Introduction to Womenu2019s Health Span Voices

very important. We live in a very high stress time on an individualized level as well as a culture in general. And we know what happens to the human body and brain when it's constantly in fight or flight.

So that is a really important thing and it doesn't necessarily require a huge amount of time. But the science is really there that that repetitive behavior Again, it could be breath work, could yoga.

It actually triggers neuroplasticity in the brain and allows us to survive longer with a better quality of life. Have you made it past menopause or are you going through it now?

I'm Dr. Pat McShane and on the Women's Health Span Voices podcast, I'll guide you through the menoppausal transition and beyond. Helping you to thrive in this powerful time of your woman.

Hello and welcome to women's health span voices. I'm Dr. Pat McShane. And with me today, I have a wonderful practitioner and researcher and author that is Dr Kenneth Charlin.

He is a practicing neurologist with a practice in Missouri.

Dementia and Alzheimeru2019s Risk in Women

Is that correct? Yeah, and has done a lot of clinical work in the functional medicine side with a of the disorders that are of particular concern to we postmenopausal women.

And we're going to kind of go a little bit at the 30,000 foot level and maybe dive into some of these different conditions. I thought we would start with the incidence of dementia, because that, for me, is such a terrifying situation if it occurs in your family or to oneself.

We all worry about our own memory lapses, I'm sure. And women are known to have higher incidence, of, dementia Alzheimer's in particular. And the question has been, well, is that just because women live longer than men, or are there more fundamental aspects of our physiology, especially postmenopausally, that occur?

So maybe, Dr. Ken, you could jump in here and talk about the burden of neurological diseases, and especially dementia in older, we older women. Absolutely.

Well, thank you very much for having me in the first place. Alzheimer's disease, tragically, is the most common presentation of dementia. A lot of hosts don't necessarily understand the difference between the term dementia and Alzheimer, but dementia is just a broad umbrella of conditions that generally affect people as they age.

It's an aging-associated disease. That being said, I have seen Alzheimer's disease in a woman as young as about 48 or 49 years old, which of course is particularly scary for those of us past 48, but still to think that you could have it that young is kind of frightening, partially very rare.

I've been a neurologist for 30 years and I probably started paying attention to the statistics on Alzheimer's disease about 12 years ago in particular when I opened up my own practice.

And at that time the Alzheimer Association was estimating about 560,000 or so Americans with Alzheimer disease. The numbers, the estimates seemed to go up fairly linearly, fairly smoothly by about 200,00 per year.

So I haven't checked really yesterday or the day before, but the Alzheimer's Association routinely publishes a fairly sizable report that's free as a PDF.

And it begins with the prevalence of Alzheimer. Probably it's up to somewhere around 720 or 740,000 Americans. That's people who actually have an expression of the disease, which would require that they have difficulty with their short-term memory.

And if they're moving from what we call mild cognitive impairment into the earliest stages of Alzheimer's disease, they also have to have impairment in what are called instrumental activities of daily living.

We can talk more about that. And then due to the wonderful advancement in precision medicine and molecular biology, they must also have what we call the neuropathological changes of Alzheimer's disease.

So we should probably spend a little time on that too. But in the end, you're talking about, 200,000 new cases a year, 720,740,00 Americans presently symptomatically affected.

And here's the frightening thing. This is a disease that has an incubation period, probably 10 to 20 years. So now we're talking about, you know, hundreds of thousands and millions of Americans who have the changes of Alzheimer's disease in their brain.

But they don't even know it, right? They're not yet symptomatic. And there's been some very elegant work around that as well. So lots of… And some people are genetically inclined and they know that they are because of their family history.

Estrogen, Menopause, and Brain Health

That's another group of individuals who are strongly at risk. Yes. Talk to us a little bit about estrogen. So we know that Alzheimer's is more prevalent in women, not just that there are more older women than there older men.

And we are now examining the role of estrogen and loss of estrogens in that disease process. Maybe you could talk a bit more about our menopausal transition and what occurs.

A lot of that work, I'm sure there are many fine researchers in this particular arena of looking at the, how women are affected. And to your point earlier, about twice as many women affected by Alzheimer's compared to men.

So the very substantial difference. Lisa Mosconi out of the Cornell Medical Group in New York has kind of led the way. Some of this was done with Richard Isaacson, who's now down in Florida, but she's always been the women's health Alzheimer's person and has her TED Talk, if you want to go look that up.

But anyway, and there's written several books on this subject. You brought up the issue of genetics, and there certainly are a number of genes that play a role in influencing the risk of developing Alzheimer's, but fortunately, most of the genes, while they influence risk, they're not deterministic in the sense that if you have the gene, you will get Alzheimer disease.

But there is one in particular called ApoE4 that is by far the most well-studied and well described genetic risk factor and really plays a direct role in why people get Alzheimer's disease.

And the scary thing is this gene is present in about a third of the population in the United States. Since we get half of our gene from each parent, if we have one copy of this APOE4 gene, by the way, there are three variants, APoE2, which may be slightly protective, ApoE3, the most common variant, about 60% of the population, carries sort of a neutral risk.

It doesn't increase, but doesn' necessarily decrease your risk either. And then, and there are plenty of people who are APOE3 carriers that still get Alzheimer's disease.

But then there's that APoE4. What is particularly interesting, if you carry one copy as someone of Caucasian, European descent, because risk does vary by ethnicity and sort the region, the world you come from, Your risk of developing Alzheimer's is about threefold higher by the time you're 85 years old.

If you happen to have two copies, because each parent contributed one copy, your risk is somewhere between 12 and 15 fold higher. And where this particularly interfaces for women, And just to be clear, if we were operating purely on survival of the fittest, which of course we're not as human beings, because we pick our mates for all kinds of reasons, not just because somebody can pound their chest a little heavier, but at any rate, this variant apolipoporins genetically the oldest variant of the apolypiprotein epsilon gene and you know we should have sort of bred that out of a population if it was such a bad thing but it turns out that the gene maybe in the days of our hunter-gatherer ancestors may have had some protective effect due to the types of threats that existed for human beings at that time, compared to the type of threats to our lives and our, our wellbeing and survival that exists for us today.

And so for women, one of those threats, if you will, is menopause, right? And why is that a threat? These hormones that we broadly define as reproductive hormones, but in fact, they serve many roles through the body, not just for making babies, have anti-inflammatory effects on the brain.

And sort of by contrast, when you don't have sufficient levels of estradiol and progesterone, it puts the buddy into sort a pro- inflammatory state. And this APOE4 gene is sort of the heavy hood on the accelerator that says, I'm here to protect you.

Hormone Therapy and the Womenu2019s Health Initiative

I mean, give you the extra edge against things that could be a threat to you and that inflammatory response, the thing we call chronic inflammation is really a protective.

It's an effect of that human body. But the problem is it's like too much of a good thing. acute inflammation might save your life, chronic low grade inflammation, might just kill you, or certainly build up those plaques and tangles.

And so in that combination of low estrogen being anti-inflammatory, And then ApoE4, that's an unfortunate combination that too often happens every day for women who are told, you don't need hormones.

You're not making babies anymore. And by the way, they cause heart attack, right? So one of the things that we mentioned beforehand was issues in your practice that might come up in our discussion.

And how do you advise people? Let's say I came in and said, I'm 50 years old and my cycles are a little bit irregular. My uncle or my grandfather had Alzheimer's, but I don't think I have genetic risk.

So what would you tell me about hormone replacement therapy? First of all, of course, I think it's important to say that we should be ideally all of us as practitioners in the age of personalized precision medicine.

So what I do have to tell you about hormones, please I want all listeners or viewers to bear in mind that their situation may warrant some different considerations.

But in general, I want to just focus on the bigger picture of what are our lives like as human beings, particularly for women as we get into sort of the latter third, you have 30, 30. I'm going to live till 90 maybe.

What does it look like to go from 60 to 90 years old? Well, in general, that's an easy question to answer, even if you're not a doctor. Human beings tend to get a lot more frail, right?

Their bone mass goes down, their muscle mass, goes, down. Our skin gets thinner. Heart disease risk goes up to the point of this podcast, you know, to mention in, general neurodegenerative disease, risk, and it turns out that these hormones, which if you just go back to the very definition of a hormone, which is this bioactive compound that's secreted by a gland and circulates around in the bloodstream to target tissue that are far distant from where that gland might be located.

Say, as opposed to a neurotransmitter in the brain, where nerve cells are communicating to each other across a synapse that, you know, microns in size just, couldn't even see a Synapse if it were not for an electron.

microscope or something like that. I might be exaggerating, but my point is that these hormones affect every tissue in the body. So how many women are told they have osteoporosis?

How many fall and break that hip, not just because they have osteoporosis, but because, they've lost muscle mass as well, right? And we look at the prevalence of heart disease among men and women.

Men tend to be more affected by heart, disease, within those post-menopausal women quickly catch up because. They don't have the protective effects of the hormones that they had when they were going through, you know, those pre- menopause years.

So it's a very important conversation to have. And unfortunately, as I'm sure in this subject previously on your podcast, you know, that we've had, 20, 25 years of immense disservice to women as a result of something called the Women's Health Initiative.

which left us thinking that hormones were dangerous. And of course, too many doctors don't read journals and keep up with the latest information and much of the women's health initiative that created this sensational response of, you know, Hormones equal danger with really the result of the cover of a time magazine issue So, you know what's even worse than not reading the journals is just look at the time Magazine, but at any rate, I don't know if they publish that anymore I don't either.

And yes, we have talked about the Women's Health Initiative here on a number of our podcasts. So yes. It's been a disaster. There's also a disastrous lack of funding for women's health in general, and that predates the women health initiative and is ongoing, unfortunately.

And how do you change society in general and belief systems and patterns of behavior in the people that we put our confidence and trust in, our doctors?

I've heard statistics like new ideas 10, 15, 20 years to really get established within the culture. Yes, yes. And within medical practice as well. So even now the number of women who are on hormone replacement therapy is quite small compared to what I would perceive to be the numbers who should be.

But we're not going to go down that rabbit hole today. It has grown immensely. I'm glad to see that. Yes. In my town, I mean, not all the HRT is coming from the physicians.

A lot of them are coming form med spas or that sort of thing, for better or for worse. But at least people are finding ways to get on bioidentical hormones and I'm very happy to see that.

So I had a patient today, she was 58 years old. She has a lot of health issues. To be clear, She was into the obesity range on her body mass index, poorly controlled diabetes, a number of other issues going on.

But of course I'm a neurologist. So it was brain fog. It was night sweats. it Was, you know, insomnia, it, was depression.

Lifestyle Strategies to Reduce Dementia Risk

And interestingly, she was already postmenopausal, of course. She had gone through menopause several years earlier and sort of, you know, toughed out those symptoms.

They got better to a degree, at least, but then she had a complete hysterectomy. Her ovaries removed fairly recently, and she said it was like going through Menopase all over again.

And the reality is that whether or not she was actually cycling where, say, her estradiol might go up to 300 or something like that at the peak of her cycle, it's important for women to understand you still make those hormones.

You're just not, there's a little bit, right? Now, I mean, you know, like many other people, we'd probably talk about

hormones we measure, so I get that probably the, the average untreated woman, just put in quotation marks, probably 35, 40, in terms of an estradiol level, maybe, could be less, you know, but it's not zero.

That's the point, right? It's no zero, But I'm sure what happened with this woman, and of course, her labs are pending and all that, she had some kind of level and it went to nothing, so now she's back kind where she started.

So she'll inevitably be back on hormone replacement therapy as soon as I get all her labs back. And, you know, we've already started the conversation, but she will feel like she has her life and her brain back Moving over from the idea of hormone replacement therapy might be the best tool for many, many people.

It's been estimated that more than 50 percent, I'm not sure exactly what number I hear in the literature, but of dementia can be avoided by lifestyle, and that's a big number.

And it's helpful to start Obviously, back in your 30s, 40s and 50s not wait until you're 60 or 70 and some of the symptoms become manifest. But could you talk to us a little bit more about that, the lifestyle modification things?

Yes, and fortunately, there has been a lot of research in this area within the last few years. I think there's an article in The Lancet, which is sort of the British version of The New England Journal of Medicine.

And while conventional medicine is certainly eons behind many functional and regenerative practices that are much more nuanced in the area, nevertheless, it's reassuring.

to see articles along those lines and identifying say the top 10 things that could be addressed to reduce your risk of Alzheimer's disease quite substantially.

And that the funding that's out there for this type of research, which of course does not generate money like drug development could generate, money has to come from governments and private grants and things like that.

So that is happening and we should be very grateful for that The foundational lifestyle factors are sleep, movement, nutrition, what I call the stress, or really more broadly speaking, having what call a stress resilience practice.

That can be a lot of things. We can talk about that. Then, and connection or relationships, possibly the most powerful thing that guides brain health and survival, arguably so based on something called the Superagers Project out of Northwestern University.

If we break that down and go back to sleep, untreated sleep apnea, Probably the number, you know, in terms of what we worry about with disrupted and fragmented sleep, we have this epidemic of, quote, diabetes in our country.

We've got to be screening people for sleep apnea. Folks should know that if you're on two or more blood pressure medicines, that is an automatic indication for a sleep study.

whether or not you snore, whether not your bed partner says, I've seen you wake up gasping for air. If it takes three blood pressure medicines to get your blood down, you need a sleep study, period, right?

And so as common as the diagnosis of sleep apnea is, there are plenty of people who are walking around with sleep Apnea. who are not diagnosed or who say, I probably have it, but I don't want to do that CPAP thing.

I didn't wanna wear that mask. Well, you know, make your choices, I guess, but I always say sleep is much more than a time of rest. And one of the foundational things that happens during sleep, besides generally repairing the human body, is memory consolidation.

So we know that people with untreated sleep apnea who are 60 or older have a tremendously increased risk of developing Alzheimer's disease within a surprisingly short period of time.

I had a sleep expert do a podcast for us recently and, and it was her view that all women in the menopausal age range should have a asleep test regardless of symptoms and that it should be like a bone density and a mammogram and you know, et cetera, a routine study.

So, so your view is shared by, by the sleep experts or in some instances at least. That's good to re reestablish that idea. I absolutely agree with that assessment.

Absolutely agree. And under Medicare, there is some reimbursement in general for cognitive screening assessments for those who are in the third party payer system.

My friend Dale Bredesen coined the term cognoscopy, which I like. The other thing to emphasize here is that the sleep studies of the current era are not going to sleep in the laboratory and the hospital where it takes you two months to get an appointment and it's going take you 2 hours to fall asleep because you're in a foreign environment and you need somebody to take the dog out and all the other things.

The current sleep studies are mostly done in the home unless they have a complex neurological situation where you might want to know much more detail about the sleep patterns.

Am I right in that regard? There are situations where in-hospital sleep study is more appropriate, but many of them can be accomplished at home for a fraction of the cost and certainly much comfort and convenience.

So don't be afraid. get it checked out. If you have sleep apnea and you say, well, I'm just going to commit myself to a aggressive diet and lifestyle program, you might be lucky enough to work through that, not need to be on a continuous positive airway pressure device.

But there are alternatives. So please just, folks, find out if you sleep Apnea. I completely agree. Now, the next we could talk about would be nutrition.

Tremendous amount of research in the area of nutrition, primarily, although not exclusively on so-called Mediterranean diet or its variants, The MIND diet.

These are just site variants of the Mediterranean Diet. But they're the edges of the supermarket, right, where the real food is located and limiting those refined carbohydrates.

There are nuanced strategies that can be explored, but they are not necessarily for everyone. Ketogenic diets have a role, I view them as medical diets, not just a fad.

That being said, there are a lot of folks who will say that they're following a ketogenic diet. They probably are not consistently in ketosis, but on the other hand, by having that mindset of keto, it helps them to avoid the ultra processed foods and the sugary foods and things like that.

So good for them. And they're probably doing better than they would otherwise do. The fasting mimicking diet has been very well studied. It's commercialized as ProLon.

Again, that's another way to strategize and hedge against the risk of dementia. There's a lot of value with And weight loss, the keto diet is helpful for jumpstarting weight-loss for a lot of people, which is many of the people let's say with sleep apnea, overweight or obesity are a big part of that equation.

No doubt, you still have to be careful. There are some issues with high saturated fat diets for the ApoE4 carriers. In particular, my friend Terry Walz had developed a ketogenic diet that uses primarily olive oil as its main source of fat.

You've got to consume a lot of olive to do that, but I hope your gallbladder is okay. But it could be done. It could. So I just caution folks that a ketogenic diet is not about eating tons of cheese and salami and big scoops of coconut oil.

That would not be a good idea. We can move on to certainly movement as medicine. Our bodies are made to move and, you know, there are general recommendations about how many minutes per week of cardiovascular exercise, of resistance training, which is very important as we age.

Most folks are not doing resistance, training much less the cardiovascular, but keeping those bones and muscles strong. And what we emphasize here in neuro fitness, are things like balance, flexibility and mobility, as well as cross-body training and training that engages your brain at the same time as your body is engaged.

You have to actually think about what you're doing, such as say boxing, where you are doing combinations of punches and changing things up and challenging your There is a statistic that says if you are, I think you're above roughly 60 years old and you can't stand on one leg for 10 seconds, your all-cause 10-year mortality is something like 80% higher than the person who can stand one one-leg for ten seconds.

So everybody should be getting up right now by trying to. Except for you and me, we can't get up right now. Yeah, I call activity or movement the secret sauce.

I mean, almost every, every topic that we come up with, that's, a big piece of it. And it's been basically engineered out of our lifestyle and to our detriment, no doubt.

Yeah.

Sleep, Nutrition, and Movement for Brain Health

Kind of the opposite of moving is taking some time every day and just kind of being in the moment. Quiet, still, meditation, mindfulness, breath work, more technical work that could be done along those lines, such as using tools that measure heart rate, variability, coherence, the heart math technology, that kind of thing.

It's very important. We live in a very high stress time on an individualized level as well as a culture in general. And we know what happens to the human body and brain when it's constantly in fight or flight.

So that is a really important thing. It doesn't necessarily require a huge amount of time, but the science is really there that that repetitive behavior Again, it could be breath work, could yoga.

It actually triggers neuroplasticity in the brain and allows us to survive longer with a better quality of life and keep our brains sharp. But interestingly, one of the most powerful things we have that's often ignored is human relationships, is our connection to others.

We are, by our very nature, social beings. There are actually nerve cells in the brain called von Economo neurons. And there's a wonderful ongoing cohort study out of Northwestern University.

There have been many published papers in reference to what are called super-agers. And these are people who are 80 years or older, but whose brains, when we look at biological age, not chronological age are really much more like that of somebody in their late 50s or early 60s.

There are many differences for the superagers compared to the non-superagers, but one of the things that really stands out is that they have more von Economo neurons than a non superager.

You might not be a super-ager from a purely anatomical perspective that aren't the pure to be as kind of an elite club. With that being said, what can we learn from the super agers if we can make an effort to maintain relationship with friends and family and acquaintances and communities or the vector church, your men's club, you know, what have you.

It doesn't really matter. The snare club for that matter, wherever you go to find your people, find them and work with them. But it's actually how you live a longer and more fulfilling life.

Yeah, it's certainly been linked to all-cause mortality or the social connections and loneliness, the opposite of that. People who experience internally feeling of loneliness are more likely to die than people who don't have that feeling.

good to emphasize that from a brain health perspective as well. With WIMP, can look back at our history of our periods, our menstrual cycles, aswell as our pregnancies.

And these can be insight into our risk for brainhealth, and maybe you could give us a few words about that. Well, I mean, there are, yes, so I could potentially do that.

I'm not sure. If I want to make sure that we're thinking along the same lines, but, you know, uh, do often ask women about their menstrual cycles. Are they regular?

Are you having monthly cycles? Have you missed several cycles, you get very heavy bleeding at times, things like that. It might not intuitively seem like the kind of questions you would get from a neurologist, but in fact, there are close links to the brain in those questions.

For me, where my line of thinking is, what I would call the hypothalamic-pituitary-adrenal-sometimes-thyroid-gonadal axis, H-P-A-T-G, right? The hypothalamus and pituitory glands are part of the brain.

These glands are sending signals, whether it's to each other, from hypothalamus to the pituitary gland, but then ultimately the to pitutary glands sends out these releasing hormones, such as follicle stimulating hormone, luteinizing hormone.

Prolactin, which tells your breasts to start producing breast milk, right? Of course. And then, ultimately drives those things we call a menstrual cycle.

You don't have a menstrual cycle just because you have the uterus. You have menstruation cycle because of the brain, right? That's sending the signals to your uterus and to ovaries and your breast tissue and so forth.

insofar as there's this sort of hierarchy that's HbA axis, right? The A is adrenal. The adrenals sit on top of your kidneys or glands. They release primarily cortisol as well as other hormones that regulate sodium and potassium and ultimately fluid balance in your body.

they do make some gonadal hormones like estradiol, but Primarily, those come from the ovaries, right? But the point is, this adrenal gland's main role in the context we're talking about is to release cortisol, the stress hormone, also adrenaline, stress hormones.

Our brains are designed for our survival. There's the old show, of course, Tom Hanks is not Tom Hangs. Tom Cruise has done a wonderful job of reviving Mission Impossible.

I grew up watching the original Mission impossible. Maybe you did too. And in the very beginning of the show they would say, you know, good evening, Mr.

Phelps. It was the tape player that would self-destruct after a minute. He would get his mission should he decide to accept it. Of course he always except a admission, but anyway, you know, that's what our brains are doing for us all the time.

Our brains, yeah, we have thought and we language and, and can see and move our arms and legs all as a result of having a brain. But in the end, the prime directive, mission and possible of the brain is to gauge the data that is coming in from your senses and determine whether you are safe, or whether your life is potentially under threat.

Everything else goes to the wayside. Survival is the number one priority of the brain.

Stress Resilience and Social Connection

And if the Brain thinks, figuratively speaking, that those signals coming in through your senses represent a threat to your Life or Well-being, it will trigger a cascade of responses.

The release of adrenaline, the release cortisol, your blood pressure goes up, you pupils dilate, right? Your energy shifts from your core of digestion to your arms and legs to make you strong and fast.

You'll hear your hearing becomes more acute. Well, those are all acute survival responses that are entirely appropriate and needed and might save your life in a given instance.

But what we're really talking about is when this system is activated and it gets stuck in the on position. And then what happens is the brain says, you know, We as human beings are finite resources.

We're not ageless. we will die, we'll get older. If we're going to ensure survival, that's the number one thing. For example, then making babies is not a priority.

You can't make a baby if you're now alive. And so what happens to too many younger women they already have the disrupted menstrual cycles and so forth because their bodies have been in this cycle of persistent biological stress for so long that these are actually adaptive responses of the body.

So we have certainly that is a major hormone disruptor, if you will, because don't have sex. Don't make babies. Keep running. Run from the saber-toothed tiger.

Save your life, right? So we have to recognize a major, major factor. There are other things, environmental factors, hormone disrupters, metabolic syndrome, diabetes, all of which, you know, obesity, further disrupt the normal cycle of estrogen and progesterone in women and lead to infertility and disrupted menstrual cycles.

So we have a big problem on our hands, but on the other hand, everything that I've touched on is completely correctable and manageable. Just a willingness to recognize what's actually happening here.

Good to hear. We have not gotten into at all other neurodegenerative diseases like Parkinson's disease that are not as much of a women's health issue as Alzheimer's is.

Maybe we can have another session to go through some of those other neural degenerative disease in the future. Is there anything else that you would like our post-menopausal audience to know about from your perspective to help them to have a nice, healthy lifespan with good activity and so on, ability to take care of themselves and do things that are enjoyable?

Well, yes. And, you know, there was a paper that came out. It was either Arizona State or University of Arizona several years back. that basically said that women who get on hormone replacement therapy early on after menopause and maintain that are something like 50% less likely, not just to develop Alzheimer's disease, but Parkinson's, ALS, other neurodegenerative diseases.

So I can't say enough how important these hormones are for women's health. And then women Women certainly tend to, in general, I would say, they're more social beings than men are to their advantage, but I think it's important to circle back around and really emphasize what has clearly emerged as sort of the unsung hero of lifestyle factors, and that is community and connection.

Without it, we have nothing, so women should be very proud of sort of being the flag bearers in that regard. And I certainly think we need to keep on keeping on when it comes to that aspect of lifestyle medicine.

Our roles change so much for most of us in our later years from being moms and partners and, you know, the glue of the PTA and the church to those things peel away from our lives.

And we have to make sure that something else is taking its place to maintain our connections and our socialness with other people. That's good to emphasize that.

Thank you. My father-in-law passed away now about 12 or so years ago.

Menstrual History, Hormones, and Brain Signaling

And my mother- in- law was a widow for a number of years. She's now into her eighties, but going back a few years, she decided to sort of get out. She was still connected to her family and would try to go to church and things like that, but certainly wasn't as social as she had been and then started to to some more community events.

And she was at a kind of a seniors dance where she met a gentleman as a retired physician. They met in October, they were picking out a ring in November, and they got married in December.

At our age, we don't have time to wait. waste you know and so at any rate I just share that because you're never too old to have sex by the way and that's a wonderful topic either as well you So we need to connect and you might say, well, that chapter in my life is over, and of course to each his or her own, but just want to emphasize the importance of that and making connections with other human beings, strong bonds, especially in the age of social media.

Yeah, exactly. How many hundreds of friends do we have on Facebook or LinkedIn or something, and how many do actually spend an hour with every week, you know, can be a very different number there.

Well, Dr. Kenneth, this has just been a marvelous discussion. We covered a lot of ground here. I'm sure there's things that we didn't cover, but we gave our audience a lots of things to think about and a fair number to do for many of our listeners and viewers.

And I really, really appreciate all your expertise and your willingness to be with us today. So thank you so much. My pleasure. Thank you for having me.

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And we hope to see you again soon. Thank you. Bye. If this episode spoke to you, Please share with a friend ready to take charge of her health and please leave a review.

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