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AGEING

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Cover art: Claudia Bentley

Ageing is inevitable. Yet for centuries people have tried to slow or stop it, from bathing in the blood of virgin girls to concocting an elixir of life. These days, anti-ageing research is on a more scientific footing. And while we are no closer to finding the fountain of youth, humans — for a variety of reasons — are living longer than ever before (page S2).

Hitting the biologically arbitrary 100-year milestone used to be the preserve of the lucky few, who would often reach it in rude health. In theory, studying these centenarians might reveal the secrets of healthy ageing. But as life expectancy increases, more people are reaching their eleventh decade, muddying the gene pool. Might more valuable data be gleaned from the supercentenarians who reach 110 (S6)?

Scientific efforts to extend lifespan are progressing on several fronts. A short-lived species can evolve into a long-lived one, and researchers are keen to find out how (S10). Studies in other species have already shown that a severely restricted diet can add years of healthy living (S18). Diet affects ageing in humans too — how our food influences our gut microbes, and how they in turn affect our health and longevity, is under investigation (S14). Another line of enquiry focuses on harnessing the regenerative powers of stem cells (S12).

But what does healthy ageing mean? Sociologist Eva Kahana talks about this "slippery concept", which she says is different for each individual (S9). With the threat of Alzheimer's disease looming large, there is a lack of data on how the brain changes over time — a deficit that a new long-term study aims to correct (S4). In the meantime, for those of us who need a little help in our later years, new technologies can support, predict and possibly prevent some of the worst health problems associated with ageing (S16).

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