Expert Panel
Staying Sharp: Ask the Experts About Keeping Your Brain Young
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Tape EP
THE DANA ALLIANCE FOR BRAIN INITIATIVES

DF: Good morning. Did you all get a chance to get a copy of Dr. Small's book? Hello? Okay. You all still aren't talking to me. (Laughs). I hope you did. I hope that you enjoyed his session earlier today. Did you? Give him a round of applause in abstentia.

(Applause).

DF: Now, what we're going to have the privilege of doing is having an extended conversation on some of the major points he brought up. And we have experts in our own community who know about these issues, deal with them every day, deal with people on a one-on-one basis, and not just an academic basis. And so, I hope that you will enjoy the conversation that we're about to have. We're going to talk and give some presentations for a few minutes, and then we're going to have about 45 minutes for you to do a Q&A. And once again, our students from the Neuroscience

Department at Wake Forest University Baptist Health will be running with the microphones, and making sure that you have an opportunity to talk to our panelists.

To my right is Janine Jennings. She is a Ph.D. Please welcome her.

(Applause)

DF: Next to her is Dr. Paul Laurienti, an MD and Ph.D. He's going to talk about brain imaging and brain activity.

(Applause)

DF: Dr. Kaycee Sink is to his right. She is a clinician, an MD and an MAS, and she's going to be able to talk about caregiver and caregiver health. Remember we talked about that earlier? So this is going to be the person you'll be able to address some of those questions to. Please give her a round of applause.

(Applause)

DF: And Ski Chilton is a Ph.D. He's going to talk about nutritional advances. And boy, don't we all need to do that, right? Please applaud him.

(Applause)

DF: I'm going to give you a couple of lines about each of them, and then they will introduce themselves on a more elaborate basis and talk about some things that they're prepared to discuss. Dr. Janine Jennings is an associate professor in the Department of Psychology at Wake Forest University. Her work focuses on exploring the impact of various factors on memory and attention, including age-related changes, ego depletion, nicotine and meditation. You're on.

JJ: Oh, I start now.

DF: Yes.

JJ: So I guess just to further introduce myself, I am a professor in the Reynolda(?) campus, so I divide my time between teaching and research. And, as Denise already pointed out, my research looks at different factors that affect cognition, largely aging. But that also spills over into looking at ways to improve cognitive function, focusing on techniques for cognitive training, enhancing mental function. And so, that's a little more of what you can ask me about, as well as looking at what factors change with age, in terms of cognition, and which remain the same. And I think that's nice to focus on as well. Not all aspects

of our memory, for example, change as we get older. So it's nice to know what stays and what changes.

DF: I think one question that I'm going to ask all of our panelists as they introduce themselves is, what is the biggest misconception in their specific field? Because we all think there are certain issues or certain tasks, certain things that we can do to improve the aging process, and I'm not sure they're all right. So I'm going to start with you. I know I'm putting you on the spot, and I'm so sorry.

JJ: That's okay.

DF: What's the biggest misconception?

JJ: The first misconception that jumps to mind … and this may be more negative than positive, or it might be slightly comforting, depending on your perspective … is at what age some aspects of our cognitive function do begin to decline. And the truth of that is, some aspects of cognitive function begin to decline as early as our late 20s. And …

DF: Ooh. That's not good. Hello?

JJ: I know. It's not positive. But, on the other hand, it's good to know, I think, at least to me, that this is a

continual, gradual process. And what happens is, I think at some extent, when we reach a certain age, we begin to overemphasize or over-focus on those changes. So I personally find it a little bit comforting to know that I'm already on the downhill. (Laughs).

DF: So, when your grandchild says to you, "You mean, you don't remember where you put your keys?" you can say to your late 20-year-old grandchild, "Well, where'd you put your … " … fill-in-the-blank?

JJ: I'd probably say I never remembered where I put my keys, so.

DF: (Laughs). Our next guest is Paul Laurienti. He's an MD and Ph.D., as I indicated. He's the director of the Laboratory for Complex Brain Networks at the Wake Forest University School of Medicine. His research focuses on a systems approach to studying the brain. The use of network science to evaluate whole brain networks promises to shed light on the complex interactions between brain regions, rather than focusing on the individual brain area. What does that mean?

PL: I feel like I'm a Merv Griffin.

DF: I know. (Laughs). You are old.

PL: Merv Griffin. We have four chairs sitting out here.

DF: What? She doesn't even know who you're talking about. (Laughs).

PL: They all know who Merv Griffin is, huh? So, it's actually going to answer your question before you ask it, the biggest misconception. So, I study the brain and brain activity, we use imaging to image the brain. I recognize faces out here from studies and from Best Health. We tend to think of the brain as, this part of the brain does this, and this part of the brain does this. Dr. Small talked about the hippocampus as important for memory. The back of our brain is where we see.

My view is that that's a huge misconception, because it's at the very low level, that's true. But at the level for the things that you're here to care about, that you really want to know about … cognition, thoughts, even personality, consciousness … those things require the entire brain. The entire brain functions as an integrated system, all the areas talking to each other. And even if one's not on, it's critical for some part of this process.

It's like the telephone. All our houses are connected together. You can pick up your telephone, but unless you're talking to someone on the other end, it doesn't do anything. So these brain areas have to talk to each other, in order for them to work well.

DF: And what makes them not talk to each other?

PL: What makes them not talk to each other? Many things. One of the things that I think some of our guests might have heard of are white matter lesions. People have heard of white matter lesions in our brains. The white matter in our brain is the fiber tracks. Or, like, the telephone lines, connecting the telephones together. Just like the telephone or the electricity in your house, those wires are covered with insulation. And that's what the white matter is.

As we get older, the blood flow to those areas declines a little bit, and you start to lose the insulation wrapping those fibers. And so, the signals don't transmit through there as well. And it literally is electricity. It's electricity passing down these cells.

DF: That's fascinating.

PL: And as the insulation comes off the wires, the electricity doesn't flow as well.

DF: That's fascinating. Dr. Kaycee Sink is the associate professor of geriatrics and director of the … say this for me.

KS: (Inaudible).

DF: Kulynych Memory Assessment Clinic at Wake Forest Baptist Health. Her research interest is in Alzheimer's prevention. Talk to us.

KS: Yeah. So, I'm the director of our Memory Assessment Clinic, so the vast majority of my job is spent assessing people who are concerned about their memory, and trying to help them decide whether the changes they're experiencing that started in your late 20s are normal aging, or if it's beyond normal aging, and you might have something that's progressing towards Alzheimer's Disease, or another dementia. So that's what I do clinically.

I spend time with caregivers. Denise had mentioned I might be the person to ask about caregiver stuff. I spend time with caregivers in the context that they're providing

care for patients who have memory assessment problems, but it's not necessarily my specific area of research focus.

In my research, I look at exercise, high blood pressure, other things that we can do, behaviors that we can change or things that we can treat that might help prevent Alzheimer's Disease and other dementias. Or even medications that you use for one condition that might have an impact on your brain in a positive or negative direction. Things like that.

DF: Okay. All right, very good. Biggest misconception? For you, Dr. Sink.

KS: Sorry. Oh, biggest misconception. The biggest misconception I think a lot of people have is that we can only diagnose Alzheimer's Disease with a brain biopsy. And while that's technically true, you know, we can not be 100 percent certain without a brain biopsy or an autopsy, in experienced clinical hands, we're very good at making a diagnosis of Alzheimer's Disease. And I would say that we can be, you know, 95 percent accurate. Can we get to 100 percent accurate? No. But it's not like we can't make the diagnosis.

DF: You know, I saw a news report recently …

and I don't know if you guys saw this, but they did a study where they actually did the brain autopsy, and by all scientific reasons, they should have displayed symptoms of Alzheimer's, but never did. So, how do you explain that?

KS: Well, the plaques that cause Alzheimer's Disease, the ameloid … there's a sticky protein that builds up in the brain. It's called ameloid. And there's another protein that's implicated as well, called TAL(?). But these sticky ameloid proteins start building up in the brain maybe 15 years before someone has any symptoms. So, you could theoretically get to 80 years old, have a brain autopsy after you died, see these ameloid plaques in there. But you haven't had them for long enough. You haven't had them for 15 years, so you never lived long enough to actually show the symptoms of the dementia.

And that's one of the more exciting areas of development, is that we're able to diagnose disease now, or at least in the next few years we'll be able to way before the symptoms actually start. And that's a double-edged sword. Since we don't have prevention, it may not be the best thing to be able to say "You have Alzheimer's Disease," if we can't prevent the

dementia from starting later.

It's kind of like saying someone who's HIV-positive, and the difference between HIV-positive and having AIDS … you can have the virus and have HIV, but not have AIDS yet. Most people with HIV at some point will progress on to getting AIDS, and that's kind of where we are with Alzheimer's Disease. We're at the point now where we can probably diagnose someone with Alzheimer's Disease way before they have symptoms. May not be a good idea.

DF: No, I understand. I love information. I just love the information. Okay. Our final guest is Ski Chilton. What does Ski stand for, by the way? I know your first name is Floyd. I kind of like Ski better.

FC: Yeah. I started out in a house without a bathroom, and there were three Floyd Harold(?) Chilton IIIs in the family. We had a doctor someone had heard about and his name was Ski (Inaudible). And he had been a doctor, and they said, "Well, if we name him Ski, he might amount to something." So …

DF: Oh my goodness. (Laughs).

FC: You know, I hopefully …

DF: Well, I think you're doing okay.

FC: It's … maybe. (Laughs).

DF: Dr. Chilton's work focuses on personalized medicine, and especially nutrition and prevention. More specifically, his research focuses on nutrient-gene interactions as it relates to the roles of omega-3, which you heard Dr. Small refer to, and omega-6 fatty acids in regulating inflammation, heart disease, brain function, and disorders.

FC: Well, Denise, I think I'd like to start out with what I believe the biggest misconception is. And I think an example may help me out here. We just published a study that we carried out at a church, in a church setting. It was a wellness study, and we basically put folks, in terms of exercise, in terms of diet, in terms of omega-3s, in terms of fiber … we put them on all the things that the science says are efficacious. So, what does the science say is efficacious?

And I think the biggest misconception is that we are pretty much linked to our genetic destiny, that we're given this genetic destiny and that's where we're going to have to go. And I tell people, in this study, we started out … the first night we

did the study, I had 100 people in the room, and I had them all just sit down on the floor. One of my tests is to just see who can get off the floor by themselves. And I think that maybe we had 17 people get off the floor.

Eight weeks later, we had 65-year-old women doing pushups on a ball. We went from metabolic syndrome rates, which are precursors to heart disease and diabetes, of 62 percent to 38 percent. So, you really are not linked to where you are, and our bodies have a tremendous capacity to repair themselves.

Right now, in the United States, in the last 50 years, we dramatically changed our food supply. We've gone, in this state, from 45 percent overweight and obesity, to right now we're right at 80 percent. A recent study, 72 percent of the calories that we eat would not be recognized by our hunter-gatherer ancestors.

So, we have this huge collision between our genes and our diet. And when we have those types of collisions, we have disease. We have chronic disease. We have arthritis. We have heart disease. We have diabetes. We have atopic dermatitis, psoriasis, Crohn's disease, ulcerative colitis,

Alzheimer's Disease. We have schizophrenia. We have depression. We have epilepsy. We have autism.

And those are evidence, because each of those diseases are doubling in incidence every 10 to 15 years, in spite of the best health care in the history of humanity. We rank number one in health care spending and number 37 in performance. And that's not because we're not good at health care. It's because of what we're doing to ourselves with our diets. Nine out of the top 11 preventable diseases or preventable deaths from diseases are diet-related. So we're simply doing this to ourselves, and we must stop.

I use the term, oftentimes, "life span" and "health span." And life span is, people talk about, we've increased life span. And that's a good thing. But it's not a good thing if your health span stinks. So, you know, for me, I want to live 80 years and then die in my sleep, but I want to be exercising like crazy, going crazy, living like crazy, until I'm 80 years old. That's health span, as opposed to life span. And what's happened is, our life span has increased, but our health span will peak at about 28, or 20, or 25, and then we go down on this dive. And really, the key is

to really increase our health span, our quality of life.

DF: All right. So I guess my question is, with all the information out there now, that's available, in terms of what we're supposed to eat, what we're not supposed to eat, and physical exercise, why are we still making these mistakes?

FC: Well, there's a lot of misinformation out there. I happen to be a CEO of a public company for three years, and it happened to be in the medical food industry. I say there's not a worse industry that I know of than the dietary supplement industry. I mean, if you want misinformation, I mean, the Dietary Supplement and Health Education Act of 1994 said, if you have a garage, you can have a dietary supplement company. And you don't have to prove it's safe. You don't have to prove it efficacious. In fact, the FDA has to prove that it's unsafe.

So, we simply have incredible misinformation. We have everybody and his brother writing diet books … and I promised I wouldn't mention my books, but I guess I'm going to have to mention one. You know, I just wrote a book called "The Gene Smart Diet," and we had 261 references in it. I tell my graduate students, I don't care what you think, because it's too

complex. I want to know what's proven.

So, what are the four or five things that are unequivocally proven to help human health? And we know those things. There's millions of people's worth at clinical trials. We don't need to be looking at the Internet and finding the edges. We know what to do. We're just not doing it.

DF: Well, that's pretty scary. Here's what I'd like to do. I don't know where Lori(?)is, but what I'd like to do is intersperse some questions from the audience with my questions, if that's okay. So if our runners could … if you have a question, I want you to raise your hand, because I don't to relegate your questions to the end of this conversation, because I can feel the energy from the audience. You all want to know stuff. Okay. Go ahead, ma'am.

M: Mr. Chilton, what are those five things?

DF: Wait a minute. I'm sorry. Who's talking?

M: It's at the back.

DF: Okay. Hang on just a second, ma'am. Hang on.

M: Okay, I'm sorry.

DF: Peter?

W: The question was, what are those five things?

M: What are those five things?

FC: Okay. I'll just give you a few of them. As far as weight gain is concerned, if we can get a woman to 25 grams of fiber a day, if we can get a man to 35 grams of fiber a day, we want at least 30 percent of that being soluble. What a half a million people worth of clinical trials unequivocally tells us is, we'll never have to look at calories again, because we're going to lose weight. And we're going to lose weight without being hungry.

The church study that we just did, these people become fiber Nazis. I mean, they wanted to lose weight, and if you want to lose weight without being hungry, fiber is your key. I mean, and the science is so clear on that.

Omega-3s. Right now, there was a recent study, and 50,000 people who …

DF: Tell them what that is, Ski.

FC: Fish oils. A recent study in the Physician Health Study, over 50,000 people said, if you have the highest levels of circulating omega-3s, you reduce your chance of a heart attack by 90 percent. Now, statins do 45 percent. So, 90 percent, if you're in

the highest circule(?).

Study that ABC just called me about with omega-3s, with women in cognitive decline. And in this particular study, those women with the highest circulating levels had much improved performance in cognitive function, as well as brain volume. Dr. Small talked about, bigger is better. Bigger is better with the brain. So, fish oils, fiber, the right type of exercise. What the science now is unequivocally saying is, you can go out and run two hours a day, but if your heart rate's at 30 to 45 percent of maximal, it does no good. So if you really want to lower systemic inflammation, get your heart rate above 65 percent of maximum for 25 to 30 minutes a day, systemic inflammation drops like a rock. So, inflammation, whole body inflammation, drops like a rock.

DF: I think that's four. Was that five or four? I thought that was four.

FC: That's four.

DF: You can't remember the fifth one, right? (Laughter).

FC: Well, actually, you know what? I think the biggest thing that we can do … and I think this is huge … is to

understand what we're eating. I mean, you may go to Starbucks, and if you get that large Frappuccino, that's 550 calories. Now, you have to understand … I ran track in college. I was a pole vaulter. And I hate to run, because they made me run in college. You can put a gun to my head right now and say "Run around this building," and I'm going to say, "Shoot me." So, I hate to run. But I always think of food … if I drink that Frappuccino, I get to run around a track for an hour and a half to work off that Frappuccino. So, everything I do in my mind is a risk to benefit ratio.

DF: Okay. All right. So my quick question is, what age does all this come into play, and how do they … I mean, we've got to give them some news they can use. I mean, when do you start to level off?

FC: Level off …

DF: Really quickly. You've got about 30 seconds to answer this question.

FC: Level off what, Denise?

DF: Meaning … I mean, clearly, I would think that the fiber intake and the caloric intake would vary, depending upon your age and your exercise level. So, where do we give them that

information?

FC: Well, I don't think it really does, because in the Church study that we just did, the average age of our participant was almost 60 years old. So, I mean, you know, these people are large. Obesity, 80 percent of us are overweight or obese. In the next five years, 45 percent of people in the South will be morbidly obese. That was 15 percent 25 years ago. We are killing ourselves. We're absolutely killing ourselves.

DF: Okay.

KS: What I think I would say …

DF: Go ahead, Dr. Sink.

KS: It's never too late to start, is what he basically said. It's never too late to start being healthy, but the earlier you can start, the better, because you want the cumulative benefit for as long as possible. But it's never too late to start.

DF: Paul, do you want to respond to that in any way?

PL: I totally agree. From the brain perspective, you can take someone who doesn't exercise, who's 65, and put them on an exercise program and their brain changes. Dr. Small showed that.

Your brain will improve, even though you're 65. So, if you don't exercise, you should. And it's never too late to start. Ever.

DF: Yeah. Janine?

JJ: I would say the same thing with respect to your cognitive function. So, the research that we do in my lab, we're bringing in individuals who are 65 and up to 85 years old.

(Background Conversation)

JJ: And, we do a short course of training with them. They come in for six hours over a two-week period, and we see gains in their performance, in both the tasks that we're training them on, and we see those generalized to other tasks that we haven't used. And so, that's, again, the message that it's never too late to start.

DF: Okay. Very good. Ma'am.

W: (Inaudible).

(Background Conversation)

W: I'm a speech pathologist, and I work at a retirement community. And I've been reading a lot of stuff about sugars, and that Alzheimer's is sometimes referred to as "diabetes of the brain." Have you heard that? What's the impact on the sugar, and can you do something about it now?

PL(?): They both may have something to say more than I know, but one of the more recent studies has shown that insulin … so, decreased insulin is what causes diabetes. Or, decreased response of your body to insulin causes diabetes. Inhaling insulin into the nose, for patients with Alzheimer's Disease, improves their brain health.

As far as the actual, what sugars might contribute to that … I don't know.

FC: Well, you know, from a nutrition perspective, the devastation that's happened to this country has really come in three major areas. The first was the dramatic increase in high fructose corn syrup, that dramatically increased to over 150 pounds a year of the sugar that we eat. Secondly was the dramatic change to refined oils. Thirdly, the major change was taking fiber and fiber content out of our food. So, those were all major things.

One of the things that angers me so much … and I hate misinformation … is this cute little commercial with healthy people out there, and they're saying, "It's corn sugar. Our body recognizes it the same way as sugar." Well, guess what? It's corn sugar. Sugar is bad. It's really, really bad. So, whether it's corn sugar

or other types of sugar, it's really, really bad. And again, that commercial gives you the idea that corn sugar and another sugar, there's something different. They're right. They're recognized exactly the same way by our bodies. They're both horrific in our current diets.

DF: Okay. Ma'am.

W: Same line. My concern is that the food manufacturers have put too many other ingredients in, that is there for whatever purposes. And I think that has a lot to do with the fact of the increase in weight, children right on up. And, besides the high fructose corn syrup, there's other things in there. What can we do to get rid of that, other than just go with just non-manufactured foods? What is your study on the ingredients?

DF: Who wants to take that?

PL: I'm not a nutritionist, but I want to say something(?).

DF: Okay, go ahead.

PL: And then Ski can give you the true information. Don't buy processed food. Stay out of the processed food aisles, period.

DF: And you define processed foods, other than

deli. I mean, the meat …

PL: If it's in a package, it's probably processed.

DF: I know. But I just want to make sure that everybody knows what we're talking about. Go ahead.

PL: Well, I don't know how many of you have read Michael Polan's book, "In Defense of Food." If you have not, I don't know if Ski likes it. I love it. He says, if there's more than five ingredients, there's something wrong with it. When you were cooking breads when you were growing up, who put more than five ingredients in their bread? Raise your hand.

DF: And there's nobody's hand up.

PL: Okay.

DF: Yeah.

PL: It's not food.

DF: Yeah. It's something else.

PL: Yeah. Ski might …

FC: Well, 81, I'll be … yeah. I mean, I could not agree more. And I guess what I would highly encourage … I mean, there are certain trends, like heirloom fruits and the fruit markets and the fresh markets. I mean, that's really a great thing. And in the

winter, when you can't get those, it's much better.

One of the things that's really happened to fruits and vegetables is that we get them in Chile, we get them all over. And they're green, and they don't naturally ripen. Well, all of those polyphenols that was mentioned by Dr. Smart, all of those anti-oxidants, transrisveratrol, all the things in dark fruits and vegetables only occur when a fruit or vegetable naturally ripens. So, you can't get any of those if you're simply getting them, and that tomato came from Chile.

So, buy fresh, number one. Number two, in the winter, when you can't buy fresh, buy frozen. So, you know, if I'm going to Sam's Club, they've got a set of berries, which is blueberries, blackberries, mulberries, that were frozen at the peak of ripeness. And that sits in my refrigerator every day and goes on my cereal. So, there are ways, but it's very, very difficult in today's world to (Overlap/Inaudible)…

DF: And it's a lot of work.

FC: It is a lot of work.

DF: It's a lot of work, yes.

FC: Absolutely.

DF: Go ahead.

KS(?): But I think another important message … and it's possible that Ski might disagree with me, but hopefully not … I think we're a society that just wants the quick fix, right? I don't really want to eat my fruits and vegetables. I really don't want to eat fish, so I'm just going to take fish oil. Just going to go to Costco and buy the big omega-3 fish oil bottle. I don't really want to eat all my fruits and vegetables, so I'm just going to take the risveritol(?) tablet, or this and that.

And we've shown, in multiple studies, that when we look at populations who eat, say, in the highest quartile of fish per week, they have less likely to get Alzheimer's Disease. But when we put it in a capsule and do a study where we feed people omega-3 fish oil in a pill, it didn't work. Now, that doesn't work to treat Alzheimer's Disease. I'm not sure if it will work to prevent it. But, there's really no way around eating healthy. You can't really extract these nutrients, put them in a pill, and expect it to work the same in your body. So.

DF: Yeah. True.

JJ(?): Just one comment, since this is less research-oriented, more community-oriented, is, there's some fabulous

organizations here in Winston-Salem that allow you to buy local produce, that organize that for you, and in some cases, bring you what's fresh on a weekly basis to your home, or you go to a pick-up center. And so, you're getting things that have just been picked. And so, from what Ski's saying, that should be the best of the local fruits and vegetables and produce that you can be eating.

DF: So, because medication is prescribed so often for everybody now, whether it's fish oil, or as we age, what questions do we need to ask our doctors? "Do I really need this?" "Is there something else I can do?" "How is this going to impact me?" That would be to you, Dr. Laurienti.

PL: That would be her.

DF: You think?

W: (Laughs).

PL: Yeah.

DF: Oh, that's called a punt. I don't know anything about football, but that's what it feels like. Go ahead, Dr. Sink.

KS: Well, I think we probably all take too … I mean, polypharmacy is a big problem. And as you age and you have multiple doctors, this doctor prescribes you something for this, this

doctor prescribes something for this. Your primary care doctor's got you on this many medicines. And before you know it, your medication list is 12 or 15 or 20 things long.

And, as a geriatrician, my job is to look over the medication list and try to scratch out things that are not necessary, things that maybe at this stage in life, we don't need anymore. Things that are counteracting each other. And believe it or not, there's a lot of medicines people are taking, because the two different doctors didn't talk to each other, and you're getting a pill for, you know, your urinary leakage that's counteracting the pill for your memory, and they're crossing each other out, and so …

DF: And then, what about pain medication and sleeping at night?

KS: And, right. You know, the lists get longer and longer as you age, and you may not need all of those, but you know, sometimes we want the pill, because it's easier than exercising or dieting or eating right.

DF: So, if you really are suffering from pain, what's an alternative?

KS: Well, I think the pain medicines are extremely

useful medicines. But they're…

DF: Okay. So sleeping at night might just be exercising so you get tired.

KS: Well, there's a lot of non-drug ways to manage sleep problems. And sleeping pills should probably be one of the last resorts for sleeping problems.

DF: What are some of those non-ways?

KS: Some what?

DF: What are those?

KS: Oh. Well, getting plenty of exercise and sunlight during the day helps you sleep better at night. Not drinking caffeine in the afternoon and evening. That'll keep you up. Being on a sleep schedule, so you don't take naps in the middle of the day, so then you're sleepy when you get to the nighttime. Sticking on a routine. Not doing anything in bed except sleeping and having sex. You shouldn't be reading in bed, or watching TV in bed, because …

DF: I'm sorry. Could you say that again? (Laughter).

KS: The only two things you're allowed to do in the bed are sleep and have sex. No reading. No watching TV. No …

DF: Who wants her as your doctor? (Laughter).

FC(?): She just got very interesting. (Laughter).

KS: So, there's a lot of things we know that help improve sleep hygiene. And, you know, for many people, if you stick to these things … taking a hot bath or a hot shower right before bed raises your body core temperature and helps set the sleep cycle in motion.

There's a lot of things that you can do without drugs, but the main thing is if you make sure that you take your medication list to your doctor, and have them spend time reviewing it, at least once a year. What's on here that I don't need? Or to your pharmacist. And make sure someone's really looking at it, because it might be that you're on medicines you don't actually need anymore, that maybe you needed five years ago but you don't need now.

DF: Interesting. Okay, so, who do I have? Go ahead.

W: Yes. This question is for Dr. Chilton. Is there any difference in the quality of the fish oil tablets? I've heard that it's better to have it from Norwegian, or the Icelandic. Is the more expensive better? And I'm wondering, what's the best dosage each

day? Should it be 1000 milligrams twice a day? Just a lot of questions about the fish oil that I have.

FC: Sure. And those are wonderful, wonderful questions. And I do want to speak to fish oil, and I don't want to disagree with my esteemed colleague, because I'm going to agree with her on most supplements. Most supplements can not replace things, and antioxidants and things, and so much that the dietary supplement industry.

But, as far as cardiovascular disease and cardiovascular health, the fish oil capsules can be very, very effective. So, I want to emphasize, now, we know less about cognitive function and things, but fish oil and fish oil capsules is the one exception. Because, once again, we have over a million people worth of clinical trials.

There was a recent … and I'm going to use a big word. It's called meta-analysis. And meta just means they looked at a bunch of studies, and in this particular case, they looked at 29 studies, with over 390,000 people in them, with fish oil capsules. And so their effectiveness, as opposed to all those other things, are very, very good for cardiovascular disease, for anti-inflammatory. And I

would agree that the jury is out on cognitive function, although there is an explosion of data around cognitive function and omega-3s right now.

But to your specific question, there was a recent study that looked at 18 different fish oils. Now, there was good news and bad news. Let me start with the bad news. The bad news was that most fish oil capsules in the marketplace are about 60 to 80 percent of what they say they are. The good news is, most fish oil capsules are 60 to 80 percent of what they say they are. (Laughter). So, the active ingredients are in the fish oil capsules.

Now, the two things that are important: Most people can not convert alpha linolinic acid(?), or flaxseed oil, to the beneficial. So that's a misnomer. So, you can't take flaxseed oil and it's the same thing as fish oil. And especially if you're a Caucasian, because my lab studies the genetic variants that allow us to do that. So you can't do that. So if you're going to get the benefits of fish oil, you must take fish oil.

Okay. So, as far as dosage concerns, there's two ingredients in that fish oil. One is called EPA and the other is called DHA. And it's for ecose pentanoic acid(?) and docosa

hexanoic(?). You don't have to remember that, but EPA, DHA. Now, what you do is, you look on the back of your capsules, and it's going to tell you how much of those two per serving. Now, you need to be higher than 500 milligrams of those per day.

Now, I'm going to tell you, I take about 1200 milligrams of those per day. And most people who are working towards prevention of things, when they look at EPA and DHA, that's right in the range where you get maximal effectiveness. Now, the American Heart Association says that you can go as high as 3000 milligrams for elevated triglycerides of EPA plus DHA a day.

Do not look at the front of the bottle. When it says 1000 milligrams or 1200 milligrams on the front, that means nothing. That means it just filled itself with a lot of other oils. So you have to look at the back of the bottle. You have to look at the EPA and DHA per serving, and you're trying to get higher than 500 milligrams. But, as I say, I take about 1200 milligrams of EPA plus DHA (Inaudible).

DF: Fish oil is also good for eye health, too, right?

FC: Absolutely.

DF: Yeah. All right. Got you.

W: Good morning. Not meeting (Inaudible).

DF: Can you stand up, whoever that is talking? I can't see a person. Thank you.

W: Nutrition-wise, can you possibly eat enough to get your 25 to 35 grams of fiber and B vitamins (Inaudible)?

DF: And not be bloated?

FC: I don't want to dominate. I mean …

W: No, answer it.

W: Go for it. Yeah.

FC: I'm sorry. I …

DF: Well, just keep it to 30 seconds. I'm trying to time you, Ski. Come on, now.

FC: Denise, that's …

DF: Work on it.

FC: Complicated questions require complicated answers. (Laughter). I mean, when people are asking the amounts, I'm sitting here going, yeah.

The answer is, with fiber, it can easily be done, because the food industry's done a fantastic job of adding fiber to food. Unfortunately, most of that fiber is insoluble, and it comes in

cereals. And I say “unfortunately” because we do need insoluble. It’s much more difficult to get the soluble, which actually comes from the foods.

But the food industry, if I eat … you know, like this morning, if I go and I eat my Kashi cereal, I just got 12 grams of fiber. If I put my fruit on that, then all of a sudden, I have three more grams of fiber. So I’m 15 grams of fiber without turning around. So, yes, you can supplement with some of the fiber supplements, but in the case of fiber, you should be able, with whole grain breads, with cereals, with the right fruits and vegetables, you should easily be able to get to those dosages per day, and it’s beautiful foods.

DF: Okay. All right. Now, I want to ask you, Paul, about the brain. Does it have what the equivalent of what I call muscle memory? Meaning that, if you learn something early in life, just like if you’ve exercised, your muscles come back faster on your body?

PL: Mm-hm.

DF: Does the brain do the same thing?

PL: Yes. And Janine might be able to answer this as well. But our brains, as we do some tasks over and over and over and over again, it becomes automatic. And so it’s just like, when

everyone here was learning to drive, it's very complicated to shift and hit the brake and everything. But, by the time you actually learn, now you're driving down the road talking on your cell phone and texting someone all at the same time. So, there is a memory in the brain like a muscle memory. Definitely.

DF: Yeah. And the reason I ask that is because, for example, I know that … for example, I played piano from five to 17 years old. I can sit down and play the piano now, but I don't necessarily know what notes I'm playing. But it's back here somewhere. It just comes back.

PL: It's everywhere.

DF: It's just weird.

PL: It's everywhere in there.

DF: Really?

PL: That's …

DF: That's that telephone game you were talking about earlier.

PL: That's the telephone game.

DF: Janine?

JJ: Things like that, we refer to as procedural

memory or automatic memory. And when I spoke earlier about, one of the things I study is looking at which aspects of memory don't change with age, those are the forms of memory that don't change. Those procedures we've learned … you know, we say you never forget how to ride a bike. So, that sort of procedural memory, that automatized behavior, that stays with you. That ability to draw on familiarity and habit. That's why we all sort of fall back on routines. The medications we take, we try to take them at the same time each day. Because then we can use this automatic form of memory.

And that form of memory stays with us throughout life intact, and even when one develops dementia or Alzheimer's Disease, it's much later in the stages of that disease that the automatic form of memory declines.

DF: I know that you all received a package during the break, or when you came in, and it had a lot of material in it. And one of the booklets included a puzzle. So, somebody addressed the value of puzzles in proving brain functionality.

JJ: That's probably me.

DF: That'd be (Inaudible)?

JJ: That's probably me. Puzzles. Anything that …

you know, just like physical activity, the benefits of mental activity are important. Exercising the brain. And, the advantage of puzzles are that, what really is beneficial for your brain is novelty. And so, the more novelty you can seek out, the better that is for creating new connections in the brain. And, that's one of the advantages of puzzles, because you're having to think. You're having to be very fluid in your thinking. And that's something worth exercising.

But, you want to also engage in a variety of different mental activities. And so, some of the most recent evidence that's come out suggests, it's not just the intensity, but the variety. So you know, crossword puzzles, great. But you don't want to only do crossword puzzles. And if you can possibly work into your life the ability to engage in new hobbies, or learn new things, or perhaps start to learn a new musical instrument … the more you can engage in that novelty, the better that will be for your mental, cognitive health. And your brain health.

DF: So, does this mean we should never retire? We should work forever? I'm just asking. (Laughs).

PL: Well, I plan to retire some day, and then I'll find a new job. That would be my goal.

DF: (Laughs). But really. I mean, the stimulation of just working to work every day …

PL: Staying … yes.

DF: … and interacting with people, and having a social life. I mean, how much value does that have on brain cognition?

PL: Huge. Huge. I was telling Janine before this session that I was going to say something, so I will. I have no idea why you all came to listen to us. You don't need anyone up here on the panel … and I'll speak for them. There's four things. And I'll do it in less than 30 seconds. Because they all know it. Their mom told them. They told their kids, and their kids told their grandkids. You eat healthy. You eat your vegetables. You do your homework. You go outside and play, and you have friends. That's all you need. I'm serious. And it's serious. I'm not kidding.

DF: So, what are you saying?

PL: So, you don't need me.

DF: We just wasted the last three hours? What are you talking about? (Laughter).

PL: No, but I think people just want to hear the

reinforcement that you don't need me. That's what you need to have a healthy brain and body. They're not separate. Your brain is not over here and your body's over here. Exercise helps your brain, brain training helps your body, and vice-versa. They're interconnected.

DF: Name those four again. Name the four again.

PL: Eat your vegetables. Do your homework. Go outside and play, and have friends.

DF: There you go.

FC: That's great.

(Laughter, Applause).

DF: There you go.

W: There you go. (Laughs).

(Background Conversation)

W: My question is in reference to the vitamins. You know, synthetic vitamins are (Inaudible), and they are vitamins that are biodegradable in our bodies. How are we able to determine, what's a biodegradable vitamin and a synthetic vitamin? Based on what I understand now, synthetic vitamins really can destroy your body. They lay in there. They stay in there. They don't do anything. They just go in, and basically don't come out. And a biodegradable vitamin,

you know, does what it needs to do and then it's done. How, as a consumer, are we able to determine, what's a biodegradable vitamin and what's a synthetic vitamin?

FC: You know, I'm not an expert on this topic, but what I will say, about 10 years ago, there were a group of studies that came out of several places, including John's Hopkins, which actually … and again, I'm going to use the word again, a meta-analysis … bunches of studies coming together on vitamins themselves. And they left the field of science really quite confused because, in some cases, they actually increased all cause mortality and increased mortality.

I want to go back to Paul's statement, and Kaycee as well, is, the point is, if you're going to that Fresh Market, you're eating those vegetables, those fruits and vegetables … the evidence is, if you're eating well, except in special cases, you're not going to need those vitamins.

And so, there may be instances where you do need a supplement. For example, if you can't eat three to four servings of oily fish a week … salmon, mackerel, trout … then you're probably going to need a fish oil supplement. But, in most cases, we just don't have the scientific evidence. And in fact, some of the

scientific evidence is saying, you'd better be really, really careful of what you supplement your body with. Because it may actually not only not be helping you, but it may actually be hurting you.

DF: Okay. All right. Over here.

W: All right. My question goes along with what you were saying. Be careful with what you supplement. Okay, you mentioned salmon. Well, I've read that it's really best to buy the wild salmon. If we buy the Atlantic salmon, that's farmed. It's not as good.

In addition to that, what about the hand lotions that we put on our body? Or what about the pesticides or the fertilizers, if we don't buy it organic?

DF: All right. Ski doesn't want to dominate, so he's going to … okay, Ski, you're on. (Laughs).

FC: Okay. I'm sorry. And I really didn't … and I said I wouldn't mention one of my books, but in 2005, published a book called "Inflammation Nation." And we used the USDA's data on salmon, and we unfortunately got it wrong, because the USDA got it wrong.

And what I say with that is, farmed Atlantic salmon versus wild sockeye or kohoe(?), the USDA had suggested

that the farmed Atlantic contained high amounts of omega-6, which were inflammatory, as compared with the anti-inflammatory omega-3s. They were wrong. And we went about and looked in 30 different species around the world, and actually did our own study. Now, if you want a fish that is really devastating and really incredibly unhealthy, two of them are tilapia …

PL: Tilapia.

FC: … and catfish. And that was on the front page of the New York Times, so I got in a lot of trouble with the National Fisheries Institute for saying that. (Laughter). I got …

DF: Good for you.

FC: But, let me say this. Farmed Atlantic salmon is a great source of omega-3s. Now, it's not as good as kohoe or sockeye, but it's still a wonderful fish to eat, and I'm willing to say I was wrong in my 2005 book, because I based the data off the USDA's data, and it was not until we actually looked ourselves and published our own publication that we understood what was correct there. So, there's certain fish, farmed salmon being one of them, that it's a great fish. So please eat it. I mean, not everyone can afford sockeye salmon at $16 a pound. So, you can eat that.

Now, as opposed to tilapia, where our study, and where we really got in trouble, showed that that particular fish contains much higher levels of the inflammatory omega-6 than the anti-inflammatory omega-3. And yet, people, in particular poor people, are being told to eat fish. And then they're going out, and the fish that's economically available to them at three to four dollars a pound is tilapia. And that was what I really got upset about, because that was a situation where people were eating fish that were not good for them, and they were thinking they were benefiting themselves.

DF: Okay. All right. Only problem is, if you're from someplace that's landlocked like me, Kansas, salmon doesn't swim in Kansas. (Laughter). It's catfish and trout. (Laughs). I'm just saying. I'm just saying.

FC: Well, you know, and trout is higher, actually, than farmed salmon. So trout has extraordinarily high levels of omega-3.

DF: So trout is cool. All right.

FC: Catfish, no, no, no, no.

DF: Oh, gosh. I love catfish.

FC: (Overlap/Inaudible).

DF: Okay. Ma'am?

W: Especially if you deep-fry it.

FC: Absolutely.

DF: Oh, please. With some hush puppies.

FC: Well, if you deep-fry any of it … (Laughter).

DF: Right here.

W: I have a lifelong anaphylactic reaction to fish, any kind of fish. I guess my basic question … and I believe that it may have been caused by being fed or being treated with fish oil when I was a baby and child. What can I do to get an adequate omega-3?

FC: Right now, one of the fastest-growing biotechnology industries is microalgae omega-3s. And it's coming very, very soon. I work extensively with Nordic Naturals, and every major omega-3 company around is looking at algae.

There's also, Monsanto is coming out with a soybean oil that is highly enriched in an omega-3 fatty acid called steradonic(?) acid, which we humans convert to fish oil. And that'll be available in 2014.

W: (Inaudible).

DF: Ski, you might want to talk to her after the

session.

FC: Yeah, that …

DF: Talk to her and give her a little bit more information? Would that be okay?

FC: I think that would be good, yeah. I'll be glad to be here after the session. I will say this. I mean, in your situation, I would say take flaxseed oil, if you happen to be one of those genetic converters. But we'll talk afterwards, and I promise I'll talk with you.

DF: Okay. All right. So, couple of questions. What about stress? How does that impact the brain cognition?

JJ(?): It has a negative impact, which I'm sure we're not surprised to hear. Dr. Small had mentioned that. Paul can probably speak to this even better than I can, but one of the things that happens with long-term stress, over very long periods of time, is your body creates cortisol(?). And that can damage the part of the brain known as the hippocampus, which is one of … although, sorry, Paul…

PL: Go ahead.

JJ(?): I'm going to say it's a critical area, and then Paul's going to say everything's connected. But, it is a critical area that is well-connected to other areas. And it is an area of the brain

that's very vulnerable to Alzheimer's Disease, and it's very vulnerable to stress. And so, cortisol can have a deleterious effect over time, so that's a problem. So then you want to find ways to obviously manage that stress.

The other way stress can impact your cognition is, you're only going to remember information as well as you were able to encode it. Which means, as well as you were able to pay attention to it at the time it was being presented to you. And, stress can disrupt your ability to pay attention, focus your attention, and inhibit distracters. So, sort of two ways that it can affect you. One at the brain level, one at the more cognitive level.

PL: I totally agree with what she said. As a matter of fact, one of the ways to decrease stress is exercise. Which we've talked a lot about. But if you take older adults and give them an exercise plan, and you look at their brain and find out which part of the brain was most positively responding, it's the hippocampus. If you …

DF: The what?

PL: The hippocampus. The part of the brain she was talking about.

DF: Which is where?

PL: That's important for memory. It's basically right there. Dr. Small's brain, where it turned really red? That's basically where the hippocampus is. And, it increases the size of the hippocampus, and it increases the blood flow to the hippocampus.

And, while I agree with Ski that vigorous exercise is important, this was with walking. And I think Kaycee might have something to say about walking. Just walking.

DF: Wow.

PL: You don't have to be on a treadmill …

DF: And you don't have to speed-walk.

PL: … keeping up with the 20-year-old right next to you. It's walking 30 minutes a day.

JJ(?): And I think, just to add to what Paul was saying, if I may, is that, one of the studies that I believe you're referring to is one where people hadn't been active. So these were sedentary older adults, who had embarked on about a four-month walking program twice a week, as well as being encouraged to do more walking in their everyday life, when they weren't coming in to the track.

DF: Did you want to add something to that, Kaycee?

KS: No. I think, you know, vigorous exercise is

good, and probably important in the dose, you know, that you get your heart rate up. But actually, if you're a sedentary older adult, getting your heart rate to greater than 65 percent of your max is not hard.

And I don't know, some of you may be participants in the LIFE(?) study. Anybody here in the LIFE study? I'm surprised. So, that's just a walking …

W: There's one.

KS: … study, and we have folks walking around a track. And they're just walking, (Laughs), but they do get their heart rate up to 65 percent or higher above their heart rate max. So, you don't have to go out and think that you need to jog or, you know.

But, you know, doing what you can … again, this is the thing. Some is better than none. More is always good, but some is better than none. And if you can work up to 150 minutes a week, that's what's the recommendation, so that's about 30 minutes a day, five days a week. But it doesn't have to be 30 minutes at a time. It could be 10 minutes now and 10 minutes later and 10 minutes this evening. But if you can work up to 150 minutes a week of even walking, you'll be better off.

DF: Is there any kind of physical activity that's better

for the brain than other kinds of physical activity?

KS: Mechanistically? Probably not. As long as you're getting your blood flowing and you're getting your heart rate up and your blood flowing, it probably doesn't matter what it is, whether it's swimming or biking or walking. It probably doesn't matter.

DF: Now, you all have mentioned studies quite a few times today. What's the importance of clinical studies, and who can participate?

M: Go ahead.

JJ(?): Who wants to take that? What's the importance of studies? The …

DF: Clinical studies.

JJ(?): Clinical studies.

DF: Where you're actually participating on a program.

JJ(?): Okay. I don't think of what I do myself as clinical studies, but I think it falls into the category that you're describing. So, participating in research is huge. Having you volunteer in research is huge. That's the only way we learn about these things. We've all talked about that. Everyone on this stage

does research. That's the only way I know what aspects of cognitive function change, which aspects don't. The only way I know which might be malleable, in terms of cognitive interventions, or in terms of walking. So, it's vital. And as for who can participate, (Laughs).

DF: Everybody.

JJ(?): Everybody, yeah.

DF: Everybody.

JJ(?): Some studies might have different constraints on who they include and who they don't include, as a function of what we're looking at. But, there's probably going to be a study somewhere that will fit. You know, you'll find a place to volunteer.

DF: Okay.

PL(?): I agree.

DF: All right. Very good.

PL(?): See your doctor before you join a study.

DF: Yes.

JJ(?): Although, it's a difficult question, given Paul's trying to put us all out of business up here. (Laughter).

DF: Okay, who's next? I'm looking for my students. Back here? Okay.

W: Is this a forum that we could bring up or discuss anything about the artificial sweeteners and their effects on cognition, or is there any thoughts on that?

DF: You can ask anything you want. I just can't guarantee you'll get an answer. So what's your question? (Laughs).

W: Good or bad? Artificial sweeteners. I've heard more bad than good recently.

PL: Artificial is bad. (Laughter).

DF: Yeah. He already told you, eat your vegetables. (Laughs).

FC: You know, I get this question all the time, and in fact, I've had the crap beat out of me by what I've written in my books. And, the point is, quite honestly, we don't know. But, I agree with Paul. Typically, artificial is bad.

But, you know, the other day I was at Tanglewood, and I was exercising, and a guard came up to me and he's almost 400 pounds and he said, "Ski, you know what? I can not get off these soft drinks." And he said, "You know, I'm sitting here," and I said, "Well, how many soft drinks do you drink a day?" And he said, "I drink six." And so, you know, this guy's taking in eight, nine

hundred extra calories a day. He's almost 400 pounds. And he's taking eight, nine hundred extra calories a day in as soft drinks.

There is a risk to benefit. I mean, if I can get him to Diet Coke, you know, I have eliminated those eight to nine hundred calories. Do I want him on Splenda? Do I want him on any of those artificial sweeteners? Probably not. But what's going to kill him quicker, being 400 pounds or those artificial sweeteners, when we don't have data, unequivocal data, that the artificial sweeteners are going to hurt us badly?

So, these are difficult choices. We sense, as Paul does, that artificial is bad. But in the case of artificial sweeteners, we don't have unequivocal data saying that they're bad for us. What we have right now is data that's saying, our bodies, in many cases, recognize them very similar to sugar. But, so it's a very difficult question. But if you've got a person who's 400 pounds, and they're going to die of diabetes and heart disease, and they can't get off of their soft drinks, maybe you use that, in that circumstance.

PL: Yeah. And I'd like to disclose that I drink Diet Coke. (Laughter).

FC: Yeah.

W: That's right. (Laughs). I'm Paul. I'm a Diet Coke addict.

FC: I did not want to bust you this morning, my friend. But …

PL: Yeah. We were talking about it this morning. We have to make our choices in life, right?

FC: Yes.

PL: And so, everything becomes a balance. She asked me, "Why do you drink that? It's horrible." And I said, "I used to drink regular Coke, and I put on a bunch of weight. So I quit drinking it." So, would it be better to drink no Diet Coke? Of course it would.

JJ(?): Just … sorry, did I cut you off?

PL: No, no, no.

JJ(?): Just to add something from the cognitive perspective … and of course, everything about diet is in moderation. As Paul said, it's everything our moms always told us. When we do cognitive studies where we bring someone in the lab, when we bring older adults into the lab, and we give them a beverage that has glucose in it, we see, in a short period of time, within about a half-hour to an hour of ingesting that, that their cognitive function improves. So

there is some sort of feeding effect on the brain.

And what we use as the control substance in these kind of studies is the artificial sweeteners. So, there is a benefit to that. But also, for the reasons that Ski and Paul just pointed out, you don't, you know, want to be taking in a lot of natural sugar.

DF: And don't you just have to pay attention to your body? I know I get a hard headache if I drink diet sodas after three days. I don't do it, because I just will get a hard headache. So I figure, there was something in there that my body wasn't liking, and I just ceased and desisted. So, wouldn't you say that that would be a good thing, just to pay attention?

FC: Yep.

PL: Absolutely.

DF: Yeah. May not impact everybody the same way. Gentleman in the blue shirt.

M: (Inaudible) here, and I'm a recent retiree, recent Medicare. About two months. Looking at changing lifestyle, eating better, so on and so forth. Live by myself. As you can tell, I cook for myself. Looking at AARP. I guess (Inaudible) if you want to buy something. I look at Dr. Oz when I can't sleep, because (Inaudible)

got to go to the drugstore and buy another supplement. (Laughter). I'm looking for a place, a program or something, and I can't seem to find it, that I can have a set … joined a gym, and had a young lady that taught me how to use the machines, and now I've got to have a knee replacement. (Laughter).

DF: That worked out well, didn't it?

M: And I need to have it real quick because my doctor says they may cut these things out, so you need to go ahead and have it done. Because, you know, these things are all going through. I'm making light of it, but to make light of it by saying, where is it that you go look and say, can I take a cooking class to learn how to cook for myself better, because I live by myself? You know, just a program. I'm one of these people that are organized. I just retired, and I was organized before I retired.

Now I'm kind of like, ooh, man, I'm in a different … I go out dancing three times a week. I'm out with a lot of people. I can keep up with all that stuff. I can't seem to ride my bicycle like I used to. And my doctor gives me a piece of paper that says, "Lose weight," and now they're asking me, do I have a weapon in my home when I go to the doctor and I'm agitated.

I mean, it's kind of like, you know, so much stuff has changed since I've retired. And I get Medicare. But I can't find the answers that I want. A plan. You know. A cooking class. These kind of things. Just something that helps me to structure my life from now 'til as long as I'm here.

DF: For a healthy lifestyle. Do you have an answer for that, Kaycee?

KS: I do, sort of. And I wish I had the information that I could hand to you, but we do have a program in the Sticht Center on aging, at Wake Forest Baptist Health, that one of my colleagues has developed for older adults. And they can do a comprehensive health assessment, put you on a diet plan, exercise you, give you a specific prescription of what to eat, how to exercise, exactly what to do. You can get a personal trainer. They will have you come to our Sticht Center and exercise with them on the treadmill or whatever we have.

And so, those services are available, though they're not cheap. There are other programs that they have, like for example, the Silver Sneakers program, that's usually through YMCA. If you have Medicare insurance and you've signed up with a Medicare

HMO, you can get involved in the Silver Sneakers program, which they'll give you a free membership. They'll pay for your membership to the Y, though don't sign up for any Medicare HMO just for that. There's lots of implications to doing that.

But so, if you're interested in something like that, like getting a sort of comprehensive assessment, see me afterwards. I'll try to track down a number for you. But they could put you on a plan, and maybe if they have other resources that they can refer you to in the community.

PL: I would like to add. So, Kaycee won't say this, because she's a geriatrician and not self-promoting. And I mean no offense to any other primary care doctors. We have great doctors that are institution and in the city. But I don't think anyone takes care of older adults better than a geriatrician.

DF: Okay. All right.

PL: They know how to look at you as a whole person. And everyone that ever asks me and my family about an older, they'll ask me, "What should I do?" I tell them, "Get a geriatrician. Because they know how to treat you." That's …

DF: So, let me …

PL: I'm not a geriatrician. She is.

DF: I know. But let me ask a question, and whoever wants to answer it is fine. What's the difference between not being able to remember names, losing your keys, and some form of dementia?

KS(?): I'll start. So, the most common complaint of older adults is forgetting names. But usually, it's like Dr. Small said, it's the tip of your tongue. You're in church, you have a new person with you, and you go to introduce someone and you're like, oh, what was their name? And you're embarrassed, and then you leave that situation and 15 minutes later, the name comes to you. That's probably normal aging.

If you lose your keys but you can retrace your steps. You're like, I came into the house. You know, oh, the phone was ringing, so I went to the phone. I'm going to check by the phone. If you can retrace your steps, that's probably normal.

The difference in abnormal aging, or the earliest signs of Alzheimer's, is that these things get worse and worse and worse. You know, if you're worse, you know, this year than you were last year, and worse last year than you were the year before, that's not

normal. People do decline over time, as we age. If we test an 80-year-old and a 50-year-old and a 30-year-old, the 80-year-olds do worse than the 50-year-olds, and they do worse than the 30-year-olds. But over, say, five years, between 75 and 80, you shouldn't see a big decline. So, if people are seeing a decline, if you're not able to retrace your steps, if the names don't come back, if you're having difficulty or repeating and asking the same question five times you've already asked, that might be, you know, a sign.

DF: You would call that abnormal memory loss?

KS(?): It could be. And it'd be something to be checked out, because not everything … even if it's abnormal doesn't mean it's Alzheimer's Disease. It could be another kind of dementia, and I can kind of talk about those. But it could also be depression. It could be medications that you're on. It could be a thyroid problem. It could be vitamin B-12 deficiency. There's many things that can cause memory loss as you age that aren't Alzheimer's Disease and should be checked out.

DF: So, you mention depression. Is there a way to talk about or link depression and brain cognition?

KS(?): Well, so we believe that depression is probably

a risk factor for dementia. But also that people who are profoundly depressed when they're older can show symptoms of dementia. It could be misleading. And maybe part of it is that you're not concentrating. You don't really care as much. You're not as focused. So if you don't focus on the information that you get, then you're not going to retain it. And that, when we treat depression, sometimes that memory impairment reverses. So it's tricky. Sometimes it can reverse, sometimes it can't. But it's definitely work exploring and making sure that it's not just depression.

DF: And would you define depression for me, so people don't just think because they have a down day they're depressed? How do you define it?

KS(?): So, depression would be, you know, having a sad mood or loss of interest in activities for more than two weeks at a time. There's specific criteria for it, but in general, you know, losing interest in your activities, having a depressed mood, it can affect your bodily functions. So, not being hungry. So, eating too much or eating too little. Not being able to sleep well, or sleeping too much. But loss of pleasure in things is probably one of the biggest symptoms, that just nothing seems fun anymore. That might be a sign.

DF: And over what period of time, did you say again?

KS(?): Well, it needs to be persistent, for more than two weeks. You know, it's not just, I had a bad day today. Something bad happened to me. And there can be short periods. There can just be grief. You know, if you lose a loved one, you can have a grief response, where you have all those symptoms, but they're not necessarily depression.

DF: Okay. All right. Did anybody want to add anything to that? Okay. All right. Sir. Yes. Hi.

(Background Conversation)

M: There's something new that I've spotted, and that is the use of coconut oil as a dementia … I don't know whether it's dementia (Inaudible). For Alzheimer's, they've got a program now for the use of coconut oil. Has anybody heard of this?

KS(?): I definitely have patients coming to me and asking me about coconut oil, and cinnamon, and a whole bunch of other things. (Laughs). As Dr. Chilton was saying earlier, the food supplement industry is just rampant with publishing all kinds of stuff. And, you know, I don't know what random doctor gets on there and

says, “Oh, this works.” And there’s all this advertising.

I haven’t seen any randomized controlled trials, which are our gold standard, where we put half the people on, say, the coconut oil, and half the people on a placebo, that has been peer-reviewed and published, to say that this is beneficial. So, my sense is that it’s probably not. It’s a gimmick. But, you might know something more about it.

FC: Well, I know, for reasons I don’t clearly understand … or understand at all, quite frankly … it seems to be the rage right now. So, somebody is doing a very good PR and marketing campaign without any data. And it really is happening right now.

I mean, one of the things … and this gentleman who spoke a second ago, I loved his spirit. He listened to Dr. Oz. And I have to say, I am appalled. I mean, I want to choke these people. Because, people who take advantage of people’s hopes and fears … and I’m not saying Dr. Oz does it all the time, but I remember something at Christmas where he said “Lose eight pounds a week.” And, you know, to lose a pound and a half a week, you have to take 700 calories a day out of your diet. So, to lose a pound and a half a day, 700 calories. So, it’s impossible …

DF: That's a lot.

FC: It's impossible to lose eight pounds a week, if you eat nothing. So, you know, unfortunately, the American public is fed this over and over and over again, with people like Dr. Oz and these books. And it just … quite frankly, it makes you want to choke them. It really is quite upsetting.

DF: Well, as we take more questions, I want to prepare the panelists that I will be asking you guys for a closing comment on whatever you think needs to be addressed that perhaps has not been asked to you, at the conclusion of our session. Back here.

W: Good morning. I'm going to transition …

(Background Conversation)

W: … to a different topic, and focus on the caregiver. My question is probably more to one of the clinicians, but when you have a patient come in who's diagnosed with either dementia or Alzheimer's Disease, how do you prepare the family for the decline, for the progression of the disease? And also, if they have family at a distance, who may not be day-to-day with them, how do you prepare a family member who may be in a different state, a couple

hours away, who can't be there on a daily basis? So, in summary, how do you prepare the family? Resources, life modification. (Audio drop-out).

DF: All right. Kaycee?

KS: Yeah. That would be me. So, we probably don't do a good enough job, in general, as heath care providers, about preparing people of what the future holds, when we make this diagnosis, particularly for the families. Many times, the person with Alzheimer's Disease doesn't remember what they forgot. And so, it's really about educating the families.

It's very hard if the family is far away, because I can't access the daughter who lives in another state unless she calls me. I can't call her. There's a HIPAA law, right? So it's not like we can just call up anybody we want. (Laughs). The person that's my patient has to authorize me to talk to other people.

But, usually in our clinic, for example, we won't see anyone if they don't bring family with them. For many reasons. But, we try to educate folks. We give them, you know, an overview of what's ahead of them. There are wonderful resources from the Alzheimer's Association at www.alz.org. They have all kinds of

information for caregivers about the disease, about treatments and everything that you would need to know.

There are care managers, elder care managers, who specifically help folks. It's very useful for families who live out of town. So, you have an elderly parent or grandparent, and you're out-of-state, and you want to make sure that they're taken care of well. You can hire a case manager, who will make sure that they get to all their appointments, who, you know, will check in on them, make sure bills are paid. You know, can basically be your eyes and ears, and communicate that back to you. So those kinds of services are available.

But in general, I mean, you need to ask questions. If you don't get the answers from the doctors that you're expecting, like, "Well, what is the prognosis here? What are the next three years going to look like? When is it time to transition from living at home alone to maybe living in an assisted living? When do we need to hire someone to come help Mom or Dad take care of things in the home, or wherever?" You have to ask those questions, so that you'll get the answers you need.

W: Additional comment. I've found that sometimes

family members don't want to accept or acknowledge reality until it's further on, and then there is no choice. How do you maybe counsel or talk to the family to find acceptance that this is going to happen? And how can they find, you know, life yet for their family?

KS(?): So, I think the question's, so how do we counsel people about acceptance? You know, everyone has a different capacity. Some people come already accepting. They already know, in their hearts, what the answer's going to be when they leave the assessment. Some people are not there yet, and get very angry. The family gets angry when you give a diagnosis.

And I am always surprised when that happens to me. I think, you brought them to me. You brought your mom to see me. I have a memory assessment clinic. Your mom's already taking Aricept and gingko and all of these other things, and now you're angry wit me that I just said that she has Alzheimer's Disease. So, I think people are in different places of acceptance, regardless of whether it's a cancer diagnosis or an Alzheimer's diagnosis. You know, people are in different places.

We actually have a counseling program, so we have counselors who can help families work through some of those

acceptance issues, and understanding that Mom or Dad or Grandpa is not just being difficult, that they really don't remember, and try to help navigate this very distressing disease for families, more so even than for patients themselves.

DF: Okay. All right. Okay, next question.

M: Dr. Jennings, you mentioned that puzzles was a good exercise for the brain. I would like to confirm that comment. My wife was diagnosed with Alzheimer's six years ago. She does puzzles four to six hours every single day. She gets up at 7, and I get up about 8:30, and she's already done the daily puzzles. She can do the puzzles extremely well. It has been beneficial, because I can honestly say there's not been a great deal of decline in her memory. She has no immediate memory, short-term memory, I believe you call it. However, she can go back 50 years and recall things that went on. So, I do believe it has been very beneficial to her. She can operate around the house as she always did. However, she does not remember two minutes after she's eaten whether she's had a meal or whether she hasn't.

DF: So, do you want them …

M: She will leave here today, we'll get in the car,

and when I pull out of the parking lot, she won't remember anything that went on in this meeting.

DF: So, do you want someone to address short-term memory loss? Is that your question?

M: I'm sorry?

DF: Do you want someone to address short-term memory loss?

M: If there is anything that we can do. She's on Aricept, has been for six years. And, you know, I have done enormous research. We've been in four different study programs. Three of them have been dropped because the medication just was not effective, and the pharmaceutical company discontinued. And, we're standing here looking for any help we can get. We're fortunate. She has not had the decline that most patients have (Overlap/Inaudible).

DF: I understand.

PL: Well, I think if I understand everything you said, that I say, great work. Keep doing the puzzles. Do more things. Read. What a great way to expand your mind and read. And you know what? If you don't remember it the next day, that's okay. Enjoy

the moment when you're reading.

M: She does (Inaudible).

PL: And I just hope she stays right there for the rest … (Audio Drop-out).

M: (Inaudible).

PL: Here she is.

DF: Is that the patient?

W: I'm saying, it beats housework.

DF: It beats housework. (Laughter).

PL: I like that.

(Applause).

PL: She said it beats housework.

M: (Inaudible) response to that, too. (Laughter).

DF: That's funny. Okay, who's next?

W: If you have someone close by or somebody that might have Alzheimer's, how do you know when they no longer need to live alone? Or, you know, what kinds of things do friends and family need to look out for?

KS(?): Sure. It's always better if someone can stay in their environment for as long as feasibly possible. So, changes in

environment can throw people off, and they can have setbacks. So, staying at home for as long as feasibly possible is important. And that may just mean increasing resources of family, friends, church, you know, folks who can come in.

And so, the things that you would look for are signs of danger. All right, are there kitchen fires? Has the stove been left on? Did the pot catch on fire? Is there wandering? You know, does the person leave and not be able to find their way home again? So, things that you would consider dangerous, where they shouldn't be left at home alone.

Most things are not dangerous. So, if the bills don't get paid, and they're forgetting, or they're paying something twice, and it's all a mess, someone can come in and help pay the bills. You don't need to leave home to have the bills paid. People can bring in food, you know, and go grocery shopping. Then, usually, that's not the last step though, right? So, folks start to bring in food, and then that food doesn't get eaten, because they may not remember to go eat it. So it's better if you can sit with someone at mealtime and eat together.

So, worried about, say, household management

of emergencies. You know, just check in. What would you do if you were injured? Who would you call? You know, so checking in to say, could they handle a household emergency? So, just look for signs of danger. For the most part, folks can stay at home until quite advanced stages of Alzheimer's Disease with even just a little bit of help from family and friends.

DF: So, we have about 10 minutes left in our session before they will wrap up with closing comments. So, if you have any other questions, please try to get them in as quickly as you can. Yes, sir. Yes, ma'am.

W: My question's on the other end of the spectrum, and whether there has been research that looks at… we have a lot more preemies and children that are surviving with profound prematurity and things. And has there been any research that looks at whether there is a greater incidence of dementia, or an earlier onset or anything, in those individuals?

DF: In younger children? Is that what you're asking?

M: I don't know.

W: I have no idea.

W: In preemies. People who were born preemie.

W: Well, for those preemies that have maybe had white matter insults and that kind of thing.

DF: Okay. All right.

KS(?): I don't think we know yet, because we didn't have the capacity to save these preemies, you know, for very long. And so, they haven't lived long enough yet for us to know whether they're going to have an increased risk of dementia when they get to be 60, 70, 80, 90. I do think they are at increased risk of developmental delay and things like that, as children. But we don't know what the implications are going to be 60 years from now. And the people that we have now that are 60, 70, 80, they, if they had been born that premature, wouldn't have survived, because we didn't have the technology to save them back then. So I think it's a concern, but I don't know that we know yet.

DF: Paul, did you want to add to that?

PL: No.

DF: Okay. All right.

W: A doctor had told me that, if you start losing your hearing, that that can lead to dementia. Is that …

KS(?): Nope. Not that I know of.

W: You need to have a (Overlap/Inaudible).

KS(?): I mean, people who have hearing impairment can be misdiagnosed as demented, because they didn't hear, so they don't really understand. They might answer a different question than the one that was asked. I mean, that's why, as a geriatrician, we look at all of this. We look, are the hearing aid batteries dead? Are the ears full of wax and that's why they're not understanding? You know?

But, you might be misremembering that. There's an association between loss of smell and Alzheimer's Disease, but not loss of hearing.

DF: And why is that?

KS(?): I don't know. Do you know? (Laughter).

PL: Why is what?

KS(?): Loss of smell?

PL: Why is the loss of smell?

DF: That's why I like asking the questions.

KS(?): And being associated (Overlap/Inaudible).

DF: I don't have to know the answers.

PL: I don't know that anyone knows why that is.

KS(?): I don't know that we know, but we know that there's an association between loss of smell and Alzheimer's Disease. It may be one of the earliest signs. But there's lots of reasons that people could lose their smell besides Alzheimer's Disease, so.

PL: Yeah.

DF: Yeah, okay. All right. Do we have any … okay.

M: Well, I see that you're recruiting participants for a study to look at the effect of alcohol …

DF: Can you speak up just a little bit, sir?

M: I see that you're recruiting participants to look at the effect of alcohol on the brain. What do you already know about the effect of alcohol on brain health?

PL: Okay. I'll talk about some, and also let Kaycee, because I know she's published in this area as well. I'm not an expert in alcohol. I'm collaborating with someone who does that. But, the vast majority of studies on alcohol consumption and aging, the outcome is, does it prevent or cause dementia? I think in general, the idea is, moderate consumption, especially of red wine … I don't know about the others … can delay dementia onset. And Kaycee can maybe elaborate.

But what we don't know is, in a normal aging brain, what does moderate alcohol consumption do? Because the outcome of all these studies has been dementia or severe memory loss. But, you might have some …

KS: Sure. So, what we know … there are lots of studies in middle-aged folks, and alcohol intake seems to prevent cognitive decline in later years.

We recently, a couple years ago, presented a study at a national meeting on older adults drinking alcohol, and what the effect was on cognition. And it looks like alcohol in moderation … which is no more than two drinks a day for men, and one for women … prevents cognitive decline, and helps preserve memory in older adults, if you are cognitively normal. But if you already have mild cognitive impairment in this study, folks did worse who drank alcohol. Because the brain already was not normal.

But if you start early enough, or if your memory's normal, alcohol seems to be beneficial, and it's probably through the same mechanisms as that it's beneficial for your heart. You know, as Dr. Chilton was talking about, you know, tons of studies, lots of evidence, that alcohol is probably beneficial for your heart. It

decreases your risk of heart attacks, because it increases HDL cholesterol, your good cholesterol. It acts as a mild anti-inflammatory, a mild blood thinner. And so, whatever's good for your heart is probably good for your brain, too, and alcohol is one of those things.

And it doesn't need to be red wine. The first studies were published were in the Bordeaux region of France, and so that's what people were drinking, was red wine. But in our study, in the Gingko Evaluation of Memory study, the GEM study, when we looked at alcohol, it didn't matter what kind. It didn't matter if it was beer, wine or liquor, as long as the quantities were the same. You know, you don't get to drink a tumbler of liquor this big, (Laughs), and call it one glass. But, you know, if the quantities are similar, probably beneficial effects across the board, though there are some other reasons why red wine might be better than some of the others, because of the flavinoids and the other properties that they have that grain alcohols don't have.

PL: Can I also say something about that?

DF: Yes, please.

PL: Elaborate a little bit? One of the things I think, as scientists, we like to think we do, and we wish we could do, and I

don't believe we can do, is control for everything. We want to pinpoint, what is it? And I think all the things we've talked about today all interact in ways that we can not, no matter what anyone publishes, that we can not take apart. And so, I guarantee you, part of the benefits of drinking two drinks a day is because those people are mostly being more social, too. And, you know what? These are probably the same people who have active lifestyles. These aren't chronic alcoholics that sit home and get drunk and fall asleep. They're active people. They drink. They have a social life. It's all of these things intertwined.

FC: And that's so well-put.

DF: That's an interesting point.

FC: Because, you know, when we talk about the Mediterranean diet …

(Background Conversation)

FC: But the Mediterranean diet, I mean, is it the diet? Is it the lifestyle? Well, it's probably both.

PL: Both.

FC: I mean, we're talking … and to the gentleman who asked, "What's the program?" Well, the Mediterranean diet, you

know, the moderate alcohol consumption, the fish, the fresh vegetables, the nuts, the …

DF: Naps.

PL: Naps?

DF: The naps. (Laughs).

FC: Yeah. The social aspects. I mean, you know, that's exactly what Paul is saying, is, there's some magical combination that really dramatically improves our lives, and we as reductionists, as scientists, we must reduce, because that's the only way we can prove. But my studies are fish oil, and I'm trying to eliminate everything else. So, putting it all back together, there's clearly synergies that are very beautiful.

PL: And the fact that you're sitting here puts you in that good category. Because you're doing stuff. You're out of your house. You're more likely to be involved in other things. You're more likely to walk and exercise and eat better.

FC: Yes.

DF: Okay.

M: We've heard a lot of things about diet and exercise and mental exercise. I was wondering if any of you could

speak to, if there are certain types of social interaction which seem to be more beneficial than others. Large group activities, you know, very few close friendships, or large groups, or… any social interactions that seem to be more beneficial.

PL: I think the one Kaycee mentioned a long time ago. Never mind. That'd take a lot of thought.

DF: Oh, I thought that was you. Play outside with your friends.

PL: Oh, that. No, I agree with that. But she was talking about what you're allowed to do in your bedroom.

DF: Oh, that one. (Laughter).

PL: But everyone forgot about it already.

DF: There he goes.

FC: (Laughs). Such a man. (Laughter).

PL: I am not an expert in social interaction, so I wouldn't pretend to say which ones of those is better, but I have been spending a lot of time reading lately about deep interactions versus more superficial. And especially, I have young kids, and the idea of online friendships might be more superficial than real. But I think close personal friends are critical, because those are the things that

will get you going out to do other things that you might not otherwise do. But I think being in a group like this is probably just as great as well.

JJ(?): There are differences in the cognitive intensity, or the amount of mental activity you're engaging in, depending on the social interaction. So, when researchers go through and sort of rate the cognitive intensity, from low, medium, to high. Going to church, for example, and sitting through the service is a social activity at one level, but that's on the low scale. Playing cards with other people, that starts to move it up a notch, in terms of the amount of mental activity.

I don't know that it's necessarily the amount of friends, from a cognitive perspective. The social support perspective is a different question. But yeah, I think the quality of the interaction that you're having with those individuals, and the amount of cognitive activity or mental activity that's involved in that interaction is what's key.

DF: Okay. All right, two more questions, and we'll wrap it up.

W: If we would like to know more about each of, you know, the books that you presently have written, I mean, can …

DF: Let's say, can we save that for when they wrap up, on their closing comments? Is that okay?

W: Right. Okay. But, are they going to … because there's still one name that I've not been able to hear the last name, and it's Dr. Steve. What is your last name?

DF: Ski. Chilton.

FC: Ski, S-K-I, Chilton, C-H-I-L-T-O-N.

DF: Okay.

W: My sister has been diagnosed with mild cognitive disorder, and she said she didn't want to take Aricept because of the side effects. Should I encourage her to take it?

KS(?): No, you shouldn't necessarily encourage her to take it. So, mild cognitive impairment is something between normal aging and dementia. Some people believe that if you have mild cognitive impairment, you're on the train to Alzheimer's Disease, and that we're just catching it very, very early. And that may be true, but it's not entirely true. So, some people with mild cognitive impairment never progress. The average is that about 10 to 15 percent will progress each year, but some never progress, and some actually get better. This is a very hot area of research right now, this mild cognitive

impairment, and how we can understand, well, who's on the train to Alzheimer's and who's not?

The Aricept medication and all of the other medicines, none of them are FDA-approved for mild cognitive impairment. So, we don't actually know that it's going to help her. There was one good, very big study of this, where we gave half the people Aricept and half not, who had mild cognitive impairment. Those who were getting the Aricept at a year and a half were doing better than those who didn't get the Aricept. But by three years, the same number of people in both groups had progressed on. So it's not going to change the ultimate outcome, and if she doesn't want to take it, I wouldn't push her.

Probably the single best thing … and I know we've kind of harped on this today, but I really firmly believe this … and probably the single best thing she could do is exercise. And it's probably as effective if not more effective than the benefit of Aricept.

DF: Wow. Okay. Final question.

W: Do we have your information in our packet as to who each of you are, and if you currently have studies going on for people to inquire about?

PL(?): I don't know. You have the packet. I don't. (Laughter).

W: It's over here on this table?

DF: It's on this table. It's what I'm pointing to.

PL(?): It's on this table over here.

DF: Oh, was she pointing at you? I thought she was pointing to the table. I'm so sorry.

W: No, I was pointing to everyone up there.

M: So, I'll just cover this. So, what we're going to try to do is make a transcript of this meeting. It will probably come from the videotape. And we're going to post this on the Wake Forest Graduate School of Arts and Sciences Web site, and we will try to direct you at this through the Dana Foundation, and you'll be able to Google it.

We also have a Facebook page through the Western North Carolina chapter for the Society for Neuroscience. And we will post a link to the transcript on that page.

DF: All right. Thank you so much. I appreciate that information. Okay, so I have one final question, and I want you guys to wrap it up. Just so we'll end on an up note, what skills improve with

aging? Other than sex, Kaycee. (Laughter). Since you brought it up.

JJ(?): It's going to be the take-home message for the day.

DF: All right, go. Janine.

JJ: So, skills that improve with aging from a cognitive perspective. And maybe this was what I should have led with when I was asked about …

DF: Myths? Yeah.

JJ: … misunderstandings, is, memory consists of multiple different processes or systems. And, so we make a distinction between a semantic system and an episodic system. Semantic system being your general knowledge, your vocabulary, those skills that help you do those crossword puzzles. That does not decline with age.

And when I said things, there's some aspects of cognition that drop off in the late 20s, that is not one of them. That is one that increases up into about 65, and then tends to plateau. Yes, we do have that tip of the tongue phenomena, where we can't always come up with the word we want, but that is a form of memory that continues to improve.

As well as our own individual areas of expertise. So, particularly what you were doing in your job performance, or if you've pursued music, or hobbies of that ilk, languages. Those things can continue to improve or plateau. They don't incline.

I think the things that change, we've already heard about a little bit, from one of the gentlemen's questions. And that is, those aspects of episodic memory. What did I have for dinner last night? Where did I leave my keys? Those are normal, but they can become increasingly frequent.

DF: All right. Paul?

PL: Oh, we all have to come with … she took all the good stuff. (Laughter).

KS: Yeah. She took the easy stuff. (Overlap/Inaudible).

JJ: That's why I took this chair.

PL: I'll tell you one of the things that does improve, and this may sound like a copout, but it's serious. Your interest in aging. And you keep saying, well, yeah, what … but if we, when our children are 15, 18, 21, cared about what their brains are going to be like when they're 81, we'd be much more likely to build lifestyles to

incorporate the habits that we just talked about. They wouldn't be going to McDonald's. They would be eating healthier food and they would be walking there to get there. But it's not until we get older do we start caring about that kind of thing.

DF: Makes sense. Kaycee?

FC: Good luck.

KS: I would say, I'll add judgment. Your judgment probably improves as you age. It's probably worse when you're a teenager, early 20s. And, you know, your decision-making and judgment probably improves as you age.

DF: Ski?

FC: I have no expertise in this, but I'm 54 years old and I'm just so much happier. I mean, you know, the wisdom. I mean, the wisdom, you know, from your early 30s to kind of mid-40s, and the craziness, and the things that you thought were important that weren't important, and the things that are now important that are very important … I really think that coming to grips with who you are and what your purpose is while you're on this planet, and what's really important, just dramatically changes everything.

DF: Yeah. Yeah. That's a good answer. Okay, so

let's wrap it up with a closing statement, beginning with you, Janine.

JJ: I don't know that I have a good closing statement per se, partly because now I want to follow up on something that Ski just said. And that is, there's actual empirical evidence that supports what Ski said, that as we grow older, we become somewhat more positive. And so there's this, what we call a positivity bias in our thinking and also our memories. And so, we tend to remember more of the positive things than the negative, unlike what we remembered in our 20s. And, we also respond to things more positively.

So, we just recently … we're actually still currently collecting data in my lab in a study, where we gave this really awfully difficult, miserable cognitive task to our participants. And, as a byproduct of that, we've been rating mood and affect afterwards. And our older adults respond much more positively. They leave the study much happier than our younger adults, who are just very grouchy, (Laughs), as my student says. So, I don't know if that's a good closing statement, but apparently we are genuinely more positive.

DF: That sounds good to me. Paul.

PL: My closing statement would be, so, unrelated sort of to what we talked about, but related to this symposium, is,

science is responsible to you all, and I think we in general don't do a great job of coming to you and telling you what we do. You pay for what I do. And, we should be here presenting to you much more often, in words that you can understand. Not throwing away fancy science words to sound like we're much more important. We owe you the explanation and the understanding of the work that you pay for, and so I applaud Dana for doing this, because it's our job to do it, and we so often hide behind, the public can't understand. And that's not true. And anyone who says that is probably not doing research that has any significance whatsoever. That's my view.

(Laughter; Applause).

PL: And you can follow me on Twitter, @laurienti, or you can Google me, and you'll find my lab, LCBN. You can find my lab with Google.

DF: Okay. Anybody have any books? Because that was one of the questions that she wanted answered. I know Ski does.

PL: Not yet.

DF: Okay. All right. Kaycee?

KS: Oh, closing statements. I think I don't have anything as profound to say as Dr. Laurienti, but it is true, all your tax

dollars are paying his salary. And mine, too. And probably most of us. (Laughs). In a roundabout way. So, yeah, you do deserve to hear the research that we do, how it impacts your health.

But I would say, so, my closing message would be, cognitive decline in aging, it is not a normal process to become demented or to get Alzheimer's Disease or another form of dementia as you age. That is not part of normal aging. And, if it's happening to you or someone around you, you should get checked out and see what we can do to help you, because senility … which is what we used to call Alzheimer's Disease, and everyone thinks, why is Alzheimer's Disease so common now? Well, it was common before, too. We just didn't call it that. We called it, Grandma got senile. But, getting senile is not a normal part of aging, and you should be able to live happy, active, healthy, cognitively healthy life, well into your 80s, 90s, even 100.

So, stay healthy, do what's good for your heart. Everybody has gotten the American Heart Association message. I think people know what to do for their heart. If you do those heart healthy things, the byproduct is that you're doing brain healthy things, too.

DF: Ski.

FC: You know, I guess I'll kind of finish where I started. I think I started out with the idea that you don't have to live like this. And what I mean by that is, you don't have to accept your limitations. You don't have to accept these genetic diseases.

I'm going to share something very personal, just because I currently … my dad had a very aggressive form of prostate cancer, and he got it very early on. Well, I got that from him right now, and I'm right in the middle of 45 radiation treatments. That's why I had to go to the bathroom a second ago. I'm not going to accept that. I'm not going to accept the outcomes of that without fighting.

And so, you really, really are in control of your health. Your body has a tremendous capacity to heal itself. I'm a person of great faith, so I believe there's something else. But your 80 years here, you don't have to accept a fate that's not what you want it to be. There are things that you can do, and there are very important things to do, and we know the things that you can do, that can dramatically help your health and make you happy. And, I just encourage everyone to find that place and do that, because, you know, time is short and we should be happy and fulfilled.

DF: All right. Let's show Ski some love. He just was open to us.

(Applause)

DF: God bless you. God bless you. I just want to remind everyone that this whole session, of course, was sponsored by the Dana Alliance for Brain Initiatives, and we thank them for providing the content, and we thank them for providing our expert. We also thank the MetLife Foundation, again, whose generous support made this program possible.

We want to thank Gary Small, the author of "The Alzheimer's Prevention Program," who you heard first of all this morning. And of course, Floyd, Ski … (Laughs). I love Floyd. … Chilton, Kaycee Sink, Paul Laurienti and Janine Jennings. Please join me in giving them a rousing round of applause.

(Applause)

M: So, there's two others … well, three others I'd like to thank especially. Denise, thank you. You were wonderful, as always.

DF: Thank you. Thank you.

M: A round of applause for Denise.

(Applause)

M: And, these young ladies and gentlemen that have been passing around microphones are some of the hardest-working young men and women …

DF: Absolutely.

M: … that I know.

DF: The neuroscience students.

(Applause)

M: They volunteer, and they come here, and they're part of our tremendous outreach into the community that we do through Wake Forest and through the graduate school, and we just appreciate them. And finally, two other folks. Laura Reynolds(?), who's here from the Dana Alliance for Brain Initiatives.

DF: Yay, Laura.

(Applause)

M: And the MetLife Foundation, who funded all of this, gave you food, paid for this facility, which isn't inexpensive, by the way. And David Riddell(?), who's here with the Western North Carolina chapter for the Society for Neuroscience.

And thank you all for the panel. I think all of us

can agree, we hit it right. Because these folks hit it from many different perspectives, and really brought a richness to the program. So, thank you all.

DF: All right. You're very welcome. Good afternoon, everybody. Have a great day.

(Applause)

(Background Conversation)

(END OF TAPE)