

How to KEEP YOUR BRAIN SHARP

An unmissable series to reduce your dementia risk



by Dr Sanjay Gupta

Tips and techniques from a fascinating new book by a top neurosurgeon prove...

Four page pullout

WHEN I began working as a neurosurgeon more than 25 years ago, the idea of improving your brain seemed a rather misguided one.

After all, I was trained to remove tumours, clip aneurysms and relieve pressure from collections of blood and fluid inside people's heads.

Despite all the advances in technology, even today, it is still not possible for a neurosurgeon to lift the lid on a human brain and adjust the 100 billion or so neurons to make the organ more intelligent and less vulnerable to decline.

While a heart surgeon might be able to snip away life-threatening plaques in the heart, I can't dive in and tease away the brain tangles often associated with Alzheimer's disease. There is still no operation or medication to cure dementia or reverse the ravages of ageing on your brain.

But I have worked in frontline brain surgery both in large city hospitals and in war zones, and have travelled the world in search of the secret to living longer, healthier and happier — and am now more convinced than ever that the brain can be changed constructively.

The science now shows we can optimise our brain in a variety of ways to improve its functionality, stimulate the growth of new brain cells and help stave off age-related brain illnesses. The great news is the human brain can be enhanced and fine-tuned, and I will show you how.

All this week the Daily Mail is exclusively serialising my new book, *Keep Sharp*, and every day I will be bringing you scientifically proven ways to flex and strengthen your thinking power to help you build the mental resilience needed to keep mentally agile and focused into older age.

You might be surprised to read that my methods aren't about improving intelligence. You won't

Yes, you can re-energise your mind

BRAIN BOOSTER

ALZHEIMER'S disease begins in the brain decades before the first symptoms of memory loss — but that leaves ample time for people at risk to make brain-healthier choices

find exercises to help you remember items on your shopping list, to boost your performance in exams or execute tasks adeptly (though all of those

goals will be more achievable with a better brain). Instead, I will show you how to propagate new brain cells and make existing ones work more efficiently.

My mission is to help you learn to build a brain that connects patterns others might miss and help you to better navigate life. This, ultimately, should help protect you from dementia.

It is not surprising that many of

us consider dementia to be the bogeyman of old age. We fear losing our minds more than any other form of illness — even more than death.

I, too, worried deeply about cognitive decline when I had to watch my grandfather progress through the stages of Alzheimer's disease.

At first, he seemed to be contributing to conversations in

nonsensical ways. Because he was a fun-loving, quick-to-laugh sort of guy, we thought perhaps he was making jokes we weren't quite in on yet. What finally gave him away was the vacant stare that would turn to puzzlement, and then panic, as he realised he could not recall how to carry out the most basic tasks and plans.

I will never forget that look — at least, I hope to never forget it.

Globally, the number of people living with Alzheimer's disease will swell to 152 million by 2050, which reflects a 200 per cent increase in cases since 2018. While science is trying to push back, there hasn't been a single new treatment for the disease since 2002, despite more than 400 clinical trials.

So, it is reassuring to know that in this series, I will show you how to take the best possible steps to protect yourself against this terrible disease. My advice is

TURN TO NEXT PAGE

WHEN FORGETTING IS A GOOD IDEA

IN 2019 scientists discovered a group of brain cells which have the sole job of helping the brain to forget.

These 'forgetting neurons' are most active at night during sleep when the brain is reorganising itself and preparing to take on new information the next day. This ability to 'conscious forget' is a clever survival mechanism to prevent us from being overwhelmed. If you recalled

everything that came into your brain, it would seize up and your ability to think creatively and imagine would diminish. Yes, you might be able to recite long lists and cite elegiac love poems, but you'd struggle to grasp abstract concepts and even to recognise faces.

This discovery about the merits of forgetting shows just how important it is to get a good night's sleep.

KEEP YOUR BRAIN SHARP

FROM PREVIOUS PAGE

designed to help you achieve your greatest potential, and that includes helping you to prevent cognitive decline.

We know now that diseases like Alzheimer's start 20 to 30 years before any symptoms develop, so this series gives you an opportunity to intervene and delay or even prevent Alzheimer's altogether.

But fear of dementia should not be your sole motivation for following my advice. Instead, it should be the knowledge that you can build a better brain at any age. I will show you how you can make yours as sharp as it can be, so you can live life to its fullest.

I will show you just how important activity and exercise are for your brain, the significant dementia-defying role played by socialising and I will outline the protective powers of a brain-healthy diet.

I'll help you discover great ways to ease the impact of stress, and increase the capacity of your brain so you can become sharper and more focused than you have ever been — whatever your age.

Some of the strategies I will teach you will help assemble brain scaffolding: creating a support structure for your brain which

DO PILLS MAKE YOU FORGETFUL?

WE RARELY think about a drug's side-effects. But some common prescription drugs are known to trigger symptoms which can mimic dementia.

The older we get, the more likely we are to take antidepressants, antibiotics, statins, opioids, benzodiazepines (for anxiety and sleep), blood pressure pills and steroids.

As we age, our body metabolises medicines less efficiently, allowing drug levels to build and cause memory glitches.

And anticholinergics are being scrutinised by dementia experts. The drugs block the neurotransmitter acetylcholine, which stimulates muscle contractions, making them useful for treating Parkinson's, gastro-intestinal illness, incontinence, epilepsy and allergy.

Acetylcholine has a role in learning and memory and there are fears it could raise your dementia risk. A 2019 study found that over-65s on anticholinergics long-term had a 54 per cent higher dementia risk than those taking them short-term.

If you are taking one, talk to your doctor about the risks.

builds space, so you can safely perform a few renovations and reinforce your brain's foundation.

Other strategies will help provide the raw materials you need to perform ongoing maintenance. Yet more aim to build what's called 'cognitive reserve', or what scientists call 'brain resiliency'. With more cognitive reserve, you can lower your risk of developing dementia.

Some of these behavioural changes are not merely effective, they are pretty much surgical in terms of the rapid improvements they can bring about.

The truth is, most of us have not done nearly enough to improve ourselves. But follow my guidance and you will develop a brain highly resilient in the face of the crushing life experiences we are now facing in the pandemic that might be disabling to others.

AGE IS A BIG FACTOR

OVER RECENT years I have dedicated my time to distilling the best evidence-based brain research available in the world of neuroscience and human performance, and using these findings to guide my patients.

I have used this wealth of information to compile a quiz which will help you assess your risk factors for brain decline.

My quiz highlights all the potential risk factors for which there is good evidence and also the risks that researchers have been exploring and believe will be proven important in the future.

The patterns of your answers will start to show you the important role your behaviour plays in your brain health now and in the future. It will also highlight areas you might want to change.

Knowing and understanding your daily habits and their impact on your brain health will arm you with the information and insight you need to guide your efforts to rebuild and maintain a better brain.

Answer yes or no to the questions:

1 DO you suffer from any brain-related ailment now, or have you been diagnosed with mild cognitive impairment?

2 DO you avoid strenuous exercise?

3 DO you sit down for most of the day?

4 ARE you overweight or even obese?

5 ARE you a woman?

6 HAVE you been diagnosed with cardiovascular disease?

7 DO YOU have high blood pressure, insulin resistance, diabetes or high cholesterol?

8 HAVE you ever been diagnosed with Lyme disease, herpes or syphilis? Do you have chronic gum disease?

9 DO YOU take anti-depressants, anti-anxiety drugs, blood pressure drugs, statins, proton pump inhibitors or antihistamines?

10 HAVE you ever experienced a traumatic brain injury, suffered head trauma from an accident, played an impact sport (rugby, football, boxing) or ever been diagnosed with concussion?

11 DO you smoke or have a history of smoking?

12 DO you have a history of depression?

13 DO you have little social engagement with others?

14 DID your formal education stop at 16 or earlier?

SEDENTARY LIFESTYLES DO DAMAGE



15 IS your diet high in processed, sugary, fatty foods and low in wholegrains, fish, nuts, olive oil, and fresh fruits and vegetables?

16 DO you live with chronic, unrelenting stress that leaves you struggling to cope?

17 DO you have a history of alcohol abuse?

18 DO you suffer from insomnia or sleep apnoea (heavy snoring which blocks your air supply), or do you sleep badly on a regular basis?

19 DO you suffer from hearing loss?

20 DOES your day lack cognitive challenges in the form of learning something new or playing games that require a lot of thinking?

21 DOES your job lack complex work with people in the form of persuasion, mentoring, instruction or supervision?

22 ARE you over the age of 65?

23 DOES Alzheimer's disease run in your family?

24 DO you care for someone who suffers from some form of dementia?

WHAT YOUR ANSWERS MEAN

IF YOU answered yes to five or more questions, I'm afraid your brain could already be in decline, or it may soon start to be so. But be reassured! You will benefit tremendously from the information in the series all this week.

Answering yes doesn't mean you'll receive a doomsday diagnosis now or in the future. Just as there are lifetime smokers who never get lung cancer, there will be people who live with many heightened risk factors for brain decline yet never experience it.

Even if you answer yes to only one or two questions, there is so much you can do to optimise the health and performance of your brain right away.

Most of the risk factors

in this quiz are modifiable, so don't panic.

RISK FACTORS YOU CAN'T CHANGE

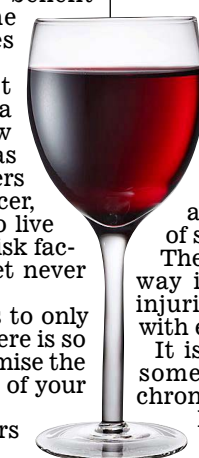
SCIENTISTS are now clear about certain factors which might make cognitive decline more likely.

Age is a factor (incidence of Alzheimer's or vascular dementia increases exponentially after 65, nearly doubling every five years so that by 85 a third of people have dementia), and being a woman puts you at higher risk.

Hereditry plays a part; and you are statistically more likely to succumb to dementia if you are caring for someone else who has the disease (partly because many carers are women, some set aside their own needs and experience high levels of stress).

There's lots of research underway into the impact of head injuries and the possible link with early dementia, too.

It is interesting to note that some infections can lead to chronic inflammation that can have neurological effects such as Lyme disease



(caused by a tick bite), the herpes simplex virus, zika (spread by mosquitoes), syphilis, rabies and even chronic gum disease. The theory is serious forms of neurodegenerative decline can stem from the body's reaction to these infections, though research is ongoing.

But not everyone who has had a brain infection develops Alzheimer's, and not everyone who gets dementia can attribute the condition solely to an infection.

RISK FACTORS YOU CAN CHANGE

YOU might not be able to reverse a Lyme disease diagnosis, but you can take really good care of your dental health to avoid gum disease.

You can stop smoking, cut back on alcohol consumption, seek help for depression and talk to your GP about the medications you might be taking (see box far left).

Even mild hearing loss can cause brain changes that can double your risk of dementia, but getting fitted with a hearing aid can help protect your brain.

Chronic sleep deprivation can lead to a staggering amount of memory loss. But taking steps to improve your sleep quality is one of the easiest and

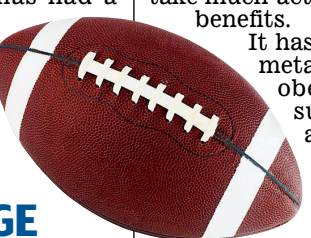
most effective ways to improve all brain functions.

Studies show that too much sitting, like smoking, increases the risk of ill-health and thins regions of the brain that are critical for memory formation. The brain prefers a body in motion, and it doesn't take much activity to reap enormous benefits.

It has long been known that metabolic disorders such as obesity, high blood pressure, Type 2 diabetes and high cholesterol put you at greater risk of dementia. In fact, there is such a strong correlation between diabetes (particularly uncontrolled diabetes) and the risk of Alzheimer's disease that Alzheimer's is commonly referred to as 'type 3 diabetes'. But it is good to know that lifestyle changes can have a significant impact on both.

Leaving school at 16 might also put you in a higher risk category because multiple studies show people with more years of formal education or greater literacy have a lower risk of the disease.

But, as I will show in tomorrow's Daily Mail, you can make up for any educational deficit immediately and start bolstering your protection right away.



Can you GUESS who is at most risk of dementia?



WOMEN HAVE A HIGHER RISK

ONE of the first questions people ask themselves

when they can't recall a neighbour's name is: 'Is this normal, or the first stages of cognitive decline?'

Memory problems tend to increase as we get older. But it is OK to wake up and momentarily forget what day of the week it is, and there's nothing wrong about realising you can't remember your old P.E. teacher's name.

Our memory's speed and accuracy begin to slip as early as our 20s. Sometimes this can be rectified by sharpening memory skills.

Here are five normal memory lapses you *don't* need to worry about!

WHERE ARE MY KEYS?

NO idea where you've put your keys? Or why you've walked into the kitchen?

Momentary memory blanks like this are really common, and are usually caused by lack of attention.

If you are distracted by a thought or a conversation when you put your car keys down, you will struggle to find them again later.

If you paid attention to everything, your brain would be overwhelmed, so it tries to help by automatically filtering out anything it deems irrelevant. But sometimes the system can be overzealous.

There's a big difference between forgetting the directions to somewhere you haven't visited in a while (perfectly normal) and emerging from the local supermarket only to realise you can't find your way home (talk to your GP).

TRY THIS: If your mind is distracted when you perform an action, there will be no real observation, awareness or memory creation.

You have to pay attention to encode a memory. So, when you set your keys down on a table, make sure you are aware of what you are doing — actively observe your keys and where you've put them. The important thing here is the word 'active'. There is a difference between what your eye 'sees' and the mind 'observes'.

IT'S ON THE TIP OF MY TONGUE

IT CAN be immensely frustrating when you know the word you're searching

for, or the name of the person standing in front of you. It is right on the tip of your tongue but you just can't grasp hold of it.

This very common memory lapse is called 'blocking' and usually results from similar memories jamming to create a disruption in the brain.

Memories are made up of many elements (the smell, the time, the mood...) all stored in different parts of the brain.

As we age and our memory banks fill up, we must work harder to retrieve a memory by searching multiple areas of the brain. Don't worry — this is just your memory retrieval button getting jammed for a while.

TRY THIS: Searching your memory

for words with the same first letter (start with 'a', then 'b' and so on) and then the first syllable can help.

INCOMPLETE RETRIEVAL

WE MIGHT recall quite a few details about an event but, as the years pass, it is normal to get some bits wrong. This happens when there is a glitch in the hippocampus (the brain's memory centre).

Normally your hippocampus integrates perceptions or impressions as they happen, evaluating whether they are worth remembering.

If you find some memories differ from the truth, it is likely your hippocampus has incorrectly recorded them.

Alcohol might put a glitch in matters, for instance. If

WHEN IT'S NORMAL TO FORGET STUFF

you've drunk too much, the process in which events are encoded into long-term memory is less likely to work well. That is why, days later, you might have trouble recalling a story that was vivid when the memory was in short-term storage.

TRY THIS: To learn information so you can recall it, you must transfer it from short-term to long-term memory. Repeating the information under your breath is a good way to make the switch.

MEMORIES FADE

OUR brains continually clean out older memories to make room for new ones — it prevents overwhelm.

Each time you recall a memory, you clear a path for its retrieval. However, memories that are not recalled often can fade if the route to retrieval is not continually reinforced.

This basic use-it-or-lose-it characteristic of memory is called transience, and it's normal at all ages.

TRY THIS: If there is a special memory you don't want to lose, try to recall it regularly — dig deep and pull out the smells, sights, sounds and associated emotions.

STRUGGLING FOR RETRIEVAL

IT IS common to forget the name of someone you were introduced to seconds ago or the title of a film you saw last week.

Ageing weakens the connections between neurons in the brain. The barrage of new information we receive will delete other items from your short-term memory unless that information is repeated again and again.

TRY THIS: Avoid this glitch by paying special attention to someone's name when you are introduced, and trying to associate it with something particular or familiar. So if the man is tall, say 'Rob Long Legs' in your head.



■ EXTRACTED gly, it wreaks havoc with spell check.
The paragraphs [675 words] have been made deliberately different lengths in order to avoid repetition. However, it's extremely boring if you should actually bother to read it (700 words). This is a

BOOK CREDIT IN HERE

KEEP YOUR BRAIN SHARP

LIFE throws tough experiences at us all: bereavement, divorce, redundancy and serious illness are the kind of challenging events that create huge stress.

This manifests in our bodies and our minds. Stress makes us feel miserable and unwell: it stops us from sleeping soundly and affects concentration; our confidence gets knocked and we lose the motivation required to perform even simple daily tasks; and relationships with family and friends often become strained.

Think now about those symptoms of stress. I wonder, how many of them do you recognise in yourself right now?

At least one, I would imagine. And that's not to say you're currently going through one of the big life events I've just mentioned.

The pandemic has put us all under extraordinary pressure — and that's even if you've been fortunate enough to be spared any direct trauma, such as a bereavement or losing your job, as the virus has spread.

Stress feeds off fear, something we've lived with for almost a year now. I have woken many times in the middle of the night, fretting over the health and safety of those I love. I find myself feeling desperately upset by the suffering of others, and deeply concerned about the impact lockdown might have on the economy.

Family, friends and clients alike are telling me that they have had to learn to live life against a backdrop peppered with similar worries.

Living like this, with so much background stress to contend with, is bound to take its toll on our mental health. As my therapist friends will readily tell you, rarely is it one big traumatic event alone that precedes a mental breakdown.

It's far more likely to be a series of smaller events, happening simultaneously or in close succession, that will wreak the most havoc. And that is something we're collectively experiencing as one pandemic-related crisis seems to follow another.

Sadly, I can't take away any of that. But what I can do is share with you a method that will help you to turn off the fear and panic, allowing your body and mind to recover from it on a regular basis.

That is key when it comes to pro-actively protecting your mental health through long-lasting periods of stress. By making this a regular part of life now, when this crisis ends you will find it continues to be useful whenever stressful situations arise.

Now, and into the future, this is a relaxation technique you will be able to employ quickly, easily and as often as you need.

NATURAL CYCLES OF ACTIVITY AND REST

ONE of the simplest ways to build quality recovery time from stress into your daily life is to take advantage of a naturally occurring phenomena known as

the 'ultradian rest phase'. Research has shown that the mind and body have their own pattern of rest or alertness, with one predominant cycle that occurs approximately every 90 minutes. This is when the body stops externally oriented behaviour and takes about 15 minutes to relax and replenish its energy.

These are those moments in the day when you find your mind starting to wander and a sweet, soft feeling of relaxation begins to fill you. It is as though your body is ready to drift off into a wonderful, refreshing sleep.

Unfortunately, many people instantly override this message from their body by chocking down a double espresso and trying even harder to concentrate on

what they're doing. After a while, they establish a pattern of overriding their body's natural rhythm and the natural feeling of relaxation comes less and less often.

Now, I'm going to show you how to take advantage of it when it does occur. From now on, here's what I want you to do:

At least twice a day, when you find yourself daydreaming and a feeling of comfort starting in your body, go with it and allow yourself to relax deeply for no less than five and no more than 20 minutes.

As you begin to drift into your daydream, use the time to follow the exercise below. It is very simple but, like anything else, the more you practise the better you get.

It simply involves thinking about a particular area of your body and then telling yourself to relax in a soothing tone of voice.

Take the time to go through each part of your body slowly, giving yourself time to really feel

the tension releasing from that part of you as you go.

Please read through this exercise first before you do it. And do not attempt to do this while driving or operating machinery. Only do it when you can safely relax completely.

SYSTEMATIC RELAXATION

USE your most comfortable, tired, drowsy voice, as if telling a bedtime story. Simply say each of the following to yourself as you follow your own instructions:

- Now I relax my eyes
- Now I relax my jaw
- Now I relax my tongue
- Now I relax my shoulders
- Now I relax my arms
- Now I relax my hands
- Now I relax my chest
- Now I relax my stomach
- Now I relax my thighs
- Now I relax my calves

- Now I relax my feet
- Now I relax my mind.

PAUSE for a little while to notice the feelings and then, if you wish, repeat it. Stay with this feeling as long as you wish. You will be able to return to full waking consciousness, refreshed and alert, as soon as you are ready.

The more you practise this technique, the more effective it becomes. It may sound like a little thing, hardly worth doing, but taking a couple of five-minute breaks every day to allow your mind some recovery time could be the most valuable thing that you ever learn to do.

Why? Because I firmly believe that when it comes to life's emotional woes — sleeplessness, crises of confidence, relationship troubles, anxiety and depression — all roads lead back to stress and the terrible toll it takes on our mental health.

Tomorrow we will look again at confidence, and I will share with you another simple five-minute daily programme I firmly believe has the power to change your life for the better.

■ FOR information on Paul's books, including *Control Stress, I Can Make You Happy, Instant Confidence and I Can Make You Sleep*, visit: paulmckennabooks.co.uk

Daydream for 5 minutes to de-stress



Paul McKenna's MIND TRICKS TO BEAT STRESS

MOOD BOOSTER
To quickly relax, close your eyes and imagine you are on a beach. The nervous system can't differentiate between a real and an imagined event, so will switch off stress.

TOMORROW: XXXXX XXXXXXXXXXXXXXXXXX?