Transcript Details
This is a transcript of an educational program accessible on the ReachMD network. Details about the program and additional media formats for the program are accessible by visiting: https://reachmd.com/programs/primary-care-today/brains-and-biotech-cognition-and-memory-research-from-the-life-science-industry/7254/

ReachMD
www.reachmd.com
info@reachmd.com
(866) 423-7849

Brains and Biotech: Cognition and Memory Research from the Life Science Industry

Dr. Brian McDonnough:
Hello, and welcome to Primary Care Today on ReachMD. I'm your host, Dr. Brian McDonnough, and with me today is Mark Underwood. He is the president of Quincy Bioscience, and we're going to talk about the brain, brain studies, and when you talk about a topic like this, especially with health professionals, we all have our own questions and concerns about it, and fascination as well. So first of all, let me just start, Mark, with a question. What got you so involved and interested in this particular field, and what is it that fascinates you about it?

Mark Underwood:
Well, I think the brain's the most fascinating part of the universe. I became interested in studying neurochemistry in college, which is now over 20 years ago. My family had a history of different types of memory issues, and so I became very interested in trying to figure out what are the things that change in the brain as it relates to cognitive impairment. So memory loss to focus issues to all kinds of things, because I think the brain's the most important part of our life, and we need to learn different stratagem on how to keep it protected and well-maintained.

Dr. Brian McDonnough:
One of the things we see in our own practices, and even in our own lives, is as people get older, they're 40, 50, 60, they feel as if they lose some of that memory. They call it senior moments, and I'm not talking about the progression to dementia, but just the simple fact that they don't remember things. What do we believe leads to this? Is it damage to the brain, loss of cells? What's going on?

Mark Underwood:
Well, the aging process itself is complicated, but there are a couple common things to all of us as we grow older. One of the main things is that there's a type of protein that we normally make in the brain to keep our brains protected. It's called a calcium-binding protein, and in our 20s, early 20s, we make plenty of it, and our brains are working to-notch. Mechanics are working just fine, but in the aging process, and this particularly starts around age 40, we start to lose the ability to make that type of protein in the brain in a sufficient quantity to keep the brain healthy.

So as we lose the proteins, we start to see age-related cognitive decline. The brain does actually shrink a little bit, but even more importantly, with the loss of this protein, there's a lot of different connections that are normally there in a healthy brain that aren't able to be maintained. And this is probably the most significant aspect of brain aging that we've uncovered. There certainly can be other contributing factors, but it's the most common thing that people struggle with, especially that are already healthy otherwise.

Dr. Brian McDonnough:
And when we as physicians try to help patients, what are some of the things we can do to try to maybe help either slow down this process or do things to try and help them along?

Mark Underwood:
Well, the key that we've come to understand is we've worked with a supplement that helps to replace the protein. It's actually a discovery made in jellyfish. Jellyfish happen to contain a certain amount of these types of proteins. This is a very common problem in all species. Anything with a brain loses these proteins, so we've been doing a lot of research with a protein that was originally discovered in jellyfish. And clinical trials have shown that as we replace the protein, we're able to help improve cognition, and we've done that in our double-blind and placebo-controlled trials. So that's something we're obviously-the best thing to do is if you know what your brain is missing or losing is to simply try to replace it. And although this protein was originally discovered in jellyfish, it has very similar qualities to our

natural endogenous proteins that we do lose in the aging process.

Dr. Brian McDonnough:
Now, your background is as a neuroscience researcher, and you were actually co-founder and president of Quincy out in Madison, Wisconsin, and you deal with all sorts of areas with the brain, but you definitely seem to be focused on the calcium-binding protein and that role. I would think that's probably the key thing that you deal with, right?

Mark Underwood:
Indeed. This is something that can cause havoc in any part of the brain, so there's a lot of evidence. There's a lot of evidence that researchers have already worked on that showed the need for this system to keep everything in balance, and we provided the innovation of a unique source of the protein. So this is something that, in terms of-our research goes back well into the 1980s, the first people that published in this field. The goal is to keep calcium regulated in the brain, which may sound funny. Everyone thinks that calcium's just in your bones, but inside the brain, it's the messenger. It's the electricity that allows all of our connections to be made.

And every single one of those connections basically is another memory. So if we're not making the connections, we're not making or keeping the memory, and that's what causes the frustration every time you walk into a room and forget what you're doing.

Dr. Brian McDonnough:
When we talk about the brain, I hear people say, "Well, we only use four percent of the brain, 12 percent of the brain." I have always heard that it's under-used, and if we ever maximized use of the brain, we'll be so much more efficient. How much truth is there to that?

Mark Underwood:
None. We use one hundred percent of our brain. Think about this, if you didn't use all of your brain, why would Alzheimer's be scary? The brain is absolutely necessary to keep one hundred percent active and maintain, so it's a wives' tale. It's basically something that's been passed around for many years. Now, the phrase someone who acts like they don't use one hundred percent of their brain, well, that's certainly appropriate. I know people like that.

Dr. Brian McDonnough:
Well, you know, it's interesting when you talk about it, though, but it does show the general lack of understanding of the brain, even when we're talking about psychiatric and psychologic issues. It's still, in my day-to-day dealing with patients, they don't often look at a mental illness as something that's like the heart or another part of the body. They feel stigma that surrounds it.

Mark Underwood:
That's absolutely right. I can tell you that 20 years ago, in college, I was taught that the brain was an island, that it was untouchable. You couldn't do anything to make it work better. You couldn't do anything to make it work worse. It was like it was on an island, but that's not true. The brain's very much affected by the things that we put into our body, the exposures we have, the food that we eat, the things that we drink. Most of it, it does have a direct effect on brain chemistry, and I think that's something that we've learned now in the past ten years that's really opened up people, and in researchers' understanding of what the brain can do, and how significant our lifestyle choices are in affecting how well the brain works.

Dr. Brian McDonnough:
How do you feel, as far as research and where it's going around the country? It seems to me, largely, in fact, because of dementia and related illnesses, there is a lot more work being done surrounding the brain and our understanding of it, clearly in the last ten to 15 years.

Mark Underwood:
There is. The key, I think, is understanding the significance of what you do when you're 40 to 50 years old that greatly determines your mental state when you're going to be 70 t0 80 years old. And that's very difficult for people to be that forward-looking with their health, much less their brain health, but the types of things that people uncover as mild memory loss in their, I don't know, say 40 years old, those things are often the tip of the iceberg of some processes that are already going on inside the brain that are going to reveal themselves later in life. Memory issues never self-resolve. They never self-correct.

They actually will only get worse, in terms of how fast memory declines in the aging process. That's certainly different from one person to the next, but you need to address the memory issues you have when you're 40, 45, or 50, because I guarantee, that will set the course for how you deal, what your capacity is when you're 60, 70, or 80.

Dr. Brian McDonnough:
If you're just tuning in, you're listening to Primary Care Today on ReachMD. I'm Dr. Brian McDonnough, your host, and today I'm speaking with Mark Underwood, fascinating conversation about the brain. And when we talk again about interacting and trying to find

things out, if you're in your 40s and 50s, is it okay to say, "Gee, I don't remember names like I used to or as quick," or "I'm looking for certain words," as opposed to, let's say, "Where did I leave the keys? I didn't even know I had keys," that kind of a thing. Is this a slippery slope progression, or can people just have normal kind of gaffs that occur?

Mark Underwood:
Well, you will have those gaffs. I think the key is when you reflect upon how well your brain worked five or ten years ago, if you see a decline, because not everyone, even at age 20, not everyone has perfect memory. But if you're starting to see a decline or an increased frustration with losing your car keys or forgetting basic facts that you should retain, that's when you should really address some different things with your health to try to help protect and preserve the brain. So there's lifestyle changes, which include diet and exercise, which are actually very beneficial to the brain. It can include brain training exercises, things that might be online. It can be doing a myriad of things to stay on top of your game as long as you can.

Dr. Brian McDonnough:
So what you're saying is, don't, I guess, live in denial and don't tell, if your patients come in and say things, don't let them live in denial. More or less, try to approach it with them, and try to do things. It's funny you talk about that. One of the things I do with a lot of my medical reporting is there'll be studies coming up about Alzheimer's or whatever, and they say, "We don't necessarily know there's a definite link between exercising and helping your brain," or "We don't know there's a definite link between fruits and vegetables or certain supplements and helping the brain." But the way you have to look at it is, well, you may not get that hundred percent proof, but we do know that many of these things are good for our heart, other parts of our body as well. So why not join in and figure it could help the brain, and be positive in those respects?

Mark Underwood:
Absolutely, and I can tell you, there's a lot of evidence that says, like you mentioned, managing your diet and exercising is exactly tied to age-related memory decline. Now, just because it's not tied to a disease, trust me, you do not want to wait till you have Alzheimer's to try to do something about it. Alzheimer's is a debilitating disease in which brain cells are destroyed, and by the time you're diagnosed with Alzheimer's, you've lost a good amount of the brain cells that you once had. You're not going to get them back. There's not a pill which you're going to swallow that is going to ever fix or replace what you've lost.

What you need to do is protect them as soon as you can. You need to go in there and make the steps so they don't die in the first place, which is why intervention, like I keep talking, by age 40 is so critical. I'll give you an example. Sugar, excessive sugar in the diet is terribly inflammatory to the brain, and over the course of time, there's a huge comorbidity between Alzheimer's disease and diabetes, because the lack of sugar control in the body causes great amounts of inflammation, which ultimately causes memory loss.

But we know that, that's very definitive, the cross-over and the comorbidity. The thing is, you can't wait till you're 75 years old, diagnosed with diabetes and Alzheimer's, and suddenly change your diet and affect everything to be corrected. What you need to do is you need to take charge of that when you're 40, and be disciplined in how much sugar you intake, so that you develop neither of those circumstances. It's completely preventable. It's very hard to do that fore-looking and understand that that talks about a lot of discipline, but there is plenty of evidence that demonstrates that the reduction if sugar in the diet reduces inflammation of brain, and will actually improve memory.

So that's something that everyone who's listening today can go home and just simply do. They don't have to wait for some miracle invention. That's something they can do about their health today.

Dr. Brian McDonnough:
And I think that's a very important point. I know in some of the literature that I read of yours, we talk about brain and memory, but also the other thing is the inability to focus, pay attention, stay on task, those things are also very important. What about the role of stress and its impact on the brain?

Mark Underwood:
Well, certain stress, we're going to have stress in life. So what's hard to prescribe is a lifelong vacation of no stress. That would fix it. However, that's not very practical. So you need to learn how to deal with stress you have in life. Recommend taking basically moments during the day where you can relax and get away from stress, sort of call them mini-vacations. You're not really going anywhere, but your mind is going somewhere else to rest and relax. If you can reduce that stress, you're going to help the brain work better. To complement that, a good night's rest is actually one of the best things you can do for your brain's health.

People that are deeper sleepers can have up to ten times better memory of people that are sleep-deprived. So you want to make sure that you're able to get seven to eight hours of sleep every night, and good, deep sleep. That's a very fundamental thing, so stress, you obviously want to put good stress in your life as much as possible, have fun. Spend time with friends and family, that's a good thing for

your health, and if you're under chronic stress, do whatever you can to remove yourself from those circumstances.

Dr. Brian McDonnough:
Another thing that you're a big proponent of, I think, and again, reading your literature, is water, that we just don't drink enough water and we should.

Mark Underwood:
It's true. People that have maybe a ten percent reduction in the amount of water they drink on a daily basis can have a 25 to 30 percent reduction in cognitive performance because if that. So staying well-hydrated is certainly key, and it really does tie in with the advice I gave on sugar. Trust me, a glass of water's better than a can of soda, period. It's better for your midsection, it's better for your brain. So that's a great place where you can cut out some of those calories and hydrate the brain, because whenever you're adding sugar to the brain, you're actually partially dehydrating it, and even worse than sugar is actually alcohol.

Alcohol dehydrates brain cells, which causes them to, well, basically, for a short period of time, can turn off, in some cases it will certainly kill cells, and as anyone who knows, who's had too much to drink, that can result in memory loss. So if you want to avoid memory loss in the long term, you want to reduce the amount of alcohol that you're putting in your body.

Dr. Brian McDonnough:
So simple steps such as drinking water, avoiding alcohol, and you're not saying a hundred percent, but just trying to use common sense and not get into these situations, and do as well as you can would really be helpful.

Mark Underwood:
If you really want to have a better memory and strive for that, you go home and you jot these things down and you start using them and practice them in your life. It will help your health tremendously, and you mentioned several different aspects of brain health. You know, a lot of times we just talk about memory, but the brain's in charge of our focus, our attentiveness. It's involved with how we communicate with others. Basically our personality is derived from the functionality of our brain. If you're tired, if you're lethargic, you're going to appear sort of dopey to other people that you run into. But if your brain is healthy, you're going to be seen as someone that's spirited, someone that's fun to be around.

Dr. Brian McDonnough:
Well, Mark Underwood, I want to thank you for joining us and providing your insights on Primary Care Today.

Mark Underwood:
It was my pleasure.

Dr. Brian McDonnough:
This is Dr. Brian McDonnough. If you missed any of this discussion, please visit ReachMD.com/PrimaryCareToday. You can download the podcast and learn more about the series. Thank you so much for listening.