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Your Health

DNA©

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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.

Have you ever heard of the expression 'it's in your genes'? You've more than likely heard someone talk about DNA or perhaps you even know a little bit about it yourself. But what exactly is it? What does DNA **stand for**? How important is it? And why are medical researchers always talking about it?

To begin with, let's try and **put DNA into perspective**. It's small. Very small. A human hair is about 1 hundred thousand nanometers in diameter. A molecule of DNA is just 2 nanometers **across**.

DNA is located inside the nucleus of the cell. As we mentioned **previously**, the nucleus of the cell is essentially its **brain**. It controls cell division, protein production, cell **growth** and the development of that cell into a specific tissue (for example muscle tissue or stomach tissue). If something goes wrong with the nucleus, the whole cell is in trouble. So what is DNA's role in the nucleus?

The main role of DNA is the long-term storage of information. You can compare it to **a set of** instructions that tell the cell what to make, for example, a specific type of protein. Specific **segments** of DNA are called genes. These genes are responsible for some of the **traits** you can inherit from your parents. An example is the brown-eyed gene. This is a specific protein that's made using the instructions from DNA. If this protein doesn't get made (because you don't have the brown eyed gene), you have no or little pigment and you have blue eyes. A varying amount of this protein can give

to stand for (phrasal vb.) to represent, to mean

to put sth into perspective (exp.) to get an idea of the relative size or importance of sth.

across (adj.) wide

previously (adv.) earlier

brain (figurative meaning) (n.) control centre

growth (n.) expansion, development

a set of (exp.) a series of

segments (n.) parts

traits (n.) characteristics

you **hazel** or green eyes.

So what does DNA stand for and what is it made of? DNA stands for DeoxyriboNucleicAcid and it's made of four parts called nucleobases. They can be abbreviated to A, T, C and G. These bases **bond** together in a very specific way, which gives DNA its **curled** look.

So why is DNA so important? We now know that it plays a key role in making you, you, which is why **law enforcement** can often use it to identify people.

We also know that no DNA means no proteins and a body without proteins wouldn't be able **to survive**. Proteins are essential for muscle contractions, immunity, digestion, hormone production, energy production and even getting oxygen into your blood!

Finally, why are medical researchers always talking about DNA? Many diseases are actually caused when DNA **goes wrong**. An example is **Down syndrome**. Normally you inherit one gene from one parent – so you end up with two genes. Downs is caused by having an **extra** chromosome, which means that they have three copies of a specific gene **rather than** the normal two. Researchers are looking at genetic modification, where they could potentially stop genetic diseases from **occurring**, or fix them before birth. Another example of a genetic disease is Cystic Fibrosis. This disease causes severe **breathing** difficulties, as a very important protein can't be made due to a DNA mutation. **Hopefully**, at some point in the future, doctors will have created **cures** for genetically **inherited** diseases.

This week's advice: Try to appreciate the **might** of such a small molecule. DNA may be **tiny**, but it really is the building block of life.

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hazel (adj.) greenish–brown colour

to bond (vb.) to join, to link

curled (adj.) not straight, spiral shaped

law enforcement (n.) agencies or officials responsible for catching criminals or people who break the law

to survive (vb.) to continue to live

to go wrong (exp.) to function incorrectly

Down Syndrome (n.) a birth defect – trisomy 21

extra (adj.) additional

rather than (exp.) instead of

to occur (vb.) to happen

breathing (adj.) respiratory

hopefully (adv.) it is to be hoped that

cure (n.) successful treatment

inherited (adj.) passed down from your parents or ancestors

might (n.) power, strength

tiny (adj.) very small, infinitely small

Tip

The following words have their stress on the 2nd syllable:

3 syllable words: researchers, located, division, example, instructions, inherit, important, essential, digestion, production, genetic, diseases

4 syllable words: essentially, development, responsible, identify, immunity, potentially, genetic(al)ly, appreciate