Brain Coherence and Aging

Inside is all the intelligence and happiness and creativity and fulfillment. You just have to let it out. But if we constantly are out here, and there's nothing wrong with out-here, I mean it's a beautiful world and has lots of beautiful things to do, but if you don't bring what's inside out, then the outside will never be fulfilled.

You can have all the money in the world and still be unhappy. You could have, all of the health in a world is still being unhappy, it's just not, the answers are not out here.

I mean, if you want to put somebody around the moon, you need some good answers out there, but in general, You have to have the inner coordination to do that.

So basically what's inside determines what you have outside. And so we just encourage people, If you practice like a meditative technique in particular TM.

You get a chance 20 minutes twice a day to connect with who you are. This huge, unbounded, unlimited sense of awareness and potentiality. And that just effortlessly and without any control or mugga booga, it just comes out.

You just are better. It's just a better person every day. Welcome back to the Think Well, Age Well podcast. I'm your host, Dr. Heather Sandison. And today I am joined by Dr Alaric Arenander, a neuroscientist, educator, and international lecturer whose work has spanned more than five decades at the intersection of brain science, human potential, Dr.

Aaron Hander has contributed to research at institutions including the University of California at Los Angeles, Penn State University, and the university of Wisconsin and Madison.

And he has long been involved in exploring how brain function evolves over time and what we can do to preserve and even enhance it. His work focuses on the concept of brain network coherence, neuroplasticity, and the role of meditation, particularly transcendental meditation in supporting cognitive resilience and longevity.

So today we're diving into what it means to have a youthful brain and how lifestyle shapes brain networks and where ancient practices meet modern neuroscience.

Welcome. Thank you. It's a very great pleasure to be with you and all the people that love you Well, it's really a pleasure to have you today. I mean, I know that everybody reading your bio, everyone knows why I've had you here.

It's been so transformative. I feel like I am a better mom, a more creative individual, better doctor, and better leader. And I'm just a version of myself when I get in my meditation practice.

So there's a lot of science to that. There's science around the aging and cognitive function that supports how profoundly impactful meditation can be, mindfulness practices.

So I want to hear from you. You describe a progressive disconnection in brain networks that comes with aging. And I wanna know what that looks like for people in their everyday life experience.

All right. So we have a brain with all of these hundreds of billions of brain cells, and they're all connected with so many different little endings and so forth.

And it's happening all the time 24-7. These cells have to learn how to connect at each moment, because what we do in our life is each movement. It's not like we're going to take 10 minutes to decide what were going say per se.

So for example, let's say grandma's at the table and she's talking about a recipe with somebody across the tables at a family dinner. And all of a sudden, the granddaughter says, grandma.

So grandma shifts from discussing a recipes to my granddaughter. In about 1 third of the second, she shifted from a detailed conversation and a motor activity and dynamics and all the memories necessary for the structure of her recipes and so forth, to instantaneously shifting to her granddaughter.

That takes about a third of a second. But the extent to which she can shift from one thing to another, The extent that she can shift with her awareness, access to all her memories and so forth, depends upon how different parts of the brain work all at once.

So you have the sensory information coming in and then you the motor activity of shifting to the granddaughter. That takes a lot of brain cells to do that and it takes 1 3rd of a second.

What we have to is find out how this brain can from moment to moment and there are billions of little things going on at each time And it's necessary for each part of the brain to be connected.

That's why we understand that aging process, and Alzheimer's in particular, is a progressive disconnect. What happens to that over time, it is known that in the human brain as we grow, there are like four major periods of time that the brain goes through a major configurational shift.

When you're nine years old, there's a huge shift approximately. And when you are 33 years, we know about that shift, that's when life has progressed as much as possible in its development and now there is a tipping point.

So modern science considers 33 years old for grandma as their tipping point, but grandma's moved out through her 44, three year old transfer. And now she's in her 88 or 80, 83 year-old transfer shift and configuration.

So there's these major shifts in how the brain moves through life and grandma is now sitting there ahead of dinner table, trying to shift from one conversation to another and access all her memories to do that.

because she's got all these memories of the recipes and the memories her granddaughter.

How Brain Networks Stay Connected

And for doing that, brain cells over here and brain cell over there need to find a way to get together in that short period of time and the extent to which they do, grandma works fine.

Grandma's happy, Grandma moves through life and she's well aware of who she is and what she wants to do. So it's really the synchronization of braincells, many braincels each moment of life.

To the extend that they're more organized and connected, is the extent to which we have all our levels of happiness, cognitive function, memories, motor health, and so forth.

So, yes? Well, as you talk about this connection, I'm wondering what things are necessary for that to be happening in a fluid way, right? Like grandma doesn't think as she shifts her attention from the recipe to her grandchild, she's not thinking about that, it's just happening naturally.

And that's the connection. What is necessary? What do we have to have in place to maintain that as we age? Right. All these connections are trying to come and go all the time.

There's one connection of the recipes and so forth, and then they shift the connection to the granddaughter. All that shifting takes place in a temporal mode where there's windows of opportunity.

And each window of opportunities determines about how many brain cells will actually participate. And so it's really necessary to understand grandma's brain in another perspective in terms of she has a sort of a hierarchy.

There's a simple sensory information coming in, the motor activity or shifting for attention. Okay. Moving her body. So she had a very simple peripheral activity.

She also has, on the other side, a very deep activity of this is who I am, this what I'm doing, I happy, participating, my memories are moving, and so forth.

So there's a peripheral system, very simple input-output system. And then there is the deep, grounded this-is-who-I-am, these are my memory structures, This is my sense of self, feeling good about life and participating.

Then there the in-between feeder systems. There's the peripheral input output, There's a deep self-system in all the memories, and then there's the feeder system in between.

The most important of those systems in aging, in life in general, is this deep sense of self. It's called the rich hubs. So the brain is not just a bunch of scattered cells, they are distributed, but there are hubs There are hubs about how information is moved around in a very fast, in very coherent fashion.

So, for example, this is an analogy. If you want to travel, You can go to your local airport, let's say at Tamwa in Southeast Iowa. You get on your airplane.

That airplane then takes you to, that's a Des Moines airport which is the regional airport. And you get an airplane in Des moines that takes to Chicago, which has a big time.

All right. Now you can anywhere in the world from there. So there's these steps. There's the peripheral, there is a feeder and then there the big hub.

Peripheral one has a problem and there's a snowstorm. You get in the car because the plane's not going to go and you drive to the Des Moines. If Des moines has problem with the snow and the sleet, then you got to be bigger problem.

you're going have to take a bus or drive even another seven hours to get to Chicago. So the peripheral is not such a big deal. All right. We can deal with sentry motor stuff pretty easy.

And the feeder isn't not so great either. But over time, what we don't want to do is lose Chicago. If there's an ice storm in Chicago, the world knows it.

Everything in the word gets complicated, whether it's Russia or China or Hawaii or Florida. So these rich hubs, these ones that are actually making us who we really are in the sense of a human being processing a life in a state of fulfillment and clarity and cognitive function.

These rich hubs are all important. And these richer hubs develop last in life, sort of last-in, first-out. By the time you're about 20, 30, you've now developed your rich hubs, your sense of who you are, and then you just move through life with that information you built up.

And you modify it a bit, but usually it's downhill, either a slow downhill or a fast downhill. So the rich hubs are the core to who we really are. through the core to the aging problem, through to Alzheimer's.

And that's the issue with grandma. Grandma, we're assuming, is having great rich hubs, and she's working there. Regardless of how much amyloid she may have in her brain, or maybe some peripheral problem in their physiology, if her rich hubs are working and her brains is coherent and functioning, she can compensate for almost everything and have a long, happy life.

With her granddaughter. These rich hubs that you're describing, do they live in the posterior cingulate gyrus or the hippocampus? Like, did they lived anatomically in a certain place?

Yes. Or is it less? Okay. Yeah. These are, it's just like geography, Chicago's over here and this over and so forth.

They are located, they're like places and in between there's wiring connecting them.

So you just can't have, It's not a democracy where everybody's on the same playing field, right? There are the big guys, just the federal government, state government and then your local county board.

Okay. Everybody's important, but if the Federal Government has a problem, then everybody gets to know about it right away. So these are structures of cells which have developed in the human nervous system to subserve these different functions, either simple output, or the deep sense of self and fulfillment and cognitive intactment, Or the feeder relating to what goes in and out and who we are.

You talk about coherence and the links between brain coherency and cognitive performance and resilience against things like Alzheimer's as we age. Will you describe what coherance means and how that affects cognitive function?

Okay, good. So, as we referred to before, brain cells have to work together very fast all the time. Now, if you have a set of cells over here and a sets of cell over there, in a very short period of time they have the link together.

If this set cells are going up and down like this, and these cells going down and up here, they're not going to get together because they are gonna miss each other.

But if they go up down together, let's say, then they can connect, all right, at each moment they connect. But if they're going like this, they never seem to connect in other words they are not available for the system.

They are now available to the computational ability, the information, their memories. So we want all the different cells in the brain to be as much correlated as possible, but it's a temporal thing because things come and go.

For a moment, they're all connected, are all in phase, and then they can connect. At another moment they are not in a phase there's no possibility for them to connect, so we want everybody to be in-phase as much as possible in very orderly way, which is called coherence.

Measuring Coherence with EEG

When things are moving up and down together, even if they slightly off-keys, as long as they up-and-going, up, down, together like marching troops, everything looks great when things marching together.

they function together. And your coherence on the level of the nerve cells determines how integrated the brain is, which determines much cognitive function we have.

So if we want more cognitive functions and we wanna keep it for a long, long time, then we need to realize we do need integration. The essence of integration is how cells connect in time.

There are these temporal windows. If those temporal window are available, information flows. If it doesn't, it does flow and the person stares. They can see, they can move, but they don't know what they're seeing or moving.

And so are there ways that we can measure and track this before, like as a way to help us prevent progression towards cognitive decline? Or is this largely just a concept that's studied and researched at this stage?

Well, it's easy enough to measure. You can have a simple EEG machine, even two electrodes, okay? Put two electrons and then just measure what the person's brain waves are doing.

Are they coherent or not? You have to take the brainwaves to say this part of the and this is a prefrontal cortex. This is really important territory, right?

Everybody knows that. So these two cells, so much of cells here, let's say there's a million cells and a billion cells. The question is, Are they working together?

So you measure the EEG here, the brainwaves oscillating, electricity activity here. And then you ask, are they synchronized? Are the correlated? are the going up and down together or are just going all over the place?

And that's a simple measure. You can graph it, you can measure it. and we know now that coherence is the essence of communication. So there's the whole theory now.

Communication through coherance. When you have coherents, You have maximum communication, which means maximum cognitive function. And so this, whenever I think of EEGs and coherence and measuring brain waves, it leads me to thinking about neurofeedback.

So can you talk about what the applications of neuro feedback would be? Is that part of your work and what that would for cognition? Yes. Neurofeed back has a long history, 50 years or more, 60, 70 years.

And neuro-feedbacks is when you take something external, Let's say a picture or a movement or some graphic thing that the brain can function. All right.

So the information is coming in from the external device and the Information in that external devices actually connected to something in the physiology, either your muscles, your heart or your brain waves.

so as long as our brain through the sense of sight and our cognitive function can track something on the outside, it will work with that. So in other words, you can actually look at your brainwaves and if you want to, We share that opinion.

I'm in love for you. My clinical experience with that, no, I don't offer neurofeedback, but my experience patients who have gone to do neuro feedback is that I have had patients spend tens of thousands of dollars, you know, over a hundred sessions and kind of feel like things were about the same, that there wasn't much benefit.

And there have been a few people who've said, no, this has been really, really helpful for me. But more often than not, I hear from people that they spent a lot of money and a lotta time and they didn't really feel like it made a difference.

So what, you know,… I don't wanna go too far down this tangent if this isn't, why do we wanna talk about meditation. Right. I would love to understand this.

It's like, Why is neurofeedback so hit or miss? Well, the thing is the brain can adjust to whatever you have out there, but the brand isn't simply just alpha.

And it's just not simply this power measurement, which is usually what most of the biofeedback is, is based on power. Okay. You have, there is a guy named.

Bob Thatcher is probably the best EEG guy on the planet, Robert Thatch. He's a meditator too. And he has his database between the ages of say five and 90. This is what the average normal healthy brain looks like in terms of EEGs.

From that, you can take all these very sophisticated measures of how everybody's communicating with everybody, coherence in particular, and you could say, this is the normal human being is for that age and that gender.

And then you can say, this is what we know it should be, and then we look at the person's brain and we do a comparison. So now you're not just saying to person to get more alpha.

You're asking a person sort of identify and adjust to the normal of that person at that age. So now you have a very sophisticated, very powerful system, and it works a lot.

I mean, he has all kinds of clinical studies gone, whether it's business, or psychiatry, it goes on and on, that if you go into the real nitty gritty of the sophistication of how our brain is functioning, then it is not just alpha power.

If you want to pick one measure, alpha coherence. But most people don't do that with biofeedback. So bio feedback essentially can work, but you have to dive into the nature of what the brain really is and not some simple measure.

Okay. And then EEGs, we have struggled to find, you know, there's the P300 and the different metrics that you get from an EEG.

Neurofeedback and Its Limits

We've had trouble correlating them to cognitive function. Um, so I think that do you, do find a, especially with meditation, like, Do you find that there is utility in using an EEG to track kind of changes that would support either an increase in cognitive function or a decline in Cognitive function?

Right. So again, if you want to use EEGs, there's, you have to go through a step-wise progression. What is the baseline because of variation during the day and so forth and then how to over time.

If you look at the data on brainwave coherence, which is one of the essence of what we're talking about here, it correlates the more coherents you have that you can measure.

in particular in the low alpha band, but you can look at theta two or something like that. But in a low-alpha band that correlates with basically everything good in life.

Your level of intelligence, your morality, how sort of crazy and stable you are, or your sense of your motor functioning, even grade points, stuff like this.

So everything about how the brain is functioning seems to come down to a measure of coherence. And so you could use it, for example, as an aging measure because One of the fine things they find with Alzheimer's and age is that there's a loss of coherence.

That's one of best measures of aging is a lost of coherent. And so I want to shift in our conversation into meditation. This gets a lot of attention, of course, in brain health and the claims vary widely, but where do you think is the best research that shows the connection between meditation and cognitive decline or cognitive function?

We're here to talk about what will help us to maintain optimal cognitive functions as we age. share like what's the best science out there and is there a right way to do it and what does it mean if somebody's thinking about adopting a meditation practice to support their brain health?

Thank you. That's a great, great thing. Meditation has been around forever. It's as old as planting beans and eating. Okay. So it's part of what we can do in human life.

This in its essence is based on neuroplasticity and human experience. Every experience a person has changes the brain. If you put the same experience in, it'll change it in the way and you'll just get more and more of that same, but it's always changing.

There's never a stop to the change in their brain. And so basically with meditation, just like anything else, It'll changed the brain to a certain extent in a way.

So for example, if grandma wanted to learn how to juggle, If she just practiced in couple of weeks, she'd be pretty good. And in a couple of weeks, you could take another brain scan.

You'll see that this part of the brain back here, which has to do with space-time coordination, would have it grown. It's a bigger cortex now, just because grandma's playing with her balls in the air.

So neuroplasticity, everything is changing all the time. And so it depends upon what we put into the system, whether it's more orliness, more upliftment, or more disorder, like stress and so forth.

It's what would put it into system. The system will adjust. If you put more and more stress into this system then the neuro plasticity will have you keep trying to work to maintain that stress, and deal with it.

Is not gonna let you move out of that. Its gonna have to have survive in that war of stress. If you don't have the stress, then your brain's gonna move in a different direction of whatever you offer.

So, neuroplasticity and experience. Now, meditation. Meditation is usually considered something where the mind is moving, and it's moving in more restful or clarifying information to offer better health, better functioning of the brain.

better life in general, and even enlightenment. And this is the whole issue, is that the human person was born to be enlightened, this fantastic person on the planet.

Unfortunately, we're stuck with cell phones and running around doing our thing. So, meditations. There are three known types of meditation. These three types relate to a metaphor of an ocean.

The human mind is like an Ocean on the surface, you have all this little waves coming and going. Sometimes the waves are big, sometimes the ways are small.

And you're sitting on ocean and you are bouncing around and this is life, all right?

Meditation, Neuroplasticity, and TM

It's either kind of crazy today or it's a little more relaxing or whatever the case is. But this an ocean. There's the depths of the ocean, a deeper level, depth of level and then actually at the bottom of ocean way down there, it is very quiet.

No matter how huge the wave are up here, its quiet It's a whole range of activity to quiet. The same thing with the human mind. Human minds were on the surface level of human awareness, our conscious thinking level.

And on that conscious-thinking level, we have thoughts. Those thoughts come out of someplace, they don't come outta Walmart, They come from out the brain.

They're coming out our mind, and they bubble up out some source of thought. Of course, the psychiatrists and psychologists would say, well, there's stuff down there, let's work with it.

So there is this whole-range of conscious the subconscious, and then some source of thought. So here's the range of the mind. And because there's a range in the mine, there is a rage of technologies to explore and utilize that range to the might.

There's three types, as I mentioned before. Remember I said there was three? One is concentration. You're on something and you're concentrating on it.

This is pretty hardcore. A lot of Zen things and so forth. Like a mantra. Are they concentrating on a mantra? You could, yes. It could be a monster or a cone or you could have your eyes open staring at something.

Pardon, are you breath? Breath of breath. Yes, yes. Let me take a step back though and just know that all forms of meditation have a neuroplastic response, right?

Every meditation will change something. Every mediation will do something to the brain and the physiology because just walking down the street will just change your brain.

So it's not that every meditation doesn't do anything, it just the question is what is it doing in terms of its technology. Each meditation has a technology, if you concentrate and you're dealing with either the meaning or focus your attention, then you are on the surface level because that's where you concentrate driving the car and your doing stuff, right?

There isn't much difference then between driving a car per se and concentrating, except for you quiet now with your eyes closed and it's more inward and don't have to deal with the world.

So, concentrations up here. And then there is more contemplative, more easy passive meditations. These would include your mindfulness and things like that.

Anything where you're watching the breath, or watching your mind, watching yourself eat, being easy, doing some breath techniques. Okay? These are also valuable.

They also allow the mind to settle. But each one of them, you are keeping track. Maybe you're being a little standoffish and not trying to judge and stuff like that and trying just go with it, but you are keeping track.

in a sense, effort to keep watching, doing what you're doing. And the third type of technique, concentration, passive, mindfulness, and then there's ones where you actually don't get lost in the mind or don' get held up in mind.

The mind can slip off the surface and actually transcend. That's why it's called transcendental meditation. Instead of being on the service level or floating up on surface level, you transcend and the only way to do that is by not trying.

You can't go from here to here through a technique of effort. No amount of intellectual effort or intelligence will get you from here to here. It's a very simple technique where they offer you a sound, which has a certain vibration.

You're told how to use that properly, and then wham, it happens. That happens for everybody. Happens every time. And the results is that you move from hear to hear.

Now what happens when you go from the surface to the depth? When you go from the surface to the depth, first of all, you're taking your awareness where it wasn't before.

Your awareness is now you are still awake. You are at the very finest level of your mind and you still aware where normally you aren't allowed to be there because of the nonsense and stress and strain and lack of proper wires.

So you very deep in the mind, and because the The brain has to also go through that same change in neural structure. The dynamics of the brain communication has also to adjust to that.

It's the deepest level of rest we've ever seen, okay? It is so powerful, this deeper level rest. Changes in cardiovascular, respiratory, hormones, EEG.

EEg goes from going like this, the coherence, and it just goes like that. You get like 100% coherance. It like training the brain to be orderly because the mind is allowed to the most quiet, settled state it could possibly be in because there's no intellectual, rigmarole.

You just transcend, maximum coherence, come back out, you just train your brain to be more orally. That's the difference. And it sounds like the benefit of this technique also comes from the consistency of doing it, right?

It's like getting your reps in around this, of getting that orderliness back. You can't go to the gym once and then lift 100,000 pounds, okay? Okay. It is a progressive thing.

you can change the nervous system that fast and I think you're going to get away with it. Everything has to be done in a proper modality. And it's rest for the brain.

We talk a lot about how the brains needs a lots of energy, and this is part of the rationale for getting into ketosis, is that the bran just is such an energy-hungry organ, so we want to make sure it is getting enough fuel.

But this talking about getting the brained rest. One of things coming up for me is going into the trance state of a

hypnotherapy session, say. Is that similar?

How is it similar or different? Hypnosis is when you're actually separating the inner value of the person from the outside world and you having it then controlled from outside, as opposed to the persons settling into who they are in the deepest possible level of their sense of self.

And when they do that, because the brain is coherent, everything in your brain now starts working better. When you bring it back out, the brains is now more orderly, so automatically, and again we mentioned that coherence means more cognitive function, better memory, more morality.

It goes on and on because once things are more orderly, then everything that you are just works better. You have ADHD, it gets better, so forth and so on.

And so for someone who already has a prayer practice, a mindfulness practice or another form of meditation that they're doing, is there a compelling reason to switch to TM?

I don't say switch. I mean like you can play tennis and you could play softball. You can do whatever you want. If you spend 20 minutes twice a day, what is the output?

What is that consequence of spending that time? And if you look at the research literature last half a century, TM is so powerful and so simple, because first of all, anybody can do it.

It's easy. You can do it at any age, you don't have to be really even cognitively intact and you can still do because it's a simple, it is not an intellectual thing.

You don' have figure out how to do, just introduce a process and it happens by itself. Can you describe that process? Just to give people a little bit more insight into, what would they be getting into?

If somebody wanted to learn TM, you would sit with a teacher and they would give you a sound, which is appropriate for your physiology. Now that sound is like a thought, right?

It's an impulse, it's not a mantra or sound. But you have a sounds and the brain now has that sounds lively because you're thinking it. You're think it very easily.

Because you're thinking it easily, the mind's going, now what do I do? Right? Because the minds not going to sit around and not do anything. So the mindset, what I to do.

Well, there's a natural tendency to the mine and everything. And that is everything in this universe is moving in one direction. It wants more. Everything wants, more everybody wants to live longer.

We want to be happier. we want more money. And if it seems to be less, it's only because we want more silence or something like that. So everything is going towards more.

And, if you introduce the mind to a simple thought and you tell it not to do anything to it, other than just think it easily, and since there's no meaning to, the minds going, all right, I don't get it.

I got this sound. What do I do with this thing? Now it is left on its own devices. The mind's going well, If you let me do what I wanna do, I want more, which is always the case.

There's nothing more over here because there's no meaning. So on a surface level, there is nothing to be done. But oh, this value of the sound, because remember the sounds like everything in the mind is percolating out of this source of thought.

The sound is purulating out, so it's like a little breadcrumb trails. the Mind goes, but this seems closer to this Source of Thought and it is closer and closer, and then reaches the Source Of Thought, it transcends.

It does that because it has a gradient to the From the surface to the depth, there's more and more creativity, energy, intelligence. Because remember, the source of thought is a source all our thoughts.

So inside of each one of us is this huge reservoir of energy. Thoughts just keep pouring out, and creativity keeps pouring, out and intelligence and happiness, it just keeps poring out of this.

If you give the mind a chance to go from here to here, you don't get in the way by saying there is some meaning or you have to do this or do that to it.

It just goes like that. One or two seconds and there you are. And then you have some thoughts of meditation. Then you use maybe the sound again and then some.

After 20 minutes, you come out and you go, wow, I didn't do anything yesterday. Let's go do something else. Because you just reshifted and reset the whole nervous system.

In the terms of whole physiology, You've gotten rid of the lactate, changes cortisol, everything in the physiology has changed. And so you're a different person now.

Yeah, it's transformative. I've experienced it myself.

Deep Rest, Glymphatics, and Brain Health

With meditation, I have never done TM specifically, but with meditation in general, if someone is listening and they're worried about the brain health right now, what would you have them start doing this week?

Well, if they have concerns and they want to live a long time and be healthier, then they had to deal with all the risk factors. You can have a list of them.

Everybody knows what they are. There's diet and there's stress and toxins. It goes on and on. All the different things that make it hard to live a long time and happy.

So you can get that list and you plug them off, and it's good to have that. And that's one thing you do a great job of. You help all the people at your institution to get through that lists in a way that is very functional.

That's our goal, I guess. Yeah, to actually implement. I mean, people can have the best ideas, but if they don't do it, it is not going to be a consequence.

Exactly, could not agree more. So basically, we have this situation where there's this list of things to do. So if I come back to transplant meditation, if somebody was to sit down and practice TM for 20 minutes twice a day, everything on that list, the factors, would have been significantly impacted.

just from that one practice of 20 minutes twice a day. If you have toxins, for example, and we have toxins in the brain in particular, okay, in a course we all know about glymphatics, OK?

And glyphatic means that we can take all the daily stuff in our brain and flush it out into the body and purify the brains, quote unquote. So, purifying the braing, getting rid of the, the daily products.

I mean, regardless of bad stuff, we just, every day, have waste products we need to get rid off. If you want to improve glymphatics, you need a good night's sleep, and particularly your first deep sleep.

Your first sleep is the best hit of glyphatic we know about. If don't get a slow wave sleep at the beginning of the night, your sleep has not really done what it's meant to do in that regard.

Now, if you consider TM, TM is very similar to that very deep rest. So I imagine 20 minutes twice a day you just got another huge download of all the waste products.

So you've purified, you got in deep rest, reorganized all the wiring so when you get out you can make better decisions. Like, oh, maybe I'll be more sensitive.

Maybe I won't have some more of that because I know that's not good. There's more awareness and alertness to who you are and what you want to be. And so if you could spend just a few minutes each day reminding yourself who are spontaneously, it's an intellectualization, Oh, I'm better now.

It's just things are clearer. Greater clarity means you make better decisions. You can believe you can do it. you could actually carry it out. Who doesn't want more of that?

And is there anything that you think people overestimate when it comes to protecting their brain health? Do you there's things that people are maybe doing too much of thinking it's going to be healthy and helpful for their brains when really they should be focused in a different direction?

I think you should do everything possible for your brain and your physiology. I can't think of anything bad. Moderation is useful. The system can only adjust at a certain rate based on who you are.

Some people can move faster than others. And some people need more of this diet and less of that diet. So I just think the key is you just have to do it.

If you don't do, it's just no consequence. It doesn't work if you do not do. Here, for example, there was this Norman Cousin back a long time ago at UCLA set up this psycho neuroendocrine research study.

Yeah. And, uh, Fozzie with one of his guys works with them and Fozie took all these people and melanomas. They have stage three or four melanoma, which means the doctor says, ma'am, I'm really sorry, but based on what we know, you have like six months at best.

Do what you can do, set things up, enjoy your moments now, because you'll have maybe six. It's not a nice thing. Okay. But it's the reality from the medical science.

Now Fozi took another whole set of people that have the same problem. Melanoma and he says, look, you've got this melanoma. It doesn't look good. All right.

This is what we know, but you can beat this for a long time. If you do X, Y, and Z, You don't have to go away in six months. You can last a. The study showed that in 6 months, the people who had the medical diagnosis, it's not going to work.

He had nothing you could do. They're gone. on schedule because the doctors helped them do that. The ones that were told, look, you can do something about this, they're still alive.

All of them, after a couple of years, there's still a life. So the thing is you have to think that you could do this. You have think you that have the power.

you had this human brain. This human is not doing TikTok, it's supposed to be doing fantastic things. It's got this wiring, this potentiality, which is huge.

And if we don't engage it, then it's just a waste. It's really a shame. And as part of our educational system, we don't train people to use their brains.

We just train them to get a job and behave themselves. So we just need to help people take control. And to take control just means letting go, transcending, create maximum coherence.

When you come back out, you've just modified every single risk factor, whether it's educations or toxins or diet and digestion or cardiovascular. The American Heart Association says TM is the only practice they know that actually helps reverse cardiovascular disease.

It's the only one and they look at all of them. It is not that the other ones don't have some impact except for you can reduce a 50% impact. I mean they did studies in Canada with this basically free medical care in canada.

So you compare people who meditate, TM, who don´t meditate in TM. Over five year time, the people who are non-meditators, they continue to spend more and more money, more, and the government spends more more.

It keeps going. Just a relentless curve. The older you get, longer it goes, you're going to have problems. People who practice TM, as soon as they started TM there was an inflection.

They got less and less, five or eight percent every year. A cumulative, it just kept getting less. Simple practice. less use of medical care because you're not sick.

And Blue Cross did the same thing. Blue cross showed everything except for obstetrics was reduced by 80 to 90% in meditators. That's wild. You've been at this for 50 years or more.

How is your perspective of meditation and the brain and aging, how has that evolved since you originally got into this space? Well, part of it was I was at UCLA for quite some time and I just working on glial cells, which should be a fascinating subject for people to learn about because glials are actually in charge.

You probably know that, that the neuronal cells all these wires. They're like little kids running around the house doing stuff, all right, chit chatting, where mother is now taking care of the whole thing.

Mother's in charge of everything, nutrition, balance, ionic flow, everything important about the brain is glial cells, the glue, and then the kids just participate on their own level, just hoping that everything's gonna work out right.

Agency, Purpose, and Inner Fulfillment

So basically, at one point in my career, I realized that during research on glia cells although it's fascinating and probably somewhat productive, was not the same thing as being able to travel around the world and help people understand the impact of 20 minutes to twice a day to reverse aging, reverse Alzheimer's, get rid of cardiovascular disease, diabetes, anger, violence.

But we can clear out prisons. We did that. You can change almost everything because we don't change it. The brain can change. You shift the brain, it works better.

He just give it order and then it manifests that order. If you give a disorder, then he has problems and it has control. So we all have a choice. I think I asked you this question about what people overestimate when it comes to protecting their brain health.

And I think I was sort of leading into my own answer, which is this idea. You mentioned TikTok. I see a lot of people who are looking for that next thing.

They know a lots of information. But they're scrolling. Reading every email. Looking for more. Getting the next book. The thing that they need is in the book or in next reel or next video.

instead of realizing that they have a lot of information already, and it's really most important to just put it into practice. I guess I'd be curious about your thoughts on that.

Yes, I think the key here, and it's a bit of a dialogue, but there's difference between information and wisdom and fulfillment. Information can help you fix something, perhaps, But it is not going to be necessarily fulfilling or useful for your whole life.

And this digital age we're finding ourselves in, where there is infinite scrolling, through the dopamine hit, I want more dopamine, dopamine dopamine.

And then we just wear out our dopamine and then they were just sitting there exhausted because we can't get any dopamine all right? And you just can give up because you can be in that state anymore.

Nobody wants to be depressed. So most of scrolling is depression. Where's the next one? So basically, if you want a life which is filling and long lived, it has to come from inside.

Inside is all the intelligence and happiness and creativity and fulfillment. You just have to let it out. But if we constantly are out here, and there's nothing wrong with out-here, I mean, it's a beautiful world and it has lots of beautiful things to do, but if don't bring what's inside out, then the outside will never be fulfilled.

You can have all the money in the world and still be unhappy. You could have, all of the health in a world is still being unhappy, it's just not the answers are not out here.

I mean, if you want to put somebody around the moon, you need some good answers out there, but in general, You have to have the inner coordination. to do that.

And so basically, what's inside determines what you have outside. So we just encourage people, if you practice like a meditative technique, in particular TM, you get a chance 20 minutes twice a day to connect with who you are, this huge, unbounded, unlimited sense of awareness and potentiality.

That just effortlessly and without any control or Mugga booga, it just comes out. It's just you, you just are better. You're just a better person every day as you're meant to be.

That's my experience. Yes. And so we can only encourage people to take advantage of the fact that they have a human nervous system and not keep playing tic-tac-toe with it.

Yeah. Just you can, launch a person to the moon. Everybody can launch to moon in their own awareness. Well, it's interesting that we're having this conversation, right, as these, the four astronauts have just come back from that moon mission.

And so many of these kind of deep questions are what comes up for astronauts, when they're looking back at this blue marble at our spaceship Earth, there's so much of this questions.

It's like the engineering and all of the pieces that it takes to get them out there. They've kind to disappear and instead there is just this like, oh my gosh, this awareness of how small we are and how the just incredible, I don't know, this accident that we're even here at this moment in the universe, that were even born, to have this human experience, and I think it just puts it all into perspective.

It's such an interesting thing to watch and hear. People should definitely watch their interviews when they have first had that interview. And what comes out of that interview is that you have billions of dollars spent and hundreds and hundred of people doing very fine, intricate analysis in computers that we can't even begin to imagine what they're like.

This huge edifice of digital, mechanical, technical prowess. And in the end, it all came down to, we're human. And we're together and we can do this. It's the same with Alzheimer's.

We're human. we have a brain that doesn't need to have Alzheimer. There's no need for Alzheimer under any circumstances. I don't care what kind of genetic predisposition you have.

That's not what it has to be. Alzheimer is not inevitable. It's only a choice. It is a choose we don't always make because it's unconscious, because we do not do the right things and we dont implement and don´t believe we can do it right.

There is so much choice in the matter. I am curious, what brings you joy at this stage in life? Being being just knowing I'm here and everything is so beautiful and everybody's trying to get along and Everybody's working stuff

out and right now the plan is going through this whole huge Transformation and on the other side something beautiful is gonna come out But it's like we got to work to keep working at it and be happy and get a long and just I mean, it just it is a state I just am happy to be here And happy do whatever I can and happy just to me.

It's just It says it a great honor to being home being It is. It really is, right? We're so lucky. Yeah. We should just honor that. I mean, this thing is not a computer that we can even, even the people who are into this things say this is cosmic.

This thing is not going to be replicated by AI. This is so far beyond AI, and we're just playing tic-tac-toe, we are not engaging it. Our education system doesn't train you to use it properly, our healthcare doesn' t train us to properly and our society doesn t usually give you the benefit of the doubt to us properly.

And by it, you mean your brain? Yes, yes. It's an unbelievable gift of Isn't it? What a fun conversation. It's such a powerful reminder that the brain is not static, that it's dynamic, right?

That we have a choice about what we allow in and it is adaptable and constantly responding to how we live our lives and what expose ourselves to. So there's choice.

We really have lot of agency here. So whether we're talking about coherence or neuroplasticity or the role of practices like TM, I think the bigger message that I want everyone to walk away with here is that the small things that we do each day are what add up to our experience.

So we are either supporting connection and resilience in the brain or we slowly allowing that disconnection to take hold as we age. And I don't think there's any one single silver bullet, when it comes to preventing cognitive decline, as we've discussed here, right?

There's lots that we can do. The tools are meaningful and can shift the trajectory, but it's up to us to implement and to explore what works best for each of us individually, and then to actually put it into practice.

So, thank you so much, Dr. Aronander. just for joining me in this conversation, expanding on it. This episode, I hope, has sparked the curiosity and interest of all of our listeners.

So please share it with someone you love. And as always, take that one small step today to support your brain health and your future. Thanks for being with us.

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Until next time, keep thinking well and aging on purpose.