

When Science Finds a Way

Season 4, Episode 6

We're living longer, but are we living healthier?

Show notes

Episode description:

In much of the world people are living longer, but how can we make sure those extra years are healthy? Professor Dame Linda Partridge tells Alisha Wainwright how our ever-growing knowledge of health and ageing could lead to more personalised medicine, and Professor Mika Kivimäki explains how new methods for measuring the “biological age” of our organs could be used to predict disease. We also hear from Shamita Sharmacharja, curator of the new Coming of Age Exhibition at London’s Wellcome Collection, about how changing society could help us all age better.

Mentioned in this episode and further reading:

- Hallmarks of ageing: an expanding universe (<https://pubmed.ncbi.nlm.nih.gov/36599349/>)
- Biological organ ages predict disease risk decades in advance, Mika Kivimäki , UCL Faculty of Brain Sciences (<https://www.ucl.ac.uk/news/2025/feb/biological-organ-ages-predict-disease-risk-decades-advance>)
- The Coming of Age Exhibition, Wellcome Collection, running until November 2026 (<https://wellcomecollection.org/exhibitions/the-coming-of-age>)

[00:00:00] **Linda Partridge:** Because one of these molecular mechanisms of ageing is present in the development of several different age-related diseases, if we could tackle that hallmark, then maybe we could prevent or delay the occurrence of all of these diseases simultaneously.

[00:00:19] **Alisha Wainwright:** Welcome to When Science Finds a Way, a podcast about the science changing the world. I'm Alisha Wainwright. And on this series, I'm talking to the global experts who are making a difference, as well as the people who have inspired and contributed to their work.

Over the last century, average life expectancy has risen steadily across the world, thanks largely to advancements in medicine and healthcare. In short, people are living longer. In fact, one in 10 children in the UK today are expected to live past 100. But lifespan statistics aren't the whole story. We know that in practice many people spend their later years in poor health, dealing with age related diseases. It's viewed as a routine part of ageing. But does it have to be this way? Can we stay healthy as we age?

On this episode, we'll explore the field of biogerontology. That's the biology and genetics of ageing. And our guide to the latest research in the field is renowned geneticists, Professor

Dame Linda Partridge. One of Linda's many titles is Professorial Research Fellow at University College London.

She's been involved in studies examining the mechanisms of ageing and age-related diseases, research that could lead to more effective personalized interventions. But the question of how we can age healthier is not just about biology, it's also about culture, society, economics, even ethics. We'll look at the question in different ways through the lens of a new exhibition, exploring the experiences and perceptions of ageing. Let's get into it.

First, let's start with, could you define for us what biogerontology is and how you found yourself in the field?

[00:02:10] **Linda Partridge:** It's this study of the biological mechanisms of ageing. So the really basic molecular, cellular things that go wrong during the ageing process and the way in which they feed into, you know, loss of function, just general, less ability to move around impaired hearing and sight, but also age-related diseases.

So it's really the whole biology and biomedicine of the ageing process. And I think what's very forcibly struck a lot of people over the last few years really, is how extremely malleable the ageing process is. So genetic differences, environmental things like diet, exercise and so on make a huge difference.

And also many of these processes of ageing can actually be manipulated by drugs, even existing drugs. So I think that's where the excitement has come from. And a lot of people who have been studying something related but not ageing itself, have moved into the ageing field in recent years simply 'cause it's so exciting. I mean, the discoveries are just piling in every day. It's great.

[00:03:25] **Alisha Wainwright:** Ageing is such a big topic. So to frame our discussion with some of the diverse and surprising ways we experience and think about ageing, we spoke to Shamita Sharmacharja. She's one of the curators for 'The Coming of Age', a public exhibition at Wellcome Collection in London.

The exhibition features more than a hundred artworks and objects, exploring what longer lifespans mean and how societies can adapt for us all to age better. Shaina spoke about the aims of the coming of age and gave us a guided tour of some of the exhibits.

[00:04:03] **Shamita Sharmacharja:** Advice on ageing is everywhere. We're kind of besieged on information about how to look, feel, and stay young in social media, in the press, on the telly. So we wanted to really kind of step back from that and really think about what cultural and social attitudes shape how we age.

The first objects that you see when you come into the exhibition, a pair of silver sake cups. Now these beautiful little objects that would fit in the palm of your hand, and these are types of objects which are given to people in Japan in the year that they turn a hundred to celebrate. When this practice first started in the sixties, only 153 cups were given out, but by 2014, over 29,000 cups were supposed to be given out, to the cost of around 2 million US dollars. The Japanese government halted the scheme because it was way too expensive and there was a public outcry, so they reinstated it, instead using a cheaper alternative, a silver nickel alternative. It really demonstrates the change in population health over this time, but also it really neatly summarizes ideas to do with value, commemoration and resource.

So we're really asking how do you value the hundred-year life when it's becoming increasingly common?

We are also showing a print from the 1820s from our collection, which was made in Austria and it's called 50 Years of Stagnation. And in it, it shows a boy and girl progressing up some steps, each step representing 10 years of life, which then descend from age 50 downwards. And in it, you see this girl and boy go through education to getting married, having a baby, making it in society, and at age 50, it all starts to go downhill. The walking sticks appear, the postures slump, and they go eventually from the armchair, age a hundred, into the grave. So I think that's really amazing in thinking about life stages and how people think that there is a narrative of development and then decline. And that print was from 1820. Yet, we still today think about life stages in a similar way, that we should be doing certain things at a certain age, and we really hold ourselves to that standard, although that shape of life no longer exists, if it ever did exist. You know, people, can live up to 30 years after retirement. So I think it's really interesting in thinking about that.

[00:06:51] **Alisha Wainwright:** Hearing that clip, something that stood out to me... it just reminded me of my mother who just recently retired this year, and it's such an arbitrary age and time to retire. She's no less mentally fit last year than she is today, and she's bored out of her mind already, wondering what she can do in this next chapter of her life because she's, you know, got all of her cognitive function and she's an active lady.

So really, when I hear this clip and I think about age, if you're lucky enough to move from your fifties to sixties and onward with a healthy body and mind, there's so much for you to do and to take advantage in this next chapter. I wonder, when you hear that clip, what you think of, in terms of how we think about ageing?

[00:07:41] **Linda Partridge:** Well, I'm a biologist and I think that the increase in health at each age is really something to be celebrated. I mean, it's often said that today's 60 year olds are the 40 year olds of, you know, decades ago, but society's very slow to catch up with that change. And of course, one of the things that happens if people live a very long time is that the world changes around them to a much greater extent than if they were shorter lived. And that requires adjustment, particularly in the world of work.

So one of the huge social policy differences, I think, would be a recognition that as people go through their lives, they're going to need retraining. They're going to need to go back to school, back to college to either keep up with their existing trade or to learn a new one.

And at the moment, I don't think we've remotely taken that on board. You know, people do what they do and then if the requirement of the workplace changes so that the older people are not appropriately trained, they're simply retired, even if they don't want to be retired. This is just a terrible waste of human resources in my view.

But of course, in this whole picture, the elephant in the room in many ways for how people maintain their health during ageing is just social inequality. I mean, even within London, where I live, okay, it's a large city, but you can go not very large distances, and there's a 10 year difference in average life expectancy.

And this is the effect of social deprivation kicking in. So I think there's a very great deal of interest in understanding, you know, what is it about social deprivation? What are the stresses and the disadvantages and the things that could be fixed or compensated for, and

how are they actually feeding into the diseases of ageing, which are happening much earlier in people who are suffering from social deprivation.

[00:09:52] **Alisha Wainwright:** Okay. So I'd like to dig into this equity question here. To what extent is ageing determined by your social and behavioral factors, and is there an equity issue with ageing?

[00:10:11] **Linda Partridge:** I think there's an enormous equity issue with ageing. It's absolutely clear that if you measure people's socioeconomic status, and there are lots of different measures you can use of that, but what's clear is that a low score is associated with much worse health during ageing and with shortened life expectancy compared with people in more advantageous circumstances. The effect is absolutely enormous and one can look then, or the social scientists can, at the kinds of variables that might explain that association. So it's very important to try to understand exactly what it is about social deprivation, you know, how is the socioeconomic thing feeding into people's biology to make them sick?

[00:11:10] **Alisha Wainwright:** Shamita described the print showing the couple's health declining in old age. Is this the kind of assumption that you're trying to challenge in the field?

[00:11:20] **Linda Partridge:** Yes, I think it is. What's happened as life expectancy has increased greatly worldwide is that healthy life expectancy hasn't kept up with overall life expectancy, so it has increased.

We are healthier at a given age, but there's this growing period of ill health at the end of life and loss of function, and it's greater in women than it is in men. Women have a much, much longer period of impaired function and health at the end of their lives.

[00:11:54] **Alisha Wainwright:** Is that because, is that they live longer than men?

[00:11:55] **Linda Partridge:** I don't think we know. It's a very clear difference, but it's not clear entirely what the reason for it is. It is partly that they live longer overall, but that there's more to it than that. So I think the aim of people like me is to try and squash that period of ill health at the end of life.

Now, that may in itself, of course, result in a further increase in life expectancy, I think we don't know, but the aim definitely is to go for people's health directly, and if as a consequence of that, there's a slight shift in life expectancy as well, I think most people would say so be it. What really matters to people is their own health, generally, for most people, it's their number one concern, their own health. So it's something that I think we really have to try and address. How feasible that's going to be, I think is not clear, but it's definitely the aim of the enterprise

[00:12:57] **Alisha Wainwright:** In a biological context, what does ageing really mean?

[00:13:04] **Linda Partridge:** I think the big breakthrough of recent years has been a real understanding of what happens during ageing, what the biological mechanisms are. They're often called ageing hallmarks, but what we mean is the mechanisms of things going wrong. I think there's pretty general agreement that it probably kicks off at the genetic level. Things go wrong because the DNA in the cells undergoes mutations or becomes damaged. The molecules that are associated with it go to the wrong places or, or disappear. The ends of

chromosomes get nibbled away and all of that results in changes in the expression of genes in cells. And that means that the proteins, which are the, you know, workhorses of the cell, they also become dysfunctional. They're either created incorrectly in the first place, or not removed when they should be, when they've done their job or when they're damaged.

And that means that cells start to malfunction. So for instance, the stem cells that are present in many tissues like skin and the intestine and so on, that they divide to give rise to new cells that replace damaged old cells. And they start to misbehave as they go through ageing. So sometimes they divide when they shouldn't and produce the wrong kind of cell, or they can just get sullen and when the signal comes to them saying, please divide and give us new cell, they just don't respond.

So you get that kind of cellular dysfunction going on, and then you also get communication between cells going wrong. This is particularly obvious with the immune system. There's often a general increase in inflammation. As animals and people age, and it's not because they're infected, and they're fighting an infection, it's not adaptive in that sense. It's just a general and inappropriate increase in inflammatory tone. And that's involved in the development of a lot of different age-related diseases. So we know what these hallmarks are now, they play different roles in different tissues, you know, whether it's dividing tissue or not and and so on. But there are basic culprits in the ageing process, and they explain why bodies don't function as well as they did once they get old. So that's what a hallmark of ageing is. It's something that you can manipulate to actually prevent some aspects of the ageing process itself. So they're really important. They're our targets for trying to improve health during ageing.

[00:15:44] **Alisha Wainwright:** And what is meant by the term age-related disease and how much do we know about the mechanisms that drive them?

[00:15:53] **Linda Partridge:** That's a very important and very large question. I think, for age related disease, what we're essentially talking about is a disease whose incidence - so the age at which it first happens in a person - increases with age. So you find that the disease starts more commonly, say, in 60 year olds than in 50 year olds, and less commonly in 50 year olds than 40 year olds. So you're talking about diseases that appear more frequently as people get older, and actually the vast majority of diseases are age related. I mean age is the major risk factor for a huge number of diseases, and I think what's been very importantly discovered recently, it's been known for a long time, that if you look at the development of a disease like Parkinson's Disease, dementia or specific kinds of cancer or cardiovascular disease, you can actually see that some of these ageing hallmarks that I've been talking about, like, DNA damage, stem cell dysfunction, mitochondrial dysfunction, inflammation, they're present in the development of these diseases. But what I think is really important is that often people, as they get older, have more than one disease. It's called multimorbidity.

And what's been discovered recently is that individual ageing hallmarks like stem cell dysfunction are associated with particular diseases, and those diseases are more likely to occur in patients as they get older. So some hallmarks seem to be more important in some people and other hallmarks in other people, and they get the diseases associated with that hallmark.

So these ageing hallmarks are really driving age related diseases, and it's led to a very important idea in the whole subject, which is, it's called geroscience. It's the idea that because one of these molecular mechanisms of ageing is present in the development of several different age-related diseases, if we could tackle that hallmark, then maybe we could

prevent or delay the occurrence of all of these diseases simultaneously. So it's prevention, rather than waiting for the disease to happen and treating it, and it's prevention of more than one thing, and I think that's an idea of great interest in the field at the moment.

[00:18:31] **Alisha Wainwright:** One recent investigation into the mechanisms of ageing looked closely at our organs and found some interesting links to age related disease. To hear more about this, we spoke to Dr. Mika Kivimaki. Mika is Professor of Epidemiology at University College London, and he also leads the Whitehall II study. Whitehall II is a longitudinal large cohort study that has collected data from its participants for more than 40 years now, looking at how socioeconomic factors affect health in the long term. Using this data and with some advances in blood testing technology, Mika and his team developed a way to determine differences between biological age and chronological age in individual organs, and explored the implications.

[00:19:22] **Mika Kivimaki:** Chronological age is simply our age. It's the lifetime. But biological age is a more biological term.

So basically when we age, there are a lot of changes in our body and biological age refers to the rate of changes in our body, which correspond to a specific age. So basically it's possible that someone has a chronological age, which is say 50 years, but biological age might be only 45 years.

Now it's possible to measure much better than previously. Previously, you were able to measure a handful of biomarkers from a single blood sample, but now technology has, advantaged and now it's possible to measure from the same blood sample thousands of different biomarkers, and using proteins which are in blood, it's currently possible to determine biological age, not only for the whole entire body, but also for separate organs. And this has been the focus of our most recent research.

We build different organ age clocks. So measuring the age of each organ. Then we looked at the extent to which there was a gap between biological age and chronological age. So whether the person was ageing faster or slower than the average. And then we started to follow up 40 different age-related diseases, which related to different organs. And, then we were looking at whether this baseline organ age predicted these diseases. And what we found was that, there were exactly 30 diseases where organ ageing was related.

Many of these age-related diseases were related to fast ageing of several organs on one hand. And then there were also cases where fast ageing of a single organ predicted many different diseases. So fast lung ageing was related to respiratory infections, chronic obstructive pulmonary disease, but also cardiomyopathy.

So this is not only lung, but also the heart. Then, accelerated heart ageing was related in many cardiovascular diseases, but also kidney diseases, so there was not so strict specificity in these associations. In terms of the organ, these organs do not function in isolation. They function as an integrated system, so if one organ fades, that affects also other organs and, and increases risk of disease in multiple organs. Basically our findings are observational.

So in terms of interventions. They give some clues about how to design an intervention, but they can't prove anything. It's possible that organ ageing informs earlier a risk for a person.

So this then extends the window for prevention. And typically if you intervene early, you have better results.

So that's one thing. Then the other thing could be that it could also give a better idea what component to target, make it more personalized because currently, many of the recommendations are the same for everyone, but this could give a bit more individualized advice.

[00:23:48] **Alisha Wainwright:** What are the implications of this kind of organ ageing discovery, for example, like a place like London where you have life expectancy differences of 10 years?

[00:24:04] **Linda Partridge:** I think that Mika really puts his finger on it, by saying that it's going to be a very early warning system, I think of the individual risk people have. So it's really an approach to personalized medicine. So if you can get the sampling and the measurements cheap enough so that you can monitor people as they go through their lives fairly regularly, and get the proteins outta the plasma and, and profile them, then they should tell you very early on if that person's particularly at risk of kidney disease or lung disease, and you can start to advise and to take the appropriate avoidance action. I mean, there's a lot of that kind of thing already. So for instance, the NHS is reasonably good in the UK at monitoring people's blood pressure, which is a major risk factor of cardiovascular disease if it gets too high and there are, you know, plenty of very effective drugs.

Similarly with bad lipids in the blood.

[00:25:12] **Alisha Wainwright:** I've been a, my body has been a culprit of that.

[00:25:17] **Linda Partridge:** An awful lot of people are, you know, taking statins, purely preventatively. So there's plenty of precedent for it. And, what Mika's telling us is that these proteins can give you an even broader indication, clearer indication of the kinds of risks that that particular person has.

[00:25:35] **Alisha Wainwright:** And what are some of the challenges of researching ageing? And how do long-term cohort studies like Whitehall II help with this?

[00:25:45] **Linda Partridge:** Well, there are some massive challenges with studying ageing in humans, or at least moving from simply studying it to developing and testing interventions. First of all, the question about the cohort studies, the real advantage of them is that because you're following individuals longitudinally as they go through the ageing process and it's the same individual, you can actually isolate the effects of age.

It's the changing age that's important for that person. The problem with just going out into, say, London and getting a random bunch of People and asking them how old they are and then measuring something is that they'll all have been born at different times. So they've gone through different life experiences, depending on the time at which they're born, that's called cohort effects.

So people born in the 1960s and the 1970s will experience different things at different ages, and that makes it difficult to isolate the effective age per se. As opposed to something that happened. I mean, one of the really worrying ones that I think a lot about at the moment in

that context is that it's clear that there's something in our environment at the moment that's risky for younger people rather than older people, and is causing an increase in colon cancer.

So colon cancer rates are increasing in younger people at the moment, and they've always been high in older people, but they're not particularly increasing the age specific instance. Colon cancer isn't going up in older people, but it is in younger people, and we don't understand why. So that's a case of, you know, people at a particular age passing through a particular environment, and that's the advantage of the longitudinal studies.

They've all had the same age specific experience, so we can isolate the effects of age. So as Mika said, it's correlational. You can show that two things are associated with each other, age in something. But to get further than that, you need to do an experiment. And I would say that's where the huge challenge comes in because of these ageing hallmarks that I've been talking about that are present in the development of age-related diseases, because they are, a lot of existing drugs actually have targets that are in the ageing hallmarks. So they're there and they're potentially repurposable for prevention. So it's quite possible that some drugs that are used to treat cancer could actually be used at much lower doses to prevent cancers.

But doing that kind of clinical trial, you're back to square one if you are dealing with an older population. So most clinical trials for drugs are done with young men. And one of the really important things, I think, is that we need to include more people, older people in clinical trials, because they may respond differently to the drug.

They may need a different dose. We don't know even in terms of what the on-label effect of the drug is, but if we're now going to say, well, we'll try lower dose and see if it can prevent multiple things going wrong simultaneously, that is a really expensive clinical trial, but it could be a very important discovery for public health. So there's a kind of valley of death in drug development, that it's very difficult to go through because many of these drugs are off patent now. Nobody's going to make any money outta this clinical trial, even though it could be very, very valuable for public health. So I would say that's one of the major obstacles in the field at the moment, and it's going to require, you know, charities, governments, World Health Organization, they're the people who are going to have to pay for these trials because the pharmaceutical industry isn't going to, and that's not a criticism. It just totally doesn't fit with their business model.

[00:29:49] **Alisha Wainwright:** And what are the next steps for this kind of research in addition to diversifying our clinical trials?

[00:29:57] **Linda Partridge:** I think more clinical trials is a very important next step. I think we really need to see a lot of the discoveries that have come from biogerontology and geoscience actually being pushed forward into humans. So I would say that is extremely important. There are plenty of interesting looking candidate drugs for what's come to be called geroprotection.

So this preventative approach to multiple ailments simultaneously. We need more information, more animal studies, more preclinical stuff, to understand how they're working. So I think that's where a lot of the really important discoveries are going to come from.

And I think also we need to understand much more about the elephant that I've mentioned, the effects of social deprivation. We really need to understand what the mechanisms are there and find out if there are targetable processes. And obviously the best thing would be, you know, improvements in people's economic and social circumstances, which is, you know, politics and, and social policy, it's not biomedicine. But the question is, could we find at least some aspects of health in a pill for people who are under these kinds of social difficulties. I mean, the big hope would really be that some of these geroprotective drugs would actually have greater effects in people who are in poorer shape to start with. I think we just don't know at the moment. But again, that is a very, very important question. I think.

[00:31:40] **Alisha Wainwright:** So thinking of the latest research in the field that we've been discussing, what kinds of interventions could lead to healthier ageing?

[00:31:51] **Linda Partridge:** If we're talking about ourselves, and what we can do, I think it's what our mothers told us, if we were lucky. Eat a good diet -

[00:32:00] **Alisha Wainwright:** Ah, so the things that aren't fun.

[00:32:01] **Linda Partridge:** Yeah. Things that aren't, all the things that aren't fun. Don't smoke. Don't drink to excess. Eat a healthy diet, maintain a healthy weight. Exercise is turning out to be very important. You know, not necessarily enormous amounts of exercise, but a lot of people take hardly any exercise at all, and that really is very dangerous for people's health. So it's all things that we know, we've just got to do them.

[00:32:29] **Alisha Wainwright:** And what about, socializing, you know, like mental health, sort of connection with people. Is that linked to healthier ageing, having more friends or socializing?

[00:32:41] **Linda Partridge:** Well, it certainly linked to a much better quality of life and, and you know, that's going to knock on to other kinds of behaviors where, you know, people look after themselves, maintain their health.

But yes, socializing is incredibly important and, you know, often old people are living alone. And often old people are lonely. You know, they can pass days without speaking to anybody at all. And I think different societies have, you know, been successful to very varying extents in, in doing something about it.

I was very impressed by something I read the other day about South Korea. So in Seoul they've started up, discotheques for the over sixties.

[00:33:24] **Alisha Wainwright:** That's amazing.

[00:33:25] **Linda Partridge:** So it's a great social venue, and you know, they provide nice food and people can go and meet each other and talk. And it really looks like, you know, a great social intervention for both, for people's health and for their mental health because, they're very social venues. So I thought that was a really good idea. And I think quite simple. You know, social measures of that kind could make a big difference to the quality of life for a lot of older people.

[00:33:54] **Alisha Wainwright:** And I think also as someone, you know, approaching 40, I'm thinking about what life is gonna look like beyond 50, 60 into my 70s god willing, and I want to see older people at discotheques. I want to see older people out at coffee shops and living lives because that's a signal to me that it's possible to live a life that is plentiful and engaging and socially active and have that mobility. So how does policy play a role in all of this and what are some examples of public health initiatives that could make a real impact?

[00:34:36] **Linda Partridge:** I think generally the Scandinavian countries have done quite a good job here. They've thought a lot about housing, and collective housing for older people. Often mixing it up with younger people present as well, but having a degree of social support so that as you know, people become less able to function, they can, you know, provide the kinds of care and support that people need.

I think they thought a lot about, you know, design of housing, design of the built environment generally and the kind of association spaces, you know, sports facilities, social association facilities that are really going to give people the chance to be with each other, but also to have some contact with the younger generations.

[00:35:28] **Alisha Wainwright:** Thinking into the future, how do you think the idea of ageing will be different to what we think of it now?

[00:35:35] **Linda Partridge:** I think it's already changing quite rapidly. I mean, there's a natural high level of ageism in societies. I think it's almost hardwired into us, but there's a huge bulge of older people coming through globally at the moment because of the baby boomers and I think society is going to have to accommodate them. They've got a lot of the wealth that's present in society, so market marketing to older people is going to be very important. And a natural extension of that is the kind of facilities that are available for older people should improve and increase very rapidly just because of natural market forces.

You know, people will be prepared to pay for nice accommodation where they can interact socially with other people and, you know, take exercise, do activities and so on. So, I think part of it should just improve naturally because there are so many older people. On the other hand, when it comes to older people in limited facilities like healthcare in the United Kingdom, I think there could also be a certain amount of intergenerational resentment building up that older people need the bulk of the healthcare and to that extent, the healthcare's going to be limited for younger people simply because the whole system has limited capacity. So I think there'll be a mixture of different things going on at the same time. It would be nice to think that naturally ageist assumptions will be on the decline, but I think we'll have to see how we go with that one.

[00:37:16] **Alisha Wainwright:** Well, I guess I'll just have to take your advice and listen to my mom, eat better, drink less, get a good night's rest, and hopefully I'll have healthy years as I continue to age. I just wanna thank you so much for your time and this interesting conversation about ageing, and I'm very curious to see what the research will hold as we move forward.

[00:37:40] **Linda Partridge:** Well, it's been most enjoyable. Thank you very much.

[00:37:44] **Alisha Wainwright:** I found this episode so interesting because there's so many dimensions to the topic of ageing. We talked a lot about the biological science, but it was encouraging that Linda was also considering the social, cultural, economic, and ethical

questions. Healthier ageing is not just about developing new drugs, it's about adapting policy, challenging assumptions, and thinking of ageing as a process that runs throughout life, not just towards the end of it. So if you'd like to explore these ideas further, The Coming of Age, an exhibition about how we experience ageing across our lives, is on at Wellcome Collection in London until the 29th of November, 2026.

Thanks for listening to this episode of When Science Finds A Way. Thanks also to Professor Linda Partridge, Shamita Sharmacharja. And Dr. Mika Kivimaki. If you enjoyed this episode, make sure to follow us wherever you get your podcasts, and like and subscribe on YouTube. When Science Finds A Way is brought to you by Wellcome, a charitable foundation that supports the global scientific community, working to build a healthier future for everyone. To learn more about the work they do, visit their website. wellcome.org/podcast. That's welcome with two Ls. Alright, I'll see you next time.