

Levelling up health is important. We want to level up life and you can only level up life by levelling up life expectancy. [Matthew Hancock](#). 1921. British Secretary of State for Health and Social Care ([source](#)).

Theme of the month: Secrets of longevity of blue zones

Worldwide, life expectancy is currently about 71 years. In 2019, [life expectancy at birth in Belgium](#) was 81.8 years for the total population, 84.0 years for women and 79.6 years for men. In some Asian countries (Singapore, South Korea, Japan), it is even higher.



However, this is less than the exceptional longevity observed in specific areas of our planet where there is a [large proportion of centenarians](#). These regions were identified by two demographers, Gianni Pes and Michel Poulain, and the journalist [Dan Buettner](#), author of the article [The secrets of Long Life](#) published in the *National Geographic* magazine and the book [The Blue Zones](#).

The 5 Blue Zones identified in the world

Sardinia, Italy

By studying the longevity of the inhabitants of Sardinia, demographers Pes and Poulain and their collaborators [have located areas](#) where more centenarians live. These longevity hotspots or Blue Zones (the researchers initially used a blue marker to delimit these zones on a map) are located in a mountainous region of the island, the [Barbagia](#), which was still difficult to access a few decades ago. Such a geographical situation favors inbreeding, reducing the diversity of the genetic heritage. In the area of exceptional longevity, in the southeast of the [province of Nuoro](#), 91 people became centenarians among the 18,000 people born in the area between 1880 and 1900. In one particular village ([Seulo](#)), 20 centenarians were counted between 1996 and 2016.

Analysis of genes involved in inflammation, cancer and heart disease did not reveal any significant differences that could be related to the exceptional longevity of the Sardinians. The researchers therefore suspect that

environmental characteristics, lifestyle and diet are much more important than genetic predispositions for living long and healthy lives.

Many of these Sardinian centenarians are shepherds or farmers who have done a lot of physical activity outdoors throughout their lives. The Sardinian diet, which is part of the famous Mediterranean diet, could play an important role. It consists of home-grown vegetables (especially beans, tomatoes and eggplant), whole grain bread, pecorino cheese made from whole milk from grass-fed sheep, and local red wine particularly rich in polyphenols. The diet includes meat only once a week at most.

When centenarians are asked about their exceptional longevity, they frequently mention the importance of family and social ties. In Sardinia, the elderly live with family, not in nursing homes. Seniors living in the Sardinian Blue Zone report excellent mental well-being and few symptoms of depression. An [Italian study of 160 seniors](#) in this Sardinia Blue Zone reported that the trait of resilience was significantly associated with markers of good mental health.

Okinawa, Japan

Japan has one of the highest concentrations of centenarians in the world, more than [34.7 per 100,000 inhabitants](#) in 2010. Inhabitants of the Okinawa archipelago in southwestern Japan have a particularly high life expectancy and 66.7 centenarians per 100,000 inhabitants have been counted in this prefecture. Women living in Okinawa are 3 times more likely to live to 100 than North American women. The exceptional longevity in Okinawa is [the result of a set of favorable factors](#) that are not limited to genetic heritage. Most of these factors are highly cultural and related to the traditional Okinawan lifestyle.

The Okinawan diet is based on plants, many green leafy vegetables, sweet potatoes, fish and seafood. The majority of Okinawan centenarians have maintained a vegetable garden throughout their lives, moderate physical activity to keep fit and reduce stress. Okinawans traditionally practice self-restriction by following the Confucian-inspired teaching of "[hara hachi bun me](#)" which recommends eating so as to be 80% full at the end of a meal. The elderly in Okinawa are very active and maintain strong family and social ties, for example during regular meetings called "moai". It is very important for them to give meaning to their lives, to have an "ikigai" i.e. to have a reason to get up every morning.

Nicoya, Costa Rica

Life expectancy is relatively high in Costa Rica (82.1 for women and 77.4 for men), but it is especially high in one region of the [Nicoya Peninsula](#) where men aged 60 are 7 times more likely to become centenarians than other Costa Ricans. Like Sardinia, Nicoya is a region that has been relatively isolated for hundreds of years. It has a 23% lower death rate from cancer than the rest of the country. Nicoyans eat a plant-based diet (squash, black beans, corn tortillas, lots of local fruits), but also include eggs and meat (chicken and pork). Nicoya centenarians are very physically active, have strong family ties, a strong religious faith and enjoy working. They have very little stress and are generally very positive and happy.

Loma Linda, USA

The only identified Blue Zone in North America is located in [Loma Linda](#), a city in California where there is a community of 9,000 members of the Seventh-day Adventist Church. In California, an Adventist male aged 30 will live an average of 7.3 years longer than a white Californian of the same age. A 30-year-old Adventist woman will live an average of 4.4 years longer than a California woman of the same age. Given that about two-thirds of Americans die from cardiovascular disease and cancer, it is not surprising that Adventists live longer since their lifestyle puts them at less risk for these diseases. About half of Adventists are vegetarians or rarely eat meat and non-vegetarians are twice as likely to develop cardiovascular disease. The majority of Adventists are non-smokers and do not drink alcohol. As a result, they have a lower incidence of lung cancer than Americans in general. Adventists are physically active and have a strong sense of community, as they are very religious and their church encourages members to help each other.

Ikaria, Greece

[Icaria](#) is an island in the eastern Aegean Sea where [one in three inhabitants reaches the age of 90](#). The incidence of cancer, cardiovascular disease, diabetes and dementia is significantly lower. As in Sardinia, Okinawa and other Blue Zones, Icarians maintain a vegetable garden at home and lead a low-stress life. The Icarian diet is Mediterranean in style and consists of vegetables (potatoes, peas, lentils, green leafy vegetables), fruit, olive oil, fish, goat's milk, dairy products and a little meat. Icarians eat little sugar and drink coffee, red wine and herbal teas made from rosemary, sage and oregano on a daily basis. Icarians who observe the Greek Orthodox Church calendar must undergo regular fasts. Caloric restriction is known to slow the aging process in mammals.

Common characteristics of regions where people live better and longer

People in the Blue Zones, Okinawa, Sardinia, Nicoya, Icaria and Loma Linda, share characteristics in their lifestyles that contribute to their longevity. Dan Buettner in his book [The Blue Zones](#) lists 9 common characteristics:

- Moderate, regular physical activity throughout life.
- Caloric restriction.
- Semi-vegetarianism, with most of the food coming from plants.
- Moderate alcohol consumption (especially red wine).
- To give meaning to one's life.
- Reducing stress.
- Commitment to spirituality or religion.
- Family is the center of life.
- Social commitment, integration in the community.

These blue zones have in common that they are sunny and airy areas. They are also relatively isolated, either geographically or according to religious practices (Loma Linda). The diets are different, but they have two aspects in common. The first is that they are based on plant-based foods, with meat, fish or cheese only in small amounts or during holidays, local, fresh, minimally processed foods. The second is that they eat vegetables. As for the flavors, the diets are very different. If the population of Icaria has a diet close to the [Cretan diet](#) (vegetables, fish, white meat), the population of the Sardinian mountain villages do not eat fish but meat, including cold cuts.

[The study published by Michel Poulain and Gianni Pes](#) identifies the importance of a healthy lifestyle, at high altitude, with physical activity, even over the age of 80, without stress, with close family and social ties.

A very strong social bond

"Longevity (in these areas) is explained 10% by genes and 90% by lifestyle," said Dan Buettner, in his [book-investigation "Blue zones: Where do we live better and longer?"](#).

The social link is at the heart of the particular lifestyle of the "blue zones". The case of the Nicoya Peninsula in Costa Rica demonstrates this well. In certain homes in this region, it is not uncommon for three or four generations to live together. A study conducted by the German Max-Planck Institute has proven that regular babysitting of grandchildren improves cognitive function, mental and physical health, reduces the risk of developing Alzheimer's disease and prevents stress. Passing on the knowledge and memories of grandparents to their offspring also helps them

exercise their memory. Another example of the importance of social ties is the Seventh-day Adventist community in Loma Linda, California, the fifth largest blue zone in the U.S., dubbed the "longevity oasis". There, believers live together and work daily for a common good, creating a strong sense of belonging. This sense of belonging goes beyond simply being kind to one another. Faith is a prominent factor. Together, it's harder to give in to temptation, so a shared struggle creates beneficial social support that helps reduce mortality.

Meals are also an important source of social connection. According to dietician-nutritionist Alexandra Retion: "It is less and less important, but the happiest people are those who share their meals, who spend time with family or friends. It is very important to take the time to eat together and to share good moments. Conviviality is important. "France is rather a good student in this field because in 2010, [UNESCO](#) decided to classify the "gastronomic meal of the French" as intangible cultural heritage of humanity. A distinction that recognizes this social practice based on conviviality, the pleasure of taste, sharing, the association with wine, the link to the land, etc.

By way of conclusion

For a long time, humans have sought mythical places of longevity. Sometimes beliefs about longer life are simply due to unreliable records of births and deaths and an exaggeration of longevity. For example, even today, some people believe that [the people of Hunza have the secret of living to 145 years.](#)

The blue zones will not allow us to live forever. However, they do teach us that we can still make significant progress in healthy longevity, even without a breakthrough medical discovery. This can save a few years of healthy life, even compared to the longevity of the already most favored countries.

This month's good news: Insects can also tell us about healthy longevity

We know that the maximum lifespan is genetically fixed. No mouse ([Mus musculus](#)) in the world lives more than 4 years, no human being more than 122 years, and no [gastrotrich](#) (small marine invertebrate) lives more than a few days.

However, among social insects, maximum life spans vary considerably depending on the role of the individual. [An article in Science](#) details this situation. The most striking example is that of the queen termite, a gigantic

"egg-laying machine", which lives up to 20 years, whereas the workers live only two years. The difference in lifespan also concerns the queens of bees and ants.

The study of arthropods therefore holds out hope. Especially since some of these insects contradict the general principle that small animals have short life expectancy.

To learn more about it:

- See in particular: heales.org, sens.org, longevityalliance.org and longevity.org.
- [Source of the image](#)