

## Zoom In on Dementia & Alzheimer's

Can Lifestyle Changes Prevent Alzheimer's? What the Research Reveals  
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Transcript of Zoom with Miia Kivipelto, MD, PhD, Professor, Senior Geriatrician, Director of Research, Development, Education and Innovation, Karolinska University Hospital, Sweden

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Please note: This transcript has been edited for clarity and brevity.

**BROOKS KENNY:** Hello. And welcome to Zoom In on Dementia & Alzheimer's. I'm thrilled that you all are joining us today. My name is Brooks Kenny. I am an Alzheimer's advocate and advisor to BrightFocus Foundation. I've been working in the Alzheimer's space for over 12 years as an advocate. And I have had my own family experience with the disease as a caregiver.

Let me tell you a little bit about BrightFocus Foundation. We are a nonprofit organization that has invested nearly \$300 million in research grants, catalyzing thousands of scientific breakthroughs in life-enhancing treatments, diagnostic tools for Alzheimer's disease, macular degeneration, and glaucoma.

Today's program is called Can Lifestyle Changes Prevent Alzheimer's? What The Research Reveals. And I'm really looking forward to this conversation. It's amazing to see how many of you have signed up and submitted questions. So thank you for being here. This program is supported, in part, by educational funding provided by Biogen,

Genentech, and Lilly. And so we thank our sponsors for making this program possible.

We have a fantastic expert speaker today and a very compelling subject that I know everyone's excited to get to. Many of your questions were specifically related to the prevention of Alzheimer's disease and cognitive decline, but some were not, which is totally fine. And so on the screen now, you can see, if you go to [brightfocus.org/zoomin](https://brightfocus.org/zoomin), as well as on YouTube, you can see a list of all of our previous episodes. One of the great things about BrightFocus Foundation is we really aim to translate the scientific research into public information for all of our constituents and make that information available on an ongoing basis. So you are welcome to tune in to any of the other topics that you would like.

So now that we're through with the housekeeping, I have the honor of introducing our guest speaker. And let me tell you all, we are in for a real treat. I've been personally so inspired by our guest speaker's work over the last decade that I actually can't believe I get the honor and privilege to interview her today for this session.

Our speaker today is an expert. Her name is Dr. Miia Kivipelto. She is a professor in clinical geriatrics at Karolinska Institute, Center for Alzheimer's Research. She's a senior geriatrician and director of research and development at Medical Unit Aging at Karolinska Hospital in Stockholm, Sweden. Her frontline research findings have been published in leading journals, over 430 to be exact, which is quite incredible the contribution she has made to this field. She has received many, many awards. She has developed translational research that focuses on the prevention, early diagnosis, and treatment of cognitive impairment, dementia, and Alzheimer's disease. She has identified various lifestyle and vascular risk factors for dementia and interactions with genetic factors. She is the principal investigator of the landmark, and I really mean the landmark FINGER trial, and founder and scientific leader of World-Wide FINGERS network. This research has been so transformative in our field. And it's really allowing so many of us to adopt lifestyle as we think about reducing cognitive decline. She's going to share more about that research with us today. The purpose of it is to find novel solutions that not only prevent cognitive impairment and dementia but promote brain

health. She's invited, as you can imagine, to speak at global dementia conferences and task forces. And we are just honored and humbled that she has joined our Zoom In on Dementia & Alzheimer's here with us today. So Dr. Kivipelto, I'm going to call you Miia as we go forward here, but it's such an honor. Thank you for joining us today.

**DR. MIIA KIVIPELTO:** Thank you, Brooks. And thank you, BrightFocus Foundation, for this kind invitation. It's really a pleasure to be here today. Best start for the new year.

**BROOKS KENNY:** Wonderful. Well, we're going to kick things off a little differently than we do sometimes on these Zoom Ins. And we're actually going to show a slide. And Miia is going to start off our discussion today by giving a brief overview of the FINGER study and share how far the field has come in this prevention area. And then we'll take the slides down, and we'll get into the meat of the questions that all of you submitted in advance. But we thought it would be a really helpful framing because this is a real landmark study, and she's the principal investigator on it. So Miia, over to you. And we'll load that slide for you.

**DR. MIIA KIVIPELTO:** Thank you. And really, the starting point here is how to prevent cognitive decline in dementia. When I started my research career more than 25 years ago, there was basically nothing or very little that we could do to prevent dementia. We had high age and genetics. And as we know, we can't do so much for these factors. So we have been studying modifiable risk factors for dementia. And I'm very happy to tell you that today, we know that at least 45% of all dementias are linked to modifiable risk factors, which, I think, is a very optimistic finding.

However, quite a lot of our studies and these observations, they come from epidemiological studies. And as you surely know, given that you have been listening to previous episodes as well, clinical trials, randomized trials is the golden standard, the highest level of evidence. And we would like to have that type of evidence before we move to implementation and really using the knowledge in the societies. And FINGER study was the first randomized clinical trial really showing that it is possible to prevent cognitive decline among at risk individuals when we

package together different risk factors. So clearly, it's not enough to only focus on one risk factor, but we selected five. And that's why we have the name, FINGER study. It's like, one hand and five fingers.

And here, you can see the components or the fingers, which were included in the FINGER study. Healthy balanced diet, very important for the brain health. Exercise, we will come back to that as well. Cognitive training. I normally say, brain is like a muscle. We need to keep it active as well. Social activities and stress management and taking care of all vascular and metabolic risk factors, like blood pressure, cholesterol, glucose, and diabetes, and obesity. What is good for the heart is good for the brain. So this was the finger puppets compared to regular health advice for two years.

Next slide, you can see the results. The main results was for cognition. And that was clear that the persons who received the FINGER intervention had better cognition, overall cognition, but also memory, planning skills, executive function, and processing speed, how quickly we can do different tasks. And as we know, these all are cognitive domains important for daily activities. So this is not only preventing dementia, it's optimizing brain health in everyday activities. On top of that, we could see many positive other effects. No negative side effects, only positive ones. There was a reduced risk of stroke and cardiovascular events. There was better functional level. Quite surprisingly, 60% lower risk for chronic diseases and especially multimorbidity. Quality of life was better. And we could even see reduced costs for health care and health economical benefits. So the same model gives benefits for brain health, general health on individual and on societal level. And that's why I believe FINGER has been getting so much attention globally, is now used as the model in many countries. And Brooks, you mentioned the World-Wide FINGERS, I'm very happy to say that we are now having 70 countries involved, and we get so much good scientific evidence from these studies. So this is a short background from the FINGER study, which I hope can help in the discussion.

And I think there is one more slide left, just to see where we are with the modifiable risk factors. And I'm so happy to see that the list is getting

longer and longer year after year. Here, we have a very new publication published in the Lancet last summer, summarizing what is known about modifiable risk factors. You can see here that we have many cardiovascular metabolic risk factors, diabetes. We have high blood pressure and obesity already at midlife. We know that the process leading to dementia may start 20 to 30 years before the dementia diagnosis is done. That's why I normally say, it's never too early to start to prevent dementia. Physical inactivity, depression, smoking, low education, and quite interestingly, a bit newer risk factors, like hearing and vision loss, has now been added. Traumatic brain injury. So it's good to keep the helmet on if we do a lot of activities. High alcohol consumption, social isolation, and even air pollution.

And luckily, we do have also many protective factors, like healthy diet, education. And here, I'm thinking not only being at school, but more lifelong learning, how we can use our brain and learn new things, and physical, mental, and social activities.

And finally, we are studying novel risk factors. This is not the final list, I believe, but we are still learning a lot, what are really the risk factors for brain health and decline in our functions. And here, you see that it's not only depression, but also feelings of loneliness and hopelessness have been linked with an increased risk. Stress and sleep disturbance is quite common in our societies. We will surely talk more about that after a while. Impaired oral health, that could be through inflammation and infections. And even infections like COVID and herpes have been studied.

So this really highlights there is no single risk factor. It's more the holistic care and trying to see, which are the most important ones to each individual during the whole life course? So with this as a background, I'm very optimistic for the opportunities we have to reduce the risk of dementia.

**BROOKS KENNY:** Absolutely. It's so exciting to see the science. I mean, to see the hundreds and hundreds of studies that are happening compared to even five years ago, when we were barely using the word "Brain Health," nor the word "Prevention" associated with Alzheimer's disease. So it's so wonderful to see scientific progress.

So if you could just start at the basic level with regard to lifestyle, you listed a lot of healthy behaviors there. Are there some that come to the top based on the research? What are some of the most important healthy habits that people can adopt when they're thinking about their brain health?

**DR. MIIA KIVIPELTO:** I would come back to the note that dementia is a multifactorial disorder. There is no single risk factor. And that's why in the FINGER model, we targeted several risk factors at the same time. I think that's the key concept, that you need to target many risk factors and mechanisms.

However, of course, depending on where we are at life, which are our risk factors, my advice would be starting seeing and checking the health profile, which are the top risk factors for me? Is it some vascular risk factors? Is it low physical activity? Is it an unhealthy diet? Or maybe it's stress and sleep disturbances. So maybe starting with the ones which are most important at that moment. And that may vary. When you are midlife, quite often, there are, as I said, stress and sleep may cause for risk factors. When you get older, you may have more isolation, depression, hearing, vision loss. So having the checks regularly and starting with the ones which are the most important at that point.

**BROOKS KENNY:** I mean, it's very personal, isn't it? Looking at yourself and saying, OK, among all of these things, I know, for me, I'm always looking and thinking about my brain health. And one of the areas that I do not do well is sleep. So rather than picking 20 things I was going to work on in 2025, I am very focused on my sleep and trying to build in things to get better sleep and to stay asleep. So not to share too much, but that's like, I had to pick one where I felt like I was the most depleted right now. So I appreciate that so much.

Can you expand? We had a few questions about hearing loss. And I think it would be helpful for our audience to hear, what is the actual risk factor around hearing loss? And what should people do if they suspect that might be an issue for themselves or a loved one? How do you explain that, I guess, to, say, terms?

**DR. MIIA KIVIPELTO:** I think it was very interesting when the hearing

loss was added to the list of modifiable risk factors. That happened four years ago when we had The Lancet Commission paper. And now, the last one even included impaired vision. So both sensory impairments are now included. Hearing loss, as we know, is very common. It's common among adults and older people. And the tricky thing is it comes, sometimes, quite gradually. We don't always notice that. And that's why it's so important to be aware that that may also increase the risk of dementia.

Why that happens, what are the mechanisms is not totally clear yet. One mechanism can be that if we don't hear clearly, there may be a tendency to get more isolated, not willing to be part of the conversation. If you can't hear well, you maybe not understand what is happening. So that affects, of course, our communication. But there is also another quite interesting hypothesis that if we can't hear, the hearing center in the brain is very close to the area where the memory is functioning. So somehow, that part of the brain may get almost over-activated. So it may be also more closely linked to dementia pathology and Alzheimer pathology, what we have been earlier thinking.

The good news is that there is something we can do for the bad hearing. You can use hearing aids. And we know that if you start using them early, it has a better result. So absolutely something to check if you are worried for that, and quite easy intervention, I would say. And the thing is also, if you have impaired hearing and vision, that combination seems to increase the risk even more, because then you can't compensate. Sometimes, if you don't see well or if you can't hear well, you can use some of those senses. But if both are impaired, then the risk increase seems to be even higher.

**BROOKS KENNY:** Wow, that's super interesting. We actually have a question in the chat that's along these lines. Someone's asking, is Down syndrome one of the risk factors for dementia?

**DR. MIIA KIVIPELTO:** Yes, it is. That's a very, very good question. And we know, with Down syndrome, they actually have an extra gene for the amyloid. And that's why many persons with Down syndrome, almost all, develop Alzheimer's disease if they live long enough. And that's now getting a bigger question what it has been earlier. Actually, there is a

wonderful initiative, which I hope we can move on with, implementing FINGER model for persons who have Down syndrome. It's Down syndrome organization, who have been now proposing that. And I really hope we can do the initiative, because we also know that persons who have Down syndrome often have many of these modifiable risk factors. They have the genetics, but they also have many of the modifiable risk factors.

And also back to the question of why we did not include Down syndrome in the list of modifiable risk factors? Because it's not modifiable as such, so we did not include any genetic factors. We also know that there are genetic forms of Alzheimer's disease, and there is risk genes like APOE4, but they are not included in the list of modifiable risk factors.

**BROOKS KENNY:** Yes. Absolutely. No, I appreciate that. So we have a couple of questions related to the FINGER study that actually came in advance. And one was related to the study showing certain lifestyle changes slows decline. But this individual is asking, how much is it being slowed? And is it measurable? And then a follow up is, what constitutes at risk? So how does one know that somebody is at risk for cognitive decline?

**DR. MIIA KIVIPELTO:** Good questions and not very easy ones, because how we define at risk and how we define the effect can be sometimes a bit tricky, but I will try. So in the FINGER trial, we started early. As I said, I normally say, it's never too early to start to prevent dementia. So in FINGER study, persons had increased risk for dementia based on risk factors. They did not have any clear cognitive impairment, but they had some risk factors present. What we could see after the FINGER intervention was actually that memory and cognition were improving. They did not decline; they were getting better. And the FINGER group got 25% more improvement in the total cognition. There was 80% more improvement in executive function, how we are planning different things and multitasking, for example. There was 150% more improvement in processing speed, how quickly we can do different things. And there was 40% more improvement in memory. So all cognitive domains were getting better. They were not declining. And for us, that was absolutely fantastic news. On top of that, we could see that the group who did not receive finger had a 30% increased risk for cognitive decline. So that's why we can



even say that the same model can reduce the risk of cognitive impairment.

**BROOKS KENNY:** Wow. That's amazing.

**DR. MIIA KIVIPELTO:** But again, the numbers are difficult, sometimes. Are we talking about improvement? Are we talking about reduced risk of decline? And do we dare to say that we are really preventing something? It's a difficult question, because it depends how long a time we are following up the persons. Normally, in trials, like in FINGER, it was quite long, it was two years. But it was too early to say, because dementia may come 10 or 15 years later. So that's why the outcomes are normally cognitive functions and not dementia diagnosis.

**BROOKS KENNY:** Got it. Well, the last general question, and then I want to dig into some of the specifics, but we had a question come through about, what about somebody living with Alzheimer's or perhaps, with mild cognitive impairment, and they were diagnosed early? I mean, this whole discussion really does reinforce the need for early detection and diagnosis, right? I mean, if somebody is experiencing MCI or the early stages of Alzheimer's, what role does lifestyle play? I mean, it's as important, right? So for so long, I think, well, you have an Alzheimer's diagnosis, and you're just going to immediately lose all of your memory, and thinking, and function, but that's not the case as we're diagnosing people earlier. Can you speak to that?

**DR. MIIA KIVIPELTO:** Yeah. That's an excellent question. And actually, after the FINGER study, I got that question from my patients at our memory clinic, asking, is it too late? Can I still do something with lifestyle? And that's why we started a new study. We adopted the FINGER model for persons who had early Alzheimer's disease and some modifiable risk factors. And the results were very good, much better than what I dared to even hope. Already, after six months, the persons who received FINGER had better functional level. Even cognition was stabilizing, it was not declining. And of course, the feedback from the patients and caregivers was very positive. They say that it felt that they got back the control, they could do something. So it was not only cognition, it was also the quality of life and functional level. And that's why I normally say, it's never too late. The effect of the intervention is not ending the day person is getting

the diagnosis. I would say, the opposite, brain needs so much each day. So I really hope that we can implement this at our memory clinics and in societies so that all persons who have cognitive impairment can get support to implement all these healthy lifestyle factors.

**BROOKS KENNY:** Yeah, I mean, there's just so much hope around this. And just to put the finer point on it, Miia, when you say people received FINGERS, so what that means is they were in your study for two years, they were implementing exercise. Give us some of the practical things experiencing that led to great result.

**DR. MIIA KIVIPELTO:** That's a good question. How you can do that? It was not only me telling them that you need to exercise, and you need to eat healthy food, because that's not so easy. So what they received was more packets of the FINGER intervention. We had a dietitian, who helped them to eat healthier food. Many people know in theory what is a healthy diet, but it's not as easy to change your lifestyle. So what we did, we had cooking classes. We gave very practical inspiration and practice, how you can cook. How you can do your shopping in a more healthy way. How can I modify my diet that is a bit more healthy? And that was very, very popular. For physical activity, we had group exercise. So we took the persons and they did some of the training together, which was very popular. And they get advice from the physiotherapist, what is the best physical activity for that person? For cognitive training, we used a computer-based cognitive training program. And for the cardiovascular things, they had the chance to meet a study doctor and nurse to measure all the things. And if someone had high blood pressure or high lipids, then they got medication for that.

So it was simply going through all the five FINGERS and follow up at both individual and group meetings. And I need to say that the group meetings, the social part, was one of the most popular ones, because when you do things together, you get extra motivation and also some social stimulation as well.

**BROOKS KENNY:** Absolutely. That's so fantastic. That's great. And really appreciate that we can all read, and we all know what's good for us. But having the tools and then having some of that ongoing coaching and

guidance is really exciting to see.

**DR. MIIA KIVIPELTO:** It's important. Yeah.

**BROOKS KENNY:** All right. Let's dig into exercise a little bit. I don't know where people are tuning in around the country, but I'm right outside of Washington, DC. And we got more snow than we've had in five years, and it's, I think, 15 degrees. But we're still getting out there and walking as much as we can. I would love to hear how you think about exercise. We have a lot of questions about what type of activity is best, how often, how rigorous, how aerobic. So if you could dig into the exercise piece, I really want people to come away with something that people feel is achievable in terms of what they can be doing to implement exercise in their routine.

**DR. MIIA KIVIPELTO:** Exercise is one of my favorite risk factors. It's maybe one of the most studied. There are so many studies showing the positive results for brain health, reduced risk of cognitive decline, but also many other health outcomes. So that's absolutely something we can take with us. Then also the effect and what type of exercise is the best one. I would say, all type of exercise is good. Every step, every movement is important. So depending on where you start, even starting with small steps is important. Why this is so important is because we are having such a sedentary lifestyle. Do you know how many hours we are sitting every day? 9 to 10 hours. Children, middle life people, all the people, 9 to 10 hours. And it's difficult to compensate for that amount of sedentary lifestyle and sitting, even though we are physically active. And that's why, having even a small movement break every half an hour is very important. Taking stairs, taking a few more steps, that, I would say, is the basis of all exercise. And then we can build and add more different types of physical activity, for example, aerobic exercise, strength training, and balance training. But the everyday physical activity, I think, is really the basis for the good brain health.

**BROOKS KENNY:** Great. And someone was asking-- there are two interesting questions here. One about the impact of weight loss and a favorable body composition and Alzheimer's. And I guess, they wrapped that into thinking about the exercise. Do we know much about that?

**DR. MIIA KIVIPELTO:** Yeah. That's a good question. What is the mechanisms? How does exercise affects the brain? And how it can reduce the risk of dementia? I think that's also the nice thing with exercise. It's like a miracle medicine. It has so many different possible mechanisms for how it can reduce the risk. One is, of course, through other risk factors like obesity. It can reduce the risk of diabetes. It can reduce blood pressure. So many of the other risk factors which I saw, exercise can affect and reduce them. So that is one way how it can reduce the risk of dementia.

But there are also more direct mechanisms, like you mentioned, the fitness or the cardiovascular fitness. There are studies showing that people who have better mid-life cardiovascular fitness had a lower risk for dementia 40 years later. That's a study from Sweden showing that. So there seems to be also a more direct effect if you have better fitness that can reduce the risk of dementia.

It can also go through vascular pathways, like the blood flow to the brain can be better if you have good circulation in your body. And there are also very interesting studies showing that the area in the brain, hippocampus, that is important for memory, for persons who are physically active, that part of the brain seems to be large. So it can, somehow, more directly also stimulate the brain and affect various neurotransmitters. And that's why I love physical activity so much, that that's so many different mechanisms there as well.

And also one thing, you don't, again, need to do a huge amount of physical activity over 10 minutes. There is a study showing that persons who were physically active for 10 minutes, almost 10,000 different molecules and biomarkers were affected, not only Alzheimer related, but inflammation and all these cardiovascular diabetes. So it's really releasing many substances in the body. And that's why even a 10-minute walk is absolutely better than nothing.

**BROOKS KENNY:** That's amazing. All right. Well, hopefully, we're all motivated to get those steps in.

**DR. MIIA KIVIPELTO:** Yes.

**BROOKS KENNY:** And certainly, feel free, folks, to post in the chat if you

have any other specific questions about exercise. I'm going to move along to food and diet.

**DR. MIIA KIVIPELTO:** One more thing, because you asked it and I did not answer, you said aerobic, strength, and balance, why these three? And maybe I did not answer that yet clear enough. I would combine all three, and that's what we did in FINGER, because of course, the aerobic exercise is good for the circulation, which I mentioned. But even muscle training is good, especially for older people, because we have the tendency to lose our muscles. We talk about sarcopenia when we get older. And we could see it in the FINGER trial that when people first train their muscles, then they could much easier do the cycling, or walking, or jogging, whatever they wanted to do. And the third one, why balance training? Of course, we don't want people to fall, so training your balance as well is good. So I would recommend all these three like we did in the FINGER study.

**BROOKS KENNY:** That's great. Thank you for adding that. That's really helpful. OK. Let's talk about food and lifestyle. And we know there's foods that are better for you and would love to understand the science around lifestyle related to food. And perhaps, if you could expand upon the MIND diet. We also have a question here about full fat foods, like the different oils. So we'd love to hear a little bit on that.

**DR. MIIA KIVIPELTO:** Yes. I really would say that the brain needs good food and nutrients throughout the whole life. The brain is only 2% of the whole body weight, but it uses more than 20%, 25% of the energy. So the brain needs nutrients, and the brain needs energy. And especially when we are getting older and when we start to have cognitive impairment, it's very important to think that brain gets healthy, balanced diet every day.

What is the best diet for the brain is, of course, a good question. And you can understand that diet is quite complex, what we are talking about. Is it single nutrients? Is it the dietary pattern? And the tendency in the dementia field is not only single nutrients or single foods, it's more the dietary pattern. What are we eating? What is the different compositions there? And there are some dietary patterns which have been shown to be good for the Brain Health. We have the Mediterranean diet, which I believe, many of you know. We have the DASH diet, that is more designed

to manage the hypertension. We have the MIND diet that is a combination between Mediterranean diet and DASH diet. And we have, for example, the healthy Nordic diet, like we have in Sweden and Finland.

All of these healthy dietary patterns are very similar, to be honest. They are not huge differences. They have a bit different names. And of course, in different parts of the world, we have a bit different foods available. So that's why there are some differences, but the basics are the same. And that means that in all these diets, there are a lot of fruits, vegetables, berries, nuts, olive oils, a lot of fish, a lot of seafood, less red meat, and especially, reducing the amount of processed meat, less salt and sugar. So that's the basic components of all these healthy diets.

Many of the studies are still from observational studies, but there are now, luckily, some randomized trials showing that, for example, the Mediterranean diet seems to reduce the risk of cognitive impairment and even dementia. And like in FINGER, we have the healthy Nordic diet as part of the multidomain intervention.

**BROOKS KENNY:** And how does that translate for people living with mild cognitive impairment or Alzheimer's disease? Are there studies showing that diet has a positive impact for them as well, even if they have a diagnosis?

**DR. MIIA KIVIPELTO:** Yes. There are also the recommendations and guidelines. For example, WHO has risk reduction guidelines, stating that Mediterranean type of diet is recommended for persons with normal cognition and mild cognitive impairment to reduce the risk of cognitive decline and dementia. So that is already part of the recommendations.

We did the same in our FINGER trial, targeting persons with early Alzheimer's disease. They got dietary intervention. It was part of the multidomain intervention, but we could clearly see that especially for persons with early Alzheimer's, they needed to get more advice and support. Because in Alzheimer's disease, you sometimes are not eating well, and you may have some deficiency for some important nutrients. So it's extra important for those persons to really take care of the good nutrition. So again, it's never too late. And I'm thinking, the food, it

can be also a nice social moment. That's what we did in our study. The persons were cooking together. They were eating with the family. They were discussing about the food. So you could try to find some practical solutions, how you capture many FINGERS at the same time.

**BROOKS KENNY:** And what I love about this too is we're not necessarily telling people what to take off their list, we're telling people what to add to their plate-- things that are healthy, things that are whole, things that are nutritious. So I think, no pun intended, but it's a mindset. Rather than saying avoid this, take away that, it's to remind people.

**DR. MIIA KIVIPELTO:** Exactly. And that's the whole philosophy, I think, in the FINGER as well. We are not saying, no, no, don't do that. It's more adding positive things. What can I do to add more layers of protection? Can I add healthy habits? Can I add a bit more nuts or olive oil or fruits? So it's not so much taking away, it's really adding the positive things. And that's also what I love, the list of positive factors is getting longer and longer. Maybe we should talk more about protective factors, not so much about risk factors.

**BROOKS KENNY:** Yeah, that's great. All right. Well, my favorite one, let's talk about sleep. I'm not going to ask for a show of hands, who has trouble sleeping or staying asleep, but I'll raise mine. So if you could help us understand what are the sleep patterns that we want to avoid or that we want to encourage, I should say. The length of sleep, I've seen lots of different resources around this. And what are the risk factors if people aren't getting enough sleep or if their sleep is interrupted?

**DR. MIIA KIVIPELTO:** Yeah, that's a good question. And I agree, sleep disturbances are getting. They are very common. Around 50% of older adults or adults in general have some type of sleep problems, and I have a feeling that they have been increasing. So if we are thinking of the list of modifiable risk factors, we are maybe taking care of some of the other risk factors. Smoking has been reducing. We are medicating and treating hypertension. But sleep and stress are maybe the new risk factors in our societies. And even younger persons are having challenges with those.

And sleep, it has been more difficult factor to study, because you can

imagine, for example, measuring blood pressure is quite easy, but how can you ask your sleep, "How many hours I have been sleeping?" is quite a lot of subjective feelings in the sleep. And that has been maybe one limitation why it took a while before we added the sleep to the list of modifiable risk factors.

What do we know now about sleep is that persons who don't sleep enough-- what is enough is good question, because that may vary between different people. But let's say, less than five hours all the time, there are studies showing that these types of sleep disturbances can increase the risk of dementia. On the other hand, if you sleep too much, and you have the daytime sleepiness as well, that can also increase the risk. Another type of sleep disturbance is sleep apnea, for example, is one of the risks factors. But is that the risk or can that also be a consequence that something is going on? Because dementia may also affect and change the sleep pattern what we are having.

But many researchers, including myself, believe that sleep disturbances can, indeed, increase the risk. And why is that happening? Well, during sleep, especially that deep sleep, I say that it's like the washing machine for the brain. We take away many toxins, like amyloid, inflammatory markers. So during the sleep is not passive. The brain needs that phase to get rid of different toxins from the brain. And also, as we all know, even when we were at school, it's good to sleep because your memory is working better. And that's still true, especially in our time when there is so much information coming. So the brain needs some rest, and really, that the memories are getting there, and we can use our brain in the most optimal way. And I think this is a challenge in our societies, as I said, with so much screen time and so much information coming. So I would really like to highlight that we need to live an active life, but brain needs also some rest.

**BROOKS KENNY:** So how did you manage that in the FINGER study? How did you encourage sleep with your participants?

**DR. MIIA KIVIPELTO:** So in the original FINGER study, we did not have anything specific for sleep because that came later. But now, FINGER is ongoing in 70 countries. So now, we have been enlarging the fourth



finger that was the social activity. So now, it's called social activity, stress management, and sleep disturbances. We try to take care of that as well.

First, we give information, why sleep is important? We give the basic information about sleep hygiene, what to do, how you calm down in the evening, what you should do, and what you should not do. Not eating too heavy meals, not drinking too much alcohol, or coffee, or smoking. Screen time, try to reduce, so all these things which are available. But then there are also opportunities of having more psychological support, if needed, for some individuals. So that's now happening in some FINGER studies.

**BROOKS KENNY:** Got it. Thank you. That's helpful.

**DR. MIIA KIVIPELTO:** One part of that is, of course, the relaxation. So we try to have the stress management. If you are too stressed, maybe sleep is also affected. So meditation, yoga, some kind of stress management is part of the sleep improvement as well. So many of the risk factors are going hand in hand. They are interrelated.

**BROOKS KENNY:** Yeah. We had a question in the chat, I think, about stress. Let me try to find it. And just asking how that's a factor. Family, work, financial, dealing with disease, how is stress a factor in Alzheimer's disease?

**DR. MIIA KIVIPELTO:** It is. Yeah. And that's the same thing, there are studies showing stress hormones, for example, high levels of cortisol is affecting the areas in the brain related to Alzheimer's disease. So stress is also one of those more novel risk factors. And with the new technology available, we can also measure better both sleep and stress. I believe, the research is really able to capture the biomarkers for these new risk factors as well.

**BROOKS KENNY:** And I'm not a researcher, I'm an advocate, but I feel like I've read that it's not like, to reduce stress, we have to meditate for an hour every day. I mean, we can have small moments of time in our day to take some deep breaths and reduce our stress that actually move the needle a little bit. Can you speak to that?

**DR. MIIA KIVIPELTO:** Correct. Exactly. The same in physical activity, you don't need to do it all, just to get started. So it can be some breathing, some relaxation, a few minutes between meetings or before you go out. Finding these small moments. For example, in the morning, before you open your laptop, do something else to calm down, or in the evening. So finding these small moments in your daily routines.

**BROOKS KENNY:** Yeah, absolutely. I think, sometimes, people, myself included, get overwhelmed with thinking about all of the things. But recognizing, you can do small steps, and collectively, they certainly help.

We've talked a lot about and heard a lot about cognitive training. And you see people say, oh, I'm going to do a crossword puzzle, or I'm going to do this, or I'm going to do that. And I think there's some misunderstanding about cognitive training and what the brain needs as we think about learning new things or using our brain as a muscle. And I see Ann there, knitting, and I've been watching her the whole time. I don't know if that's a new thing or not, but if it's new, it's good for your brain, and it's probably good for your stress too. But we'd love to hear a little bit more about cognitive training.

**DR. MIIA KIVIPELTO:** Yeah. That can be. It's so broad definition. What we are doing here now, this is cognitive training, because we are discussing different topics, you are listening, you are asking questions. So in a way, everything what we do can be cognitive training. Of course, in the studies, like in FINGER, we have been using more specific cognitive training programs. It can be paper and pen, like crosswords, or Sudoku, or puzzles, or doing something that really stimulates your brain a bit more than the normal daily activities. How good they are and what is the mechanisms is, of course, still a bit unclear, but the brain has a wonderful capacity. We can build a cognitive reserve or brain reserve. So everything what we do can affect the structure and the function of the brain. And that is wonderful because if we get some changes, like Alzheimer changes in the brain, the brain can compensate, and the brain can adapt. And that concept, cognitive reserve, brain reserve is really, really great. And in a way, the cognitive training uses or builds that cognitive reserve in your brain. There are more connections or more synapses between nerve cells.

So it brain is plastic, like muscles, we train them. So you can really change and affect your brain. And I think that is really, really great.

But then what to do? What's the best way for you to train your brain? Well, I normally say, try to find new things, especially when you get older, if you are not working anymore. So try to find new challenges than what the brain likes, doing something different, what you normally do not do every day. And try to do something with others, like playing computer games with your grandchildren, or reading a new book, or learning a new language, something that you have not been doing earlier. So that's really, really good training for the brain.

**BROOKS KENNY:** And I love the way you're thinking about it and sharing it is like, it is a muscle, just like anything else. And so just like you might lift dumbbells for your biceps, you need to do things that are going to make your brain work and grow. So that's super helpful.

One of the topics we spoke about in advance of this, because it continues to come up, is the topic of supplements. And if you could share, there's so much information out there and stuff coming at us all the time about this supplement or that, and I won't ask you to speak to any specific where the data isn't there, but how would you share with our audience how to think about supplements and how to navigate that topic as it relates to brain health?

**DR. MIIA KIVIPELTO:** Yeah. And it's a difficult question. And we are not yet ready in our research either. But where we are now, there is no clear evidence yet, at least, that any supplements or vitamins would give any clear benefit to reduce the risk of dementia. That stated at the WHO guidelines and in The Lancet Commission paper, taking together all studies, no clear evidence that taking extra vitamins or supplements would give a clear benefit, at least.

However, there are, of course, some interesting observations. Vitamin D, vitamin B12, if you have lack of these vitamins, you may get some benefit. In the FINGER intervention, we did not recommend any supplements, but vitamin D was recommended. Because I live in Scandinavia, we do not have so much sun, so people need to get some extra vitamin D,

not specifically for dementia, but for other reasons as well. Vitamin B12 deficiency is very common. So of course, if you have a low level of vitamin B12, then you may need something extra.

And there was one interesting study quite recently in the US called COSMOS-Mind. I don't know if Laura Baker talked about that already earlier, but that was testing the multivitamins. It was a secondary analysis. But that study showed that multivitamins could actually give some benefit for persons with mild cognitive impairment, the risk for cognitive decline was a bit slower. Difficult to say how big that benefit is, but my thinking is that the extra vitamins might help some targeted persons, not in general, not the whole population, but if person has lack of vitamins or there is some specific needs. But clearly, more studies are needed.

**BROOKS KENNY:** Absolutely. That's super helpful. Thank you. And I just want to remind everyone that you are welcome to post in the chat if you have questions. And if you're listening on YouTube, you can post your questions there, and we will see them. We actually have one that just came in, asking about fasting and if fasting is a valuable lifestyle.

**DR. MIIA KIVIPELTO:** Yeah. For many of these nutrition-related aspects, like fasting, there are smaller studies showing some benefits for some individuals. And of course, fasting can help if you have some glucose-related things, but no large studies again. So I would say, for nutrition, and also, this comes back to the supplements, I hope we are moving towards personalized precision medicine. Maybe one size does not fit all. Maybe, we need to understand more about the metabolism. How is my metabolism? What type of diet is beneficial for me?

We are just now having a study, ongoing, testing ketogenic diet together with fasting. So a bit more flexible ketogenic diet but having this overnight fasting that the people are fasting at least the 12 hours. We don't know yet how that works, but there are interesting studies out there, which hopefully, can give more solid answers to these questions.

**BROOKS KENNY:** That's fantastic. I just had another one come in about, if somebody has the APOE4 gene, are these lifestyle interventions as important, more important? Will they make an impact? I know there's a lot

of concern around genetics.

**DR. MIIA KIVIPELTO:** Yeah. That's a good question. Luckily, we know, based on the World-Wide FINGER studies, that if you have APOE4, the multidomain lifestyle intervention may be even more beneficial and even more important. We could see that in the FINGER trial first that APOE4 carriers got more benefit. Now, we have been seeing the same results from the Japanese FINGER study with very different genetics, and also from France. And that makes me more confident to say that that may actually be the effect if you have the genetics that does not-- we may be able to modify the risk, and at least in the best case, to postpone the onset of cognitive decline. So that is very, very good news.

**BROOKS KENNY:** Absolutely. Miia, what do you see as being next on the horizon? Here we are in Alzheimer's disease in particular, with multiple therapies now for the earliest stages of disease, more therapies supporting symptomatic-- symptoms, rather, all this attention around lifestyle and prevention. What do you see on the horizon? And what are you most excited about as it relates to prevention and lifestyle?

**DR. MIIA KIVIPELTO:** I think there is so much we can do already today. And I think there is enough evidence to justify immediate action. So I would really like to see more implementation. Normally, it takes 15 years to start to implement the research findings, but when it comes to prevention, I think, we can't wait, because we need to try to manage the dementia epidemic. And we know that if we could just postpone the onset of dementia by five years, the amount of patients would decrease by 50%. So I think, from individual but also from the societal perspective, I hope we can start implementing this and sharing the knowledge what we can do for the better brain health. This is one more implementation and more awareness. And this session today, I think, is very, very much on really the top of that level.

The second thing I would like to see is this precision medicine going deeper, as a more tailoring the interventions to different target populations, and also combination therapies. I think lifestyle should always be the basis. And then we add different medications when needed. So it's not lifestyle or drugs, it's the combination to get the best benefit.

And again, testing different types of medications. We are now combining FINGER with diabetes medication, metformin. We are hoping to start a trial with semaglutide, this new diabetes medication. And why not combining multidomain lifestyle and anti-amyloid treatments? Because then, you may actually reduce the side effects and get even more benefits. So it's, again, the precision medicine, adding the therapies when needed. The right person should get the right treatment at the right time.

**BROOKS KENNY:** Absolutely. That's fantastic. Well, I am so sad to say that we are close to our end. And I'm going to ask our team to pull up some of our resources that we want to share now. I just want to say, thank you so much for not just being a trailblazer in this field and making it possible for us to learn so much, but for sharing with us today some of the themes that I heard, most importantly is there's so much hope and there's so much data. It's never too late. It's never too early. If we think about lifestyle, 45% of cases can actually be prevented. If we think about exercise, diet, sleep, reducing risks, hearing loss, vision loss, training our brains, being socially active, all of these things, we can have these things be small steps that we take to reduce our stress and to bring more healthy behaviors into our lives. So I really want to thank you so much.

The other key message I heard over and over from you, which I want everyone to take home with them, is that it should really be designed for you. So when you think about prevention for yourself, for your loved one, thinking about ways that you can make changes that are achievable, that feel good, and that are relevant to you specifically, which I think is such an important takeaway. So thank you.

I also want to just invite our audience to check out our resources. Everything is free. Publications around Alzheimer's disease, which you are more than welcome to access. We have a wealth of resources online. We will answer your questions. If you don't see something, you are welcome to call us or send us an email at [info@brightfocus.org](mailto:info@brightfocus.org). You can always go back and listen to episodes of Zoom In at [brightfocus.org/zoomin](https://brightfocus.org/zoomin).

We will be sending out a recording and transcript of this episode to all of you, by email, usually in about a week or so. And we'll include links to the resources we discussed today. In particular, we'll make sure we link to the

information about FINGER and the World-Wide FINGERS network. We'll have things in there about The Lancet Commission. And we'll be sure to link to our brain health section on the BrightFocus website.

If you do have ideas for future episodes, please share them with us. I mean, as I said, there were 900 people registered. I don't know how many people end up on YouTube. So we had hundreds here today, and I'm assuming, hundreds more on YouTube. But we want to hear from you. You all are the people that we get up to serve every day, and that's why we're here. So if you have topics that are important to you, and your family, and your community, please write to us, and we will incorporate them and bring you the experts as often as we can.

In February, we will have two episodes, starting with Zoom In Clinical Research. That one is on February 6 at 1:00 PM Eastern. And then our second and regular Zoom In episode will be on February 20. So please mark your calendars. And we will be back in touch with all of you. And we'll have the topics to share, but we will certainly want you to have those dates in mind. As a reminder, we do have them every month, with the exception of August and December. And then we've added clinical research, so we can give you all behind the scenes look at what a clinical research study looks like, and how you can get involved, and how you can participate in your own community.

In closing, Dr. Kivipelto, I just want to thank you again on behalf of BrightFocus Foundation and our entire community, not only for your amazing work but for your generosity in sharing it with us today.

**DR. MIIA KIVIPELTO:** Thank you. My pleasure. It's teamwork.

**BROOKS KENNY:** It is. We're all in it together. And we need everybody. So with that, I'll just say, wherever you are, I hope you are staying warm in these winter months. Our hearts do go out to our community in California during these horrendous fires. So we weren't able to say that upfront and just wanted to make sure we commented that here now. And we're thinking of our community there.

Thanks for being with us today. And thanks for being part of BrightFocus

Foundation. Take care.

**Resources:**

- FINGER Study
  - Healthy balanced diet
  - Exercise
  - Cognitive training
  - Social activities
  - Managing vascular and metabolic risk factors
- [World-Wide FINGERS network](#)
- [The Lancet "Pivotal points in the science of dementia risk reduction"](#)
- [World Health Organization "Adopting a healthy lifestyle helps reduce the risk of dementia"](#)
- [Eating for Brain Health](#)
- [COSMOS-Mind Study](#)