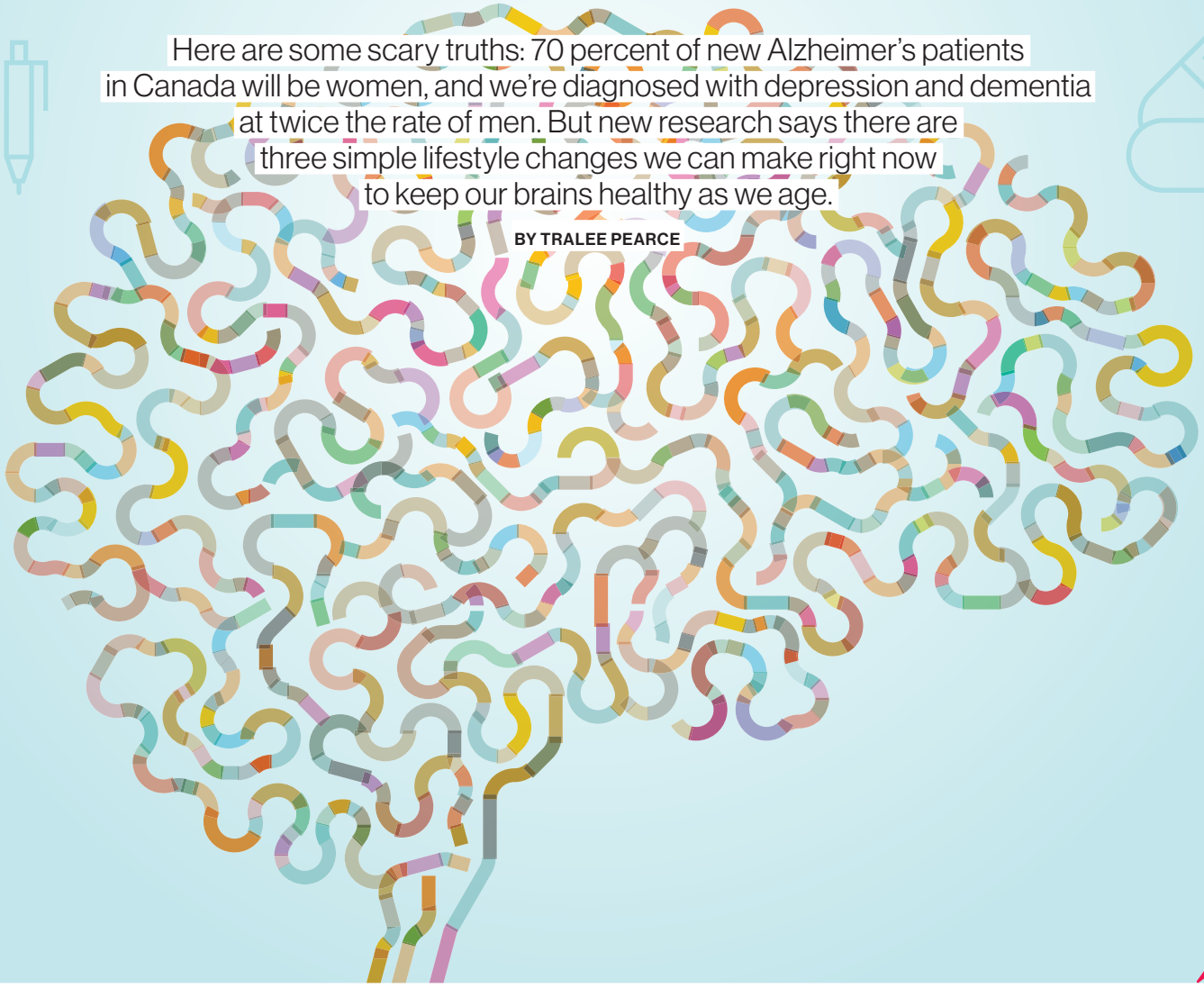
Health

MAKE UP YOUR MIND

Here are some scary truths: 70 percent of new Alzheimer's patients in Canada will be women, and we're diagnosed with depression and dementia at twice the rate of men. But new research says there are three simple lifestyle changes we can make right now to keep our brains healthy as we age.

BY TRALEE PEARCE



ILLUSTRATIONS, SHUTTERSTOCK

YOU BRUSH YOUR TEETH to prevent tooth decay and check your blood pressure to monitor for signs of heart problems. But are you doing anything to keep your brain in tip-top shape? Because you should be. Brain health, which experts define as a combination of cognitive (memory, attention, thinking) and mental (emotional well-being) fitness, is a major, albeit under-the-radar, health issue for Canadian women.

It's major because as we age, so do our brains. Vascular changes can decrease blood flow; we can lose volume in key areas, including the hippocampus and the prefrontal cortex, the regions responsible for learning and memory. Myelin, a fatty material that makes up the protective coating around nerve fibres, starts to deteriorate, causing the brain to slow down. And nerve cells can develop plaques and tangles—structures caused by the buildup of proteins called beta-amyloids that can disrupt the brain's normal function. In some people, these and other signs of normal aging can cause mental health problems, strokes and brain disorders such as dementia and Alzheimer's, and increase the risk of diseases such as multiple sclerosis.

Brain health is an under-the-radar issue because, though women are more likely to experience cognitive decline (thanks to dementia or Alzheimer's) and to suffer from depression, most of the research on these conditions still focuses on men.

Thankfully, studies are showing that straightforward lifestyle changes—exercising regularly and not smoking are at the top of the list—help shore up what researchers call "cognitive reserve," a buffer that "delays the changes or makes your body better equipped to handle those changes," says Lauren Drogos, a brain researcher at the University of Calgary.

In fact, Drogos says there's evidence to show that, in some people, even serious symptoms do not necessarily develop into cognitive impairment. She points to the Nun Study, a famous long-running research project on aging and Alzheimer's that has been tracking 678 nuns from convents across the United States since the mid-1980s. One of the nuns, Sister Mary, died at the age of 101 showing no outward signs of cognitive decline—but when researchers examined her brain, they were shocked to find she had "abundant neurofibrillary tangles and senile plaques, the classic lesions of Alzheimer's disease." Scientists don't know exactly why some people can have severe symptoms, such as plaques and tangles, without experiencing cognitive decline, but, happily, cases like Sister Mary do show that dementia isn't an inevitable part of aging.

And since women are more likely than men to be diagnosed with many of these problems, the more we consider brain health when making our day-to-day lifestyle decisions, the better. (Bonus: These changes also benefit your heart and help prevent other diseases, including Type 2 diabetes and cancer.) So here's what you can do to take care of your brain.

THIS IS YOUR BRAIN ON EXERCISE

If you had to pick just one lifestyle change to make in the name of brain health, experts agree exercise tops the list—especially for women.

We consider neuroplasticity, the brain's capacity to form new neural connections, an exciting part of a child's development, but we now know our brains can continue to grow, repair and improve as adults, too. Physical activity is a well-researched trigger. Not only can working out bolster our day-to-day functioning and alertness but it also appears to help us repair brain damage. Plus, it slows down aging and the onset of age-related brain diseases.

Working up a sweat and pumping up your heart rate can lead to a healthier vascular system in the brain, which decreases blood pressure and oxidative stress (when your body's antioxidants can't fight off free radicals), and increases antioxidant activity, according to Marc Poulin, an Alzheimer's researcher and professor of physiology at the University of Calgary. Vigorous exercise also floods the bloodstream with a protein called brain-derived neurotrophic factor, which readies the body for repair and heightens the brain's ability to learn and form new memories. Plus, hitting the gym helps the brain repair myelin; a lack of the nerve

ILLUSTRATIONS, SHUTTERSTOCK (BRAIN, POOL, GRIP WEIGHT, BICYCLE, DUMBBELL, STOPWATCH); THENOUNPROJECT.COM (MOBILE, PILLOW, SHEEP, MOON, BED)

fibre–protecting substance is a factor in developing multiple sclerosis.

Exercising can also restore crucial brain volume. Research has shown that the hippocampus—home to memory, learning and emotion—starts shrinking after age 55 by about one to two percent a year, but just one year of moderate-intensity aerobic exercise done three days a week can increase its size by two percent.

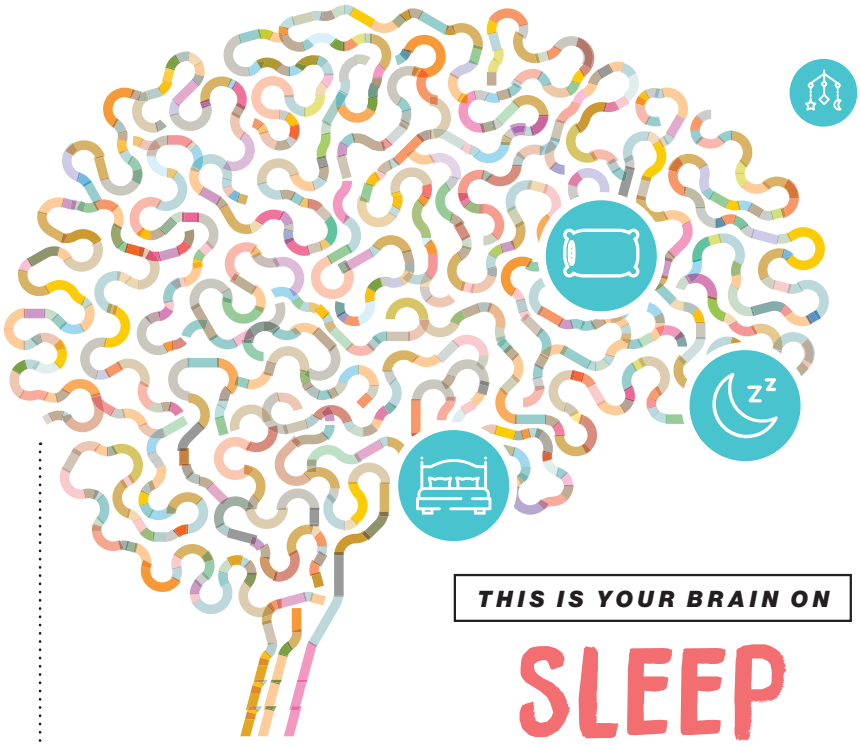
And while most of the research is about the benefits of getting in your cardio, Dr. Teresa Liu-Ambrose, an associate professor and Canada research chair at The University of British Columbia and the Vancouver Coastal Health Research Institute, says strength training is also effective, as it can enhance brain performance and function by 11 to 17 percent. "Women live longer [than men], and age itself is the greatest risk factor for dementia," she says. "But the good news is when we look at the benefit of aerobic exercise on cognition in older adults, women seem to benefit more."

The Takeaway: You can reap the rewards from even a 15-minute walk. Of course, the longer you exercise, the better, especially if you get your sweat on and your heart rate up. If you want to tick a few other brain health tips off your list, consider joining a team sport. It blends physical, social and cognitive skills, and "can also add pleasure and meaning to our lives," says Dr. Nasreen Khatri, a registered clinical psychologist, gerontologist and neuroscientist at the Rotman Research Institute at Baycrest Health Sciences in Toronto.

If you have an office job and find you're sedentary most of the day, take a few minutes every hour or so to get up and move around. Research also suggests switching to a standup desk may improve your brain function.

DID YOU KNOW?

Taking care of a loved one—most often a spouse in your later years—can be a risk factor for developing depression and, eventually, dementia. But research out of the Rotman Research Institute at Baycrest Health Sciences in Toronto found, for the first time, that cognitive behavioural therapy, a form of talk therapy, can improve both mood and cognition.



THIS IS YOUR BRAIN ON SLEEP

After a good night's sleep, you feel alert and ready to tackle the day. But that's not just because your brain has been resting. It has also been busy filing away memories and taking out the trash, so to speak, thanks to the glymphatic system, which washes the brain of waste materials. For example, a protein called beta-amyloid, which is known to play a role in the development of Alzheimer's, acts as a neurotoxin when it builds up, killing neural cells in the brain. But a good sleep removes excess beta-amyloid and other waste materials, says Dr. Liu-Ambrose.

Because one of the common symptoms of Alzheimer's is disrupted sleep, it's unclear whether a lack of shut-eye should be considered part of the progression of the disease or a risk factor on its own, due to the buildup of beta-amyloids.

Nevertheless, poor sleep hastens your brain's aging process—much like sitting in the sun sans SPF speeds up your skin's aging process. And disturbed sleeping has been linked to all aspects of brain health, including an increased risk of depression and a decline in cognitive functions such as memory and reasoning. In one U.K. study out of University College London Medical School, middle-aged women who reported a drop in the average number of hours they slept had lower scores on cognitive tests involving reasoning and vocabulary.

What's more, our central clocks—a.k.a. our circadian rhythms—can drift from the patterns of our childhood, making it hard to get that much-needed rest. "As we age, our central clock is less sensitive to stimuli like light, food and physical activity," says Dr. Liu-Ambrose; this change makes it harder to fall, and stay, asleep. We can also become more vulnerable to stress and anxiety, which further disrupt those rhythms.

One way to combat these fluctuations is to try what seasoned travellers do for jet-lag recovery: Get exposure to real daylight and eat your meals on time to nudge your brain into a routine. And don't use bright screens at night, especially before bed, because they mimic sunlight and tell our circadian system that it's day, not night—and, therefore, not time to sleep. Those who need more help might consider light therapies that have been developed to treat seasonal affective disorder, says Dr. Liu-Ambrose.

The Takeaway: Many researchers consider six to eight hours of sleep a night to be the standard sweet spot, though this can vary by individual. If you're routinely getting less than that and waking often in the night, not feeling refreshed in the morning and experiencing bouts of sleepiness during the day, talk to your doctor about sleep strategies—especially if you're experiencing anxiety or depression. In the short term, napping can reverse some of the effects of poor sleep, including memory loss and increased stress. And you only need a 30-minute catnap to feel the results.

THIS IS YOUR BRAIN ON A

HEALTHY DIET

DID YOU KNOW?

"Menopause brain" is a real thing. As with "pregnancy brain," its more famous counterpart, women approaching menopause really do experience memory problems and brain fog. Researchers think a drop in estrogen levels might be the cause.

There's no perfect "brain food," but eating a nutritious diet (lots of veggies and fruit, lean meat, fish and healthy fats) is the smartest way to maintain long-term brain function and memory, and to slow the development of brain diseases.

Getting enough of specific nutrients like omega-3 fatty acids is important but not the holy grail. University of Pittsburgh researchers recently found that people who eat broiled or baked fish at least once a week have larger brain volumes in the areas used for memory and cognition, despite varying levels of omega-3 in the fish they ate. Senior researcher James Becker concluded that he and his colleagues were "tapping into a more general set of lifestyle factors that were affecting brain health, of which diet is just one part."

In a 2015 study from Rush University Medical Center in Chicago, researchers looked at the broad set of eating habits of more than 900 people over 4½ years and found that those who adhered to a diet high in fish, vegetables, nuts and berries, and low in fat and sugar, slowed down their brains' aging by about 7½ years when compared to those with less-healthy diets. The healthy eaters cut their risk of Alzheimer's by up to 53 percent. And even when those people only adhered to the diet part time, they saw some benefits—an effect that has not been found in other diets, says Drogos.

The researchers dubbed the most promising cluster of these eating habits the MIND (Mediterranean-DASH Intervention for Neurodegenerative Delay) diet, which blends the longevity-boosting Mediterranean diet and the heart-healthy low-fat DASH (Dietary Approaches to Stop Hypertension) diet that doctors recommend to patients at risk of high blood pressure and heart disease. More studies need to be done on why it works, but in the meantime, there's no downside to eating healthier and ditching the junk.

The Takeaway: Add more veggies to your diet. Research shows that older adults who report eating more of this food group perform better in mentally stimulating activities than those who don't. ●

CAN YOU TRAIN YOUR BRAIN?

Does firing up a brain-training app actually help improve your memory and ward off dementia? Sorry to disappoint, but right now, evidence for the benefits of computer-based brain games is weak, says Dr. Teresa Liu-Ambrose, an associate professor and Canada research chair at The University of British Columbia and the Vancouver Coastal Health Research Institute. Brain games appear to help you learn to play them better, but research doesn't show that those tasks transfer to other aspects of brain performance. The same goes for crossword puzzles and sudoku, which help your vocabulary and math skills, but nothing more.

HOW TO MAINTAIN YOUR MENTAL EDGE AT ANY AGE

In your 30s: **This is the time to make sure you establish healthy habits—such as getting plenty of exercise and sleep, and eating a good diet—that will affect your brain health throughout your adult years. "When it comes to maintaining brain health, the best time to start is yesterday," says Dr. Nasreen Khatri, a registered clinical psychologist, gerontologist and neuroscientist at the Rotman Research Institute at Baycrest Health Sciences in Toronto. If you feel you need a boost at work, consider old-fashioned writing instead of typing on your computer. A study in the journal *Psychological Science* found that university students who made handwritten notes were better equipped to recall conceptual ideas from their professors' lectures than those who had typed notes on their laptops.**

In your 40s and 50s: **People in this age group are part of the "sandwich generation," and often face caring for their aging parents on top of dealing with their other work, financial and parenting obligations. So, unsurprisingly, they're super stressed—and this can affect both mental health and day-to-day brain function. Dr. Khatri says it's essential to prioritize and edit out activities and commitments that increase stress without adding value to your productivity or happiness. That's because "maintaining mental health in early and mid life is key to safeguarding cognitive health later on," she says. "Untreated depression in midlife doubles your risk of developing dementia in later life."**

In your 60s and beyond: **In your senior years, socializing with friends and family, and picking up activities that allow you to connect, such as volunteering, are key to maintaining brain health. And sorry, keeping up with folks on Facebook isn't enough. "Ask yourself: Is social media rounding out my real-life social experiences?" suggests Dr. Khatri. What you need is face-to-face interaction.**

ILLUSTRATIONS, SHUTTERSTOCK (BRAINS); THENOUNPROJECT.COM (DRINK, CUTLERY, SALAD, CARROT, APPLE)