

Firing on All Cylinders:

Boosting Your Brain Health & Your Wellbeing



DR LEONIE WHITE



“It is often said that we currently know more about outer space than we do about the brain; more about the billions of years of unknown matter around our planet than how the 1.5kg of cells inside our head works. But our brains hold untold potential in the billions of neurons firing away in there. Some of the most exciting gains in our understanding of neuroscience over the last decade or so have uncovered new information about quite how much the brain can change, responding to focused effort and targeted practices”.

Swart, 2020: 66

Your brain is an amazing thing of mystery and wonder, and science is helping to understand this mystery including how to look after and make the most of our brains. “Over the last 20 years, with the advent of sophisticated brain-scanning techniques, we have started to uncover the true magnificence of the brain and its pathways” (Swart, 2020: 68). The brain is made up of the same blood and tissue as your other organs like your heart, but its assembly of cells is incredibly unique and responsible for an amazing range of capacities. Your brain is responsible for perception, decision making, action, awareness, dreaming, feeling and thinking.

Some Interesting & Fun brain facts:

- You have 86 billion neurons (brain cells) ... give or take .. there's some disagreement amongst the experts about the exact number due to difficulties counting them!
- If you spread your neurons out, they would cover 3 soccer fields
- London cab drivers who are required to learn 25 000 tangled London streets have larger areas of a particular part of their brains - the hippocampus (responsible for memory)
- Your brain is roughly 2% of your body weight but an elephant's brain is roughly 0.1%
- A child's brain is 80% of adult size by age 3 and 90% by age 5
- Your brain is not more evolved than a lizard, just differently evolved
- You can modify your mind and brain
- Your brain is not fully formed until age 25
- Your brain's storage capacity is considered unlimited
- Brain information travels up to 268 miles per hour



Let's Talk Brains

Think of your brain as the center of your thoughts, interpreter of your environment, and controller of your body movement. Your brain interprets information from your senses – sight, sound, smell, taste, and touch – as well as from your internal organs like your stomach and heart.

Did you know that your brain continues to develop from birth all the way until the end of life? No longer do we think that once you've reached a certain age you've got what you've got, and you can't change. Change in the brain is called neuroplasticity, or 'plasticity' for short. Neuroplasticity means that old pathways in the brain can be disrupted, and new pathways can develop well into adulthood. There are critical periods of development, like the first few years of life when brains grow at an incredibly rapid rate, and adolescence when the brain 'shuts down for renovations' pruning away unneeded pathways and strengthening needed ones, but change is always possible. It might take work, but it is always possible.

Brains develop bottom-up. That is, from the least complex bottom parts to the most complex top parts. The areas of the brain in the order they develop are:

- Brainstem: responsible for temperature, breathing, and heart rate
- Diencephalon: responsible for arousal, sleep, appetite, and movement
- Limbic: reward, memory, bonding, emotions
- Cortex: creativity, thinking, language, values, time, hope

These are interconnected areas, not separate areas and current thinking is that the key to wellbeing is a well-integrated brain. This means integration across the two halves or the right and left 'hemispheres', and across 'top' and 'bottom' functions. "Most of us don't think about the fact that our brain has many different parts with many different jobs ... The key to thriving is to help these parts work well together – to integrate them" (Siegel & Payne Bryson, 2019: 6).

A really interesting part of the brain, and one that's unique to humans, is the prefrontal cortex. It is right at the front of the cortex and head, and it governs logic and creativity. The prefrontal cortex increased in size as humans evolved and it is involved in purpose and responsiveness to the world, risk-taking, and the ability to work towards a goal.

When the prefrontal cortex isn't working optimally, that's when we can become more distracted, forgetful, disinhibited, inattentive, and emotionally erratic. And when we experience stress, the limbic system can become activated in ways that lead to 'flipping our lid' – this is when our prefrontal cortex goes offline, and the emotional limbic systems fight/flight/free responses take over instead of the cortex thoughtfully running the show.



How Brains Help with Living and Wellbeing

For wellbeing and living well it is important to look after our brains so that the parts can work optimally and work well together in a whole-brain approach to life. A whole-brain approach means accessing all of these different parts of the brain and integrating the different parts of the brain in our approach to life.

Dr Tara Swart (2020) calls this an 'agile brain' and she lets us know that agile brains can:

- “Focus intensely and efficiently on one task at a time
- Think in many different ways about the same situation or problem
- Switch imperceptibly between these different ways of thinking
- Fuse ideas from differing cognitive pathways to devise integrated solutions
- Think in a balanced way, rather than being wedded to one way of thinking (being rigidly logical, for example)” p 110

Essentially, when we look after our brains then our brains are more likely to be “firing on all cylinders”, and for the cylinders to be working well together. So what can we do to help with this?





Self-care for Brains

Modern life is full of information, demands, and stress. Thanks to technological advances that make life easier in many ways, we are also exposed to an exponential amount of information, e.g., via our Smart Phones, News, Emails, Shops, etc, and this demands attention and processing... which requires a lot of energy. “You can think about energy efficiency like a budget. A financial budget tracks money as it’s earned and spent. A budget for your body is similarly tracking resources like water, salt, and glucose as you gain and lose them ... running a body requires biological resources” (Swart, 2020: 6). Your brain runs this budget for your body. We put our brains through a lot, and we don’t always put a lot into taking care of them – into making deposits in the budget.

“We assume our brain has everything it needs to do its job well and expect it to get on with it. We wouldn’t treat our car with such lack of care; we would ensure it was regularly serviced and, if anything seemed out of sorts with it, we would take it to be checked. So why do we tend to assume our brain will maintain its ability to function at its optimum and be able to prioritize our best interests when we are overtired, eat badly, and work in a stressful job without regular breaks? Or when we just ‘zone out’ for large parts of the day?”.

Tara Swart, 2020: 79



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So what are some practical things we can do to look after our brains?

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Rest

Well-rested brains make better decisions, respond more quickly, have better memory recall, and are more creative.

Tips for a well-rested brain:

- Get at least 7 – 8 hours of sleep a night. This is optimal for most adults. It takes 7 – 8 hours to flush toxins out of the brain. Growing, developing brains need more sleep.
- Develop a soothing wind-down pre-sleep routine.
- Avoid screens for one hour before bed.
- Don't do work in bed – you want to train your mind that bed is associated with sleep not work.
- Small changes in skin temperature can affect how we sleep – so consider a warm bath or shower before bed.
- Avoid going to bed on a full or empty stomach.
- Get some sunlight and fresh air during the day.
- Exercise is good for sleep but generally not right before bed.
- Use a pre-sleep meditation, sleep story, or visualization to help drop off to sleep.
- Your brain won't sleep as well in an unfamiliar environment – research suggests part of your brain stays awake to make sure it is safe. When traveling help your brain by having a familiar sleep routine e.g., laying out your clothes and brushing your teeth before bed.
- Worrying about getting the right amount of sleep can make sleep harder. Listen to your mind and tune in to how you feel and how much sleep you need.
- Visit <https://www.sleephealthfoundation.org.au> for more information
- Visit your GP if you have concerns about sleep.





Fuel – Food

Food for your brain is very important. Your mind uses energy faster than any other organ in your body. Brains are 2% of our body weight but use up 25 – 30% of what we eat.

Tips for fuel for your brain:

- Foods that release their energy more slowly, like oatmeal and pulses, can give your mind energy and help concentration throughout the day.
- Whatever keeps your body healthy keeps your mind healthy - Eat a healthy balanced diet rich in protein with some whole grains and good fats, vitamin and mineral-rich vegetables, pulses and seeds like linseeds and flaxseeds.
- Salmon, green leafy vegetables, and berries are also great for brains.
- Eat something in the morning as starting your day puts pressure on your body.
- Breakfast helps regulate your sleep patterns and trains your brain to wake up and eat.
- Avoid too much processed food, lots of sugar, and too much saturated fats.
- If you have food allergies or intolerances or need help in general with planning healthy foods, consider consulting a dietician for advice.
- If you have any concerns about your health, visit your GP.





Hydrate - Drink

The brain is approximately 78% water and a 1 – 3% decrease in hydration can impact focus, memory, and attention, as well as mood leaving you feeling tired, tense and anxious or feeling down.

Tips for hydration for your brain:

- If you notice you are thirsty or have dry lips you are likely already more than 3% dehydrated. Observe your thirst levels during the day and aim to sip water regularly.
- Invest in a water bottle and keep it topped up and on hand.
- Eight glasses of water a day doesn't take into account your age, height, weight, and the water from the food you eat. Monitor how you are feeling, e.g., you are feeling sluggish, flat, or struggling to concentrate, and how much water you need.
- Eat more hydrating foods.
- Monitor caffeine intake – this includes soft drinks. Caffeine can make you feel more awake but too much can leave you feeling less alert without it, and too much caffeine has been linked to anxiety and tension.
- You can talk to a dietician about your hydration intake as well as your food intake or consult your GP for more health advice.



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Oxygenate - Exercise

Your mind and body are interconnected, and this means your physical state will impact your mental and emotional state. Exercise releases a cocktail of chemicals that boosts mood and raises energy, reduces brain activity associated with worry and depression, and gets your nervous system going. Exercise has even been found to improve neuroplasticity.

Tips to oxygenate your brain:

- Try exercise and movement in nature, like hiking, for the added benefits of connecting to a 'green space' and opportunities for mindfulness. "Green exercise" leads to shifts in mood and outlook.
- Build exercise into your lifestyle. Exercise energizes the body and brain and causes us to breathe more deeply, oxygenating cells. Regular exercise has tangible health benefits for the brain.
- Find a type of movement you enjoy e.g., gardening if walking doesn't work for you. Doing exercise you enjoy has a more positive impact on your brain.
- It might take some time to find the right type of movement for you – be patient with yourself and don't give up.
- Schedule regular exercise aiming for 30 minutes 3 times a week.
- Put your exercise in your diary as an 'appointment'.
- Avoid exercising in polluted areas – the quality of air makes a difference.
- Visit your GP before you start a new exercise routine.





Environment

The physical environment we are in plays a big part in our mood, perspective, and stress levels, and is important to consider the practical realities of where you spend the most time.

Tips to create a great environment for your brain:

- Consider the sensory experience of your home and workspace e.g., lighting, sound, and even smell. Do you like an essential oil that is uplifting or calming?
- Consider your furniture and seating.
- Have a clear-out and declutter.
- Try a workspace makeover – file papers, clear your computer desktop, choose some art that is soothing or inspiring.
- Decorate with a photo of a special place that brings a positive memory to mind. Recalling a positive memory can bring those positive emotions to the brain and body.
- Delete apps on your phone that are distracting.
- Declutter the home screen on your computer.
- Occupational Therapists provide some great advice to help with setting up workspaces. Here's a link with some great tips, and for more support book a consultation with an Occupational Therapist in your area. <https://nhws.us/2020/09/11/setting-up-your-home-office-occupational-therapy-can-help/>





The Connection Between Mind and Body

Building a connection between mind and body supports all aspects of self-care. When your body feels good that is your signal that you are looking after it. When your body doesn't feel good that's a signal that it needs some extra care and support. But how do you know how your body feels?

Interoception is a sense and one not many people know about. Just like you have senses for sight, sound, touch, taste, and smell, you have a sense of interoception that helps you feel and understand what's going on inside your body. Interoception helps to read your body and process a range of signals including hunger, thirst, body temperature, heart rate, and rate of digestion. If you aren't paying attention to your body you might have feelings that go unnoticed, e.g., when your energy is flagging and you need a break, or if you are feeling dehydrated and need some water.

One way to develop your interoception and your mind-body connection is to practice the 'body scan'. In the body scan, you ask yourself what story your body is paying attention to. Often instead of listening and connecting to our bodies, we ignore those little whispers and niggles until they turn into something serious. A small example of this is when we ignore the build-up of tension in our neck and shoulders until it becomes a headache. It is easy to get caught up in the business of life but ignoring body signals can result in more stress, tension, and tiredness and reduce your brain's capacity to fire on all cylinders. Observing the sensations of your body is a great way to practice self-care and connect your mind and body. This will also strengthen your brain's ability to work with the brain regions being integrated, and support an agile mind.





The Body Scan – Building Mind-Body Connection

This is a simple body scan technique. The purpose of the body scan is to practice noticing your body with gentle curiosity and by noticing build your awareness and strengthen your mind-body connection. This activity can also help release the tension you may be holding as an added benefit.

- Find a comfortable position either sitting or lying down and loosen any constricting clothing.
- Start by taking three deep breaths. Pay attention to your breath as it comes in and out of your body.
- Become aware of your body. Starting at your feet and moving slowly up through your legs, torso, arms, neck, and head.
- As you scan the parts of your body notice any sensations you have with curiosity, not judgment.
- As you scan the parts of your body notice also any places of tension.
- Where you feel tension, just breathe and as you exhale slowly relax that part of your body and release some tension.
- After scanning your body and releasing tensions return to your breath. Take another three deep breaths to finish the exercise.

You can repeat this exercise as needed.

You can do the body scan once a day to practice the brain-body connection, and also as needed throughout the day.





Even More Ideas to Look After Your Brain and Enhance Wellbeing

Healthy Mind Platter from Dan Siegel

For even more ideas about how to support a healthy mind visit

<https://drdansiegel.com/healthy-mind-platter/>

And watch the YouTube from Dan Siegel

<https://www.youtube.com/watch?v=3EQ2tzHI3Ks>

Decide What's Right for You

Looking after our brains lays a foundation for being able to think creatively, take a fresh perspective, manage emotional fight-flight-freeze responses, and it strengthens what is known as 'higher order' or 'executive functions' – complex decision making, problem-solving, planning, self-reflection, and creativity.

Your mind is unique to you, and there is no one size fits all approach to individuals. Consider these ideas, and which ones might work for you. Consult other health professionals as needed.

And decide – what will you do to look after your brain so that you are firing on all cylinders?



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Please seek help from a professional if you require support.*



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