Achieving Alpha: Deep Dive into Healthcare, Wellness and Longevity I Transcript

Sanath Kumar:

Andrea Maier, what a pleasure. Finally, thank you so much for being on the podcast and it's taken us quite some time to get to finally see each other and meet each other and I'm super excited. I'm super excited not just because of the fact that we're finally meeting each other but because you're in the middle of something that is so important for the world. Not for cosmetic reasons, not for reasons because you know somebody wants to live longer, but how do you live healthily? How do you reduce disease burden and many other things. So, I'm looking forward to this exciting conversation for the next 45 minutes to an hour.

Andrea Maier:

Perfect. Thank you so much. I always say it's never too late we start any changes. So, it's never too late to start a podcast with you. So, thank you so much for inviting me.

Sanath Kumar:

Good. And this one's a special one as I was mentioning to you slightly before. This one is the first live studio recording with you and I'm at the NUS Institute of Longevity. So, I'm super happy that we're inaugurating two things that are common between the two of us.

Andrea Maier:

Yes. So welcome to our new studio and thank you to the NUS Academy.

Sanath Kumar:

Wonderful. So, Andrea, I want to take you back to your childhood and I want to know a little bit about what it was like to be Andrea as a seven-year-old.

Andrea Maier:

Wow, that's a long time ago.

Sanath Kumar:

And did you have a passion for science? Was there always a thirst towards research

Andrea Maier:

At the year of seven?

Sanath Kumar:

Yes. Seven, eight, 10. So your early years.

Andrea Maier:

So no, no, my I think my parents were quite troubled with me because I didn't want to sleep because I always wanted to discover more things and I wanted to do everything. So, from ballet to piano playing to meeting friends and I was quite social also at that time. So, I always wanted to do things and discover, and I was a little bit as I'm now, an octopus, doing everything. So, octopus, I learned a lot from them. I think they're also very social. So, I wanted to learn more. I changed schools quite often in my childhood and I always enjoyed being surrounded by new locations, by new people and to just learn. I think I was a little bit too eager for my parents. They also ran a family practice at that moment in time. So, I grew up in a GP practice and then moved a lot and went to boarding school and yeah lots of things, but passion is I think just to do something, don't sit and just observe.

Sanath Kumar:

So, the thirst for finding out, curiosity, has always been part and parcel of the journey.

Andrea Maier:

I don't know because I just did things, so you have to just ask others if I was

inspired by something but I was lots good in drawing, I wanted to study arts in the end. So, I think if you're looking at my pathway, I first wanted to study arts because I was quite good in drawing but then I was not good enough to be a Picasso in the end. So don't do that. Then I wanted to study sea biology because I love nature. I love to be in the water. So, if you drop me in the water, I can swim for days. I love it. So, I wanted to study that. But then my parents said, "Hey, how will you ever earn money?" Like follow the path of medicine because then you can afterwards do whatever you want. Yeah. So, I followed that path and studied medicine in the end. Yeah, never wanted to become a lawyer so that's never happened.

Sanath Kumar:

So good you knew what you didn't want to become so that's good. How did geriatric medicine, when did you figure that hey this is an interesting space? Was there anyone around you during when you were studying medicine? Did you find that there was there was something that that the world needed a little bit more or was it a white space that there was no research in? How did you how did you find geriatric?

Andrea Maier:

Yes. I always want to do things others do not do. Yes. So that was also in the in the childhood like just do everything and do it quite differently and just be different from the normal path. So that's the reason why I think went into geriatrics because in geriatrics it was not established when I was a student. I was never exposed to one lecture in geriatrics, nothing. So, I went through a path to do research already during my medical studies from year one onwards and so I was quite eager to discover new things and that brought me via traditional Chinese medicine. And I studied at Hamburg to China and actually there I discovered that maybe geriatrics could be my pass because I had to do, don't ask me to do that anymore. I had to do Tai Chi at 4:00 AM in the morning in China with this perfect teacher who was 90 plus and she was so balanced in everything she was doing. So, wow, how can you do this? First, it's 4:00 AM. I cannot do it. Yeah. And I had the flexibility in my bones I would say. But that that's then also it. And then I reached out to universities who were then also in other countries because I was never exposed to geriatrics and I reached out to Yoga Schultz who was at that moment in time in Belgium. I was in China and you can still maybe remember the time when we tried to do something in the mobile and send emails like it was very, I think exciting to actually to go to an internet cafe at that moment in time and then I landed in the end in the Netherlands and I in the end with lots of pathways and lots of circles and lots of ways. I went into internal medicine and geriatrics.

Sanath Kumar:

Wonderful. So, with all of these learnings that you've had, right, the research and learnings, what would Andrea Maier's morning look like?

Andrea Maier:

Ah, give me coffee. I cannot. No, I know that there is a debate if they're morning and afternoon or night persons. And I can tell you I think they're really existing. So, I'm not a morning person, but I I'm more a surgeon. So, I love to actually to be alive at the age of no not at the age, so it feels like seven but at 7:00 AM. Yeah. And to just be able to do things and I want to just be productive during the day. So, I urge me to have an alarm clock and to wake up first thing I think is my coffee next to me and then the first thing, but don't please reproduce that as an audience. I will get my iPhone, and the first thing is the WhatsApp messages, what happened in Europe and then I do all my emails and actually then after 20

minutes all my emails are nearly done or I know how to prioritize my morning and then there's no breakfast, it's showering going, getting slippers and get the high heels into my bag because it's just too early for me to do anything else than just surviving. Once done I am going to my appointment and get a touch-up before that appointment.

Sanath Kumar:

Wonderful. Wonderful. Andrea, let's go a little bit into your space of longevity and health span and lifespan. So just for the purpose of the audience, right, we have listeners with very diverse backgrounds listening, investors, young kids, etc. Or anybody just doing a day job, how do you explain to them, health span, lifespan, and how does that all tie into longevity?

Yeah. So, we have a couple of terminologies I think we should clarify. So, lifespan is the number of years you are here. Yeah. Health span is the number of years you are there in relatively good health. We have more than 180 different definitions of health span. But to just to make it easy, I think health really is when you are feeling good. You can do your things, and you have a social surrounding, and you have a social network and you're feeling well and you're feeling good. And very often it's a little bit diminished that feeling well if you have age related diseases for example and if I'm talking about age related diseases, I'm talking about hypertension, diabetes, stroke, dementia everything which occurs from the age of 40 to 50 onwards. But very importantly is that you should be able to do the things you want to do or you have to do because it's not only what you do want to do but also what you would like to do and what somebody else wants you to do. And then we have two different concepts and that's the chronological age and the biological age which is also very important. So chronological age is just you know how old you are. Sometimes I want to forget but then I have a passport which reminds me okay how old I'm really and then I have to calculate and chronological age is very different from biological age. So, the biological age is your given age by your biology and what the pace of aging is and the pace of aging is very different, very likely between you and me. You can be younger or you can be older and that depends hugely on your lifestyle habits. So, if you're drinking the coffee in the morning or you're getting the breakfast or you're going to the gym in the afternoon or it's at night. So really about your habits and also of course what kind of book your parents gave to you. So, your genes so what you can actually do with your body. So, it's so nice that we now have the biological age concept and the biological age also then drives the health span. Because if somebody has a longer health span, this is all what we want, feeling good, perfect, then it's very likely that also the pace of aging and there was our biological age is much lower.

Sanath Kumar:

So, Andrea how much of this is exciting right? How much of this is is dependent on the on the gift that your parents gave you, genetic? Yeah. How much of it is the lifestyle that you lead? Yeah, and how much of it is the environmental factors that influence your longevity aging and aging with grace and all of that?

Andrea Maier:

Yes. 20% roughly is genetics. I don't know why I have tears in my eyes actually, but I think this is the room.

I would hope because you're so happy seeing me.

Yeah. No, of course. I have no clue what's happening here. So, I'm really happy. These are happy tears. So, 20% is roughly genetic and we know that because we looked at monozygotic and dizygotic. Say if you have the same chronological age, you are being born in the in the same period of time and either you have the same genes or you are just a brother or a sister if you're dizygotic. So, 20-25% you can blame your parents for. The majority is lifestyle but the majority of lifestyle of course also interfering with we call the exposome. So where do you live? Your surrounding? Because if it's nearly impossible to do lots of exercise outside because you are living in the Middle East and it's 50° so, how can you? So, we know that the environmental factors are hugely influencing your lifestyle. But also, mental capacities, mental health, what you want, what's your purpose in life, is influencing then the lifestyle. So, we say that nearly 80% is actually lifestyle but it's influenced by so many other factors and then of course, you just also sometimes just need luck, or you don't want the opposite of it. So, you don't want to have that car accident, you don't want to have that trauma and which actually then interferes with your lifespan or even the health span. But I think in summary most importantly, you are driving how healthy or not healthy you would like to be and that is indirectly how long you would like to live.

Sanath Kumar:

Got it. And Andrea there's a big you know debate around the world that longevity is a rich man's topic. At this point in time because you know a large percentage of the world is still living in conditions where probably a discussion on longevity is not even relevant. You know we're talking about scarcity of food, scarcity of medicine and all of that. And even for somebody in a strata like ours. So, I figured that I have an autoimmune condition probably two years back right only after a COVID 19 vaccine and inflammation and what happens to longevity because of inflammation and all of that was something that I realized much later in my life. How do you address it as a community and how do you take the concept of longevity to the population as a whole?

Andrea Maier:

Yeah. So I just told you that I also went via China, and I did TCM, Traditional Chinese Medicine. So, it’s not new. It’s not just for the rich, because it’s already embedded in medicines that are not the conventional ones, and especially in Eastern medicine, where we are thinking about prevention. We are thinking about how we can improve the function of the body.

If you're looking at Traditional Chinese Medicine, it's very different from Western medicine, where we are diagnosing hypertension and diagnosing cardiac events. So, I really learned from that concept as well, that longevity, the power, the energy, is actually included in everything that this kind of medicine is doing.

I'm not practising that kind of medicine, because I have to focus, even as an octopus, but it's not new. The entire story about longevity, if you also look at Ayurvedic medicine, is not just for the rich. I think we believe it is for the rich because we are now including it into Western medicine, and all the tests we are doing are very often only affordable at this moment in time. We think, which is also a myth, that it's only for the richest of the rich.

If we would like to apply healthy longevity medicine, which means optimising the health of ageing individuals, every GP could already do that. It's about when we detect certain abnormalities, which I find abnormal, meaning not optimal, in individuals, and when we act and react.

And this doesn't have to be medication. So, I don't need a genetic test, or an epigenetic test, or a microbiome test. I could just use normal tests like CRP or a glucose level, or even BMI, just measuring height and weight. We could already determine the ageing trajectory of an individual with a very simple test, standing up from a chair five times. We can already determine what that individual's trajectory is.

I think we always have the perception that these are the biohackers, that it's the supplements, which are very difficult to get and very expensive. That's absolutely not true, in my view. And we have publications around this. We can prove that we could already measure the biological age of the public, in public health and family practices around the globe, with quite easy measures to do.

And we already have interventions in hand, and those are lifestyle interventions, which do not cost so much money but do require, I think, a bit of a change in mindset, that you are doing something for yourself, and that you can really change the trajectory.

Sanath Kumar:

I love that. On that note, in terms of biological age, would that change over time? So, let's say I go and check my biological age. Hopefully it says 25, hopefully.

Andrea Maier:

Do you say 10?

Sanath Kumar:

25. Okay, hopefully. I don't want to be 10, I think that would not be healthy.

Andrea Maier:

Yeah, that would not be healthy.

Sanath Kumar:

So, 30, ten years younger.

Andrea Maier:

Ten years younger. Okay, fine. No, that would be perfect. That's fine.

Sanath Kumar:

So, would that change in five years if, let's say, I'm not following a certain type of lifestyle? Let's say I get a little bit, for lack of a better word, loose in terms of how I'm leading my life. I'm not active, I'm binge-eating, I'm just sitting in a sedentary chair, working all the time. Would my biological age change in five years?

Andrea Maier:

Working all the time does not have to be so negative, it depends on what you do. But yes, of course. The concept of biological age is not that we measure it only once; we can measure changes over time. And it's so nice that we now also have digital devices, for example smart rings and smartwatches, which already give an indication of biological age.

But very importantly, biological age is changing. It's very dynamic, based on what we do and what we do not do. So, if we go from going to the gym and being very active to becoming a couch potato, then it's very likely that you go from minus five years in biological age compared to your chronological age to plus five years, which means that you've aged ten years within a certain period of time. That's what we would like to prevent.

Very importantly, the other way around, we can already show within three months that biological age is actually lower in people who are on the treadmill a couple of times a week. So, we can lower biological age quite rapidly.

Sanath Kumar:

Okay, I mean, that's great news. Then can you transmit that to future generations? For example, if I'm super active, would that change my genetic makeup? And if I have kids at that point in time, would they inherit a better gene sequence?

Andrea Maier:

Okay. So, your genes, we think, are static. You can only have copy mistakes in your genes. But in principle, what you have is yours, and that's stable. Which also means that if you've done one very good genetic test, you don't need to do another one, unless, of course, the methodology has improved so much that it makes sense to repeat it.

In principle, one whole-genome scan gives you a huge amount of information. You do it once, because this is your book that you are reading. These are the words, these are the chapters in your genes, and they won't change, except for copy mistakes.

However, the question is whether you can manipulate which chapters you are going to read. That's what we call genomics, but this is epigenetics.

So, epigenetics means that with the book, with the words and the book you have, what kind of chapters do you want to read? What kind of words do you want to read? And what the body is doing so beautifully is that you have your genes, which are just codes made up of four base pairs. You put a methylation site on top of it, you put something on top of it, and then you can read it or you can't read it, and then the chapter is closed. So, you have to do something else to either reopen the chapter and use the genes, or otherwise it's closed.

And this is so fascinating, that we can now show that with just lifestyle interventions, more physical activity, we can unlock the good genes, which are then being used. So, the genes are not changing, the sequence is not changing, but which genes you are reading, which are being expressed, and therefore feeling better, is changing.

Sanath Kumar:

Got it. So, I could be carrying a carcinogenic gene, a gene that is exhibiting some kind of cancer marker, but because of my lifestyle it could potentially be dormant and not exhibit itself.

Andrea Maier:

Yeah, partly so. There it depends on what kind of genes these are and what kind of gene expression we then have. Some genes are so dominant that they are very likely going to be expressed, and some are not. But very often we now know that diseases are not caused by one gene. Of course, we have multiple monogenetic diseases where you have a huge risk of actually developing that disease, but many of the diseases we see later in life are composed of genetic combinations. And there it's very important to look at a very healthy methylation pattern, to then silence these kinds of regions.

Sanath Kumar:

Yes. With that said, Andrea, what is the biggest misconception that you see right now in the industry, in the scientific world, about longevity?

Andrea Maier:

We already had one, that it's only for the rich. Yeah, we had that one. I think another one is, from a consumer perspective, that people think, "I'll just leave it and look after myself in five years' time." Do it now, because you will have a lot of return on investment. And the third one, I think, from a consumer perspective, is that you need so many supplements, you need so much equipment, before you can really change anything.

I also think there's a misconception from a government perspective that it's absolutely not ready to implement. So, it depends on the level you are looking at, but there are lots of myths because there are lots of voices, people who are just shouting around. There is so

much information that a consumer or a government does not actually know what to implement. And then scientists also have to figure out what terminology they should even use. For example, we don't even have a good definition of ageing yet. We still have more than 180 definitions of health span. I always say, "Hey, let's get our act together. Let's define it, in a year's time we can redefine it."

So, there's a lot of noise in the field. But I would say one of the myths is that we can't reduce the noise. We actually can, and we can now implement it.

Sanath Kumar:

Great. I'm going to go into your most prominent research in the recent past, which is the HALO framework, right? And the society's perception of ageing, the public's perception of ageing, and what you're helping Singapore do is quite fascinating. What can we learn from this? What can other countries, whether it's Vietnam, Indonesia, neighbouring countries, or even India, learn from what you're doing here? And how can a country adopt something like this?

Andrea Maier:

So, in HALO, we did surveys with the public in different countries, now 12 countries, where we wanted to know: what is the knowledge about health span and lifespan? Do people know what we are talking about? What is their perception? Do they want to live longer, and for what reason do they want to live longer? What is their perception of purpose, for example? And then also, do they want intervention with the medical health system? Would they come to a healthy longevity medicine clinic? So, it's not only about whether they want to know what their biological age is, but especially whether they want to intervene.

And then there's another question which is very important for implementation: what would they pay for these services?

So, who is going to pay is, I think, a very big question. What we found in Singapore is that the majority of individuals were very knowledgeable about what lifespan is. So, 90% of the population knew what lifespan is, and 40% of the population knew what health span is. And while understanding the concept better, while explaining it, two thirds of the population in Singapore said, "Okay, I get it. I want to invest in my health, and I'm very interested in coming to a healthy longevity medicine clinic." And half of them also wanted to pay partly or fully for the services to be delivered, to actually know and get an idea about their own dashboard, how old they are and what they could do with that information, and to start interventions.

We find roughly the same in other countries in Europe, for example in the Netherlands. It's a very different story in Indonesia, and there's even a different story between rural and urban areas. So, what we did was not only that we knocked on 20,000 Singapore doors, but we also went into the fieldwork in Java, into rural and more urban areas. And what we were able to

find is that the perception about health span and lifespan is very different, and that it is very likely influenced by the environment, what people know, what they perceive to be good, and what they want out of it.

So here, of course, the concept is much less clear. Only 10–15% knew what health span is, and the uptake into healthy longevity clinics was much lower. People would rather have their traditional methods of living longer. And I think it is so important to understand where nations are, or rather, not nations, but where people live, what the influences are, whether people already know something, whether they already take supplements, for example.

And then, from a framework perspective, the next steps are how to implement healthy longevity medicine: first, of course, to give knowledge, and then to really change the healthcare system.

Sanath Kumar:

Did you see a difference in point of view between, maybe, a male perspective versus a female perspective?

Andrea Maier:

Oh yes, yes.

Sanath Kumar:

What was it? I would love to hear.

Andrea Maier:

So, the ones who want to come to longevity clinics, and this is a little bit across all the countries are males.

Aged 40 to 60. Already taking supplements. Already doing annual health screenings. Of a higher socioeconomic class. And it's about 50/50 whether they're married or not. But this is especially males. Of course, females also want to come, but in much lower percentages. We always call them the "worried well" males.

Sanath Kumar:

Got it. And interesting, were there any discussions on why women had a slightly lower inclination to come into a longevity clinic, considering they go through quite a different ageing process, given menopause, hormonal changes, etc.?

Any insights on that?

Andrea Maier:

Yeah, of course. So, women go through menopause; men go through andropause, it's more subtle in men, whereas in women the effects are more acute. What we found is that women

more often go to the dentist, go more often to the GP, and they are doing annual health screenings. But they are hugely focusing on aesthetics, especially in that age group.

It's more about the function of their body, like their performance, their peak performance, how many stairs you can run without being short of breath, which is perceived differently than for men, where performance is often the main driver. That's also what we found in the questionnaires: "I want to perform, I want to feel well." This is, of course, very dichotomous when said like this, but women often want to look nice, while males really want to feel better.

Sanath Kumar:

I know this is a complex topic, but I'm just going to try to get your thoughts on this. If we were to have government sponsorship for any type of longevity diagnosis, medication, or treatment, a trial or an HDA application can be quite cumbersome. What could be the duration of your trial? How do you actually figure out whether ageing is reducing, etc.? What are your thoughts on that, and how far are we from actually getting government-related funding or even insurance coverage for any of this?

Andrea Maier:

So, there is the research phase, and there is the implementation phase. And then it's about following it and really bringing it into clinical practice, and then who is paying for it.

We are sitting here at the NUS Academy for Health and Longevity, which is the National University of Singapore. We have great opportunities to run trials here, and really great support from the university to enlarge the knowledge in the field. We are running trials partly with government funding, partly from philanthropic resources, from very different sources, to bring the knowledge and evidence into the field.

We are running especially mid-sized trials with individuals who are relatively healthy, from the age of 30 to 70. Our focus is really the middle-aged population, who are still relatively healthy but can be optimised. We are running the trials over periods ranging from three months to roughly two years.

Why do we do relatively short-term trials? First of all, we have such a strong consumer drive, we want answers. And we also see in clinical practice that if somebody starts interventions, they want to feel better within a couple of months. If I tell you, "You will feel better in five years' time," you will lose interest, because you want to feel it now, and you want to be better now, and that's most important.

So, the time span for when you feel or see effects is very different in the ageing field compared to disease-stage and secondary prevention and compared to primary prevention.

Sanath Kumar:

So right now, your largest trial and your focus are on what area?

Andrea Maier:

Thousands of individuals, we are doing multiple trials now in our new trial centre, which we just recently opened. We have trials on very specific molecules, like alpha-ketoglutarate, which we are giving to individuals who are biologically older, to make them younger. We also have molecules that interfere with mitochondria, for example, sirtuin activation. You can find this in seaweed, especially brown seaweed, which is very interesting. Mice live longer, especially male mice. We are now doing this in human trials, especially in males, for the seaweed.

We also have studies where we are combining interventions together, such as giving a multivitamin and a mineral supplement. Sixty percent of the Singapore population is already taking these very frequently and regularly, especially multivitamins and minerals. We always ask the question: is there any evidence that you should actually take them?

So, what we do is first analyse all the literature, where is the evidence? And then, if the evidence is limited for the population we are studying, which is the middle-aged, relatively healthy group of individuals, then we do a trial. That's what we are doing at the moment. It's called CEDIRAA. We are including 400 individuals between the ages of 40 and 60 who are biologically older compared to their chronological age. So roughly, the average chronological age is 50, but the biological age is around 55. We saw that in another trial.

These individuals are now receiving either a placebo or a multivitamin and mineral supplement. And we have other studies; we are actively recruiting at the moment. So, if you are in this age range, or even up to the age of 80, please contact us. It's longevityacademy.sg. You will find all the trials there. And you can also see on the first page the inclusion criteria for each of the studies.

Please reach out, and not only you, but also ask your neighbour to have a look at the website and come. Very importantly, we can help, and we want to run the trials. So, if you help us with recruitment, that's great.

Sanath Kumar:

Oh, I love it. You touched upon running clinical trials. You touched upon minerals, supplements, vitamins. As a consumer, there is a decision paralysis right now. You go into the pharmacy, you see a whole lot of vitamins, everything tells you there's a benefit. You go into the cosmetics section, and there are so many things telling you how you can look younger. You open your app, and it tells you how many steps, how many exercises, and everything you need to do to be younger.

It almost feels like there is an overload of products and information. Protein has become like water. Creatine has become your side ingredient that everybody has to take.

If Andrea Maier were to say, “I put my money on these three things, or three ingredients, or three changes,” what would that be? Just so that this is something that is a must-do in everybody’s life.

Andrea Maier:

Testing, testing, testing, and I can say ten times testing. Know who you are, what you need, and what you want to achieve. Most importantly, I have the same issue. If I go to a store, I see all these very colourful bottles and so much advertising, and I have no idea what to take. I’m still lost.

And I think we really have to regulate this field a little bit better, because it’s not only that the quality of supplements is sometimes very poor, we have many studies showing that what is written on the label on the bottle is actually not inside the bottle. So, there is a huge quality discrepancy, a huge quality problem.

But then also: what should you take? We’ll come back to multivitamins and minerals. Should you actually take them? There is no evidence in the literature at this moment in time that a relatively healthy 40- to 60-year-old who is eating well should take them. The only evidence is there if you are not eating well, or if you have diseases that are aligned with not eating well.

For example, if you had a recent hip fracture, if you had to undergo cancer therapy, or if you have depression, these kinds of populations really benefit from a multivitamin or mineral pill. And there is a huge amount of evidence for that.

But why is that? Because these individuals have impaired eating habits. Otherwise, if you don’t eat appropriate food, fresh fruit, for example, you won’t get your multivitamins and minerals. So, supplementation really, really helps.

The same applies to whether you should take creatine, or Urolithin A, or NMN, or NR, or urolithin, or spermidine, or ergothioneine, whatever you can buy. It depends on what your indication is and what you would like to achieve. If you are a super-achiever in terms of brain health and you already do some kind of brain gym, it might not be the best idea to also take a supplement with ergothioneine on top of already eating mushrooms. That’s because of the indication.

So now we have indications, and we’ve learned so much from randomised controlled trials, from the best evidence, about when a supplement actually works, for whom, and when it does not. So don’t just walk into a store and say, “Wow, this is a nice bottle.” That was my habit ten years ago. “It feels right to buy this. This bottle has a different shape, maybe I should take that one.” Don’t do that.

First, analyse: how is your vitamin D level? How is your omega-3 level? Always do this step before taking supplements. And always ask: what can I do with my diet first? Then take a supplement on top of that.

But measure first. Ask your GP. Ask your family doctor if you have the means. Ask your healthy longevity medicine physician to really analyse what you need. Analyse, if you have the means, your genome. Then you know if you metabolise coffee well, if you metabolise vitamin D well, if you metabolise certain medicines well.

Coffee might not be so important, because you already know whether you can drink coffee at night without diminishing your sleep. But for vitamin D, this is getting more relevant, and it's super important to know the genes that are modulating, for example, medication.

Sanath Kumar:

Where can an everyday Singaporean do testing on metabolism and how they absorb different types of food or diet?

Andrea Maier:

In my view, every GP should already be trained. But we are in the process of changing this, not only measuring glucose levels, glucose uptake, and insulin levels, so how well your pancreas is working, but also really seeing what your microbiome is, what you eat, and combining all these habits.

So here you will see that in the coming years, I think there will be MDs being trained to really look at metabolism, brain health, gut health, and mental health more specifically.

Sanath Kumar:

Social media is going berserk about devices that tell you when you have a glucose spike, right? You eat something and it tells you, "Oh, there you go, you had a glucose spike. This is probably something you should avoid." Is that short period of glucose spike that the device measures actually valid in terms of how you eat and how you consume food?

Andrea Maier:

Oh yes. Now we are talking about continuous glucose monitoring systems. It's just a tiny circle that you stick through your skin, and it measures glucose continuously, which is so important. I learned so much about my habits, I learned what kind of food I spike on and what I don't. So now I can choose whether I'm going to eat it or not.

First of all, it's very important to measure. And then also to measure what you eat, to really understand your habits. Should we avoid glucose spikes? Yes. It would be perfect to be very balanced in terms of glucose, to keep glucose levels as low as possible in a healthy way. Not too low but avoiding spikes.

It's fantastic to see, for example, if you drink orange juice, whoop, there's a spike. Drinking orange juice was never part of our evolution. We made juice because we don't want to eat an apple or an orange anymore. And now we see the end result, a huge spike. So, I try to avoid it. Sometimes I still take it because I love the taste. But this is how you really learn

from behaviour, the behaviour of the body, and then adapt what you do and what you don't do.

Sanath Kumar:

Fascinating. Andrea, what is your take on longevity through cosmeceuticals?

I just came back from Korea, and every street has stem cells oozing out of every store. Every brand has cosmeceuticals, cosmetics combined with pharmaceutical ingredients, whether it's injectables, stem cells, or other pharmaceutical ingredients to make you look younger. It's longevity skin-deep, if I may.

For a large part of society, longevity means looking great at 60, looking great at 70. "Wow, you look like you're 40." Whether you're active, whether you're able to do what you did at 40, that's more from a personal choice, it comes more from within. What's your take on that field of research and how much is happening there?

Andrea Maier:

Everybody wants to look great, because very often if you look great and others say you look great, you feel great too, even though it doesn't necessarily mean that you are healthy. So, I think aesthetics are very important for us.

If you look at evolution and animal models, its very important, animals smell each other, look at each other, and then mate based on smell and looks. So, I think this is also very important for human beings.

I started doing research in skin with big companies, and one thing we did was look at how old you are perceived to be, not how nice you look, but how old you look. That's fascinating, because people who perceive themselves as older also die earlier. And if others judge these individuals and say, "Yes, you look older," they also die earlier. So, there's huge information in how you look and how others perceive you.

There's also a difference between aesthetics, whether people like how you look, and how old you look. Very often, younger-looking people are also perceived as more beautiful. So, these things go hand in hand, and they are hugely important.

We actually analysed data on how people are perceived and linked it to real biology in deeper layers of the skin.

So, we took skin biopsies from the inner upper arm and also took photographs of individuals. What we were able to find was that people who looked older had more wrinkles, less lip height, more grey hair, and lower hair density, all the characteristics we intuitively judge. These individuals also had many more "zombie cells," more senescent cells, and older cells already present in their skin. In addition, their immune systems were much older. So, there is a huge scientific arena here, and it is incredibly interesting.

We take many photographs of individuals, and we are working in our newly established joint lab with L'Oréal, where we are taking skin very seriously. Skin is your largest organ, and you really have to take care of it. But we are not looking at it purely from a beauty perspective, we are focusing on function. Skin is hugely important. How you look matters: if you are enthusiastic, if you have tears in your eyes as I did, people will judge you as younger. Very often, these individuals also feel younger, and how you feel is the most important thing.

Sanath Kumar:
You know, Andrea, when I was walking into the longevity clinic, I was expecting a meter that says, "Hello, you are 30 years old." So how much of this AI buzz is actually part of your research?

Andrea Maier:
Okay, I love that question. Yes, if you take your smartphone and simply take a photograph, we can already estimate things like temperature, and even get an indication of blood pressure. But we can also estimate how old you are. That is really the next generation of technology we are introducing. We have already implemented this in some studies, and we have done similar work in the past.

That said, we do not yet have such a screening system at the clinic. I am not sure it would pass NUS ethics approval, but I think it would be lovely, and we will definitely consider it.

Sanath Kumar:
That's a great idea, especially given everything happening in research right now.

Andrea Maier:
I would also put a weighing scale next to it.

Sanath Kumar:
That's right, and perhaps guidance on actions we can support people with, and even a first free visit to the CHI Longevity Clinic.

Andrea Maier:
Oh wow, okay, okay. We can add a few things to that.

Sanath Kumar:
I want to come to CHI now. Your personal project, congratulations on that.

Andrea Maier:
Thank you.

Sanath Kumar:
There is a lot of buzz around CHI. I personally know many people who have visited, and they love it. Your entire philosophy at CHI is rooted in everything we have spoken about today. What is the biggest outcome you are already seeing from CHI, and what has fascinated you most as a founder about the change you are witnessing?

Andrea Maier:
From a client's perspective, we have had great success. People feel better, and they tell us, "I feel better." Of course, we also measure whether they are objectively better, but the fact that people say they feel better, they sleep better, work better, and function better, is incredibly important.

As a clinician, that moment is always the key point: "Okay, this worked." Then immediately, the next question is, "How do we maintain this?" That is why we are working on memberships, because ageing is a continuous process, and it is very important to keep people in that state of improved function, reversing biological ageing processes and sustaining that improvement.

From a founder's perspective, it has been a tough journey, a rough road, but I think we are now there. We are well established in the field. We opened three years ago, and we are now considered a top-tier longevity clinic. We are being recognised because we are very rigorous about our brand. Our brand is evidence-based medicine. This is not wellness, it is medicine. We understand the biology, and we act on it.

Sanath Kumar:
When will other countries see CHI?

Andrea Maier:
Very soon, in several countries in the Middle East, moving out from Singapore, and also in Europe. That is not a question anymore.

Sanath Kumar:
Wonderful. My final question to you is: what is the next frontier in longevity research that you are most excited about, something the world does not yet fully know?

Andrea Maier:
Two very different things. First is data, how we truly make sense of human biology. How do we combine the genome, the epigenome, mood, physical habits, and behaviour? How do we analyse all of this and present it as a meaningful dashboard?

We are working on this at the NUS Academy and also at CHI Longevity. As both an entrepreneur and a physician, I feel we are getting there. It reminds me of how I felt 25 to 30 years ago as an intern, nervous, responsible, but eventually understanding how everything fits together. We now understand biology; the challenge is how to represent it and what to do with it. That is a huge step.

The second area is interventions. I am deeply engaged in how we can properly test stem cell therapies and new drugs. There are major projects coming up to bring these therapies into the academic sphere before they reach clinical practice. In clinical care, it is about matching the person, who they are biologically, with the therapeutic intervention that is most likely to work.

We understand human physiology much better now. We are interpreting the “painting” of the human body far more accurately, and we can increasingly match that understanding with the right therapies to maintain the body’s function and beauty.

Sanath Kumar:
Lovely. Andrea Maier, it was amazing speaking with you. I genuinely feel younger after this conversation. Thank you so much, and I look forward to speaking with you again.

Andrea Maier:
Thank you, and thanks to the team for making this possible.