

KNOW YOUR

ES

WE

ARE

WE

GO

Our genetic composition is the recipe that makes us who we are. Genes cause the physical traits that connect us to our parents and that are carried over from one generation to the next. Some are good, some are bad, and some are just pretty darn quirky

By LAUREN ENDRODY

WE'RE PRODUCTS OF AN

intricate web of combinations between our mom's and dad's genes. Some of our features are clearly inherited from our mom, and others from our dad, and then we have features that don't seem to come from either of them, for which the milkman is so frequently (and unfairly) blamed.

Studies at the Minnesota Center for Twin and Family Research proposes that more than 50% of our traits are inherited from our parents. This includes things like 'obedience to authority, vulnerability to stress, and risk-seeking'. There's no telling what characteristics from which of our parents we'll end up with; it's just the luck of the draw.

Genetics have fascinated us for decades. In 1990, scientists began the Human Genome Project in an attempt to extensively map out our DNA and determine which genetic factors lead to different health implications. As we now know, it's not that simple. Although the DNA of all humans is 99.9% the same, it is the way our DNA is arranged in a specific order that makes us unique. There's also no single gene that can be

used to predict one outcome – the features and health conditions we end up with are the result of complex interactions between different inherited genes.

Finally, just because you've inherited the genetic components for a certain trait or condition, doesn't necessarily mean it will manifest. This is due to something called epigenetics, which is the study of how changes in an organism are the result of modifications in the way the genes are expressed, rather than modifications in the genetic code. So basically, you can be born with certain genetic conditions, but they will remain inactive until they are triggered in specific environments.

This is good news for people who have been dealt those genes that can cause negative health conditions, because it means that it is possible to lower the chances of developing these conditions by focusing on healthy lifestyles choices.

All the studies that have been done in an attempt to discover more about genes and to identify genetic predisposition to certain diseases have also revealed new information about quite unusual traits that can be genetically transferred. Here are just a few:

THE LAZY SUSAN'S GENE

According to *Live Science*, a test done on lab rats showed that lazy rats who were bred together were more likely to produce lazy offspring, whereas the offspring of more active rats demonstrated the same behaviours. Similarly, Professor Rodney Dishman, of the Kinesiology department at the University of Georgia, found that some people have more of a natural desire to exercise than others. This is because they are genetically wired to respond better to the dopamine released from exercise. As New York internist Dr Keri Peterson says: 'Dopamine is a chemical in our brains that plays a role in feeling pleasure and regulating drive. The inherited activity of these genes may cause us to seek physical activity or to choose a more sedentary lifestyle.'



THE COFFEE-SENSITIVE GENE

According to a study published in the journal *Scientific Reports*, there's a gene that causes coffee to take longer to metabolise. So people with that gene don't need to drink as much of it to feel awake and buzzing and therefore, they drink less coffee than the average person.

THE THICK-SKINNED REDHEAD GENE

An Aalborg University study found that people with red hair have a genetic advantage when it comes to a certain pain tolerance. They found that, when injected with capsaicin, the subjects were less sensitive to this type of pain than others, leading them to conclude that the pain threshold of redheads' skin is higher, as well as their tolerance for chilli or spicy food. Interestingly enough, according to *ScienceNordic*, redheads are more sensitive to the cold and are more prone to suffer from toothache.

PHOTOGRAPHY COURTESY IMAGES

The DNA of all humans is 99.9% the same; it is the way our DNA is arranged in a specific order that makes us unique.

The major genetically transmitted diseases and disorders according to the WHO:

- Cancer
- Diabetes
- Cardiovascular disease
- Asthma
- Down syndrome
- Huntington's Disease
- Cystic Fibrosis
- Haemophilia
- Sickle-cell anemia
- Fragile X syndrome
- Thalassaemia
- Tay-Sachs disease

THE SNEEZY GENE

There's a hereditary condition called the photic sneeze reflex (previously called ACHOO – Autosomal Dominant Compelling Heliopathic Outburst), which causes anyone who has that gene to sneeze whenever they come into contact with bright light. Medical Genetics Summaries says that the gene for ACHOO Syndrome is in fact dominant and if your parents have it, you are 50% likely to have it too.

THE SHEEP COUNTING GENE

It has recently been discovered that insomnia can also be genetic. Dutch geneticists Prof Danielle Posthuma and Prof Eus van Someren of the Vrije Universiteit Amsterdam identified seven specific genes that make some people more vulnerable to developing insomnia.

FL's Final Word: It is evident from the above examples that our genes play a significant role in even the most obscure behavioural and health outcomes in our bodies and lives. But as epigenetics shows, many of our genetic conditions are usually triggered by our environments and therefore, it can be possible for us to avoid the development of more serious genetic health problems, such as cancer and diabetes by adopting healthier lifestyles and eating healthy, exercising often, avoiding smoking and regulating our stress levels. **FL**