Live from symposium: Why forgetting is healthy with Dr. Lisa Genova

DAVID O'LEARY: Welcome to Longer. Healthier. Better. your source for insights about the latest innovations impacting longevity. This podcast from John Hancock features leading experts in science, technology, health care, and education, and explores the significant impact longevity advancements will have on the life insurance industry and in customers' lives.

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The opinions and views expressed in this podcast are those of the participants, and do not necessarily reflect the opinions of John Hancock. Please listen to the important disclosures at the end of this podcast. This episode of the podcast was recorded live at a symposium hosted by John Hancock to share the latest research and innovations driving longevity with the insurance industry, and how best to prepare for a longer, healthier, better life. To explain more, a word from John Hancock CEO, Brooks Tingle.

BROOKS TINGLE: Our sense of purpose here is underlined really, by 3 principle beliefs.

The first thing that we believe very strongly is that the life insurance industry and your life insurance company, should care an awful lot about you living a longer, healthier, and better life. We're incredibly proud to be leading the way, but we wish others would join.

The second fundamental belief we have, it's really more than a belief. It's a fact. Consumers, your customers, all of us have never been more focused on health and well-being.

The third belief: our industry, each of you, are in an amazing position to help our clients achieve a longer, healthier, better life. How many industries have literally lifelong relationships? We can engage our customers around exercise, nutrition, things like that, and really affect positive outcomes over the long term.

I hope you all take something personally away from this that positively impacts your life. I hope you bring it back to your family and friends. And then at the end of the day, all of this, ultimately amplified, will have an incredibly positive impact on society.

DAVID O'LEARY: With that context and those three beliefs in mind, take a listen to Dr. Lisa Genova, neuroscientist and author of *Still Alice*, explain why it's OK to forgot.

DR LISA GENOVA: So let's start with a little memory quiz. Thinking about this past week, you forget where you put your phone? Did you have a word stuck on the tip of your tongue, maybe you couldn't remember the name of an actor or a TV show a friend recommended?

Did you forget any of the passwords to any of your online accounts? Oh my God. That one kills me.

I want to reassure you, in all of these examples, what you couldn't remember is totally normal. I'm also betting that you carry this false assumption that memory is supposed to be perfect, and that we're supposed to remember everything. And so when you forget anything, you think that this is a sign of weakness or impairment, or maybe even dementia or Alzheimer's.

When you forget something, you don't feel good about yourself. But here's what I want you to know. Our brains are not designed to remember people's names, to do something later, or to catalog everything we encounter. These imperfections are simply the factory settings.

There’s a reason why you can remember all the lyrics to “Hey Jude” by The Beatles and forget why you walked into the living room.

I want to shatter this false belief that we're supposed to remember everything. I want to show you how we remember, why we forget, and that forgetting is actually a very normal part of being human. But let's start at the beginning. What even is a memory? Well, the creation of a memory takes place in four basic steps.

Number one, your brain takes in all of the sights, the sounds, the smells, the tastes, the emotion, the meaning, the language of what you perceived and paid attention to and translates all of that into neurological language. So basically, what's out there gets in here. Number two, your brain then links together all of that previously unrelated neural activity into a single pattern of associated connections. So your brain weaves that information together.

Number three, through lasting changes in neural chemistry and neural architecture, this woven information is then stored as a stable neural circuit. And then number four, some time later, when this neural circuit is activated-- so tomorrow, next week, 30 years from now, you can then retrieve that woven information, you remember.

All right. So let me give you an example of one of my memories. Let's say I'm remembering the time that I hiked Jenny Lake in Wyoming with my two younger kids. I remember that it was a really hot day, but the air felt so refreshingly cool at Hidden Falls. I remember the spectacular, awe inspiring view at Inspiration Point overlooking Jenny Lake. I was eating a tuna fish sandwich for lunch, it was so delicious.

I remember we saw a moose that day. I had never seen a moose before, so this is my first time. I remember the Grand Tetons in the distance, gorgeous. And I started singing songs from the “Sound of Music” totally embarrassing my teenage son.

OK. Now a tuna fish sandwich has nothing to do with a moose or the Sound of Music, or the cool air on my skin at Hidden Falls unless these fleeting, separate experiences become linked together in my brain. So why can I remember so much about this hike at Jenny Lake and not, for example, what happened the week after when I was back home?

Well, memory is quite economical. Our brains have evolved to remember what is meaningful, emotional, surprising, new, and what we repeat in practice. It forgets everything else. It turns out most of our lives are spent doing routine, predictable, inconsequential things.

Day after day after day. Not so meaningful, emotional, surprising or new. Sameness is the kiss of death to memory. So this is why I can remember so much about that hike at Jenny Lake.

We tend to remember vacations because those days are not same old, same old. You're experiencing new scenery, new experiences you've never had before, a moose. Our brains are great at capturing things that are new. We also tend to take a lot of pictures when we're on vacation. And these photos give our brains opportunity to revisit and reminisce about what we experienced.

And when we do this, we are repeatedly activating the neural pathways of those memories, making them stronger. The majority of what we experience today will be forgotten by tomorrow. It's OK if we don't remember the details of every morning cup of coffee. Most of the time forgetting is not a problem to solve.

Now, I think you'd probably all agree that forgetting the details of folding last week's laundry not such a big deal. But our brains also forget plenty of things that we would say are a big deal. Like, I would very much like to remember to buy more toilet paper where I put my glasses, to schedule my son's doctor's appointment, and what you just said. These things matter to me.

In these instances, our brains can forget not because it's efficient for them to do so, but because we haven't supplied them with the right input necessary for memory creation and retrieval. So today I want to go over four kinds of forgetting and show you why they happen and why they're totally normal. And why is this important, by the way?

If you're going to be effective at having agency over your brain health and the health of your memory, then you have to understand that not every moment of forgetting is a cause for catastrophe or impairment.

OK. So the number one most common kind of forgetting that's totally normal. Where did I put my keys, my phone, my glasses, my car? The number one, first, necessary ingredient for creating a memory that's going to last longer than this present moment is attention.

You can only remember what you pay attention to. And this is why so many of our things go missing. Not because we're about to be diagnosed with Alzheimer's, but because we weren't paying attention. Let me give you an example.

So I often drive from Boston to Cape Cod. About an hour into this trip, I crossed the Sagamore Bridge. This is a really big four lane, can't miss it structure. And then about 10 miles in a mere 10 minutes later, I'll often wonder, wait, where am I? Did I already go over the bridge? I didn't close my eyes while I drove over the bridge. The visual information made it into my brain.

Well, I can't recall the experience of driving over the bridge because that memory was never created in the first place. It's not enough for my senses to perceive information. My brain can't and won't consolidate any information into a lasting memory without the neural input of attention. So because I've gone over this bridge countless times and so it wasn't meaningful, emotional, surprising, or new, my attention was pulled elsewhere.

And so the experience of driving over, it slipped out of my brain within seconds. Gone without a trace. So the next time you're driving down a familiar stretch of road, probably familiar stretch of road, and you realize you suddenly have no memory of the trip so far, don't panic. You don't have Alzheimer's. And once you bring your attention back online, you should recognize where you are.

If you have Alzheimer's, you can be giving all of your attention to where you are, and you still might not recognize it even if you're in a familiar neighborhood. You can't remember what's right in front of you if you don't give it your attention. So if you're having trouble keeping track of your stuff at home, if I'm putting my glasses down on the counter, give it a moment's attention. Watch it.

And you can even say it out loud, because by saying it, you've slowed down a little bit, and you've given your brain a chance to hear it, too.

Number two, most common kind of forgetting that's totally normal. “Oh, what's his name?”

So why does this happen?

Blocking on a word also called tip of the tongue is one of the most common kinds of memory retrieval failure. You're trying to come up with a word, and most often it will be a proper noun. You know you know this word, but you cannot for the life of you retrieve it on demand. So why does this happen?

Blocking on a word can occur when there's only partial or weak activation of the neurons that link up to the word you're searching for. And proper nouns are particularly tricky to reach. You can think of proper nouns as living in neurological cul-de-sacs. Ultimately, there's only one road that leads to that address you're looking for.

Unlike common nouns, which you can imagine living on Main Street where there are dozens, if not hundreds of roads, neural pathways that lead to that word. In psychology, this phenomenon is known as the Baker/baker paradox. So a person's name, Mr Baker, capital B, is an abstract concept. It lives in the cul-de-sac.

But Baker as an occupation, you can imagine that living on main street. It has lots of roads, lots of associations and access to it. So because there are so many ways to access Baker as an occupation, that word is much easier to access.

But Mr. Baker, because there's only one road that leads in, that word is tricky to activate. When we're in this uncomfortable state, we often come up with a loosely related word rather unfortunately called the ugly sisters of the target.

And even more unfortunately, zeroing in on an ugly sister is only going to make the situation worse. These decoys lure your brain activity down neural pathways that lead to them, and not to the words you're looking for. So now, whenever you try to come up with the word in question, all you can come up with is the ugly sister. Here's an example.

One time I said to a friend, what's the name of that famous surfer? Is it Lance? No, it's not Lance. He knew who I was talking about, but he couldn't come up with it either. We were both stumped in the tip of the tongue state. But it turns out that me blurting out the wrong name sent both of our brains to Lance Armstrong, the cyclist, and in this case, the ugly sister.

So now we were searching in the wrong neural neighborhood and we couldn't get out. So now we're like, is it Tour de France? Is it prostate cancer? Is it Sheryl Crow? Like what? We can't find it. The ugly sister also explains why much later, once you've called off the hunt, you're driving your car, you're in the shower and it bubbles to the surface. Seemingly out of nowhere, you're like Laird Hamilton! That's it!

So why does that happen? Well, by calling off the hunt in the wrong neural neighborhood, you give the correct set of neurons a chance to get activated. Now, tip of the tongue is normal and does not mean you have Alzheimer's. But to be fair, having difficulty retrieving words is one of the first signs of Alzheimer's.

If it's Alzheimer's, you're going to be blocking on many, if not dozens of words a day, not just one or two or a few a week. And they're going to be more often those common main street nouns than the proper cul-de-sac nouns. So if you have Alzheimer's, you're blocking on words like pens, spoon, phone, bicycle. And this is now not just a relatable inconvenience. This now feels like an all-day long game of charades.

Now we do experience tip of the tongues more frequently as we age. And you might have noticed this, I certainly do at 53. But this is also normal and has to do with slower processing speeds as we get older. Can't solve that one for you yet.

But it's helpful to know that 25-year-olds experience several tip of the tongues a week, but young people tend not to sweat them. In part because Alzheimer's, nowhere on their radars. And unlike their parents, young people tend to not hesitate and outsourcing the job to their smartphones. Which brings me to an important point.

You think that Google is a high tech crutch that's going to give you something called digital amnesia. Not true. It's a myth. So I do no harm in googling the name of the actor who played Tony Soprano.

I'm not weakening my memory whatsoever by doing that. And likewise, if I decide to suffer through the mental pain and come up with it on my own, I'm not making my memory any stronger. I'm just like in the wrong neural neighborhood. My brain's not doing anything useful. So we don't have to be memory martyrs, people.

Number three most common kind of forgetting that's totally normal, prospective memory.

OK. I have to pick up my dry cleaning. I have to move the laundry from the washer to the dryer. I have a Zoom meeting at 4:00. This is your brain's to-do list, a memory to be recalled at a future time and place, and it is fraught with forgetting.

Prospective memory is so bad, so unreliable in all of us, I think it should actually be called a kind of forgetting rather than a kind of memory. If the right cue isn't available at the right place and the right time, we forget to do what we intend to do a lot.

Well, maybe you're thinking, sure, sure. But if it were life and death. If it were critically important, I would remember to remember. Well, are our critically important life and death tasks that we need to remember in the future immune to forgetting? No, prospective memory is unreliable no matter the stakes, no matter the brains.

Let me give you an example that I hope are memorable. Between 2005 and 2013, 772 surgical instruments were left inside the bodies of patients. These really smart surgeons forgot to remember to take them out before closing the patients up. Prospective memory is terrible in all of us, which is why it's a perfectly good strategy to outsource the job. You want to write this stuff down.

Use to-do list, checklists, put what you need to do later in your calendar, use alerts and pill boxes. This is not cheating. This is good strategy.

Pilots do not rely on their unreliable prospective memories to remember to later on lower the wheels of the plane before landing. Thankfully, they use checklists, and surgeons use them now too.

So don't trust that you'll remember to do later what you plan now. You probably won't, and this is because you own a normal human brain. Last one. Number four most common kind of forgetting that's totally normal. Why did I come in this room?

So one night I was getting ready to read the next chapter of the book I was reading and I realized that I didn't have my reading glasses. And I thought I think I left them in the kitchen. So I walked down to the kitchen and I get there and I look around and I see the tea kettle on the stove and the refrigerator and I think, am I hungry? Am I thirsty?

No, I don't know why I'm here. So I go back up to my bedroom. And the second I'm back up in my bedroom, I'm like, reading glasses! So why does this happen to us?

So think about what happened in my example. I created the intention, the memory of: when I get to the kitchen, look for glasses. But why did that intention, that memory, evaporate from my mind so quickly? And why did it fail in the kitchen but then succeed moments later in the bedroom?

Well, part of the reason has to do with how terrible prospective memory is. The bigger reason has to do with context.

So memory retrieval is easier, faster, and more likely to be fully summoned when the context of recall matches the context that was present when the memory was created. So when I created the memory, the intention, when I get to the kitchen, look for glasses. I was surrounded by a certain context and cues.

When I got to the kitchen, there were none of those cues available to remind me. But instead, actually, I'm looking around at the tea kettle, the stove, the refrigerator. These cues actually misdirect the hunt, sending me down neural pathways that lead to meals or a cup of tea. Neural pathways that are in a different neighborhood, will not lead me to reading glasses. So the context of the new room you're in actually interferes with what you went in there for.

So the next time this happens to you and you walk into a room and have no idea why you went in there, don't panic. Doesn't mean you're getting old or getting Alzheimer's. Go back to the room you were just in, either physically or in your mind's eye. The context should deliver instantly what you went there for.

I should also mention that context doesn't just mean what's around you. We're much more likely to remember times that match the mood we're in. So if we're happy, we remember the good times. If we're bummed out, we remember the bad times.

Like, why would this be so? Anything that's available to my brain that I might be paying attention to can become woven into that memory as well.

What's outside of me or what's inside of me can become part of the memory, and activation of any part of the memory can serve to trigger the activation of the other parts. Forgetting is a normal part of being human. Focus on the parts of optimizing your brain health and memory that you do have an effect over. So thank you very much.

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