



Andras Forgacs: Leather and meat without killing animals

“We can design new materials, new products, and new facilities. We need to move past just killing animals as a resource to something more civilized and evolved. Perhaps we are ready for something literally and figuratively more cultured.”

By 2050, it will take 100 billion land animals to provide the world's population with meat, dairy, eggs and leather goods. Maintaining this herd will take a huge, potentially unsustainable toll on the planet. What if there were a different way? In this eye-opening talk, tissue engineering advocate Andras Forgacs argues that biofabricating meat and leather is a civilized way to move past killing animals for hamburgers and handbags.

<u>Level</u>	<u>Goals</u>	<u>Themes</u>
<ul style="list-style-type: none">• Intermediate• Upper-intermediate	<ul style="list-style-type: none">• <i>Could</i> Revision: Form and error correction.	<ul style="list-style-type: none">• Vegetarianism• The global food industry
Intro Discussion	<ul style="list-style-type: none">• Are you vegetarian? Why / Why not? If you could eat or use products that have been grown instead of killed, would you? Do you think they would be the same?• Which are more important to consider – the practical or moral problems of our current food industry?• Do you think this kind of food and goods production is a real solution to today's problems? Why / Why not?	
Comprehension	True or False? <ol style="list-style-type: none">1. In the next few decades, we will need over 200 million animals to support the world's population.2. His solution involves the cloning of animals from tissues.3. One of the problems with our system today is the spread of disease among animals.4. He calls leather a “gateway material” that will introduce people and make them more comfortable with bio-fabrication.5. The process he plans to use to get the original cells harms the animal, and is the only bad thing about the new technology.6. Using bio-fabrication means we will have less control over the final product.	

Vocab

Match words to synonyms/definitions.

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|---------------------|---|
| 1. Realize | A. Having or showing compassion, usually in ethically correct behaviour. |
| 2. Raise | B. A group of farm animals. |
| 3. Herd | C. To encourage or persuade. |
| 4. Toll | D. Something that often encourages the use of other, related products. Often used in discussions about drugs. |
| 5. Sentient | E. To become aware of something, to understand clearly. |
| 6. Humane | F. To adjust, refine or improve. |
| 7. Gateway (x) | G. (In context) The cost or damage of something. |
| 8. Coax | H. To be able to feel or perceive things. |
| 9. Tune / Fine tune | I. To care for and nurture something until it is completely grown. |

Other useful vocab:

- 3D Printing: The automatic printing of something in three dimensions.
- Bio-fabrication: A biological manufacturing process for meat and other organic productions.
- Polarizing / To Polarize: To divide people into two different and opposed beliefs or opinions.
- Scalable: Can be adjusted according to need. Can be *scaled down or up*.

Grammar

Could – Modal Verb of Possibility

There are three basic ways to use “could:”

- It can replace “can” to make the sentence conditional.
- It can be used as the past tense of “can.”
- It is often used to suggest that something is **possible** (our focus).
 - The negative is “could not” or “couldn’t”.

Common Forms for expressing a possibility:

- Could + verb
 - Rather, it **could be** much more like this.
 - The animal **could be** a cow, lamb, or even something more exotic.
 - We **could go** to the park, or maybe to the beach.
 - We **could walk** there, but it would probably take too long.
- Could + (article + noun) + verb
 - What **could the future of animal products look** like?
 - How **could the building collapse** if it was built well?
 - **Could the human race rely** on bio-fabricated food?

These example sentences all express a possibility. Remember that we can use *could* to express possibility in any tense, and also *impossibility* in the negative form. **NB:** We **NEVER** use *could* with the infinitive structure, e.g. “could to go.”

- E.g.
 - It could not have been David that stole the car.
 - You couldn't work any harder than you are now.
 - It couldn't be!

Practice

Select the correct word and fill the gaps to express *possibility* (NOT *ability*) and/or complete the conditional:

If Meat Animals Money

- We (can / could) stop eating _____, as long as bio-fabrication improves.
- You (can / could) go on vacation _____ you had enough _____.
- This technology (can / could) help _____.

Review:

- Does “*could*” express a certainty? Which word would we use to express a certain ability?
- Do we **need** to use “*could*” in a conditional structure with “if?” Can you give some examples?
- Additionally, can you use “*could*” to make a request? E.g?

Discussion

- Would you prefer to use products like leather created through this process? Why / Why not?
- Do you think our current methods of producing animal products are wrong for any reason? Why / Why not?
- What do you think bio-fabricated meat would taste like? Would you eat it?
- Are large animal farms like the ones we use today immoral? Why? / Why not?
- Is it okay to farm and kill animals if it is done humanely?
- What other kinds of products would you like to see created through this process? How would they make your life better?
- Would bio-fabrication affect your industry or your life if it became widely used? How so?
- What do you think the world would be like in 50 years if we started using bio-fabrication today? In 100 years? In 500?
- Can you think of any ethical problems that the new technology presents? How could they be solved?
- Should we all be vegetarian until a technology like this enables us to stop killing animals for food? Why / Why not?

Debate

- Animals are essentially *less valuable* than humans, and this makes it okay to use and kill them, as long as they don't suffer too much. Therefore there is no point in developing new technology like what Forgacs proposes – it's a waste of time and money better spent on people.
- If this kind of technology becomes popular, then millions of people will lose their jobs as farmers and other producers of animal products. Entire populations will descend into poverty. It is therefore unethical to pursue bio-fabrication because of the economic harm it will do.

Review & Error correction

Find the incorrect sentences and fix them:

- I could to go to work tomorrow.
- If I could work for a big company, that would be great.
- Some time in the future, we can have a party.
- James could to have broken the chair yesterday.
- If you could have, would you?
- Could you please stop making me correct sentences?