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Blue Zones and Longevity

By

Edward F. Ansello, PhD

Perhaps you've heard of Blue Zones or have read some of the related literature. About a decade ago, research on longevity pockets around the world that was funded by the National Geographic Society and led by Dan Buettner burst onto stage, literally and figuratively. Buettner delivered a much-watched TED talk on Blue Zones and I heard him give the keynote address on the topic at an annual Gerontological Society of America conference. Blue Zone diets, advice columns, books, and more have proliferated.

He has commented that "We are not programmed for longevity....Longevity is 90 (years) versus life expectancy which is 78. We're leaving about 12 good years on the table."

Blue Zones are places around the world where residents enjoy robust, healthy lives into their ninth and tenth decades and where the numbers of centenarians are multiples of the numbers elsewhere.

There are five recognized Blue Zones. These are: The Italian island of Sardinia, specifically around the Nuoro province in the middle, interior, hilly highland; Okinawa, Japan, mainly in its northern end; Loma Linda, California, home to a concentration of Seventh Day Adventists; Costa Rica's isolated Nicoya Peninsula; and Ikaria, an isolated Greek island in the Aegean Sea, between the islands of Mikonos and Samos.

What do these dispersed Blue Zones have in common? What can we learn from them to improve our own prospects for longer, healthier lives?

These places do have some common characteristics, including isolation or at least some degree of encapsulation. This limits generalizability somewhat, as many of us live in or near heterogeneous, large scale population centers, hardly removed or isolated.

Buettner and National Geographic discovered the first Blue Zone on Sardinia, an island Southwest of Rome about 12 hours by ferry. Buettner identified a cluster of inland villages in a kidney-shaped region on this island. This area is quite mountainous, with narrow, switch-back roads making for beautiful and terrifying driving even today, with villages along roads that ribbon the mountainsides and high plateaus. He found a prevalence of the M26 genetic marker among the area's inhabitants; it is linked to exceptional longevity, and because of the region's isolation, the genes of the residents here "have remained mostly undiluted."

I spent three weeks in Sardinia in 2017, going there primarily because of its reputation as a Blue Zone. I studied the diet and observed the people, not in a professorial way but through conversation and interaction.

The Sardinian heritage is proud and ancient. Sardo is the ancestral language, often still spoken, and, even today, children go to school to learn Italian. Sardinia boasts a Nuragic culture that

flourished from about 1900-1800 BC/BCE until at least the Roman conquest in the third century BC/BCE, while some say it existed longer, until the second century AD/CE. Nuraghe (singular; Nuraghi, plural) refers to the circular, stone tower structures that served as population centers across the island; round stone houses were built around the larger round towers which had portals 30-40 feet above ground that were accessible in times of danger only by ropes that were withdrawn.

Nuraghic villages prospered throughout the island, and there are remains of 7,000 nuraghi today. So there were at least 7,000 villages populated on an island not 100 miles long and 50 miles wide. This advanced civilization's architecture is found nowhere else in the world and the Nuraghic people predated or coexisted with more famous civilizations like the Phoenecians, Egyptians, and Carthaginians.

The traditional daily diet on Sardinia is simple. Breakfast is bread or traditional biscuits, pecorino (sheep's) cheese, dairy, and more recently, coffee. Isolation meant that over time villages just a few miles from each other developed their own breads. I visited the Sardinian Culture Museum in Nuoro which has a room displaying behind glass many dozens of different breads, differing substantially from village to village. Most are unleavened whole wheat breads. About half of the daily diet in this region is grain based (including pasta), but Sardinians eat plenty of leafy vegetables, and some seafood.

The most traditional bread is carasau, a thin, crispy, flat bread of durum wheat flour, often embellished with rosemary and sea salt. There are also breads that resemble fingers, circular flat pancake-like breads, breads with delicate interlaced weavings, and more.

These Sardinians drink Cannonau di Sardegna, a dry red wine that is extra rich in healthy polyphenols. Another staple is bottarga, which is salted, cured fish roe of bluefin tuna or grey mullet; it's often served with spaghetti. The above-mentioned Pecorino Sardo is sheep milk cheese from the Sardinian breed of grass-fed sheep, distinctive from mainland sheep and cheese.

Overall, the traditional Sardinian diet is almost half from whole grains, a sixth from vegetables and legumes, and a quarter from dairy, primarily sheep or goat's milk. Together, these account for about 90% of daily consumption. Fish, wine, and (rarely) meat round out the diet.

Okinawa's Blue Zone presents a somewhat different picture. These Okinawans have one-sixth the rate of cardiovascular disease found in Western, developed nations, one-fifth the rates of colon and breast cancer, and enjoy the longest disability-free life expectancy in the world.

The traditional Okinawan diet is heavily plant-based, with seven servings of vegetables a day on average. Fish and, surprisingly, meat, especially pork, are often part of the daily diet. The consumption of meat by these long-lived Okinawans presents what my colleagues in Japan sometimes call the Okinawan Paradox: eating meat and longevity? Cleverly, Okinawans tend to cook their meat twice by boiling, rendering off the harmful fat.

Okinawans seem to have a sense of their place, with a tradition of ancestor veneration. Buettner observes that here, as in other Blue Zones, the long-lived have a vocabulary for their sense of purpose. They know where and how they fit into their surroundings. When visiting Okinawa, I

noticed clusters of mid-life and older-adults everywhere, visiting, talking, and eating together, representing a real sense of community, as is often seen in the more traditional cultures.

Ikarians in the Aegean Sea reportedly maintain a similar network of friends and community. Their diet is primarily potatoes, legumes, fruits, greens, and other vegetables; these constitute about three quarters of the daily diets that Ikarian centenarians have eaten most of their lives.

Loma Linda presents a curious case of encapsulation within the landscape of California. Here, a large population of Seventh Day Adventists produces not only many very old adults but also centenarians in good number. The average life expectancy of Seventh Day Adventists is about 87 for men, about 89 for women; both are much longer than the average American life expectancy. Their religion advocates vegetarianism, so whole grains, nuts, fruits, and vegetables comprise the bulk of a daily diet. They eat meat very rarely and don't drink wine.

So, what *do* these Blue Zones have in common?

A basic lifestyle: simple diet, strong social integration, lots of exercise, especially walking, and intertwined family and religious routines; they climb hills, giving one's body a work-out, not in Nikes at a gym, but by walking across and between communities and performing regular daily activities. When they are "using their bodies," it is through rigorous physical activity that is part of their normal, everyday life.

People in the Blue Zones eat an impressive array of garden vegetables year-round; fresh, when in season; they pickle or dry the season's surplus to enjoy the rest of the year. Theirs is a plant-based diet. Of course, nutritionists have long noted that the best longevity foods are leafy greens, such as spinach, kale, chard, collards, and beet and turnip tops.

None of Blue Zones purposefully exercises. They exercise unconsciously by walking, gardening, visiting neighbors, and going to religious services. Common among the Blue Zones is a strong religious belief. Buettner reports that the Seventh Day Adventists often observe the Sabbath by going on nature walks on this one day a week devoted to focusing on God and family.

The long-lived in Blue Zones have maintained strong friendships over the course of their lives. They've grown old together in what is essentially a longevity support group, as each member reflects and reinforces the community's values and lifestyles. As Buettner notes, "They hang out with healthy people: surrounded by others who behave as they do."

Are their lives "low stress" as some claim? This is debatable. On Okinawa and Sardinia, for example, older residents are dealing with the erosion of traditional values and religion, the flight of younger people from the region, uncertain economic prospects, and even the loss of their ancient languages. In Sardinia, I talked with older adults who bemoaned their younger people's moving away; several twenty-something wait staff in Sardinia told me of being unable to find in their traditional communities the types of employment for which they'd obtained college degrees; and so they were leaving.

With all this said, there are take-away lessons. We cannot reboot to be born and raised in a Blue Zone. For that matter, these zones are changing. We most likely cannot mimic the spare self-

sufficiency of these regions, either. We can, however, embrace the generalizable: a plant-based diet, friendships, spiritual or religious grounding, awareness of and immersion in our community, physical activity as a regular, normalized part of our daily routine, and, more philosophically, an opening up to our own sense of place and purpose.