

A message from *Life* co-author, Helen Stephenson

Tortoises are among the record-breakers when it comes to lifespan. They can often live for 200 years. I'm pretty sure I don't want to live that long, but, these days, we are all living longer. This article about long life has made me think a lot about old age. How would I feel about living beyond 100? What about you?

A long and healthy life?

A baby born today could live to be not only 100, but even 120 years old. Hard to believe? Apparently, there could be a gene for not only long life, but long and healthy life.

Even today, there are many, many people who have passed the landmark age of 100 – an age that seemed an impossible achievement only a few decades ago. In fact, there are now so many healthy, elderly people that a new term has been coined: the *welllderly*. These are people over the age of 80 who have no chronic diseases such as high blood pressure, coronary disease or diabetes and who have never taken medication for these conditions.

There have been quite a few scientific studies of communities where a healthy old age is typical. These include places like Calabria in southern Italy and the island of Okinawa in Japan.

The small village of Molochio in Calabria numbers about 2,000 inhabitants. And of these, there are at least eight centenarians. When researchers ask people like this what the secret of their long life is, the answer is invariably to do with diet and is almost always the same: 'I eat a lot of fruit and vegetables.' 'A little bit, but of everything.' 'No smoking, no drinking.'

But such evidence is now regarded as unreliable and these days scientists are looking beyond diet and lifestyle to genetic factors. Eric Topol is one researcher who questions the received wisdom, saying, 'There must be genes that explain why some individuals are protected from the harmful genes that affect the aging process.'

New research into long life, looking at groups of people who have a genetic connection, has taken scientists to Ecuador. In one small region there are a number of people with a genetic condition called Laron syndrome. The main effect of this condition is to restrict the individual's growth to little more than a metre, but it also seems to protect them against both cancer and diabetes. Ultimately, those with

Laron's syndrome live longer than the rest of their families. Meanwhile, on the Hawaiian island of Oahu, there's a completely separate group of Japanese-American men who are particularly long-lived. And it turns out that they have a variant of the same gene as the Laron syndrome group.

Back in Calabria, scientists have been trying to work out exactly how much of the local longevity is due to genetics and how much to environmental factors. By checking public records going back to the 19th century, researchers have reconstructed the family trees of 202 nonagenarians and centenarians. They concluded that there were genetic factors which seemed to benefit the men more than the women – a surprising result because generally in Europe, women centenarians outnumber men by about five to one.

So what really makes people live longer? It seems likely that it is an interaction of genes, the environment and ultimately a third factor beyond our control – luck.

Glossary

centenarian (n) – someone who is older than 100 years old

nonagenarian (n) – someone who is between 90 and 100 years old

Key Words

achievement (n) – something which someone has succeeded in doing, especially something difficult

benefit (v) – to help someone or improve their life

chronic (adj) – a chronic illness continues for a long time

evidence (n) – facts or physical signs that make you believe that something is true

harmful (adj) – having a bad effect on something or on someone's health

inhabitant (n) – the inhabitants of a place or region are the people who live there

medication (n) – a substance that you take to treat an illness

restrict (v) – to physically limit or control something

unreliable (adj) – not definitely true or correct