# Health & Wellness Webinar: Promoting Brain Health – Discover How to Reduce Your Risk of Dementia

## September 13, 2023

## Transcript

### [0:00 Introduction]

Dr. Anthony Levinson: Welcome everyone on Zoom and YouTube Live. I'm really excited to have everyone with us tonight and, especially my friend, colleague, and guest, Dr. Richard Sztramko. So, I am a psychiatrist with a special interest in psychiatry for the medically ill, and cognitive impairment and dementia. I'm also a Professor at McMaster and one of the co-leads of the McMaster Optimal Aging Portal, and while I tee up the slides, Richard, why don't you say a little bit about yourself?

Dr. Richard Sztramko: Sure, thanks so much for the introduction. My name is Richard Sztramko I'm a geriatrician. So, I take care of complex older adults, and I have a specialty practice in neurobehaviour, which includes things like dementia, Parkinson's disease and other neurodegenerative conditions.

Dr. Anthony Levinson: So, Richard and I have also had a chance to review some of the many questions that were sent in advance, which was excellent. So, as we go through the presentation, we have tried to address as many of those questions as possible, but after the presentation, we'll have a chance to try to cover some of the other questions that were submitted in advance, and then if you are able to send in questions through Zoom or YouTube (I'm not sure how easy it is to submit through YouTube Live), we'll do best that we can in the allotted time. But without further ado, why don't we get started?

### [01:32 What is dementia?]

Dr. Richard Sztramko: So, the first question is, "What is dementia?" and dementia means that you have problems with your memory or thinking. It could be short-term memory, where you can't remember what happened several minutes ago or several hours ago, complex reasoning or processing; those are your different cognitive areas. When someone comes in, we can test the cognitive performance and pen and paper testing, and we can see that there's a deficit in the person that has dementia versus what their peers might score, and then impacts their ability to live independently. Usually, the way that we measure that is through 'instrumental activities of daily living'. So initially, somebody might have problems with their finances. They are paying a bill too many times, or they're missing credit card payments. Or perhaps they can't cook complex meals the way they used to. And their friends or family, in that case, have to help them out to get through their day-to-day life. And so those three things together comprise dementia.

The usual causes of dementia, the most common ones, include toxic proteins or damage to blood vessels in the brain. The accumulation of the toxic proteins, so in Alzheimer's disease for example, there's a protein called beta-amyloid or tau. It's unclear what causes the accumulation, but we know that the proteins are bad for the nerve cells in the brain. They impact the electrical impulses between nerve cells. Initially, they interfere with metabolic processes and cell health, and eventually, they result in death. Low blood flow or low oxygen in the brain is a little bit easier to understand, and we'll get to that a little bit later on. Dementia is an umbrella term. So, that's the most common question I get in my clinical practice. “What does dementia mean? What's the difference between Alzheimer's and dementia?” And really, dementia are those three factors that we mentioned before. So, decrease in cognitive capacity, testing problems, and interference with daily life. But then the causes here, the types, are outlined here. So, Alzheimer's disease, vascular dementia, Lewy body dementia, frontotemporal dementia, and mixed dementia usually means there's more than one type of pathologic process happening. And the way we tell the differences between these conditions is the stories that people tell and the testing results that they have. So, they look quite different, but this is a common question we receive.

Dr. Anthony Levinson: So, within Canada, over half a million people currently have dementia. It's a fairly significant population-wide problem, with over 25,000 cases per year and almost a million cases expected by 2031. So, that is just speaking about the numbers of people living with dementia, but the impact is felt by family, and friends, and caregivers. So, it really does touch the lives of many. And the other thing to consider is that as our population ages, dementia prevalence will go up. So, age remains one of the most significant non-modifiable risk factors for dementia. So we'll talk about that in a second, but basically, very few people in the 65 to 69-year-old age group have dementia. But every five years in age, the risk kind of doubles so that the prevalence of dementia, the percentage of people over the age of 85 and 90, becomes quite high and quite common. So, actually, if you're over the age of 85, the prevalence of dementia is about as common as other common conditions like heart failure.

So, we care about this topic a lot, and the idea that one could actually do something to try to reduce the risk of dementia is actually a new concept. In the past, people didn't really think you could do much about it, but we're interested in it because new research suggests that you can actually decrease your individual risk of developing cognitive impairment or dementia. But I think many of you might also be interested in your individual risk or risk of a family member, and this is also an important public health issue in Canada and globally, as rates of dementia are also increasing around the globe. So, let's talk a little bit about what we can do to prevent dementia or reduce risk.

### [6:26 How does our cognition change as we age?]

Dr. Richard Sztramko: An important continuum to recognize is that you can see age-related cognitive changes. So, I can't run as fast as I used to, and that continues on into your 70's and 80's. You might not be able to jump as high. Your heart may not function perfectly as well, but usually, we don't recognize those age-related changes. So, your speed of processing information or comprehending new information might decrease somewhat, but generally, your wisdom increases throughout your life, your vocabulary stays where it always has, and generally, people don't notice it though. They'll normalize it to age. So, somebody who's 80 might not be quite as quick, but people won't complain about it, and they function fine day-to-day.

Mild cognitive impairment is where people start to notice some changes that are bothersome. It starts to impact their day-to-day life. Their friends or family might complain about it to them, or the person themselves experiencing the changes will notice them. And when they go in and see a doctor, they'll notice that there's some mild testing changes. The differentiator between mild cognitive impairment and dementia is that people with mild cognitive impairment can still get through their functional activities day-to-day without any problems. So, an example I like to give is that they might take a little bit longer to do their taxes or do their grocery shopping, but they can still complete those tasks, whereas the person that has dementia has more significant cognitive impairment, worse test scores, and then they can't get through their day-to-day activities on their own.

It's important to note that Alzheimer's takes place, and we're using this as an example for dementias, Alzheimer's takes place over a long period of time. So, the accumulation of the protein and the damage to the brain actually starts many years before people start to notice the memory and thinking changes. So, in preclinical Alzheimer's disease, we can see on scans that the beta-amyloid has started to accumulate, but they don't have any symptoms at all. Then, when it gets a little bit worse, they'll have mild cognitive impairment symptoms. So, they're very mild, but they don't impair day-to-day activities. And then, as more and more of this protein accumulates and the cell dysfunction in the brain happens, people will notice moderate or mild-moderate, and severe disease over a span of many years usually.

### [9:06 How can you prevent dementia?]

Dr. Richard Sztramko: So, what do we mean by ‘preventing dementia’? We want to decrease the lifetime risk of dementia. So, hopefully, somebody might not get dementia at all. We might want to delay the onset. So somebody could be genetically predisposed to have dementia in their 70s, but if we perform certain activities, we can delay onset to their 80s and give them 10 more years of quality of life. And in some instances, we want to slow the progression. So, from start to end, somebody might have had dementia for eight years, but perhaps, if you have these interventions or partaking in healthy activities, then you're able to slow the rate of progression, and perhaps they might have dementia for 15 years. The types of risk factors that we're looking to intervene on are the modifiable risk factors. These include things such as physical activity, diet, exercise, and environmental exposures. There are non-modifiable risk factors that we can't do anything about, so age, gender, family history or genetics. Most cases of dementia or cognitive impairment aren't strongly related to genetics or inherited. So that's something to put out there, and if we focus on these modifiable variables, we're going to show you that there's quite a bit of risk reduction that can take place, and it's important to know these in midlife because that's when you'll get the most impact from these activities.

Dr. Anthony Levinson**:** I would say the goal here, to some degree, is to sort of tip the balance. Are there ways, things we can do, modifiable risk factors, where we can try to reduce some of that damage to the brain that Richard was talking about earlier. And there may be other activities that we can do that we'll talk about that can increase your cognitive reserve or your capacity. So, just as Richard was talking about, these two things together can hopefully delay the onset or prevent the onset or delay any progression. And as I was saying before, previously, it was not really appreciated that you could significantly reduce your risk, but there's been increasing scientific research over the last decade or two that can, that shows that actually, those modifiable risk factors can reduce your risk substantially of developing dementia.

So, before we get into each of the things that you can do, I do just want to say this is a tough area to study. So, the prevalence of dementia, while common in the later years, is less common in the early years, and for some of the dementias, like Alzheimer's, which is the most common kind, the progression may be very slow. So, you may have to follow people for many years, and the types of research that's typically done is observing people, and retrospectively looking at risk factors, and following people over long periods of time. So, those studies are quite expensive. We're really fortunate at McMaster we have the Canadian the center of the Canadian Longitudinal Study on Aging with Parminder Raina, but these types of long observational studies with large cohorts of people are quite time-consuming and expensive, and there aren't that many large cohort studies like that. There's very limited data when we think about some of the sort of best evidence types of studies, like randomized control trials. There's very limited data around some of it. So, I just want to set the stage that while we do have increasing evidence around dementia risk reduction and the ways in which you can reduce your risk, some of the data continues to evolve, and not all of the evidence is sterling in terms of its quality. We are talking today about sources of evidence that tend to be higher quality. So, the best evidence sources, things like the WHO Guidelines from 2019, which used mostly systematic reviews. And the Lancet Commission Report from 2020 was another excellent source that identified sort of evidence-based risk factors and risk reduction strategies. So, we'll largely be talking about that. We've lumped them together into 'Six Ways to Promote Brain Health and Reduce your Risk of Dementia', and we're going to walk through each of these in more detail.

### [13:43 Physical activity and weight management]

Dr. Anthony Levinson**:** So, let's start with physical activity and weight management, and there's pretty solid data that physical activity can benefit your brain health, and conversely, physical inactivity is a risk for dementia. The recommendations that we follow, and the things that have been shown to reduce risk, are those that come from the 24-hour Canadian Movement Guidelines, and those basically say every week 150 minutes of moderate to vigorous exercise. If you're older than 65, it also benefits adding in a couple of days with strength-based exercises and things that might help with your balance, as well. The 24-hour Movement Guidelines are also interesting because they make recommendations around trying to reduce your sedentary time. So even light activity, like standing and light walking, is better than being sedentary. So, for many people, if you can shift the spectrum, change some of your sedentary time to standing or light activity, and change some of your light activity to moderate-to-vigorous activity, those would be great strategies to promote brain health.

In terms of sleep, as well, there's less data, but emerging data that getting 7 to 9 hours of quality sleep may also be beneficial.

From a weight management standpoint, trying to maintain a healthy weight. Trying to manage if you have obesity, trying to manage that because there is some data that suggests obesity is both an independent risk factor for dementia but also predisposes to some of other conditions, like diabetes, that are also risk factors for cognitive impairment. And there there is data that shows that if you can maintain a healthy weight, cognitive testing can also be shown to improve. So, first thing you can do is physical activity, weight management.

### [16:17 Blood vessel health]

Dr. Richard Sztramko: Second thing that you can do is to treat medical conditions that promote blood vessel health. The most common pathway where the brain can get damaged is through accumulation of cholesterol deposits or atherosclerosis. So, there's accumulation of cholesterol within the blood vessels in the brain, and that can either cause decreased flow or low flow of oxygen to the brain, or it can cause a rupture of those plaques, which results in blood clots and strokes which can cause a very abrupt decline in predisposed people to dementia as well. So, it's very important to manage your blood vessel health. The interesting thing, though, is that diabetes and high blood pressure, aside from the blood vessel or vascular stroke-related changes, are independent risk factors for Alzheimer's disease. So, even the toxic protein dementias are related to blood vessel health.

So, for blood pressure, we want to keep it really as low as possible, so less than 120 on 80 is important and a good target for most people. However, older or frail adults might have challenges with increasing side effects from blood pressure medications. They might not be eating or drinking as much, so when they stand up, their blood pressure might drop. So, you might want to loosen somebody's blood pressure targets based on their age, their degree of frailty, and the side effects they may experience from medications. The way that we can reach these goals is through diet, so having moderate or low sodium intake, exercising on a regular basis, reducing stress, and even things like sleep or meditation. Oftentimes, those won't be good enough, and people will require medications to do that. So, there are selections of medications, as either individual medications or combinations, that can result in reaching these targets. I would also say it's very important to measure your blood pressure correctly and have an accurate log. There's often times people will be drinking too much coffee or exercising before they measure their blood pressure. So, before you're trying to target something, you want a very accurate representation, and that could be taking your blood pressure three times a day for seven days. Sometimes, your physician might order a 24-hour blood pressure monitor, where it inflates every 30 minutes or 15 minutes for 24 hours. And so, I would stress that get an accurate measurement before you try and tinker too much with your blood pressure.

Diabetes is a very important risk factor for stroke, coronary artery disease, heart attacks, and chronic kidney disease. So, what we target for people that have diabetes is a hemoglobin A1c of less than 7%. Again, in some frail or older adults, we might keep that a little bit higher, but that's basically a three-month average of your blood glucose levels. So that's the target. We know that if we keep that target lower, then you're at a decreased risk to having complications such as the vascular disease we noted. So again, the approach is through diet, exercise, and medications.

And then high cholesterol, otherwise known as dyslipidemia. So, I like to say here there's a difference between someone who has had a stroke or had a heart attack. If you've had a stroke or heart attack, then it puts you at the highest level of risk for having another stroke or heart attack or other vascular complications, and so statins are reasonable medications to try and decrease your risk of having those events in the future. If you haven't had one of those events, then we can perform scores in the clinic that can get an idea of the risk. Because if you're very high risk, then that means you're more likely to benefit from cholesterol-lowering therapies or strategies. Whereas if you're lower risk, we would not want to be that aggressive. And you're getting a similar theme here in that we can try and lower your cholesterol levels through diet, exercise, and weight management. And then, as necessary, we can use certain medications. So, I mentioned statins, there are fibrates, there are other medications we can use, but the same general approach applies to all of these.

Dr. Anthony Levinson: There's a bit more like direct evidence for high blood pressure and diabetes as direct risk factors for the development of dementia, but all three of these things are important factors to consider in terms of your overall blood vessel health.

### [21:18 Smoking, alcohol consumption]

Dr. Anthony Levinson: So, thing three. We've talked about physical activity, weight management. We've talked about blood vessel health. The third thing is stop smoking and don't exceed moderate alcohol consumption.

So, although most people are aware that cigarette smoking is bad for their lung health or their heart health, it turns out it's also an independent risk factor for brain health and can contribute to dementia. As can secondhand smoke, as well.

The alcohol story, I think some of you are probably aware there was older guidelines that talked about sort of lower-risk drinking in terms of number of drinks per week and then more recently, the Canadian Council on Substance Abuse, the CCSA, came out with more stringent guidelines identifying even more health risks with alcohol intake, more than say two drinks per week. So they were talking about overall health risk, not just to the liver, but also risk of cancer and other ill effects of alcohol. When it comes to alcohol as a risk factor for dementia specifically, it looks like anything more than 14 standard drinks in a week, which is sometimes referred to as 'heavy use', it puts people at increased risk of developing dementia. So, I'm not saying go ahead drink up to the point, but I am saying that the risks, that there are health risks identified with both smoking and drinking, both are independent risks for the development of dementia. The threshold for smoking is pretty low. Pretty much any smoking may contribute some kind of damage to the brain. For alcohol, it looks like 15 drinks per week is sort of the threshold considered to increase your risk for the development of dementia, but there are other health risks associated with even fewer drinks per week.

### [23:36 Nutrition, diet, and supplements]

Dr. Richard Sztramko: So, nutrition, diet, and supplements is the next area we will target. Healthy diet has been associated with more reasonable brain volumes with age. The specific diet we focus on in this case is the Mediterranean Diet. So, looking at things like increasing your vegetable consumption, legumes. So, the five servings of vegetables per day, having legumes and nuts, consuming olive oil and fish, less likely to be consuming red meats. So, the nice thing about the Mediterranean Diet is that throughout middle life, it's associated with a decreased likelihood of developing dementia. In certain people that have been identified with mild cognitive impairment that have started the Mediterranean Diet, it's shown some improvement in their cognitive function. The one thing that I think we should refer back to in Anthony's first part of the talk is that there's limitations on evidence. So, there was just a new trial that came out in the New England Journal that showed that the Mediterranean Diet and antioxidants were not that effective in some somebody that had mild cognitive impairment or early-stage dementia, and so this kind of points to the limitations. It just makes us want to start these things earlier in life because it might be too late by the time that you actually develop dementia itself.

There's no compelling evidence for supplements. So if you had a specific deficiency in, let's say, vitamin B12 or B1, then that would be something you might want to supplement. But, you know, elevated doses of vitamin D or other supplements have not been shown to be very effective at decreasing one's dementia risk.

Dr. Anthony Levinson: And I will say we had quite a few questions that came in around very specific supplements like ginkgo biloba and others. And you know, for many years, people have looked at this. They've done sort of reviews of the scientific literature, and so far nothing has emerged as sort of any type of miracle in terms of dementia risk reduction.

And while the Mediterranean Diet and there's a few other diets, like there's one called MIND, which is kind of a combination of the Mediterranean Diet and that low sodium DASH diet, that one has also had some encouraging evidence around it, some diets that talk about having superfoods, that whole concept around superfoods might be a bit overblown as well. So, healthy-ish diets, Mediterranean Diet, there's some evidence around that.

### [26:35 Cognitive and social activity]

Dr. Anthony Levinson: So, the next section where there's been evidence is around cognitive activity and social activity, and those are each a little bit different. With cognitive activity, I guess back to thinking about the brain in a similar way to physical activity, cognitive activity is sort treating your brain as a bit of a muscle that needs to be exercised. And it probably involves being active, engaged, pushing yourself to learn new things. So that it's, you know, there may be some merit in doing games like Sudoko or crosswords or Scrabble, but it's probably important that you try to push yourself to learn something new, learning an instrument, or a language, or doing a more difficult type of crossword, something that's pushing you so you're not just doing the same thing. There's very little evidence around, well, which specific activities. A little bit of emerging evidence that being more active and engaged, such as using the computer as opposed to, say, passively watching TV, might be better. There's also a whole industry around kind of 'brain training' or 'brain games'. I would say they may help you to do the brain game better if you practice it, so playing brain games probably helps you do well at brain games, but they might not generalize into a more sustainable effect in other parts of your life. But, the data does suggest that maintaining cognitive engagement, reading, learning new things, participating in conversations with people, those things are good for your brain health.

The social activity one is interesting. Social isolation and loneliness are now perceived as kind of important risk factors for a range of other medical conditions, and social isolation is also an independent risk factor for dementia. So, there's probably another. You could see an interaction. The less socially active you are, probably the less cognitively active you are, but it seems to function as an independent risk factor as well. So, maintaining your interest and curiosity, friendships. These are all things that are important for the maintenance of brain health.

### [29:17 Medication adverse effects and other conditions]

Dr. Anthony Levinson: Finally, we've sort of cheated by lumping a bunch of things into this category. So, first, I want to talk about medication adverse effects. Medication adverse effects are common and important. They're not really like risk factors for the development of dementia, but they can cause impairments that may be confused with dementia. So, they're sort of potential causes of reversible cognitive impairment. So, when somebody comes to see either Richard or I for assessment of cognition, we are always looking very closely at which medications they're on because they may not have an underlying dementia; they may have serious side effects to medications that are affecting their cognition.

So, I'll mention a few important ones. Sedative medications, like benzodiazepines. These are like lorazepam, clonazepam. These may be beneficial for some people for sleep or anxiety, but over time, they can also accumulate, and they can be associated with not just balance problems and falls but also cognitive symptoms like memory issues. Other sleeping pills that are sometimes advertised as being safer than benzodiazepines things like zopiclone or zolpidem. These are the 'zed' drugs that are often prescribed as sleeping medications may also cause side effects or, memory problems or cognitive slowing.

Some antidepressants, especially ones that have a particular type of side effect, so anticholinergic medications, is something that's on the the next bullet point. Many medications block a particular neurotransmitter called acetylcholine, and that turns out to be a very important nerve transmitter for memory. So, these drugs with side effects, some of the older antidepressants, like amitriptyline, for example.

Many of the drugs that help with bladder incontinence also have these anticholinergic side effects that can present as striking memory impairment. Pain medications, like opioids or narcotics, are another common cause of cognitive impairments that can look a lot like dementia.

These other conditions and issues that we've identified, though, these turn out to be important independent risk factors for dementia. So, hearing loss. If you have hearing loss, you are at a 90% increased risk of developing dementia versus somebody who does not have hearing loss, and there have been recent studies showing that if you get your hearing checked and you use a hearing aid to mitigate any hearing loss, you can reduce your risk of dementia. So, it's really, really important at a public health level and at an individual level that one, we should try to prevent damage to our hearing. So try to avoid exposure to loud noises that can damage hearing at any point, but also get your hearing tested, and if you have a hearing loss, mitigate it with the use of recommended hearing aids because that can reduce your risk of dementia, and it's one of the most important risk factors that can be modified.

One of the newer risk factors that has been identified in the last few years is having had a traumatic brain injury. So sometimes people will be aware at the time, 'Okay, this is bad'. They may have had a serious concussion. They may have lost consciousness at the time, but they may not be aware that it also puts them at increased risk for the development of dementia later on.

Depression is also an independent risk factor, and while previously it was thought that it was only depression in later life, it looks like depression, even in middle age and younger years, is another important risk factor. So important to try to prevent depression and have it treated if it's identified.

Air pollution: I mentioned secondhand smoke when we were talking about smoking, but air pollution is a new risk factor for dementia. There isn't a ton of data, but there was one very well done study. So, this is kind of an emerging area to watch from a risk standpoint.

### [34:13 The more healthy lifestyle behaviours, the better.]

Dr. Anthony Levinson: So, the other thing that's very encouraging, in addition to the fact that there are all these modifiable risk factors that we can do, things we can do to reduce our risk, it turns out that the more things we can do, the better. So, this was another series of well done longitudinal or longer studies that were published in the Journal of Neurology, and it looked at a cohort of older adults who did not have dementia at the time that they started in the study and they were studied for many years, and they looked at five healthy lifestyle behaviours and people who could do two to three of the behaviours that you see lowered their risk of Alzheimer disease by 37% compared to people who were only doing one or none of those behaviours. If you were able to do four or five of the healthy behaviours, you lowered your risk of Alzheimer's by 60% compared to those who only did zero or one. So, the more healthy lifestyle factors, the better brain health, and this wasn't even looking at other really important risk factors like hearing loss.

The other thing that's good to know is what's good for the brain is also good for the body and vice versa. So many of the risk factors that we've talked about today in terms of healthy lifestyle factors also turn out to be risk factors for heart health, and, you know, cardiovascular health and cancer risk. So, doing these types of healthy lifestyle behaviours may reduce your risk, not just for dementia but also for cancer.

I talked before about how we like to reduce damage and increase reserve. This is a figure from the Lancet Commission report that sort of puts it in context, like minimizing some of those things that contribute to blood vessel damage, the toxic effects of cigarette smoking, the effects of a traumatic brain injury. Those things may be able to reduce some of those toxic protein or vascular damage that may progress to and lead to dementia. And similarly, if we can treat hearing loss, if we can maintain social and cognitive activity, we can maybe boost our reserve so that we can kind of delay the onset of any symptoms.

One of the biggest risk factors which we didn't talk about in early life is education. So, we're very fortunate that most of us in Canada do get 12 years of education in childhood, but that's a major public health risk factor around the world because, in many countries in the developing world, there may not be that early education, which can account for up to 7% of the modifiable risk of dementia. So, each of the risk factors that we've talked about today, the lower level of education, your risk is 60% higher if you didn't have 12 years of education in your early years. Hearing loss, I mentioned. You can reduce that risk by 90% by mitigating it. So, this gives you some idea. This is from the Public Health Agency of Canada's site. It is based on the Lancet report around dementia prevention. But this is really a good news story about the amount that you can reduce your risk of dementia.

So, a significant amount of dementia can be delayed or prevented. 'It's never too early or too late' for some of these risk factors. They've shown that changes in late life can also reduce the associated risk. 'What's good for the body is good for the brain.' You can also reduce your risk of some of the other chronic illnesses, things like cancer and heart disease, through some of these healthy behaviors. And the more you can address, the better.

Just to kind of walk through specifically, though, be physically active. Manage your weight. Eat healthy, something like a Mediterranean Diet. Don't smoke. Limit your alcohol use. Look after your blood vessel health. Control high blood pressure. Medications for high blood pressure actually are, right now, they're the only medications that have been shown to prevent dementia. Manage diabetes if you have it. Be cognitively and socially active. Look after your hearing; such an important risk factor that I think many people don't realize. Get your, protect your ears from excessive noise and get your hearing tested and use hearing aids if you do have hearing loss. Try to prevent falls and traumatic brain injury. Wear a helmet if you're cycling, for example. And then some of these other health conditions or medication side effects that may look like dementia. So, really important, have your medications reviewed. Are you on any of sedating medications or anticholinergic ones that may affect your memory and your thinking? And if you have other health conditions, like depression or conditions that might affect your oxygen levels in your brain, get those managed as well.

Dr. Richard Sztramko: I'm going to add Anthony there as well is just, you know, 'what's good for your body is good for your brain', and there's the long-term goal of reducing your dementia risk. You mentioned the cancer risk. But also, like heart attacks, strokes, chronic kidney disease. Like all of these bad things are reduced by doing these things as well, and then they actually make you feel better. So, getting better sleep makes you a better person day-to-day, as is getting exercise and all of these things. So, you have the long-term goals, but you should also be motivated in the short term because they improve your life immediately. Fantastic point.

### [40:28 ‘Old-age-forgetfulness’ versus dementia]

Dr. Anthony Levinson: So, let's go to some of the questions. So, we did talk about this a little bit, but I'm wondering, can you distinguish between 'old-age-forgetfulness' and Alzheimer's disease and other dementias?

Dr. Richard Sztramko: It is quite profound. The best way to do it is on the testing because you can see so clearly. If I ask somebody to remember three words and I wait a minute, and they can't remember those words. And I could say 'ball, car, man', and in a minute, they can't remember that I even mentioned those words; that's a really easy way to distinguish a significant episodic memory problem. So, in the clinic, for us who are experts, it's very easy to distinguish. You know, for people at home, it's really those functional things. Like if you can't, if you have a really significant memory problem related to Alzheimer's, you'll start losing objects around the house. You're not going to be able to keep up with your appointments. You're going to start forgetting to pay the bills. So, whereas people that just have some mild forgetfulness won't have those functional problems. The functional problems are the key to the diagnosis.

### [41:35 How often should I be tested for dementia?]

Dr. Anthony Levinson: One of the other questions we had was, “How often should I be getting tested for dementia?”.

Dr. Richard Sztramko: I wouldn't start getting tested for dementia unless you start having cognitive problems. Like you're starting to notice yourself. Your spouse is starting to notice. Your friends or family are starting to notice things. I see a lot of people that are like the 'worried well', right? They're very concerned about their cognition, and every little, small change that they're noticing as they age causes them stress and they want to get tested. So, they get tested, and everything is fine. And so, there's a certain point where you start screening and testing and worrying too much about your brain function that you are diminishing immediately your quality of life now. So, I would let the signs or symptoms kind of lead the way and always remember to talk to your doctor or trusted health professionals to guide you through the process. Don't feel like you have to have all the knowledge in advance of appointments.

Dr. Anthony Levinson: We did get a lot of questions about dementia itself, and I am kind of wondering if we might need to do a separate webinar on the topic of dementia and dementias. I'll talk about some other resources at the end, but I'll cover off a few others, but I did also want to keep today's webinar mostly talking about, you know, modifiable risk factors. So, if you did send in a question about dementia, many people do have questions about dementia, I'll point you towards some other resources, but we'll take a couple of other questions related to that, but mostly, I want to talk about sort of risk reduction.

### [43:16 Are there treatments for Alzheimer’s or other dementias?]

Dr. Anthony Levinson: Are there treatment or treatments for Alzheimer's or other dementias? Can atrophy be reduced? And there was another specific question about what does Aricept do? So, maybe just talk about are there treatments for Alzheimer's or other dementias?

Dr. Richard Sztramko: Right, so we separate the treatments out into symptomatic benefit or disease-modifying. Meaning, can you make the brain grow back? Can you get rid of those toxic proteins? So that's what disease modifying is. Aricept is part of a group of medications called cholinesterase Inhibitors, which increase the levels of acetylcholine in the brain and improve cognitive performance, can improve psychiatric outcomes, can improve functional outcomes. They don't change the underlying brain. They just help the brain by increasing the levels of acetylcholine, which would otherwise have been diminished or lessened by the toxic proteins in Alzheimer's disease. So that's symptomatic benefit through Aricept or cholinesterase inhibitors. There's another medication called memantine, which does something similar but decreases oxidative stress in the brain. So those are symptomatic treatments.

There have been some recent approvals in the United States for monoclonal antibodies. So, these are proteins that will go into the brain and actually help to remove the toxic proteins, and so there have been some modest benefits from these medications. So, Leqembi is one. Aducanumab is another. There's lots of debate, healthy debate because the benefits are not huge. It's not a miracle drug. They're very expensive. They require intravenous infusion, and they're associated with the 10% risk of swelling in the brain or amyloid-related imaging abnormalities. So, you know, I would say, like, if it was my mother or father, I probably wouldn't want them on these medications. They're not approved for use in Canada yet, but they have been granted limited approval in the United States. So, that's something we'll talk about and discuss with people that are experiencing Alzheimer's. And I would say that, as well, these disease-modifying therapies have only been approved for Alzheimer's disease, not vascular dementia or the other types of dementia, as well.

Dr. Anthony Levinson: Yeah, I think the fact that there really are no, or very limited treatments, for Alzheimer's and other dementias is one of the other reasons why reducing risk or prevention strategies are so important as well.

### [46:00 Commonly prescribed drugs and cognitive impairment]

Dr. Anthony Levinson: So, we had a few questions around commonly prescribed medications that can contribute to dementia. So, I mentioned a few when referring to that slide, but some of the things that we talked about were, for example, are there commonly prescribed drugs, for example, SSRIs, which are antidepressants, a type of antidepressant, blood pressure drugs, statins, etc.? And what I would say is, actually, it's the opposite for blood pressure drugs. They've been shown to help reduce the risk of dementia when managing high blood pressure. That is not to say that people may not have cognitive side effects from some of these medications, but there isn't any evidence that I'm aware of that they contribute to dementia. And similarly, with antidepressants, some antidepressants, especially older ones, have anticholinergic side effects that may cause cognitive impairment. The SSRIs, you know, there are some people who are very sensitive to adverse effects of that class of antidepressant, and I would say in my clinical practice, I do sometimes see patients in hospital who have been put on quite high doses. And so again, at higher doses especially older adults may be vulnerable to a range of side effects, including cognitive side effects. But, I've not, I'm not aware of any literature that shows, you know, in a convincing way that they increase the risk of cognitive impairment, and many of these medications have been around for a while, and people have been on them like many people are treated for decades on them. So, any other comments from your standpoint?

Dr. Richard Sztramko: I think going back to what you said about the bias of observational data versus randomized control trials. So, there's been both in the positive and negative sense. So, you know, people are excited that vitamin D or vitamin B12 or gingko in observational data, you know, reduced dementia risk. On the opposite side, there was some observational data about statins causing cognitive impairment. But when you actually go over more and more data, or you look in randomized trials, that bias is removed, and there's no significant signal there to suggest that they cause problems.

So yeah, the side effects, I'm with you on that, right? It's like, you know, the anticholinergic medications, bowel and bladder medications, tricyclic antidepressants like those ones are huge.

Dr. Anthony Levinson: And no question, Richard and I have seen many patients in hospital with a confusion or delirium or a story of cognitive impairment, and they may well be on three or four medications that contribute. You are, you know, you gradually do a safe sort of deprescribing, and oftentimes people will have some improvements. Interestingly, as well, there isn't any data that benzodiazepines, which do frequently cause, you know, cognitive side effects, but there's no evidence that use of benzodiazepines themselves like is causal or a risk factor for dementia per se.

### [49:33 Can stress or anxiety disorders increase the risk of dementia?]

Dr. Anthony Levinson: So, we had a question around stress and depression, and one of the questions was, "Can stress increase my risk of dementia?". I'm not aware of stress being an independent risk factor in and of itself. As we talked about, you know, stress may contribute in some people to poorly controlled blood pressure, but there's another question in the chat about, you know, are anxiety or anxiety disorders associated with an increased risk? And while depression has been studied and is thought to be an independent risk factor, I'm not aware of any data around stress or around anxiety or anxiety disorders in and of themselves. So, and, so, go ahead.

Dr. Richard Sztramko: I think it might be the indirect approach that you were talking so, like a benzo has no direct causal link but maybe like through a fall and traumatic brain injury and similarly stress and vascular health. So, there's quite a strong association between stress and heart attacks or myocardial infarction. So perhaps, you know, like you said, the elevated blood pressure or poor blood vessel health can be associated.

Dr. Anthony Levinson: And the best, I think the best approach, like somebody had written in, if they have depression, what does that mean for, you know, are they at risk? So, the data would suggest that it is a risk factor, but the best thing you can do is kind of look after and reduce your risk in all the other domains of the modifiable risk factors, and look after your depression, and, you know, ensure that your mood and your depression is treated in a safe way, and then attend to the other risk factors. Some of them, like physical activity, will also potentially benefit your depression.

### [51:40 Can healthy lifestyle behaviours help those with mild cognitive impairment or dementia?]

Dr. Anthony Levinson: So, one of the questions that came in is, “What if I already have mild cognitive impairment or dementia? Can healthy lifestyle behaviours aid in lessening the effect of mild cognitive impairment or dementia?”.

Dr. Richard Sztramko: And this is the limitation of the evidence, I think. The prevention is a lot stronger than the treatment. And we say the same thing because most of the physiologic arguments for why we would do these things remain true. You know, the immediate impacts of things like alcohol and sleep on your cognitive capacity, but like I said, you know, we've been talking to all my patients with mild cognitive impairment like 'get on that Mediterranean Diet or that MIND diet' and this recent trial came out, and it was negative. So, I was a bit disappointed in that. However, you know, could have been limitations of that one trial for diet. You know, it could have. So, I still, we still keep the same messages because it maintains your general health, and those are the healthiest things you could do for your brain with respect to optimizing your outcomes. So, keep at it if you have MCI, and yeah, that's about it.

### [52:57 If hearing loss is such an important risk factor, how do you encourage loved ones to wear hearing aids?]

Dr. Anthony Levinson: We had a question that came in related to the important risk factor of hearing loss. "Do you have any tips to encourage loved ones to wear their hearing aids?"

Dr. Richard Sztramko: It's challenging. We talked about the modifiable or non-modifiable variables, and so understanding that even though you present somebody with really compelling evidence that you can improve things, and that their health would be better, and their risk is lower, you know, sometimes, people are just very stubborn. So, the tip is to be armed with this knowledge because if you don't have it, then somebody's not going to be motivated. Right? If they're like, “It's just a bit of hearing loss. It's not that big of a deal.” At least you can tell them, “No, your hearing loss is a really big deal. You have a 90% increased risk of developing dementia.” And so, that might light a fire, but with behaviour change, patience, and consistent messaging, and compassion will take you a lot further than the pressure or nagging. Right? So be firm. Be strong. Have a consistent message with that person. Be armed with compelling data or arguments, but also give people time to change because I've seen people resist for months on end, and then finally, you know, after a year or so, they may relent. And then the compassion, because wearing hearing aids is not easy. They're not a perfect technology, you know. They don't perfectly balance out all of the noise in a crowded room. So, you having compassion for people that have hearing challenges is also definitely important.

### [54:37 What does the research say about proton pump inhibitors (PPIs) for gastritis and dementia?]

Dr. Anthony Levinson: Had a question come in about proton pump inhibitors. So, these are commonly prescribed medications for gastritis or gastroesophageal reflux disease or previous ulcer, so they say, "What about PPIs or proton pump inhibitors? Recent research on the news suggested higher risk of dementia was related to the use of proton pump inhibitors?".

Dr. Richard Sztramko: I mean, this has been a common narrative for a while that the only way that I know that there's a direct like link is association with decreased levels of vitamin B12 level. Vitamin B12 is a very important vitamin for nerve health both in your brain, your spinal cord, your peripheral nerves. So, that's the only direct link that I've been aware of. But it's always good to reassess if you've been on a PPI to see whether you still need it. So, if somebody had really bad gastritis or a bleeding ulcer, doesn't really matter; you need that to reduce your risk of bleeding to death. So, you should be on it. However, if you had some mild reflux or, let's say, you had an H. pylori, which is a bacteria that's, you know, been infected in your gut and that's been resolved, then perhaps trialing yourself off of the PPI and seeing if there's any symptoms that come about. So, you know, get off it for a week. If your reflux comes back so badly, and it's really impairing your quality of life, then stay on the PPI because there's a theoretical risk of dementia in the future.

Dr. Anthony Levinson: I would agree, and I would say also it may be worthwhile to have your vitamin B12 levels checked as well just to ensure that because that that is one of the potential mechanisms for cognitive impairment related to the PPI.

### [56:25 Other resources]

Dr. Anthony Levinson: So, I am shocked, amused, and astounded that we're already at almost 8 o'clock. I want to finish up with a few things. There were a lot of questions that came in, and a lot submitted related to dementia itself. So, I did want to talk a little bit about some other resources related to dementia, but I also do wonder whether we should do another session.

So, I'm going to talk to you about our McMaster Optimal Aging Portal for those who aren't aware as well as a new resource related to dementia risk reduction. So, the Portal at mcmasteroptimalaging.org is a source of evidence about healthy aging. And we also have videos, and e-learning, and information about cognitive health. Our online lessons, you can do at your own pace. They're anywhere from 15 minutes to 30 minutes on various topics. We also do record these sessions, so if you missed any of our previous webinars, you can catch them on either the Alumni YouTube channel or the Portal's YouTube channel.

Our new collection at dementiarisk.ca includes an e-learning lesson that reinforces much of what Richard and I talked about today in terms of the ways you can reduce your risk of dementia. It is an e-learning format. We also have on-page text, an email series of 12 emails with this content if you want to review it.

For those of you looking for more information about dementia itself, Richard and I also developed the iGeriCare website, which is free e-learning education about dementia itself. So, there are 12 online e-learning lessons that are related specifically to various aspects of dementia, cognitive impairment, and treatments for dementia as well.

So, I'm also going to ask the Alumni Association to post a link to a survey related to understanding your impressions of the webinar this evening. If you're watching on YouTube Live, if we can figure out the posting of the link there, the link to the survey will be there, but otherwise, the Alumni Association will send a follow-up email which will include links to the resources that we've mentioned. And we also have a handout related to the webinar and the dementia risk curriculum that you can access. So, I do want to acknowledge not just superstar Richard for joining us today but part of the funding to help promote dementia risk factor awareness and risk reduction awareness is related to funding from the Public Health Agency of Canada's Dementia Strategic Fund. And there's co-investigators working with us across several institutions, McMaster, CAMH, McGill, and U of T.

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