



'When people are chronically short of sleep, what's important gets shaken up with immaterial things. It's all a blur.'

CATHRYN JAKOBSON RAMIN TALKS WITH KATE FILLION ABOUT MEMORY LOSS, NEUROSCIENCE AND WHAT DRINKING DOES TO YOUR BRAIN

Q *Middle-aged people joke about having "senior moments," yet privately, many people are terrified when they start to blank on names and so forth. How worried should we be about memory loss?*

A: Occasionally misplacing your sunglasses and finding that they're on the top of your head is irritating but it's not pathological. There is such a thing as perfectly normal mid-life, age-related memory impairment. There's a change in processing speed that occurs in your late twenties, but you don't feel it then because you have what I refer to very unscientifically as a spare suitcase of neurons and synaptic connections, and these will hold you through your late twenties and thirties and oftentimes into your early forties. Scientists refer to that suitcase as cognitive reserve, and how much you have has a lot to do with how you've lived your life.

Q: *In your new book, *Carved in Sand: When Attention Fails and Memory Fades in Midlife*, you describe how you were evaluated and diagnosed by experts and tried 10 separate interventions to try to improve your memory. At one point, you tried a stimulant commonly prescribed for ADHD, and your memory and ability to focus improved dramatically. It made me feel like running out and getting some Ritalin. Is there any reason not to?*

A: There's a darn good reason. You'd be very focused during the day, you'd almost be hyper-focused, and you'd get lots of work done.

If you're having word loss issues, those will be to a large part resolved, and if you're having spatial issues, like you forget how to drive places you've been before and this is a relatively new problem for you, that will be resolved, because you will have a nice kick of dopamine in your bloodstream and your neurons will be snapping it up like nobody's business.

Q: *That sounds fantastic.*

A: Check it out at five in the afternoon: you will be in withdrawal. If you're an adult, at 5 p.m. you must be functional, you must have empathy, you must relate to the people around you, you cannot be in withdrawal. It wasn't doable for me. But there's a drug called Provigil that was approved for narcolepsy and excessive daytime sleepiness, which has some wonderful characteristics in terms of enhancing attention without the withdrawal.

Q: *You tried it for your book, but do you still take Provigil?*

A: Occasionally. It's a cognitive enhancer, and I think it's the first generation of a drug many of us will be taking in the future.

Q: *You found that a lot of the normal conditions of modern life—too much stress, too many technological devices creating constant interruptions—are linked to memory impairment. Are we worse off in terms of memory than people were, say, 100 years ago?*

A: In addition to the 300 or so mid-life individuals that I interviewed, I decided to talk to people in their 70s and 80s because I wanted to know how they felt when they were in mid-life. And one after another these very

with-it people said, "I don't remember anything like [memory loss] in middle age."

What's different is that we are now subject to relentless, uncontrolled information flow. It used to be that to have information hit you, you had to answer the phone or answer the door, it was all optional. That's not the case any more. You can't be in the workplace without having a constant flow of information from your email, your voicemail. In a recent study, some investigators went into an IT corporation thinking they'd do an assessment of how often interruptions occur in the workplace. They were thinking every 15 minutes or so, but they found it was approximately every three minutes, and that only two-thirds of the work was resumed on the same day after the interruption. So in other words, one-third of your work was out the window after an interruption! People who've stopped multi-tasking feel vastly more relaxed and make far fewer errors.

Q: *If you make other basic lifestyle changes can you improve your memory?*

A: Absolutely. In mid-life we're not normally suffering from actual memory loss. People say all the time, "My memory's going," but a lot of other things are lumped under the heading of memory. Real, true memory loss is this: someone hands you a multiple choice vocabulary test and you cannot define words you've known all your life. That is very serious business, it's certainly a suggestion that you're beginning to decline into some form of dementia. That does not hap-

pen in mid-life, typically. What does happen is we experience a substantial change in attention, and we are far more distractible. One scientist described it this way: there's this neural bouncer we have when we're younger—try to envision the nightclub bouncer with his hand on the velvet rope—and it keeps unnecessary information from infiltrating, so that we remain more focused and have better concentration. But as we age, the neural bouncer goes on multiple coffee breaks, and all sorts of riff-raff start to get in. What lifestyle changes do you need to make to deal with that? Nutrition is a very important factor. Some fairly new research shows without a doubt that obesity, hypertension and diabetes get you on the fast track to Alzheimer's disease.

Q: *So the same kind of diet you need to keep your body and heart healthy also keeps your brain working?*

A: Yes, especially antioxidants. People say, "Nobody can eat eight servings of fruit and vegetables a day." It's really hard to do unless you're a grazing animal, and it's not cheap. Get as many as you can, but also don't be afraid to supplement—though supplements alone are not a good choice, because they are not absorbed in the gut in the same way.

You also want to think about more omega-3s than would normally be necessary for your heart. The way these supplements work is to maintain flexibility of the cell wall of the neuron, so information can be conducted quickly; the stiffer the cell wall becomes, the more sluggish processing becomes. I also take vitamin E and magnesium, because some studies show that much of the cognitive foginess people experience in mid-life is very likely due to insufficient magnesium.

Q: *Let's talk about sleep. The stereotype is that we need less as we age, but you say we still need eight hours—it's just harder and harder to get it in mid-life because of hormonal changes and changes in the brain.*

A: Memory is consolidated during sleep. Unfortunately, our sleep cycles get shorter and shorter, and we wake up in-between them. We need to get three full cycles of sleep in order to make it through the whole process, and each one of those cycles takes about 2.5 hours. If you're only sleeping five hours a night, you can't possibly be getting through three full cycles.

I refer to what's going on during sleep as the visit of the neural housekeeping staff, which sweeps out all the irrelevant information from the course of that day: what your co-workers wore, what someone else had for lunch. But when people are chronically short

of sleep, what's important doesn't necessarily get remembered, it is all jammed together and shaken up with immaterial things. It all becomes a blur.

Q: *You found that many common over-the-counter and prescription medications impair cognitive functioning and memory in some way. Why don't doctors ever mention this?*

A: Physicians are primarily there to help you out with your main complaint. So if you come in and say, "Doctor, I am wildly anxious, it's interfering with my life," they will, in all likelihood, write you a prescription for an anti-anxiety drug and say, "Take this for two weeks, then call and let me know how you feel." If you call and say, "I liked that, give me a refill," many will give you one. A wide range of antihistamines, anti-anxiety drugs, antidepressants, some drugs that affect bladder control—there's a vast range of drugs that affect memory. Any time a drug's label says, "This may make you drowsy," you can replace the word "drowsy" with "stupid," and you'll have a pretty good idea of the potential side effects. It's very important to say to your physician, "Are there cognitive side effects?" Physicians do not want to tell you that there are, because, first, the power of suggestion is very great. And they do not wish to tell you that certain drugs, which people take for hypertension, have cognitive side effects, because they are also critically important for maintaining control over hypertension. Doctors never mention that chemo has cognitive side effects, either.

Q: *What are some things the average middle-aged person could start doing tomorrow to improve her memory?*

A: Definitely cut out the trans fat, lose some weight, and then make sure you're getting plenty of aerobic exercise. Studies are now showing that getting the blood pumping to the brain—taking an extremely fast walk on hills, or getting on an elliptical trainer, or taking salsa dancing—anything that gets your heart rate up to a high level and sustains it, two to three times a week, is important.

Q: *If you start doing some of those things, can you stave off Alzheimer's?*

A: That is sure what it looks like. We were fed this line that this is a disease of old age, but the seeds are planted in mid-life, if not earlier. There is a genetic aspect to Alzheimer's disease, no doubt about it, but this is not a deterministic gene. There have been twin studies done, and there are many ongoing which will show that among identical 80-year-old twins, one will develop the disease, and one won't. There is something going on here, and that's lifestyle. Did you drink heavily? Did you smoke? These two things are pretty terrible for your brain. People say, "What about that research showing red wine is really

good for your brain?" The newer research shows that the ideal quantity is about half a glass of wine two to three times a week. That would be a medicinal drinking habit. The sad part is that people don't drink half a glass, they'll drink two glasses. If you happen to carry one of the genetic variants that slightly increases your risk of developing Alzheimer's disease, drinking exacerbates that. Many things exacerbate that risk, but alcohol is one of the major known ones.

Q: *Knowing all that you know about memory and the brain, what would you do if you were diagnosed with Alzheimer's disease tomorrow?*

A: First of all, I would make sure that that diagnosis occurred at a major university research centre—don't trust an internist, or even

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necessarily a neurologist in private practice. And I would devote myself to being in clinical trials for research purposes. The trials are changing constantly, but there are many: different kinds of drug trials, vaccine trials, shunt trials. Some of these are going to be the winners, but the only thing that's going to allow us to have this conclusive evidence is if enough people volunteer to participate in these protocols. The earlier the diagnosis is made correctly, which is the tricky part, the earlier you could begin a protocol and the better chance you will have of either slowing the process of the disease or potentially stopping it in its tracks. **M**

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