

Heales monthly newsletter
[FR](#), [NL](#), [ES](#), [DE](#)

The Death of Death N°186
October 2024

Alongside Francis Bacon and Gottfried Leibniz, Benjamin Franklin was one of the few people in the pre-modern era to seriously consider extending lifespans. It is likely no coincidence that these three are among the most brilliant and versatile minds in history.
Liz Parish, CEO of [Bioviva](#). May 2024.

This month's theme: Maximal Lifespan of mammals. Decades of stagnation.

A sad introduction

We see the extraordinarily small (1 million times smaller than the naked eye).

We see the extraordinarily distant (hundreds of times farther than the naked eye).

We move extraordinarily fast (hundreds of times faster than on foot).

We harness extraordinary amounts of energy (hundreds of times more than human energy).

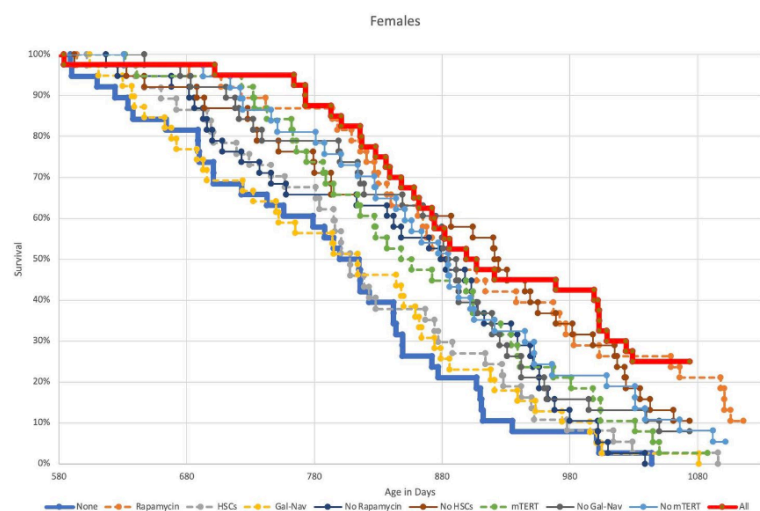
We have instant access to more knowledge today than anything written until the 20^e century.

But we do not live much longer than 2,000 years ago.

Give 100 million dollars and old mice aged 18 months to the 100 best longevity scientists. Give them the liberty to test anything they know to favor longevity. Come back 30 months later. All mice will be dead.

Find the 100 healthiest male centenarians in the world. Give them the best treatments available today, and the best doctors in the world. Come back 20 years later. There will be no survivors.

In other words, the maximal lifespan of mammals is a limit that we cannot yet change with our actual scientific knowledge. There is a glass ceiling of longevity, very probably for each species of mammal, certainly for mice, rats, dogs, cats, horses, and humans.



This is the inconvenient truth about the research of longevity today. We know more about the biology than ever. We can save more children from diseases and affections than ever before. There are more sexagenarians, septuagenarians, octogenarians, nonagenarians, and even centenarians than ever. But for supercentenarians, people living 110 years and more, there is no progress and even maybe some regression.

What is the maximal lifespan of mice, and rats?

The maximal lifespan of mice and rats is about 4 years. For decades, scientists have tested promising treatments to extend the lifespan of mice. Hundreds of therapies have been tested, but no one is making a really big difference.

In 2003, the [Methuselah Mouse Prize](#) (Mprize) was created to increase scientific and public interest in longevity research. One of the two prizes is for the scientists who broke the world record for the oldest-ever mouse. This prize attributed in 2003 was for a dwarf mouse almost aged 5 years (precisely [4 years, 11 months, and three weeks](#)): No mice lived longer since then.

We could hope that the progress of research is at least stimulating scientists to make more experiments of longevity. But this is not the case, many experiments concerning mice and rats are done on old animals, but once the therapy is tested during a certain period, animals are sacrificed.

The reasons given by researchers for this are:

- To see the results of a therapy, an autopsy is often necessary, making it impossible to keep all animals alive.
- If scientists had to wait for animals to die a natural death, the publication of results would be delayed
- Due to strict protection laws concerning animal ethics, it can be complicated to keep very old mice. The law requires the animal to not have prolonged suffering. They have to be euthanized if they suffer too much, even if the suffering is only due to ageing.
- Once good physiological results are known, scientists tend to consider that it proves that longevity will be better (even if this is only a positive signal, not proof)

So, this has the consequence that many experiments to improve longevity are done quite surprisingly without measuring longevity.

What is the maximal lifespan of other non-human mammals?

Concerning other mammals, it can happen that some animals appear to live longer than before, but globally there is no significant increase even if the registration of pets and probably their number increases. The [oldest dog](#) ever died at the age of 29 years in 1939. The [oldest cat](#) died in 2005, aged 38. The [oldest horse](#) died aged 62 in 1822. Of course, reliable information for this is less available than for mice and humans. What is sure is that even pet owners and zoos who sometimes invest enormous amounts of money to keep animals alive do not succeed in breaking records with a considerable difference from past records.

They are organizations trying to test therapies on [dogs](#) and [cats](#). But sadly, not many experiments have been done yet, and no experiment has been successful until now.

The measure of the maximal longevity of naked mole rats, a rodent living a very long life, seems to be increasing. One specimen lived already [39 years](#)! But this is not thanks to a specific therapy. This is because the lifespan of animals has been registered long enough only relatively recently.

What is the maximal lifespan of women and men?

The oldest woman ever was very probably [Jeanne Calment](#). She died when she was 122 years old in 1997. The [oldest woman today](#) is "only" 116 years (in October 2024). This means that the record of Jeanne Calment will at least last for more than 30 years. Actually, we could almost say that there has been no progression since 2 millennia. Indeed, [Terentia](#), the widow of Cicero, died aged 103 years in Italy when Augustus was emperor. Today, attaining 103 years is still something very rare.

The oldest man ever was, very probably [Jiroemon Kimura](#). He died in 2013, aged 116 years. The oldest man today is "only" 112 years old. This means that the age attained by Jiroemon will stand for at least 15 years.

So, sadly, those who speak of exponential progress for longevity are wrong concerning maximal lifespan. There is no progression. Even worse, logically, since the number of centenarians is increasing, the number of supercentenarians should be increasing as well, even if there is no progress in medical science for people attaining this age. Indeed, if you have one supercentenarian for 1000 centenarians and the number of centenarians is doubling in 30 years, you should have two times more supercentenarians.

No increase in maximal lifespan, why?

First, it could be that the number of supercentenarians was overestimated in the past. In countries where the [registration of births is poor, there are more mistakes](#). For example, it can happen that one child dies when young and the parents give the same first name to another child later without registering the second birth. It can also happen that people or their families overestimate the age to receive some benefit (pension) or for social prestige. In the past, there were many claims of people attaining age [far behind 120 years](#) and even [far behind 200 years](#). Nowadays, those claims are rarer and almost disappear in countries that have a good registration of births.

A far darker possible explanation is pollution, especially air or water pollution that can go everywhere from polluted cities and industrial areas to [Antarctica](#). The exposition of small amounts of combined pollution ("toxic cocktails") during decades could progressively accelerate senescence. But why would this be so much more for supercentenarians than for older people?

Another possible explanation is given by scientists who speak about old age as something having not one main cause, but many causes. The causes could be the initially listed 9

[hallmarks of ageing](#) described in a seminal article from Carlos López-Otín, Maria Blasco et al. ([recently increased](#)). It can also be the [7 causes of aging](#) determined by Aubrey de Grey and the Strategies for Engineered Negligible Senescence. We could say that the maximal lifespan for each cause is a maximum of 120 years. So, human longevity [may have reached its upper limit](#) if we do not have therapies stopping all causes of death together.

How to break the glass ceiling?

It will very probably not be easy. We need radical progress. This means:

- The use of artificial intelligence must concentrate on everything concerning the resilience of humans behind our actual biological limitations. This is important for healthy longevity. This is also important as one of the ways to mitigate risks concerning AI. The more we use it to save ourselves, the less we use it for other goals. Important remark: mitigating the risks this way is only [a small part of the question concerning AI risks](#), but it is not the theme of this newsletter.
- Testing new therapies as fast as
- Testing new therapies as fast as possible with old and even very old well-informed volunteers.
- Better ethical committees and less blocking bureaucracy. For those who respect the right to health, today the main cause of suffering and death is more and more diseases related to high age. We have to do better for the common good.
- Public organizations, especially international organizations like the World Health Organization must invest far more for longevity.
- We have to make society understand that "Aging is inevitable, but senescence isn't". We have difficulties fighting against aging because of [psychological reasons](#). We accept death and do not try to defeat it because we have no choice. But we have less chance to have any choice if we do not try. A proverb says: They didn't know it was (supposed to be) impossible, so they did it!

The good news and the bad news of the month: Experiment on mice demonstrating an effect of combination on therapies, but not enough money to pursue.

The experiment on 1000 mice organized by the Longevity Escape Velocity Foundation has almost ended. The [partial public results](#) show that the combination of 4 therapies gives good results but with differences between males and females.

There will be [phase 2 of the experiment](#) with 4 new therapies and a better treatment thanks to the lessons of the first experiment. Sadly, there is not enough money yet. Didier Coeurnelle, co-chair of the board of Heales is [matching 200 000 € of gifts](#) to start the experiment, but more is needed. Why are the billionaires and public organizations not supporting this? There are many reasons, and you can be a part of the solution.

For more information

- [Heales](#), [Longevity Escape Velocity Foundation](#), [International Longevity Alliance](#), [Longevity](#), and [Lifespan.io](#)
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