感 sympathize 贊同

A Check whether the following sentences are facts or opinions.

Fact or Opinion	Statement
<input type="checkbox"/> fact <input type="checkbox"/> opinion	Certain studies show that the impact of lab-grown meat could actually have far-reaching negative effects over the long term.
<input type="checkbox"/> fact <input type="checkbox"/> opinion	Lab-grown meat is somewhat lacking in taste and texture and might thus be unappealing to most consumers.
<input type="checkbox"/> fact <input type="checkbox"/> opinion	Some people are warning against man-made meat for fear that it might have similar side effects.
<input type="checkbox"/> fact <input type="checkbox"/> opinion	Experts estimate that, by switching to lab-grown meat, emissions could be lowered by up to 96 percent.
<input type="checkbox"/> fact <input type="checkbox"/> opinion	Many claim it won't just be the environment that benefits.

Think and Reflect

A 1. Given a choice between real meat and lab-grown meat, which would you opt for and why?

I'd opt for... because...

Think about...

trendy
healthy
delicious
moral

A 2. Do you think it's a good idea for meat grown in a lab to replace real meat? State your reasons.

I think/don't think it's a good idea because...

Think about...

animal rights
health
business and marketing
environment

A Graphic Organizer

When making an argument, you are actually making a "claim," usually a main idea, which is backed up with evidence that supports the idea. Evidence can help you persuade others to agree with your argument. Use the graphic organizer to analyze the issue of lab-grown meat and the arguments for and against it. Complete the organizer with the information from the passage.

Question

Would you eat lab-grown meat?

Introduction

Lab-grown meat is created by taking animal stem cells,¹

Arguments

YES

1. It can eliminate the need for ² _____.
2. It can make meat production more ³ _____ and help fight climate change.
3. It is healthier and more ⁴ _____.

NO

1. The impact of lab-grown meat could have ⁵ _____.
2. It may not be ⁶ _____.
3. It is ¹⁰ _____ to most consumers.

Evidence

YES

1. You could rest assured that ⁵ _____.
2. Switching to lab-grown meat can lower the greenhouse gas emissions by ⁶ _____.
3. Scientists can add ⁷ _____ to lab-grown meat.

NO

1. Maintaining the infrastructure of lab-grown cell cultures requires ⁸ _____.
2. It might have side effects, such as allergic reactions, or lead to more serious health problems like cancer.
3. It is lacking in ¹² _____.

A Comprehension Practice

Practice A



General Understanding

1. What is this passage mainly about?

- (A) Ways to find start-ups to invest in.
- (B) A rapidly growing agricultural trend.
- (C) The pros and cons of lab-grown meat.
- (D) The possible side effects of man-made meat.



Key Details

2. Which of the following is NOT an advantage of producing meat from a Petri dish?

- (A) It makes meat production more sustainable.
- (B) It would lower the number of slaughterhouses.
- (C) It helps eliminate the cruel treatment of farm animals.
- (D) It could genetically modify meat to make it more nutritious.



Key Details

3. Why does the lab-grown meat production process require great quantities of energy and gas emissions?

- (A) To help fight climate change.
- (B) To keep the animals' best interests in mind.
- (C) To maintain its infrastructure of cell cultures.
- (D) To alter the flavor and composition of the new meat.

A

Practice B

Which paragraph indicates the author's attitude toward the future of lab-grown meat? Also, check the adjective that best describes the author's attitude.

(1) Paragraph _____.

(2) ☐ Hopeful. ☐ Amazed. ☐ Cautious. ☐ Pessimistic.