

Interview with Dr. Collin Farrelly Longevity Science

KYLE JENSEN: Welcome to SAGE Crossroads, the premier online forum in issues of human aging. These podcasts feature lively discussion with the experts on the ethical, political, economic, scientific, and societal implications of aging related science. Thank you for listening.

Dr. Farrelly, you argue that aging is the most important neglected problem of our time. Why do you feel this way?

COLLIN FARRELLY: Well, humanity faces many challenges this century. There are three important considerations that can help us distinguish between the challenges that are truly the biggest problems from those that are less pressing. The first is the magnitude of the harms in question. Second, is their certainty of happening. Last, is the likelihood that we could do something about them. Aging scores very high on all three of these issues. The sheer number of humans that will suffer the diseases of aging this century is staggering and unprecedented. Aging scores very high on the magnitude of the harm criterion. Secondly, aging scores high on the certainty factor. The scientific consensus is in, senescence causes disease and death. Thirdly, we must ask what is the likelihood that we could actually do something to remedy the situation. The greater the likelihood that we could successfully mitigate the harms in questions, the stronger the case for taking action. We know that aging is not immutable, and thus longevity science could provide us with effective and efficient strategies for dealing with the many problems that the aging populations face.

KYLE JENSEN: What benefits would life extension have on society? Conversely, do you see any drawbacks?

COLLIN FARRELLY: Longevity has enormous benefits for individuals and society as a whole. We often fail to appreciate just how big these benefits are. Between 1970 and 2000, increased longevity added an estimated \$3.2 trillion per year to national wealth in the United States. At the level of the individual, slowing aging would increase the number of disease-free years we could expect to live which means we would have more time with our loved ones and friends, and we could enjoy the greater independence that comes with better health. In the big picture of things, any potential drawbacks will be outweighed many times over by the enormous benefits of enjoying more health and economic prosperity. Having the opportunity to be healthy for a longer period of time is what we already strive for with treatments for any specific disease of aging. If people do not seriously entertain the purported drawbacks of curing cancer, then they should not fixate so much on the purported drawbacks of slowing aging.

KYLE JENSEN: In your recent British Medical Journal article, you state that human intervention into our genetic makeup created through thousands of years of evolution is necessary to succeed in extending life. What do you say to your critics that claim this to be a radical and unnatural approach?

COLLIN FARRELLY: Much of our day-to-day lives can be considered “unnatural” when compared to the lives of our hunter-gatherer ancestors of 10 000 years ago. Is it natural for people to spend their days hunched over a computer, drinking caffeine and trying to find love via the internet? The lives of our ancestors, as the 17th century philosopher Thomas Hobbes put it, were “nasty, brutish and short”. This reflected the level of extrinsic mortality they faced and challenges like starvation, violence and infection. We have made great strides in reducing these external threats, and now we have come up against the internal limitations imposed by our evolutionary history. Natural selection only cares that we live long enough to reproduce and pass on our DNA and we are designed to satisfy this function. It’s not concerned about ensuring we live long, healthy lives, but we do care about these things, and we want to spend time with our grandchildren, make contributions to our communities, enjoy the freedom that comes from greater mobility, etc. I don’t think there is anything unnatural and objectionable about people wanting to remain healthy and alive, and spend more time with their loved ones. These aspirations are what make us human.

KYLE JENSEN: How are we going to convince the public that this is worthy of pursuit and that aging is a disease?

COLLIN FARRELLY: Rather than label aging as a disease, I think it might prove more fruitful to strive to go beyond the “disease model” of medicine. This has already happened in disciplines like psychology. The rise of “positive psychology” over the past decade has legitimized the study of what makes people happy rather than just what causes mental illness. One could make a parallel with longevity science. Medicine should not just be concerned with why people develop disease, but we should also be interested in the question of why some people can live to a 100 without developing disease. And so centenarians provide us with an excellent focal point for shifting the current medical paradigm. If we can convince people that they, and their children, will not have to suffer the same diseases that ravaged their own parents and grandparents, then perhaps we can get the public seriously behind this science.

KYLE JENSEN: What current longevity research is the most exciting or promising to you?

COLLIN FARRELLY: I’ll briefly mention two. I think the work being done on resveratrol, and similar sirtuin activating compounds is very exciting and promising. There have been encouraging results in experiments with mice, and now early clinical trials in patients with type 2 diabetes are underway. The ideal outcome is that these compounds prove to be safe and effective ways of treating the diseases of aging, and then from there perhaps they could also be pursued as ways of preventing the diseases of aging. Another field of work I think is very interesting and important is the sequencing of genes of healthy elderly people. This will shed light on genetic variations that insulate people from the diseases of aging.. These kinds of projects could really capture the imagination of the public and show them that the benefits of longevity science are real and something they should embrace rather than fear. The attention being given to

“longevity genes” should help us move from a focus on “disease genetics” to “health genetics”, and I think that is very important

KYLE JENSEN: Lastly, the audience of SAGE Crossroads is made up of scientists, policy makers, and curious consumers. If there is one last statement that you could make to them about longevity science, what would it be?

COLLIN FARRELLY: I think it is a very exciting, but also challenging, time for longevity science. Unfortunately the public’s perception of what this science could achieve, coupled with dire public funding, pose many challenges to researchers working on aging. But by forging the kinds of links that Sage Crossroads helps facilitate, I believe we can successfully meet these challenges. Once the public truly appreciates the magnitude of the benefits longevity science offers, I foresee the prospects for this science rapidly improving and expanding. So I think we have every reason to be optimistic about the future.

KYLE JENSEN: Thank you. On behalf of SAGE Crossroads, I’m Kyle Jensen.