

16 Why exercise is about more than just weight

We know that physical activity is crucial to age-proofing your brain because it lowers your BMI and weight — two risk factors for cognitive decline. But the latest science shows that exercise actually boosts brain power directly. Dr Briffa explains: “It stimulates blood supply to the brain and stimulates something called BDNF (Brain-Derived Neurotrophic Factor), which is good for the brain, protects it from damage and even stimulates the production of brand new brain cells.”

BDNF is manna for the brain. Higher levels increase the volume of the hippocampus, the part of the brain involved in making and storing memories. One study showed that women with higher levels of BDNF not only scored better on their BMI, but had higher scores on memory tests. Low levels are linked to accelerated ageing, depression, even schizophrenia.

Intense exercise is the key to stimulating BDNF and its positive effects. And it seems likely that the greater the intensity and the more often you exercise, the more BDNF you produce. Dr Bredesen suggests combining aerobic exercise with weight training, preferably at least four or five times a week, for 45-60 minutes in total each day. Aim for 30 minutes to within 60-70pc of your maximum heart rate.

If you don't immediately notice the benefits, don't give up — one study showed that you need to keep exercising for at least five weeks to produce higher levels of BDNF. If you're low in motivation, think about investing in a fitness tracker such as a Fitbit or Garmin to set targets and help track your heart rate and monitor your progress.



17 Check your hormones

Your hormone levels are crucial to your brain's ability to function well as many of them support the making and maintenance of the brain's synapses. However, as we age, levels of the sex hormones oestrogen, progesterone and testosterone tend to drop, while thyroid hormones can often get out of kilter.

Optimal thyroid function, says Dr Bredesen, is crucial to cognitive health. Your thyroid function sets your metabolism, your heart rate and your mental sharpness. It can also affect your sleep and whether you become depressed. Low thyroid function is commonly found in those with Alzheimer's.

There's an easy way to test it — take your basal body temperature with a thermometer under your armpit for 10 minutes before you get up in the morning. It should read between 97.8F and 98.2F; any lower and you may have low thyroid function. If so, Dr Bredesen recommends asking your GP to test your complete thyroid panel of TSH (thyroid stimulating hormone), T3, T4 and reverse T3.

He also suggests supporting your thyroid if your TSH levels are more than 2.0microlU/ml (a level a good deal lower than that considered in the normal range of 4.25microlU/ml in Ireland).

When it comes to oestrogen, Dr Bredesen acknowledges that hormone replacement therapy is controversial. “There are side effects [to supplementing hormones] and so you have to be very judicious with your use of hormones,” he says.

However, he cites studies from the Mayo Clinic that show that women who have had their ovaries removed by the age of 40 and don't have HRT may **face** double the risk of Alzheimer's.

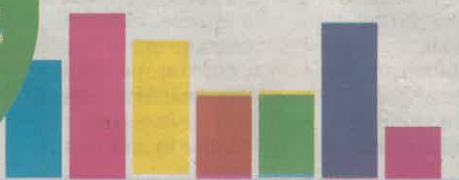
Secondly, the ratio of oestradiol (a form of oestrogen) to progesterone is important. Too high and you will experience ‘brain fog’ and poor memory. Symptoms many menopausal women will identify with. “There are multiple studies that show that optimising your oestradiol is helpful for your cognition.”

Before you approach your GP about boosting your hormones, Dr Bredesen suggests trying lifestyle approaches first. “You may not need to take hormones. You may improve your own production just by improving your metabolism and improving your levels of inflammation (see page 5). As long as you have systemic, ongoing inflammation, you're going to damage your ability to make your own hormones.”

If lifestyle interventions fail, and you wish to try hormone support, Dr Bredesen stresses that it is crucial to work with a practitioner expert in hormone therapy and cognitive function who can help you weigh up the risks and benefits of hormonal support.

ARE YOU IN MANOPAUSE?

Optimal levels of testosterone — which both women and men produce — help to maintain the neurons in your brain. “Testosterone is not just about libido,” says Dr Amen. “It's also memory, mood and strength.” Studies show that men in the lowest 20pc of testosterone levels have a higher risk of Alzheimer's.



'With dance, you learn new sequences for the brain'

ARTISTIC director of Dance Theatre of Ireland, Loretta Yurick, trained as a dancer in the US and has toured internationally. Not surprisingly, for Loretta, dance is the secret to a healthy brain. “The physical and social connection that I have, focusing on movement and breath and other people, I find all of these things mean it's not possible to hold onto your problems. You have to let go, and it puts your mind completely on what you're doing in the moment. I find dancing to be a great stress reliever in that sense.”

Along with her fellow artistic director, Robert Connor, Loretta has developed a programme called Well-Dance for Seniors, a programme of contemporary dance for people of 55 years and older. “It's a creative process as much as a physical one,” explains Loretta. “We're not just repeating movement, we're creating as well.”

Dance for Loretta is a form of mindfulness. “As you become acquainted more deeply with your own body, dance incorporates a mindfulness technique: awareness and sensitivity to your own body in stillness and in movement. Within that there is a great release — you have to suspend all other thoughts and you learn to focus.”

Learning new moves is essential for brain health, she believes. “With dance, you learn new sequences for the brain, new co-ordinations, new motor memories, new cognitive skills. You have to make quick decisions. In Well-Dance you create [new moves] and while doing this, you're also using and developing your memory and your muscle memory. Those two things support brain plasticity.”

Loretta also teaches classes for those with Parkinson's disease and their carers, in conjunction with Move 4 Parkinson's.

Loretta's tips for brain health

- There are four factors which serve to keep the brain young and offset ageing — a green diet, social connection, exercise, and learning new things. Of these, social connection is the most important thing to ageing well, and dancing encompasses exercise, social connection, and learning co-ordination.

“The cerebral cortex is remarkably plastic, and it can rewire itself,” she says. “So our brains are constantly rewiring their neural pathways as needed. If our brain doesn't need to do this, then it won't; the saying ‘use it or you lose it’ applies to the body as well as the mind.”

Loretta cites an analogy she came across from a Stanford scientific study, which found that dancing makes you smarter. “That

analogy was, the more stepping stones there are to cross a creek, the easier it is to cross in your own style. For you to find as many alternative paths as possible is a parallel and creative process; you're doing more than one thing at a time. But as we age, parallel processing becomes more critical. Now it's no longer a matter of style, it's a matter of survival. Getting across the creek at all. So randomly dying brain cells are like stepping stones being removed one by one.”

If you are constantly developing only one well-worn path of stones, that path will eventually be blocked when the stones (or your brain cells) are removed. Those who constantly try different routes will still have several paths left. “Studies show people who remain active and keep generating new pathways maintain the complexity of our neural connection.”

Liadan Hynes

ME AND MY BRAIN

Loretta Yurick



Photo: Mark Condren
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