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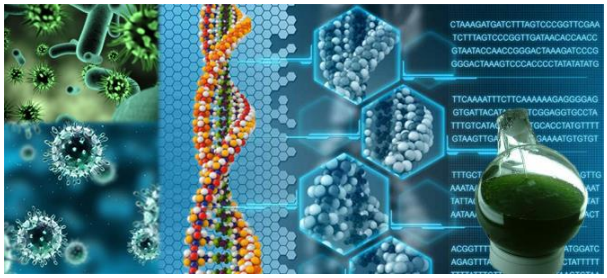

Your Health

Synthetic Biology ©

by Jack Grierson

Vocabulary & pronunciation study by Catherine Balter Kendall ©

Words are explained alongside the text

Stressed syllables are underlined and in bold*

Welcome to Your Health, brought to you by The Medical Frontier. Medical news simplified, on Twitter @medfrontier

The world of medicine is a big one, far bigger than most of us can even begin to imagine. During the next few weeks, we will **address** some of the less talked about **branches of medicine** like biomedical research, biotechnology, and bioengineering.

Today's article is on a relatively new field called synthetic biology. There are many ways of defining synthetic biology, as it is a subject that **involves** many different fields, including the ones described **earlier**. Most commonly it's known as the field that designs and constructs biological molecules and biological machines for industry or biological research.

Some examples of synthetic biology include: nanotechnology, genetic engineering and personalized medicine. Let's **go into** these **in** a bit **more detail**.

Genetic engineering: This is a very interesting field of medicine that can also be called genetic modification. **Put simply**, it involves changing the genetic **makeup** of cells. Genes are part of the **DNA** molecules that **make up** the characteristics you inherit from your parents. Changing these genes in the lab and **putting** them **back** into cells can cause some pretty **crazy** things to happen. For example, taking the gene that causes some fish **to glow in the dark** and putting it in mice can cause the mice to glow too! If we take this technology to the extremes we could get some **amazing** discoveries in the future. We've already used this technology to genetically modify **yeast** (fungi) to produce insulin for us, so that we no longer have to take it from pigs. In the future we could **end up** making humans that photosynthesize like plants do, or creating designer babies that are immune to all

to address (vb.) to examine, look at

branch of medicine (exp.) area, field of medicine

to involve (vb.) to include

earlier (comparative of adj.) above in this article

to go into sth. in more detail (exp.) to discuss at greater length

put simply (exp.) expressed in an easy way

makeup (n.) composition

DNA (abbr.) double helix carrying genetic information in animals and plants

to make up (phrasal vb.) to go together to form

to put back (phrasal vb.) to return

crazy (adj.) mad, unbelievable

to glow in the dark (exp.) to shine at night or when there's no light

amazing (adj.) surprising

yeast (n.) the substance that makes bread rise

to end up (phrasal vb.) to do sth. a long time in the future

diseases and look exactly the way you want. Research is being made into **age reversal** and bodies that can self-repair as soon as you're **hurt**. Genetic engineering is an amazing, **slightly scary**, very impressive medical area that will be in the news more often in the future.

Nanotechnology: this is a very small field—not in the sense of the number of people studying it, but the actual research itself. It is defined as the study of matter on an atomic or molecular **scale** – basically very, very **tiny** materials. When you specialize in medicine it's called nanomedicine. This is a very useful field as it allows us to create new ways of delivering medicine. A good example of this is cancer treatment. We can package toxic drugs that could **harm** the **whole body** into a nanomolecule and **target** specific cancer cells with it. This way, the **healthy** cells don't get hurt, but the cancerous ones die.

Personalized medicine: As you may have guessed from the name, this is the study of **tailoring** a treatment to an individual person. Today's medicine is designed as a **'one size fits all'**, which means that the drugs will work for most people but not necessarily everyone, as we all process drugs differently. We can use personalized medicine to get a more **accurate** diagnosis and an individual treatment plan. This means that hopefully you would have no or little **side effects** to your drugs, as they would be tailored to your body. Another example is breast cancer **screening**. If your family has a predisposition to breast cancer, you can now specifically research for cancer mutations to find out if you are at risk of getting the same cancer later on in life. Pretty amazing stuff.

This week's advice: New treatments and technologies are always **around the corner**; try **to keep up with** the latest research **to make informed decisions**.

Thanks again for listening to Your Health on EnglishWaves, provided by www.themedicalfrontier.com: Medical news, simplified.

age reversal (exp.) to make people's bodies get younger instead of older

hurt (adj.) injured

slightly scary (adj.n.) sth. which makes you feel a little afraid or disturbed

scale (n.) size

tiny (adj.) very small

to harm (vb.) to do damage to

the whole body (exp.) all the body

to target (vb.) to aim at, to identify as an objective

healthy (adj.) normal, in good condition

to tailor sth (vb.) to make sth for a specific person or need

one size fits all (exp.) the same product is used for everybody

accurate (adj.) exact, correct

side effects (n.) symptoms which are negative consequences of taking a drug

screening (n.) testing to identify who is suffering or not from a disease and who is at risk

around the corner (exp.) very near in the future

to keep up with (phrasal vb.) to learn about the latest developments

to make informed decisions (exp.) to make decisions based on knowledge of the subject

Tip : Where a word is made up of 2 elements, such as a prefix and the main root of the word, it may have 2 stressed syllables. Note the 2 stressed syllables in the following words: biomedical, biotechnology, bioengineering, nanotechnology, photosynthesize, nanomedicine, nanomolecule,

The following 4 syllable words have their stress on the 2nd syllable: biology, technology, discoveries, genetic(al)ly molecular, delivering, specific(al)ly

The following 4 syllable words have their stress on the 3rd syllable: engineering, individual, diagnosis