Talks With a Trailblazer in Gerontology and Geriatrics: Dr. Jim Nelson (GSA Section Podcast)

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Speaker 1 (00:02):

The Gerontological Society of America, meaningful lives as we age.

Speaker 2 (00:06):

Welcome to the GSA On Aging podcast series. I'm Brianna Morgan, postdoctoral fellow at the NYU Grossman School of Medicine in New York City, and I serve as the chair of GSA Emerging Scholars and Professional Organization or Espo. Today we're talking to Dr. James F. Nelson for our Espo Supported Limited Series Talks with a Trailblazer. In this series, we invite leaders in the field of aging research, education, practice, and policy to share their experiences and wisdom to inspire future generations. Dr. Nelson is a professor of cellular and integrative physiology at the Bar Shop Institute for Longevity and Aging Studies at UT Health San Antonio. His research aims to understand the genetic and physiologic basis for aging using nutritional and pharmacologic interventions, and he's currently our GSA Board of Directors Chair. So with that, Dr. Nelson, thank you so much for joining me today.

Speaker 3 (01:11):

Thank you, Brianna. If I may use your first name and I encourage you to use my first name as well, it's really an honor and a pleasure to be able to participate in this program.

Speaker 2 (01:25):

Thank you. I wanna start by asking you how or maybe why you first became interested in aging research

Speaker 3 (01:35):

Serendipitously. And first of all, also I just wanna say hello to all of the podcast listeners. I'm really happy to be able to try to explain to you my trajectory, which as I thought about it, trailblazing, <laugh> is not quite the right word, as you'll see in my path, it's more like trail following. So anyway, as I said, it's been very serendipitous how I got into aging. And I have to tell you, this started a long time ago, probably before most of our listeners were born or their parents were even married for that matter. This was back in the seventies. And at that time, I also wanna point out there was no National Institute on Aging in the NIH. And that kind of sets the stage for how I got into this. Here's the trajectory actually. I started out at University of Southern California in architecture and I actually got a degree in architecture and designed a few small projects for my dad who was a general contractor.

Speaker 3 (02:40):

And I was really excited when an internship in mid midway through my studies at the School of Architecture WA was afforded me. And I worked in a firm for a summer that was a well established architectural firm and I was excited about that. But I got bored really quickly because this was a firm that did nothing but designed Denny's restaurants and they were very proud that they were internationally. They were just showing me their version of Denny's in Mexico City. That kind of dampened my enthusiasm for architecture. Probably if I had have gotten involved in another firm, the whole trajectory would've been different. So I had this kind of lack of passion for these studies. And fortunately the school was organized in a very experimental way following the traditions of the Bauhaus in Germany, which was the first kind of rational school of design and architecture ever.

Speaker 3 (03:48):

It was in Germany and a lot of the Germans had to escape from Germany and came to California, many in the arts, music as well as architecture. And they had had an influence on this school. So we didn't do architecture, we did basic design trying to understand or design forms that would maximize energy gain in the winter and minimize it in the summer. And this professor was very creative and he invited an ecologist from the biology department to come

over. This was just around the time where my enthusiasm was dampening for architecture and he excited me with his talk, being a good scholar. He came over and he said, honestly, I'm a biologist and what I study, I'm not sure it'll have any influence or any relevance to what you guys are doing, but I'll go ahead with it. And thank goodness that he did because it captivated me the study of ecology of systems in life that are integrated.

Speaker 3 (04:59):

And you know, to this day we still don't have a good understanding of how it all holds together. So I asked him if I could take his course, his upper division course, and that's another important point that I wanna make about teaching this guy. If he had have just given us a didactic course on ecology with a textbook and questions and exams, probably I wouldn't be here instead in a class of 25, he assigned us and gave us the opportunity to do our own science, to do our own research. In those days, we didn't have the internet, so we went to the library and started, he taught us how to look through the literature to get backup rationales for what we wanted to do. He spent time going over our ideas and helping us to better hone our hypotheses and experimental designs. He found other laboratories at the university that could help us implement what we wanted to do.

Speaker 3 (06:02):

It was really exciting and we went through the entire process of writing a proposal, doing the experiments, analyzing the data, writing it up and presenting it. This was a huge burden on his part to do this, but it represents the best in mentoring. So I decided to switch gears after graduating from architecture and went into ecology and got a master's degree with him. And that required some retooling. I went back, moved back home, went to a community college for a year or two, I can't remember, and got the basics requisites for getting into a biology department. Did that and then I worked with him. I'm not gonna go into the details of that work other than to say I'd been in Los Angeles all my life. Now I'm in my mid early twenties and I, I wanted to go someplace else. I wanted to experience something new.

Speaker 3 (07:05):

And so I started looking at east coast schools and also my interest in biology was starting to change there. It was the golden age of molecular biology where this, the code, the genetic code was discovered and so much in terms of transcriptional relationships to the genes and so on were being elucidated. And so I wanted something more exciting than ecology, I have to say. And so I started looking around, but here we go. In terms of my serendipity, by chance, a young assistant professor had been recruited from an East coast school, from Rockefeller University. His name is Caleb Finch. Many people call him Tug Finch. And he scientifically

seduced me with his seminar on aging. Never had heard of it, right? And most people at that time didn't know about it. In fact, aging was uh, black sheep of biomedical research. People thought you can't do anything about it.

Speaker 3 (08:12):

We're getting into the basis of biology, the genes and so on and so forth. And aging is just impossible. It's just gonna be descriptive. Biology, no experimentation, which was partly true. But thank God for people like Tuck who were the original pioneers. I'd say he's a real trailblazer in aging research. He studied all of aging and his thesis was a review of almost everything that had been done in the biology of aging up until that time. You can imagine this thesis was written in the sixties, so there wasn't that much. There was enough for a big thesis and ultimately a book he wrote called Longevity Senescence in the Genome, but it was comprehensive. And so I learned from him a lot about aging and he saw me one day, I think that we were walking across campus. I don't remember exactly how this happened, but we ran into each other and he asked me how I was doing and I said, fine.

Speaker 3 (09:14):

And he said, what are you gonna do? And I told him I was still looking around for some PhD program that would excite me. And he said, why don't you come to my lab in the summer and wash dishes? Back in those days, dish washing was di washing glassware for laboratory experiments. So I said, sure. And he was very exciting. And to make a long story short, I decided to stay another eight years in Los Angeles with him to study aging. And by the way, there was, at that time, there were at that time, very few institutes focused on aging, but one of them happened to be at USC, so here's luck again. That's what drew him there. It was then called the Andres Gerontology Center after Ethel Pearcy Andres, who was instrumental in getting it started. It's now called the Davis School of Gerontology.

Speaker 3 (10:12):

And it's grown a lot in the time since I was there. But I got at that time my beginning ideas about the breadth of gerontology way beyond the biology because in fact, we were the only lab in the institute that was studying the biology of aging, psychology of aging was being studied there, policy and aging, gerontological education. And I got to meet all these people during that course. That's how I got interested in aging. It was not because currently students come into our program biology of aging discipline that I direct here at at UT Health. They come with a mission, with a passion. They wanna do something about aging. And the reason for that is everything that's happened between the time I started and now to give people the sense that you can really probe the mechanisms of aging. You can even potentially influence

the path of aging and make lives better and more meaningful as we grow older. So that's how I got involved in aging.

Speaker 2 (11:29):

Wow, that was an incredible story. So I'm a qualitative researcher, so I'm gonna pull out a couple of themes that I noticed that I think will be especially important for our listeners who are thinking about their careers. I love that you mentioned teachers who made a big difference for you and that you were open to hearing a different perspective and something that was a branch off from what you were initially doing. I think often we expect that we're gonna go in with such a straight path. And the more I talk to folks about their career, I can see that very few of us have this very clear step by step straight path to where we end up. So I really appreciate that about your story, that if not for Denny's being very boring <laugh>, you might have had a very different career.

Speaker 3 (12:22):

That's right.

Speaker 2 (12:23):

And I also, I know appreciate those aspects of serendipity. And this is hard, I think for emerging scholars to feel comfortable with the chance and serendipity of it all. It's sometimes easier for us to think that we're always in control. And I really appreciate that you embraced those moments of serendipity and said, I wanted to go out to the East Coast, but perhaps I'll stay here on the West coast and see how things go in this lab. I really appreciate those aspects of your story.

Speaker 3 (12:57):

I'm glad.

Speaker 2 (12:58):

Alright. You find aging and you're really interested. It sounds like you've found your passion. Where does your career go from there?

Speaker 3 (13:07):

It went to Canada. And how did that happen? It happened because the PhD thesis I was working on was about female reproductive aging in mice. We were studying that because the aging process manifests itself quite dramatically in mice as well as in humans in the sense that by the time a woman's 35, her risk for infertility has increased remarkably. And that's an aging

process. However, at that age, many of the diseases that we associate with aging, be it dementia, increased cancer incidents, you name it, aging is the biggest risk factor after all for all of these diseases. They have not started generally speaking, so you have a fairly clean animal slate to work on. Because one of my first experiments in Tuck's lab was he said, Hey Jim, we're sacrificing these aging male mice. He was studying neural function in them. Why don't you collect their blood and see what happens to their testosterone levels?

Speaker 3 (14:18):

This was a big lesson for me in a number of ways. So I said, sure, let's do it. I got found somebody who could teach me how to assay testosterone. And there was an opportunity for students to present their research as is often the case, fortunately the case. And so I found that the levels of testosterone declined markedly during aging. And we didn't in mice and we didn't really, there wasn't a lot of data out there in humans. And even to this day, amazingly in reproductive aging, there's not a lot of data about age related changes in hormones, even in women, though we know enough to do something about it. And I was really excited because I had this statistically significant difference with sample sizes of about eight old mice and eight young mice. And the wisdom of tuck was the wisdom that we need more of, I think in science.

Speaker 3 (15:17):

And I'll tell you more about that later of replication. And he said, that's interesting. It's got a significant P value, but I think we should do it again. I'm gonna be doing some more studies with aging males and you can collect the blood from them. So I did about the same sample size. And guess what, there was no statistically significant difference whatsoever. Hmm. This was disappointing. And he said, why don't we look a little bit more closely about this? He was one of the first people to look at the animals that he was studying after he sacrificed them for their brains or whatever and see whether or not they had signs of cancer. They had signs of kidney failure by simple neck cropping the animals and looking at them. And so he had been doing that all along. He said, why don't you look at the status of these males and see if there's any correlation between whether or not they have overt signs of disease and they have reduced testosterone levels.

Speaker 3 (16:22):

And that led to a publication, my first publication in aging in the journal, I can't remember if it was Journal of Gerontology or not, but at any rate, no, it was an endocrine journal. And so we published the data that showed that you had to segregate your older population by its health status to better understand what's happening. Only the diseased animals had this reduction in testosterone. And subsequently that's been shown in human studies where men who have

chronic diseases on average have lower levels of testosterone than men who do not, though levels tend to fall regularly about 1% per year in men. So that was a good lesson about that. So I got a little bit sidetracked there, but how did I get my first job? We had a collaboration going on, again, thanks to my mentor. He knew this fellow up at McGill University named Jim Brower who was studying the aging hypothalamus.

Speaker 3 (17:27):

That's the part of the brain that regulates endocrine systems, including reproductive systems. And he collaborated with us on a project in our female reproductive work that led to a publication. And so here's another turning point in my career, I was really wedded to my PhD research. I didn't wanna let it go. I wanted to do so many more things and I was very naive. And so I, along with my co colleague in the field, she was getting her PhD as well. We were very close, we were sharing animals and stuff like that. We had, we co-authored most of our papers in our two thesises and we both wanted to continue this project. So we went to James Baron who was one of the early pioneers in the psychology of aging research, and he was the director of the Andres Gerontology Center at the time. So we went up to him and we said, do you think there's some way we could get a, a research assistant track position so that we could carry on these extraordinary studies?

Speaker 3 (18:40):

And he very wisely said, there might be something, but I seriously recommend that you leave the nest and go someplace else and get some new experiences and new perspectives. First thing I did was write a letter to Jim Brower up at McGill University and said, dear Dr. Brower, we're about to graduate. We're looking for an opportunity to carry on our research and reproductive aging and if you know of anything out there, please let us know. This theme will repeat itself. So he wrote back to me, he said, we've just opened up a position he was in, believe it or not, the Department of Obstetrics and Gynecology at the McGills University School of Medicine in a hospital. And they had a basic research wing, which is pretty unusual, about six investigators that were studying basic biology of reproductive function, no aging except he was doing a little bit of this in the hypothalamus.

Speaker 3 (19:44):

So he said, come on up and give a seminar and we'll see how it goes. And that's how I got my first job in, in research in Canada. And I was really traumatized by the change of scenery and by the demands that were being placed on me. All of a sudden I was being dropped into a medical school and asked to teach basic reproductive endocrinology of females, not just aging females or hardly aging females. And so it was uh, a challenge, but if it doesn't break

you, it makes you stronger. That was the beginning of my teaching career and I have to admit that it wasn't my favorite thing at the time. And only recently as I've grown older, has mentoring really taken off and become a driving force that is really keeping me still employed, wanting to be employed in the field. So I now have to tell you another story because how I got to my current position in San Antonio, again, serendipity.

Speaker 3 (20:58):

I wanted to come back to the states. As I mentioned, even at a, a big university like McGill, nobody else was doing aging research. There was happened to be some people working at another institute who were working on female reproductive endocrinology at the molecular level. And we actually got connected to her because she became one of the members of one of my first students' dissertation committees. And I have to make a note here 'cause it's really fascinating. Her name was Shamala and she is the mother of Kamala. And I had, oh my goodness, yes. I had no idea about this because Shamala never talked about her personal life. We had, we became friends, both Americans and many of Sham LA's story of coming from India going to Berkeley. And at that time she had her lab up at in Montreal and that's where Kamala graduated from high school.

Speaker 3 (22:08):

But she never talked about her family. In fact, I thought she was a single uh, woman at the time, which she was separated from her husband. But that was really striking. And I have to tell you that Shamala was a force of nature. She had two positions, one at Berkeley and one at Montreal, not McGill, but at an institute there. And she was talking about going back and forth between Berkeley and McGill, keeping these labs running and raising to right by herself. Shamala really was an impressive person and I can see a lot of shamala in Kamala, just very outgoing and wonderful. So anyway, I felt alone in biology of aging there. And so I started to think about coming back to the States and by chance the Gerontology Society of America had had a meeting in 1984 in San Antonio and the local hosts committee chair in those days, there was a local host committee and the chair of that was a guy named another pioneer named Ed Marow, who was the chair of physiology at University of Texas Health Science Center.

Speaker 3 (23:29):

And he, as part of his hosting, he offered us a field trip from the convention center to UT Health San Antonio and introduced us to a group of people that he had put together being chair, he could do this, who were studying different aspects of the physiology of aging. It was very exciting. And so for the first time I saw a group of people who were working on the same problem. This was back in 1984. It wasn't until 1989 when I decided I wanted to look for

something else that, guess what? I wrote him a letter. This was before email. I wrote a formal letter to him and said, just like I had said to Jim Brower, do you happen to know of any positions in the United States? He had been, by this time president of the Gerontological Society of America. He was very active on the editorial boards and many other ways.

Speaker 3 (24:28):

And I thought he would have a lot of connections. I wrote to him, I got a letter back, it must have been immediately after he received the letter, another statement about his being on top of things and always responsive. And he said, Jim, just by chance in the physiology department, we've lost the person who teaches reproductive physiology. And he said, you would be a good fit. I would like to have you. I know your research on aging. Which really also floored me because I didn't think it was anything that spectacular. But he was a scholar and he'd read all about this and he said, I'd love to have you come, but I have to tell you I run my department democratically. How many departments do you know Lars run democratically? And he said, you'll have, there was no search committee. He said, you'll come and give a seminar and it'll be up to the faculty as to whether or not they want me to hire you.

Speaker 3 (25:26):

Wow. I'm sure he had a little bit of influence on this, but nevertheless it was an interesting experience. So that's how I ended up in San Antonio. And what a lucky event that was because he told me, he said, I want to, he, he was a wonderful S scientist and a incredible human being. He told me, he said, I have to tell you in all transparency, I'm going to retire in two years and the next chair of physiology probably won't be interested in aging. And so you'll be having to face that and see if you can convince them to let you stay. I had to give up my tenure appointment at McGill and come here as an untenured assistant professor to then prove myself in the university, uh, US system that I was worthy of getting tenure. Wow. So I took the chance and moved here.

Speaker 3 (26:27):

And again, because of his vision about aging research and his desire to keep the program that he had started on aging alive, after he retired, he got permission from the, the president of the university to start a small program called The Aging Research and Education Center, A REC, which he proposed would be designed to bring all disciplines at the health science center, be it nursing, physical therapy, medicine, the different specialties in medicine, the different programs, basic biology of different functions of the systems, bring them together because he realized like we all do that you can't study aging in one specific physiological pathway. It's uh, happening in all of ourselves. So he got that going and on a shoestring

budget. But he hired, he didn't hire, actually another person got invited to come from a small school in Illinois who was really becoming a leader in the field of aging research.

Speaker 3 (27:39):

His name is Arlen Richardson. He got invited to the VA here, which had a GRE that's called the Gerontology Research Education Communication Center I believe. And it was a gre. And he got recruited to come to that, to that gre. And Dr. Marow saw the leadership potential of Arlen and said, I'm gonna retire from this too. Why don't you take it over? And Arlen took it over and he grew it into what is now the Bar Shop Institute for Longevity and Aging Studies, which is now I've seen it go through three directors. He was the first director, the second director, this guy named Nick Ey, who brought new aspects of aging research into the program. Nick is an MD clinician scientist. And so he said, we need to bring human studies into this program. And he set up a clinical testing center. He has since moved on. And our newest director who I'm really excited about is, uh, Ellen a Volpe who's a geriatrician and a PhD and she's directing our center, the first female director of the center and another force of nature and we're building on that past. And so it's been an extremely lucky trail that I've been able to follow to get to where I am now.

Speaker 2 (29:14):

Wow. That is incredible. I love the story about shamala and hearing how you took a few chances that felt pretty risky or scary at the time. I think going from being on the tenure track, being tenured to really starting over from scratch in in the US at least on that timeline, a huge risk. And it sounds like you really ended up in at a wonderful home with a lot of support and a really exciting direction. So thank you for sharing that really incredible journey. So you had mentioned GSA, and I know you had several touch points with GSA across your career and I was wondering if you could tell us a little bit about how your involvement with GSA has shaped your career?

Speaker 3 (30:07):

Absolutely. And it has shaped my career and it continues to do, again, back to mentoring. Back in those days when in the seventies when I was a PhD student, GSA had no Espo, it just had four sections, biological science, the same ones we all know about, but they did have annual meetings and tuck, my mentor said, why don't you come up with me to Portland for the, I think it was 72 or 73 19 73 meeting. And it was my first scientific meeting. And it was a small meeting by comparison to what, where we are now and biological sciences, which you as was our smallest membership component of our society. It was even smaller then. They were pioneers in the field of aging. And I got to hear their research. It ranged from people like

George Martin who was studying aspects of cell senescence to more physiologically oriented people and things like that.

Speaker 3 (31:10):

So it was really exciting. That was my first involvement with GSA. But subsequently, I don't remember if we went every year, but we went multiple years while I was a PhD student to GSA. And I remember specifically going to the meeting in New York City, which was held at the downtown Hilton Hotel. They didn't have to use a convention center back then to populate the entire society. And so we were in this hotel and I remember presenting my work to people and it was very rewarding to get feedback. So that's how I got started. And over the years I had involvement on boards, like editorial boards, the publications committee, which it was then called Ed Marow, by the way, was the chair of that committee when I was on it. And I got to see how he operated as a chair. I loved the way he operated.

Speaker 3 (32:11):

As I said, he was not only a great scientist, but he was a wonderful human being. And remember I told you how he said he runs his department democratically. Mm-Hmm. <affirmative>. He ran the publications committee democratically. So there would be debates, there would be discussions and he would bring it all together and try to reach a consensus based on everybody's input. And I think that has continued and grown in GSA under the current leadership of all of my predecessors who have played a role in that as well as our staff, the CEO James Appleby, giving everybody an opportunity to participate and to make their points, whatever they may be, so that we can all learn from each other. So that was my involvement with GSA. I told you how GSA was instrumental in me coming to San Antonio. 'cause if the meeting hadn't been here mm-Hmm, I probably wouldn't have met Ed Massaro wouldn't have written him that letter.

Speaker 3 (33:14):

And so connections, right? That's really what we love about the annual scientific meeting, the energizing aspects that meetings do bring The society I think has blossomed after Covid in terms of using the things that learned during CVID to their best applications such as this podcast as one example. So I also became, at one point I became chair of the biological sciences section and got involved in the planning of the meeting at that time. And then it came to this which was again, totally unexpected to become president of the society. And I came in at really the right time. Many of you may know and some of you may not know that the governance of the Gerontological Society of America has gone through a major growth

change in the last five years. And this change, without going into a lot of detail, um, has really strengthened the society.

Speaker 3 (34:22):

And one of the strengths of it is the way mentoring has been brought in to the leadership aspects of the society. In the old days, people were elected president and they were dropped into the GSA pool and it was sink or swim. Many of them had experience with the society, but their experiences were variable and, and not nearly as comprehensive as are the experiences I've had going through the trajectories. I'm in my third year of leadership, when you're elected as president, you come in as vice president, you shadow the president, you meet with uh, the president meeting with the CEO, you sit on the finance committee, you get your feet wet and you learn how to do things and then you become president without having been dropped into this enormous pool. And it really improves the leadership. And finally you become chair of the board of directors. You've had two opportunities to shadow two previous chairs when you were vice president, when you're president. And it just makes running the board of directors so much more efficient. You're so much more confident in what you can do, even though it's the first time I've chaired a board of directors and I came into it shaking in my boots. But it's been a wonderful experience.

Speaker 2 (35:50):

Yeah, I think I, I can very much echo that statement with my volunteering experience with GSA, having that new structure where you're learning from those who are ahead of you and you're in roles where you can shadow. Similarly in the sections you go through vice chair elect, vice chair and past chair. And when you finally hit that chair role, you really have a good understanding of how things work and you can execute a mission and vision more seamlessly. And so I think that has been a really strong shift for GSA and I've learned a lot in terms of leadership and how to support a professional organization in that way. So I I think that's a really great point. I, you mentioned Covid and some of the things that we learned from that experience. I was wondering if you could think back on your career and think about some of the challenges you've you experienced and what you learned from those challenges along the way.

Speaker 3 (36:54):

I've alluded to some of them. Mm-Hmm. <affirmative> the challenge of being a shy person and not in love with the idea of standing before an audience of 200 people, which I still am not in love with. But that was a challenge that I could have said, Hmm, I don't think I can do this. 'cause I was really scared at the outset and my mouth would get so dry <laugh> that it, it

was phenomenal. And then I learned over time that the more you do it, the easier it gets and the better it gets. So that's one example I already mentioned. The challenge of going to a different system, the Canadian system of academia and dealing with it, it's not a huge challenge. There were challenging aspects to that. Moving to San Antonio, moving the whole lab was a challenge. But I wish I could think of some more better examples of how, how I've dealt with challenges. Um, but I think the key point is to face them head on and get support from those who will support you. No person is an island in this business, if you want to call it a business.

Speaker 2 (38:14):

It sounds like you've had really excellent mentorship along the way as well to help you through each of those challenges.

Speaker 3 (38:21):

I have, yes.

Speaker 2 (38:23):

Great. And in your career, what have you found to have been some of the most meaningful parts of your work

Speaker 3 (38:32):

As a scientist? The thing that got me into science to begin with was the excitement of discovery, of learning something that hasn't been known before. And many of my discoveries, nothing major, have been surprises. Also, I told you the example of my first paper. We've had many surprises that have been instrumental in advancing the field, one that I can think of. And so the bottom line is that discovering new things is just exciting and fun and meaningful. And over time the discoveries have become more meaningful because they give us a clue. They give us a sense that biology is really gonna understand aging enough to be able to do something about it. And that was just not around when I was starting off. In fact, that's another point I make to all of our students is I say, I've told you what biology of aging and gerontology was like 50 years ago.

Speaker 3 (39:43):

And look at what it's like now. You guys think about the next 50 years and what a wonderful prospect if we stick together and work together, if everything goes along, we're gonna have huge advances in all aspects of gerontology. It's usually these things are exponential and we are definitely in the exponential phase, I think now. So that's one thing. And the other thing

that's been most meaningful, I alluded to, to this before as I've grown older, is mentoring. There's just, I I, I never had children. I have a stepdaughter, which gave me a little bit of an opportunity to learn about, but she came into our lives fairly as a teenager. But it's been, that's been a great experience. But my PhD students are like my children. And in fact, my most recent one who's just gonna graduate this in December, has written his thesis. And he touched me so much by his gratitude by saying, not only have I been a scientific mentor to him, but I've become almost family. And so that is just very meaningful to me. I often say if I hadn't had my last two graduate students, which have been in serial, Katherine Ching preceded Nii Jang, I wouldn't be here. Having those students has kept me excited and alive and there's even the prospect of another one coming along. So we shall see how that goes.

Speaker 2 (41:33):

It does, it sounds like you're talking about children, like maybe a future child coming through. That's

Speaker 3 (41:38):

Exactly

Speaker 2 (41:39):

So wonderful.

Speaker 3 (41:40):

I often joke, I have made the joke, I'm not sure how I put it, but it was, I'm beyond reproductive fertility <laugh> and it would be a real surprise to father a child at this age. But here I am with these new kids in my life. Unexpected. Yeah.

Speaker 2 (42:02):

And really passing along so many of the experiences that you had along the way, that you had these influential people who made such an impact on where your career went and what you ended up doing. And you can see those ripple effects with how you're able to mentor and think about how many more people that will impact when your mentees go out and mentor future generations. That is very exciting and inspiring as we think about the bigger picture. Beyond that minutia of everyday science can feel really slow. So I appreciate that big picture of how far we've come and what a huge impact we can make in the science, but also in the people who are doing the science. The science. So I wanna end by asking you, based on your expertise and experience and feel free to incorporate both your research expertise and personal experiences, what advice do you have for people in general as they age?

Speaker 3 (43:02):

I think the, it has to be evidence based. First of all, there's a lot of quackery out there. Uh, a lot of startups are jumping on the bandwagon and without evidence trying to treat people in different ways. The evidence is, I think, clear that we can already have a huge impact on our health and welfare as we grow older by doing certain things. First thing, these may sound very simple minded, but they're very important is smoking never smoke a cigarette. I saw that in my aunts who were smokers and how they aged much more quickly and got diseases of aging much earlier than non-smoking siblings did alcohol. The evidence 20 years ago was that maybe a drink a day is good for you. It it may be good for cardiovascular health. That's no longer the case. Alcohol at any dose does not bring health. It, it increases one's risk.

Speaker 3 (44:09):

So that's another thing that one needs to really moderate at the least exercise. There's no evident it, there haven't, it's hard to do prospective studies in humans and see the effects, but there are some that have been done and they show that exercise markedly reduces the risk factors for frailty for all of the diseases of aging, including Alzheimer's disease and dementia. It, it's phenomenal in my understanding. People who do regular moderate exercise have reduced risk. Of course it depends on their genotype and stuff like that of the order of 20 30% or even more. So exercise is important. Obesity, we have a epidemic of obesity. It increases the risk for many of the diseases of aging. So ways of controlling that are in order. And fortunately we have new drugs that may be able to help with this in a significant way. Though the long-term effects of that aren't clear, we're really, this is where public health plays such an important role in all aspects of health for that matter.

Speaker 3 (45:27):

And it's not nearly appreciated enough in my view. But I'm that that comes to mind because when I was a kid, we didn't have fast food any place. Actually McDonald's started in my hometown and there's still a golden arches place there. But my parents never took us there. We never went and we weren't tempted because there were no other fast food places. Gas stations sold gas and maybe they had a candy machine, but they didn't have these huge temptations of these bad snacks, which is the environment that drives obesity. It's gonna be a challenge how to control that environment. But that's another important thing. Social connectivity is another important thing. Figuring out ways to enable people to stay connected, that's again been shown to reduce the risks of so many things that make life difficult as we grow older on the horizon. Even now, and I'll mention that from the biological perspective is I've been involved in the last two decades in an NIA sponsored program called the Interventions Testing Program.

Speaker 3 (46:47):

And it's an remarkable component of the NIA. And to be honest, I, again, I was wrong when they put this out as a call for proposals, both my colleague Randy Strong and I uh, fellow, it was a boondoggle because at that time there really was nothing but food restriction that was a intervention that seemed to have promise. Um, people had tried some antioxidants and mice and nothing good. And so we thought it was a boondoggle. Here we are fast forward, uh, my current graduate student is writing a review on the results of the last 20 years. And there have been at least 13 interventions out of 52 that have been proposed that significantly extend lifespan and sometimes e evidence for health span effects in a genetically heterogeneous mouse population. That's like us, no mouse is the same in the way we breed these animals. So like us we're, we can be confident that any effect we do see it's not due to the particular inbred strain, which would be like looking at clone of me or a clone of U and seeing if a drug works.

Speaker 3 (48:05):

There's huge, we know divergence and effects of drugs across people. So that's a strength of the program. Another strength of the program gets back to my first touchpoint about science, which is replicability. This program which is governed by the NIA, tells us we have to do these studies at three different sites in the United States and see whether or not they can be replicated. And indeed this has been a model and very informative to tell us that we don't always replicate. And I could go into more details about that, but replication is such an important part of science and such an unappreciated and uh, part that needs to have more support because it takes money to replicate and it's very hard to make a proposal that I'm gonna try to replicate this result, not gonna get funded very easily.

Speaker 2 (49:13):

Wow. That was a very comprehensive and evidence-based perspective of how we can all age. Well. Um, Jim, I wanna thank you so much for taking the time to speak with me today. I know our Espo members will really appreciate learning from your wealth of knowledge and experiences as well as everyone else who's listening. And I look forward to seeing you at the annual scientific meeting in November.

Speaker 3 (49:41):

And I

Speaker 4 (49:41):

Look forward to seeing you as well. And everybody else, it's gonna be a great meeting, always getting better and better each time.

Speaker 2 (49:50):

Absolutely. Alright, thank you again. Thank

Speaker 4 (49:53):

You Brianna.

Speaker 1 (49:54):

The Gerontological Society of America was founded in 1945 to cultivate excellence in interdisciplinary aging research and education to advance innovations in practice and policy. For more information about GSA, visit geron.org, GERO n.org.