

Today:

1. Listening
2. Reading transcript for answers
3. Vocabulary

Homework: complete the worksheet

Click here to listen: [Regenerative Medicine](#)

LISTENING:

1. How long will the talk last?
2. Why is this a joke?
3. What is regenerative medicine according to the speaker?
4. What theme will the speaker come back to?
5. When does the idea of regenerative medicine date from?
6. What depresses the speaker? (difficult – main idea)

READING:

make it function worse
gerund / verb

I'm going to talk to you today about hopefully converting fear into hope. When we go to the physician today -- when we go to the doctor's office and we walk in, there are words that we just don't want to hear. There are words that we're truly afraid of. Diabetes, cancer, Parkinson's, Alzheimer's, heart failure, lung failure -- things that we know are **debilitating** diseases, for which there's relatively little that can be done.

00:33

And what I want to lay out for you today is a different way of thinking about how to treat debilitating disease, why it's important, why without it perhaps our health care system will **melt down** if you think it already hasn't, and where we are clinically today, and where we might go tomorrow, and what some of **the hurdles** are. And we're going to do all of that in 18 minutes, **I promise**.

fail in complete way
verb (phrasal)

difficulties
(noun)

1. **How long will the talk last?** 18 minutes
2. **Why is this a joke?** He probably doesn't have time

00:54

I want to start with this slide, because this slide sort of tells the story the way Science Magazine thinks of it. This was an issue from 2002 that they published with a lot of different articles on the **bionic** human. It was basically a regenerative medicine issue. Regenerative medicine is an extraordinarily simple concept that everybody can understand. *It's simply **hastening the pace** at which the body heals itself to a clinically relevant timescale.* So we know how to do this in many of the ways that are up there. We know that if we have a damaged hip, you can put an artificial hip in. And this is the idea that Science Magazine used on their front cover.

speed up
(verb / noun phrase)

1. What is regenerative medicine?

Speeding up the process of the body healing itself

Bionic: 'robotic' but for a biological organ

opposite
noun

01:35

This is the complete **antithesis** of regenerative medicine. This is not regenerative medicine. Regenerative medicine is what Business Week put up when they did a story about regenerative medicine not too long ago. The idea is that instead of figuring out how to **ameliorate** symptoms with devices and drugs and the like -- and I'll come back to **that theme** a few times -- instead of doing that, we will regenerate lost function of the body by regenerating the function of organs and damaged tissue. So that at the end of the treatment, you are the same as you were at the beginning of the treatment.

to improve something
/ lessen pain

1. What theme the speaker will come back to?

Make symptoms better / reduce their intensity

verb

to grow in
lab verb

new
adjective

02:12

Very few good ideas -- if you agree that this is a good idea -- very few good ideas are truly **novel**. And this is just the same. If you look back in history, Charles Lindbergh, who was better known for flying airplanes, was actually one of the first people along with Alexis Carrel, one of the Nobel Laureates from Rockefeller, to begin to think about, could you **culture** organs? And they published this book in 1937, where they actually began to think about, what could you do in **bio-reactors** to grow whole organs? We've come a long way since then. I'm going to share with you some of the exciting work that's going on.

1. When does the idea of regenerative medicine date from?

1937

02:49

But before doing that, what I'd like to do is share my depression about the health care system and the need for this with you. Many of the talks yesterday talked about improving the quality of life, and diminishing poverty, and essentially increasing life expectancy all around the globe. One of the challenges is that the richer we are, the longer we live. And the longer we live, the more expensive it is to take care of our diseases as we get older. This is simply the wealth of a country versus the percent of population over the age of 65. And you can basically see that the richer a country is, the older the people are within it. Why is this important? And why is this a particularly dramatic challenge right now? If the average age of your population is 30, then the average kind of disease that you have to treat is maybe a broken ankle every now and again, maybe a little bit of asthma. If the average age in your country is 45 to 55, now the average person is looking at diabetes, early-onset diabetes, heart failure, coronary artery disease -- things that are inherently more difficult to treat, and much more expensive to treat.

reducing / make smaller
(Gerund / verb)

Just have a look at the demographics in the U.S. here. This is from "The Untied States of America." In 1930, there were 41 workers per retiree. 41 people who were basically outside of being really sick, paying for the one retiree who was experiencing debilitating disease. In 2010, two workers per retiree in the U.S. And this is matched in every industrialized, wealthy country in the world. How can you actually afford to treat patients when the reality of getting old looks like this?

innate / intrinsic / related to genes / build into
adverb

person who has stopped working and has a pension
noun

This is age versus cost of health care. And you can see that right around age 45, 40 to 45, there's a sudden spike in the cost of health care. It's actually quite interesting. If you do the right studies, you can look at how much you as an individual spend on your own health care, plotted over your lifetime. And about seven years before you're about to die, there's a spike. And you can actually -- (Laughter) -- we won't get into that. (Laughter)

very big
increase
verb / noun

Plotted (verb):

To put something onto a graph
To make a plan (usually a bad or evil one)

05:09

There are very few things, very few things that you can really do that will change the way that you can treat these kinds of diseases and experience what I would call healthy aging. I'd suggest there are four things, and none of these things include an insurance system or a legal system. All those things do is change who pays. They don't actually change what the actual cost of the treatment is.

05:35

One thing you can do is not treat. You can ration health care. We won't talk about that anymore. It's too depressing. You can prevent. Obviously a lot of money should be put into prevention.

05:47

But perhaps most stimulating, to me anyway, and most important, is the idea of diagnosing a disease much earlier on in the progression, and then treating the disease to cure the disease instead of treating a symptom. Think of it in terms of diabetes, for instance. Today, with diabetes, what do we do? We diagnose the disease eventually, once it becomes symptomatic, and then we treat the symptom for 10, 20, 30, 40 years. And we do OK. Insulin's a pretty good therapy. But eventually it stops working, and diabetes leads to a predictable onset of debilitating disease.

?

?

Homework: fill in the table give examples

Word	Type	Meaning	Example
debilitating			
melt down			
the hurdles			
hasten the pace			
antithesis			
ameliorate			
novel			
to culture	verb		
diminishing			
inherently			
retiree			
spike			
stimulating			
onset			
Plot			

EXTRA: What depresses the speaker?

But before doing that, what I'd like to do is share my depression about the health care system and the need for this with you. Many of the talks yesterday talked about improving the quality of life, and diminishing poverty, and essentially increasing life expectancy all around the globe. One of the challenges is that the richer we are, the longer we live. And the longer we live, the more expensive it is to take care of our diseases as we get older. This is simply the wealth of a country versus the percent of population over the age of 65. And you can basically see that the richer a country is, the older the people are within it. Why is this important? And why is this a particularly dramatic challenge right now? If the average age of your population is 30, then the average kind of disease that you have to treat is maybe a broken ankle every now and again, maybe a little bit of asthma. If the average age in your country is 45 to 55, now the average person is looking at diabetes, early-onset diabetes, heart failure, coronary artery disease -- things that are inherently more difficult to treat, and much more expensive to treat. Just have a look at the demographics in the U.S. here. This is from "The Untied States of America." In 1930, there were 41 workers per retiree. 41 people who were basically outside of being really sick, paying for the one retiree who was experiencing debilitating disease. In 2010, two workers per retiree in the U.S. And this is matched in every industrialized, wealthy country in the world. How can you actually afford to treat patients when the reality of getting old looks like this? This is age versus cost of health care. And you can see that right around age 45, 40 to 45, there's a sudden spike in the cost of health care. It's actually quite interesting. If you do the right studies, you can look at how much you as an individual spend on your own health care, plotted over your lifetime. And about seven years before you're about to die, there's a spike. And you can actually -- (Laughter) -- we won't get into that. There are very few things, very few things that you can really do that will change the way that you can treat these kinds of diseases and experience what I would call healthy aging. I'd suggest there are four things, and none of these things include an insurance system or a legal system. All those things do is change who pays. They don't actually change what the actual cost of the treatment is. One thing you can do is not treat. You can ration health care. we won't talk about that anymore. It's too depressing. You can prevent. Obviously a lot of money should be put into prevention.

Summary: why is he depressed?

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