

# Guide to Stress, Mindfulness & Meditation

Stress. We've all experienced it at one point or another. Here's why we get stressed, what it does to our body and how to combat stress with some simple stress management tips and techniques.



# Contents

## Chapter 1

### Why do we experience stress?

What is stress?

Stress, genetics and our environment

## Chapter 2

### Why stress management is important

What are the most common causes of stress?

The negative effects of stress on your body

Understanding stress hormones

## Chapter 3

### Managing stress effectively

Eating a healthy balanced diet

Stress, sleep and exercise

Mindfulness and meditation

# Chapter 1

## Why do we experience stress?

### Why do we experience stress?

Stress is an inevitable part of being human. All of us experience stress at some point in our lives. Some of us, however, are more easily stressed out than others. Your genetics, upbringing and experiences all impact your individual stress response. Stress is not a sign of weakness, nor something that you should feel embarrassed about.

This guide aims to help you understand why we experience stress, how it affects our health and what we can do to manage stress effectively.

### What is stress?

The term 'stress' is in fact neutral. Stress can be broken into two categories: eustress, which is positive and distress, which is negative.

Eustress (stress which is successfully managed) enables us to adapt easily - improving resilience and performance. Distress (stress which isn't successfully managed) can negatively impact both your psychological and physical well being. This is the stress you need to avoid.

You may be surprised to learn that 50 years ago the term 'stress' was rarely used. The groundbreaking work of scientist, Hans Selye, helped define stress in terms of a psychological response, as opposed to physical strain.

### Stress, genetics and our environment

While all of us feel stressed at some point or another, some people battle with stress more frequently. This boils down to genetics. Certain genotypes can predispose you to being more sensitive to day-to-day stress than others. Each individual should, therefore, manage stress differently.

Your genes produce proteins which dictate how your body functions. Tiny differences in your genes, called Single Nucleotide Polymorphisms (SNPs) affect the hormones and enzymes responsible for your psychological responses.

Using your genetic information, you can develop a personalised stress management plan to alleviate stress in your daily life.



**Which genes are involved in your stress response?**

There are two main genes associated with your stress response: COMT and BDNF.

**COMT: how your genetics affect your performance under pressure**

When it comes to performance under pressure, there’s a sliding scale of responses. This is the result of Catechol-O-Methyltransferase (COMT).

COMT is an enzyme which helps break down dopamine, epinephrine and norepinephrine. Dopamine plays a role in your reward response. Epinephrine and norepinephrine play a role in your stress response, and are responsible for your fight or flight response which triggers under extreme stress.

The COMT gene helps regulate your brain’s production dopamine. This affects how we make decisions under pressure. Depending on which version of this gene you have, your genotype is classified as either a Warrior, a Strategist or a combination of the two.

**Understanding your unique genetic profile helps you to manage stress more effectively**

‘Warriors’ tend to respond favourably to stress. In fact, they often work better under pressure than in calm environments. ‘Strategists’, on the other hand, fall on the opposite end of the scale. They see a reduction in performance in times of high stress. Strategists show enhanced cognitive abilities in calm situations.

**BDNF: how your genetics affect your ability to tolerate stress**

Brain-derived neurotrophic factor (BDNF) is a protein that improves the functioning of neurons by encouraging growth and protecting against premature cell death. It also binds to your brain’s receptors, strengthening and improving the signals between neurons. As far as your stress response is concerned, BDNF plays a role in your resilience to stress.

**The benefit of a resilient approach to stress**

Resilience describes your ability to tolerate and adapt to unfavourable, stressful situations. It’s basically how you cope with higher levels of stress. Becoming aware of your stress resilience helps improve your ability to tolerate high pressure situations, without a reduction in your quality of work, health and wellbeing.

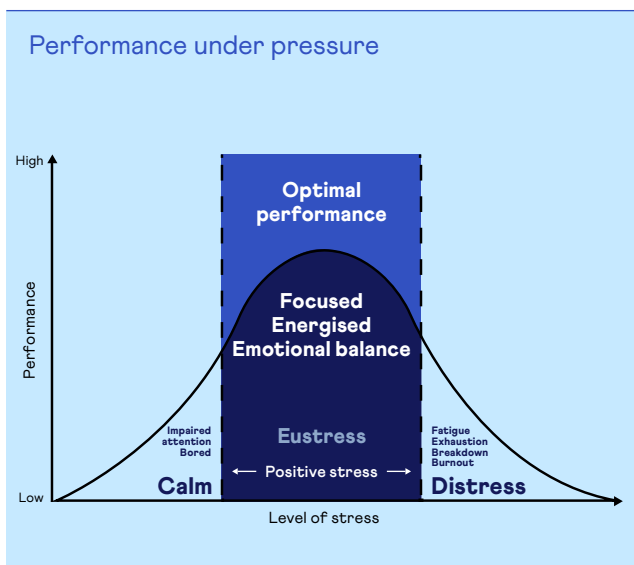
**How your genetic profile influences your resilience**

You’ll either have a high or low genetic predisposition towards stress resilience. Awareness of a genetic predisposition to low stress resilience helps reveal areas of focus for you to boost your mental fitness. By learning relaxing techniques to relieve stress effectively, you can lower your risk of the negative effects of stress on your health. We’ll go into this in more detail in chapter three.

**The impact of your environment on stress**

Your genetics aren’t the only factor to consider when it comes to stress. Your environment also plays a substantial role in your stress response. Your diet, fitness and activity levels, sleep quality, upbringing, work environment and home life all contribute to how well you handle stress.

If your lifestyle is working against your genes, you may find yourself experiencing the negative effects of stress more than someone who’s lifestyle works with their genes.



# Chapter 2

## Why stress management is important

## Why stress management is important

In today's fast-paced society, effective stress management is more important than ever before.

A recent survey in the UK, involving 2,000 participants, found that 85% of UK adults experience stress regularly with 39% of participants feeling stressed on a daily basis. 54% of these participants were concerned about the impact of stress on their health and 32% of people listed exercise as the best way to overcome stress.

On average, women participating in the survey reported feeling stressed approximately three days more than men per month, with 42% of women saying that their stress levels are too high, compared to 36% of men.

Women reported that their greatest stress came from financial concerns, whereas men reported work to be their biggest stressor.

Young adults, in the 18 to 24 age bracket, were found to have the highest stress levels of all - experiencing stress for around 12 days per month. 69% of participants in this age group reported concerns around the impact of stress on their health.

Stress comes in many shapes and forms, and can be a result of your social relationships, home life, work, and a number of other overwhelming instances.



## The most common causes of stress (in order) are:

1. Workplace stress
2. Difficulty sleeping
3. Daily household chores
4. Health concerns
5. Money and financial concerns

### The negative effects of stress on your body

Chronic stress (stress experienced for a prolonged period of time) can have negative effects on your body. Sometimes, our body's stress response doesn't stop firing - which causes our stress hormones to remain elevated for much longer than necessary.

This can cause symptoms such as irritability, agitation, anxiety, depression and insomnia (difficulty sleeping). When this happens, it can have damaging side effects such as:

- Headaches
- Heart problems (including increased risk of heart attacks)
- High blood pressure
- High blood sugar
- Indigestion
- Rapid breathing
- Sexual dysfunction
- Tense muscles
- Weak immune system

### Understanding stress hormones

Your body responds to stress instinctively - whether you're being chased by a lion or hear a balloon pop, you're hard-wired to survive.

When you encounter a perceived threat, your body prepares for "fight or flight".

Your amygdala (the emotional processor in your brain) sends an emergency distress signal to your hypothalamus. Your hypothalamus then communicates with your body through the Autonomic Nervous System (ANS), enabling you to either confront the threat (fight) or avoid the threat (flight).

Your ANS regulates your basic bodily functions. It operates instinctively, with its primary goal being to keep you in a safe state of physiological balance.

There are two components to your ANS, the sympathetic and parasympathetic systems. The sympathetic system is the fight or flight division - it stimulates you to take action. Your parasympathetic system is the rest and digest division, which is responsible for calming and relaxing your body.

When your hypothalamus triggers your body's alarm system, you releases a surge of stress hormones - including adrenaline and cortisol.

Our stress response is a throwback to our ancestors. They regularly had to fight off wild animals (using up a lot of energy), and therefore required large stores of fat and glucose (sugar). These reserves were stored as visceral fat (belly fat).



In comparison, worrying about work or traffic doesn't burn off nearly as much energy. Unfortunately, our bodies don't know the difference when it comes to dealing with a stressor.

Our hormones still react the same way to stress as our ancestors' hormones did throughout history. Of course, our ancestors were also very active up the same way they do in modern humans, living a largely sedentary lifestyle. This is one of the reasons that chronic stress can lead to weight gain.

#### What is adrenaline (and what does it do)?

Adrenaline is a hormone which prepares your body for fight or flight. It increases your blood circulation, heart rate and breathing rate. Adrenaline also increases your carbohydrate metabolism. It suppresses your appetite, sending blood away from your organs to your muscles - preparing them for exertion.

Once the perceived "threat" has passed, cortisol alerts your body to replenish energy. This causes us to crave snacks with a high sugar and fat content - which is why our knee-jerk reaction is to reach for that doughnut.

#### What is cortisol (and what does it do)?

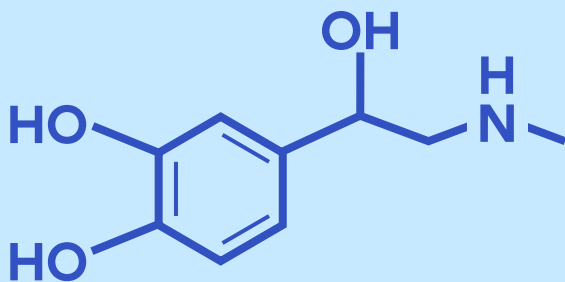
Cortisol (often called your stress hormone) is a steroid hormone. It regulates various processes in your body, including your stress response, immune response and metabolism. Understanding how your body's stress response works is the first step towards successful stress management.

Your cortisol secretion is regulated by your hypothalamus (your brain's command centre), your pituitary gland and your adrenal gland. This combination of glands is called your HPA axis. Although cortisol is most well known for its role as the primary stress hormone, cortisol has several other pretty important functions. Almost every cell in your body contains cortisol receptors.

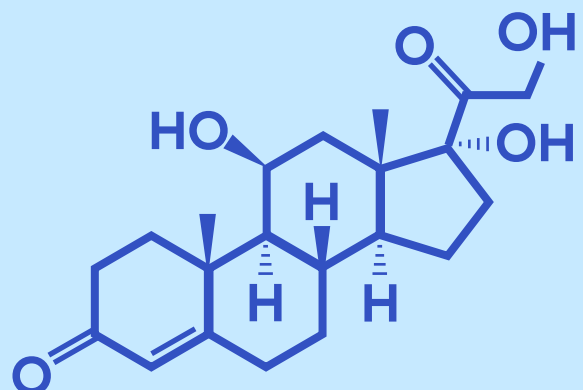
#### What does cortisol do?

- Controls your blood sugar levels
- Regulates your metabolism
- Reduces inflammation
- Improves memory formation
- Controls salt and water balance
- Regulates blood pressure
- Assists with foetal development
- Triggers vital processes involved in giving birth
- Primary hormone involved in your body's stress response

Adrenaline



Cortisol



**The role of cortisol in your stress response**

As we mentioned above, cortisol is the primary hormone involved in your stress response (hence being called “the stress hormone”). In order to explain where cortisol fits in, let’s take a quick look at how our bodies’ stress response actually works.

**The effects of chronic stress on your cortisol levels**

Chronic stress leads to higher levels of cortisol in your system, for a prolonged period of time. This can affect weight gain as it causes you to not only eat more than usual, but to eat the wrong foods. Cortisol, as we explained above, slows down your metabolism, reserving and replenishing energy.

**Symptoms of high cortisol levels include:**

- Weight gain (especially belly fat)
- High blood pressure
- Muscle weakness
- Fatigue
- Weak immune system
- Difficulty healing wounds
- Thinning skin, easy bruising and flushed face
- Headaches
- Irritability
- Difficulty concentrating

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**32% of people listed exercise as the best way to overcome stress**



# Chapter 3

# Managing stress effectively

### Eating a healthy balanced diet

This might seem very obvious, but eating a healthy balanced diet is vital for stress management. Limiting processed foods (which cause a spike in your blood sugar) helps to keep your mood stable throughout the day. You need a wide variety of whole foods (especially fruit and veggies) to ensure that you get all the macro and micronutrients necessary for good health.

Omega-3 fatty acids are particularly helpful when it comes to reducing the symptoms of anxiety. A study found that “medical students who received omega-3 supplements experienced a 20% reduction in anxiety symptoms”. Drinking green tea, for those of you who enjoy it, was linked to increased serotonin (the “happy” chemical) levels. Green tea is also packed full of polyphenol antioxidants, which help to fight disease.

Read our article, [Healthy food hacks for busy people](#), for some simple meal prep tips from our wellness team and an example of a quick and healthy menu plan.

### Feeling jittery? Reduce your caffeine intake

As you might expect, caffeine can exacerbate stress and anxiety. But the real impact depends on your genes. If you’re a fast metabolizer of caffeine, three cups of coffee a day probably won’t bother you that much. However, if you’re a slow metaboliser, three cups per day won’t just leave you feeling jumpy, it’ll actually increase the risk of developing chronic high blood pressure.

From a sample of 50,000 people who have used DNAfit, 57% need to limit caffeine.

### Stress, sleep and exercise

Getting seven to eight hours of sleep per night plays a vital role in our ability to cope with stress in our daily lives. A good night’s sleep helps to reduce cortisol levels in your body. However, when you’re extremely stressed, your sleep is often interrupted and you can develop sleep disorders such as chronic insomnia - which can worsen the effects of stress. It becomes a bit of a vicious circle - which is why it’s important to seek help if you’re battling with chronic stress.

### Exercise helps ensure that you get a good night’s sleep

Studies (on the effects of exercise on sleep) showed a significant improvement in sleep quality when participants engaged in even a single, moderate intensity cardio session (such as running, swimming or cycling). After four to 24 weeks of consistent exercise, participants with chronic insomnia “fell asleep more quickly, slept slightly longer, and had better sleep quality than before they began exercising.”

### Exercise is also known to be an excellent way to manage stress

A psychological study explains that exercise can be used as “a mechanism and a potential therapeutic role for exercise are suggested for treatment of pain, alcoholism, anxiety, bulimia, hypertension, addiction, depression, and anorexia nervosa.” This is because exercise releases endorphins. When endorphins are released, the body enters into this feel-good mode. This is how people who engage in intense endurance activities go beyond the pain barrier, and are capable of resisting the urge to quit. Their perception of pain is changed by endorphins.



### There are two notable endorphins involved in our stress response

#### Anandamide

Anandamide is a chemical associated with stress regulation. A lack of it increases your likelihood of stress. There's also evidence that anandamide may be associated with BDNF. As we mentioned above, BDNF is essential when it comes to maintaining healthy neurons and creating new ones. The production of BDNF is crucial when trying to lower your stress levels. Exercise can increase your levels of anandamide, helping you produce healthy levels of BDNF.

#### Serotonin

Serotonin is the main feel-good chemical. Low levels of Serotonin are linked to developing depression. A boost in serotonin can mean everything when it comes to remaining motivated and feeling happy, and it just so happens that exercise promotes the release of it. Studies show that, in particular, "aerobic exercises, like running and biking, are the most likely to boost serotonin." This may be the reason why even after a gruelling marathon, runners are still smiling through grimaces of pain – and perhaps why they forget how physically demanding the race was.

### Mindfulness and meditation

Mindfulness and meditation are two great ways to help reduce stress. Learning to be mindful and meditate is like learning any other skill - it takes practice. So, if you're a beginner, don't judge yourself too harshly if you're battling to meditate for more than five or ten minutes.

Many of us struggle with the misconception that we need to clear our mind and switch off their thoughts entirely in order to meditate. What you need to remember is that our minds naturally begin to wander. If a thought pops into your head, that's OK. It's part of the experience. Mastering meditation is about learning to observe your thoughts without judgment. And then, letting them go on their merry way without ruminating (obsessing over your thoughts).

So, without further ado, here are a few simple techniques to try at home.



## Mindfulness: what is it and how does it work?

We often live in the future - planning what to make for dinner, playing out conversations in our heads and worrying about 'ifs' and 'maybes' - which often never come about.

Mindfulness is about paying attention to the present moment. What can you see, smell, touch, taste and hear in your immediate environment? It's one of the most popular forms of meditation. It's an easily accessible way to start your meditation journey.

Paying attention to the present helps you enjoy life more and understand yourself better. The founder of the mindfulness-based stress reduction technique, Prof. Jon Kabat-Zinn defines mindfulness as "paying attention on purpose, in the present moment, and non-judgmentally, to the unfolding experience in the moment."

We recommend starting small. Spend a few minutes trying to be mindful. Simply slow down for five or so minutes, and if you find this easy, then you can build from there.

A study showed how important reducing stress was for longevity by selecting 73 residents of 8 homes for the elderly. They were randomly assigned among no treatment and 3 treatments highly similar in external structure and expectations: the Transcendental Meditation (TM) program, mindfulness training (MF) in active distinction making, or a relaxation (low mindfulness) program. A planned comparison indicated that the "restful alert" TM group improved most, followed by MF, in contrast to relaxation and no-treatment groups, on paired associate learning; 2 measures of cognitive flexibility; word fluency; mental health; systolic blood pressure; and ratings of behavioural flexibility, aging, and treatment efficacy. The MF group improved most, followed by TM, on perceived control. After 3 years, survival rate was 100% for TM and 87.5% for MF in contrast to lower rates for other groups.

### The benefits of mindfulness include:

- Reduce both chronic and acute stress, and improve attention control.
- Increase your "Neuroplasticity" (your brain's ability to adapt to stressful situations).
- Reduce activity in the areas of your brain which control anger, anxiety and depression.

### How to begin practicing mindfulness

Once you master the technique, you can practice mindfulness in a number of areas of your life, such as mindful eating, driving or to help you fall asleep. If you're a beginner, you can follow the following simple steps to help you get started:

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#### 01

Sit in a comfortable chair, with your hands resting on your thighs. Position yourself so you can feel the support of the chair, spacing your feet about shoulder width apart.

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#### 02

Close your eyes, and take ten slow breaths. As you breathe, sense the rise and fall of your stomach. Don't worry if your mind wanders, simply bring your attention back to your breathing.

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#### 03

Don't deliberately control your breathing. Let your natural rhythm take over and pay attention to how this feels. The process of bringing your attention back to your breathing when your mind wanders, helps you build Neuroplasticity.

This means you're training the neural pathways in your brain to support your emotional resilience in the future.

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#### 04

Don't panic if your mind leaps to distracting thoughts. Take note of these thoughts and see if you can gently guide your thought process back to the sensation of breathing. After four or five minutes, slowly open your eyes and have gentle stretch.

## Deep breathing therapy: what is it and how does it work?

The most common advice we give each other when someone is stressed or anxious, is “take a deep breath”. Why do we say this? Well, as it turns out, it’s scientifically great advice!

You often hold your breath or take shallow breaths when you’re stressed, lifting mainly the chest and rib cage. Consciously shifting to slow, deep breaths which also move your diaphragm, is a quick way to break the stress cycle. This moves you away from a stress reaction to a relaxation response.

Deep (or Diaphragmatic) Breathing Therapy is the practice of taking conscious, slow and diaphragm-led breaths. Babies do this naturally, but as we age we tend to shift away from this type of breathing. You could say DBT is a way to reconnect with our natural breathing pattern.

### The benefits of DBT include:

- It can help people with insomnia get back to sleep.
- A 12 week program of DBT helps increase a specific brain chemical which has anti-anxiety effects.
- Breathing therapy helps manage high blood pressure, in conjunction with traditional treatments.

### How to begin practicing DBT

It’s important to ensure that any breathing exercises you try are done in a calm and unforced way. Don’t be tempted to hold your breath as though you were swimming underwater, or to try to forcibly control your breath.

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#### 01

If your breaths are forced, or too aggressive it could produce the reverse effect - decreasing oxygen in the bloodstream. Most importantly, if you suffer from asthma or other pulmonary issues, it’s important to speak to a doctor before trying any sort of breathing therapy.

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#### 02

Find a quiet, comfortable spot for you to sit or lie down. Gently observe and measure your current breathing rate. Adults tend to breathe at an average of 15-20 breaths per minute. This is your baseline.

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#### 03

In this exercise, you’ll learn to alternate between normal and deep breaths. So, take a normal breath to begin, and then exhale.

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#### 04

Now take a slow and deep (but gentle) breath. Notice how the air enters through your nose and feel it moving down into your lower stomach. Let your lower abdomen expand with your breath.

Exhale through your mouth, paying attention to the sensation of the breath leaving your abdomen and moving easily upwards. Alternate deep breaths with normal breaths, and notice the different feelings

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#### 05

Once you’ve tried this for a few breaths, try to progress to a series of deep breaths in a row. Start with three, then see if you can continue taking calm and focused deep breaths. At this early stage, we recommend trying a maximum of five minutes of consistent deep breathing.

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**The most common advice we give each other when someone is stressed or anxious, is take a deep breath**

## Body scanning: what is it and how does it work?

Being able to focus on, or be aware of internal sensations called is called body scanning or interoception. This fundamental skill plays a role in almost every stress management skill, and is a core component to any form of mental resilience training.

Interoception tracks sensations internally. This can be as simple as noticing our heart beat or as multifaceted as embracing your emotional state. By mastering Interoception, you'll be better equipped to control your response to stressful stimuli.

Interoception helps you access areas of the brain that link to the emotional system. Sometimes turning your attention inward can highlight upsetting emotions or previous experiences, so be aware of this as it can be a shock if you aren't prepared.

This reaction passes with time.

Learning to engage with these emotions through dedicated interoceptive awareness helps you begin the healing process. Interoceptive skills have even been used to help military veterans deal with post traumatic stress disorder.

### Benefits of body scanning include:

- It teaches you to positively reframe a stressful situation -framing a stressor as a challenge rather than a threat.
- Reduce activity in your frontal cortex, helping remove attention from the external stressor.

### How to begin practicing body scanning

Initially, interoceptive body scanning can be difficult to get right. Other skills such as breathing or meditation tend to be an easier entry point, so we recommend exploring these first if you are a beginner.

#### 01

It's important to choose the right position for your first attempt at interception. Find a sturdy chair. Make sure your back rests comfortably against it so that feel the support. Rest your hands on your lap and close your eyes.

#### 02

Starting from the top of your head, perform an internal 'scan' or pay attention to the feeling of every part of your body. As you notice areas of tension, think about 'sending' your breath to these areas.

#### 03

Guide your attention all the way through you body and down to your feet. Feel the contact between the soles of your feet and the floor. Practice guiding your attention from your left foot to your right foot, notice as much detail as you can (such as the temperature of each foot).

Repeat this level of detailed attention on two or three areas of your body. Don't worry if your attention wanders - simply bring it back to your body.

#### 04

As you come to the end of this short practice, direct your attention to your mind. Try to identify your feelings, what is of your emotional state currently? For example, are you calm, or restless? There is no right or wrong feeling, simply become aware of your state of mind before gently opening your eyes.

### Meditation Apps

If you're battling to master any of the above techniques on your own, you can always turn to technology for some help! There are hundreds of apps (some free and some paid) that can assist you with stress management.



## Conclusion

As you can see, stress can have a profound impact on both your psychological and physical health. Understanding your genetic response to stress can help you adapt and personalise your coping methods according to what works for your body.

### You don't need to do it alone!

Stress can be debilitating if left to get out of control. If you think you may be suffering from chronic stress, don't suffer in silence! Having a strong support system can make a huge difference to your ability to cope.

Humans are inherently social creatures. Spending time with our loved ones, having a good laugh and simply enjoying their company is a great way to reduce stress.

A recent study discovered that the sheer size of a person's social network was important for health in both early and late adulthood. In adolescence, social isolation increased risk of inflammation by the same amount as physical inactivity, while social integration protected against abdominal obesity. In old age, social isolation was actually more harmful to health than diabetes on developing and controlling hypertension.

So, next time you're feeling a little tightly wound, give your best friend call and meet up for some coffee and a catch up session! If you're more of an introvert, you might consider getting a pet.

If you're suffering from chronic stress, we encourage you to reach out to a professional (such as a counsellor, therapist or doctor) to help you manage your symptoms.

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