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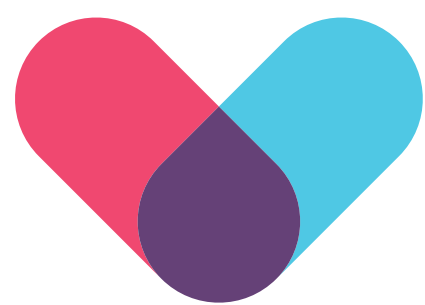
THE EVIDENCE - BASED NEWSPAPER

Spotlight on salt
Should you worry about sodium?

The great sleep reset
Why now is the time to prioritise sleep

Build a healthy brain
A whole body approach to mental health





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Whether it's our routines, sleeping patterns, social life, or diet habits, 2020 has disrupted nearly every aspect of our lives. For some people, it's given us time to slow down and consider what areas of our lives we really value. But with this, comes the pressure to maximise this newfound time. While for others, financial strain or an even more hectic work schedule have added a huge amount of stress to our lives we could never have planned for. And, of course, we're all just trying to cope and survive in a pandemic.

We're worried about loved ones, we miss our friends and family, we've had to put big life events on hold... the list goes on. While it's hard to see a lot of good come from this, one definite positive shift is how we might be thinking about our health. Too often the focus is on a number on the scales or the calories in this versus that. Now, much more attention is on our internal health. How can we support

our immune health? Or prioritise our sleep and mental health in a time like this?

Despite many recent claims of "boosting your immune system" and much more, small manageable things we do in our everyday lives are the building blocks of better health. So, in this issue, we're taking it back to basics. From the great debates surrounding salt and heart health to claims that sugar is toxic, this issue tackles common myths and shares evidence-based tips to support your health.

Have any questions or feedback? Let us know at newspaper@thriva.co



Aisling Moran
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Do nightshades have a dark side?

Anecdotal evidence has spread a lot of fear about a family of vegetables called nightshades. With claims that they promote inflammation, many people have eliminated them from their diets. Is there any merit to restricting these from your diet? Let's see what the research says.



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What are nightshades?

Nightshades are a family of flowering plants called Solanaceae. There are almost 3000 species of nightshades, most of which aren't edible (including the deadly herb, belladonna). But a number of nightshades are a popular part of most people's diet — like tomatoes, aubergine, white potatoes, bell peppers, and chillies.

These are nutrient-dense foods that are recommended to support health. For example, tomatoes contain powerful antioxidants like lycopene and anthocyanins, thought to help lower your risk of heart disease and cancer. While aubergines contain the antioxidant nasunin, thought to protect fatty acids essential for brain function and regulate iron levels in your body. And potatoes are an excellent source of vitamin C, a range of B vitamins, and blood-pressure regulating potassium.

So, what is it about this family of plants that cause people to eliminate them from their diet?

Are nightshades harmful?

Nightshades contain a type of alkaloid called solanine — a bitter-tasting natural insect repellent. And it's this chemical that has earned nightshades a bad reputation. In high amounts, solanine can be toxic. But the amount of solanine in popular nightshades is so low that it shouldn't be any cause for concern. Note that if white potatoes have turned

green, this can indicate high levels of solanine. And there are some reports of people experiencing digestive irritation and drowsiness after eating them. So it's safest to throw away any green potatoes.

The low levels of solanine in popular nightshades have been claimed to trigger inflammation, causing your immune system to overreact. Which is then thought to increase your risk of developing an autoimmune disease or an inflammatory disease like Crohn's disease. And for those with inflammatory conditions, particularly arthritis, some people believe nightshades might worsen your symptoms.

This has caused many people to eliminate nightshades from their diet, in the hopes of easing joint pain and inflammation. Some claims even go as far as saying avoiding them can cure arthritis.

What does the research say?

Currently, the evidence doesn't support the link between nightshades, inflammation, and the worsening of inflammatory conditions. As a result, bodies like Arthritis Research UK don't support cutting these out of your diet to improve arthritis. In fact, the antioxidants in these foods might help slow down the progression of arthritis. As well as protect you from other chronic diseases like heart disease. Some research even shows that other alkaloids in nightshades, like anatabine, might help improve joint pain and stiffness.

However, it seems that some people might have an allergy or intolerance to nightshades. In terms of an allergy, this is incredibly rare. But symptoms include hives, itchiness, nausea, vomiting, inflammation, joint and muscle pain. In severe cases, it can cause anaphylaxis — a life-threatening allergic reaction. If you think you have an allergy, it's best to see your doctor to get an official diagnosis.

An intolerance to nightshades can happen if you have trouble digesting them properly — causing digestive issues like bloating, gas, heartburn, nausea, and diarrhoea. Research suggests that underlying issues might be responsible for an intolerance to nightshades. For example, if you have a pre-existing digestive condition like Crohn's disease. Due to the complexity of intolerances and how tricky they can be to diagnose, it's best to speak to a dietitian about this.

The bottom line

From a scientific point of view, if you don't experience any issues in response to nightshades, the evidence doesn't support excluding them from your diet. These foods are full of a wide range of nutrients and antioxidants that might actually help protect you from inflammation and chronic diseases. It is, of course, always a personal choice on what foods you decide to include in your diet.

Roasted tomato and balsamic soup

Did you know that cooking tomatoes actually makes them more nutritious? The antioxidant lycopene, responsible for its colour, is easier to absorb once it's been cooked. Combined with some olive oil, this is the perfect example of a nutritious Mediterranean-inspired recipe.



Runner Beans

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Ingredients (serves 2-3) Method

- 12 plum tomatoes
 - 1 red onion
 - 3 cloves of garlic
 - 1 ½ tablespoon of olive oil
 - 1 tablespoon of balsamic vinegar
 - 2 big handfuls of fresh basil leaves
 - 1 heaped tablespoon of mascarpone (optional)
 - Salt and pepper to taste
1. Preheat your oven to 200°C.
 2. Cut the tomatoes in half and place on a baking tray with the cut side up. Then roughly chop the onion into large chunks and add to the tray with the garlic cloves (keep the skin on).
 3. Evenly coat with olive oil, balsamic vinegar, salt, and pepper.
 4. Roast for 40-45 minutes, take out of the oven and leave to cool for 10 minutes.
 5. Squeeze the garlic cloves so they pop out of their skin (throw the skins away).
 6. Add all of your roasted ingredients to a blender, along with the fresh basil leaves and mascarpone (if using). Blend until smooth and then season with any further salt and pepper.
 7. Depending on the temperature, you might need to heat your soup up for 2-3 minutes in a pan on a medium heat.
 8. Finish with some extra virgin olive oil, roasted pine nuts, black pepper, and fresh basil.



Should you worry about salt?

Salt is an essential mineral that supports a wide range of critical functions in your body. But, there's a lot of debate about the link between a high intake of salt and your risk of heart disease. Leading Harley Street nutritionist, Rhiannon Lambert, is here to break down the research.

The role of salt in your body

Salt stands for sodium chloride. Both sodium and chloride are essential minerals that act as important electrolytes in your body. Electrolytes are substances that conduct electricity when dissolved in water.

Your body relies on these small electric currents to survive — for example, it helps your heart to contract. Electrolytes also help to maintain fluid and blood volume. And not getting enough electrolytes can lead to weakness, vomiting, muscle spasms, and confusion. So it's important to get a balanced amount in your diet.

Sodium is found naturally occurring in foods like beets, celery, and milk. But, the majority of sodium in people's diets tends to come from processed, prepackaged, and restaurant foods due to added salt — particularly some cereals and meat products. Despite the food industry in the UK showing success with a 20-30% reduction of salt in their products, 80% of our salt consumption is still from these foods.

Note that some processed foods can make up a healthy part of your diet, like unsalted canned vegetables, milk, and so on — reading food labels

is a useful way to understand more about the salt or sodium content.

What happens if you have too much salt?

A number of clinical trials have confirmed the link between a diet high in salt and a rise in blood pressure — long-term this can increase your risk of heart disease. Essentially, too much salt causes an excess of sodium in your blood, which draws more water into your arteries. Your kidneys then struggle to remove this additional fluid, leading to a rise in blood pressure.

Long-term, a diet high in salt can lead to stiffer and thicker arteries to cope with this extra fluid. And thicker arteries means there's less space for your blood to be carried around your body — further increasing blood pressure. These damaged arteries cause less blood and oxygen to reach your heart and brain, compromising these organs.

According to the World Health Organisation (WHO), high blood pressure is responsible for 62% of strokes and 49% of coronary heart disease cases. Aside from blood pressure, it's even thought that high salt intake can have a direct and independent effect on your risk of stroke. Many controlled trials have shown a reduction in salt in the diet can

reduce heart disease.

In terms of brain health, recent research indicates that too much salt might harm your cognitive function — like how you learn, think, reason, and so on. This study looked at the effects of a high-salt diet in mice on brain health. The results showed that excess salt caused memory and thinking problems. This was due to a response triggered by the small intestine which caused a drop in nitric oxide levels — which helps widen blood vessels. This means your blood vessels can't relax, and less blood reaches your brain.

What is salt sensitivity?

Not everyone who eats a diet high in salt will have high blood pressure. Part of this is due to the fact that high blood pressure is a complex condition that can be caused by a variety of factors. But another reason is your sensitivity to the effects of salt. Salt-sensitive people are more likely to have high blood pressure in response to salt, while salt-resistant people are less likely.

This is because the regulation of sodium in your body is influenced by many factors — like genetics, age, weight, race, and medical history. There isn't really any easy test for this, so the recommendation to reduce salt intake still applies to everyone. And

considering that most of our salt intake tends to come from highly processed and prepackaged foods, limiting intakes of these foods will be beneficial for our overall health.

Is pink Himalayan salt better for you

Pink Himalayan salt has become a popular ingredient due to its fantastic pink colour and claimed health benefits. This tinted pink colour is actually from trace minerals like potassium, magnesium, and calcium. The presence of these minerals is also the reason many people opt for it over traditional salt. But, these minerals only make up around 2% of the salt content, with the remaining 98% being sodium chloride. So it's unlikely to provide any significant benefits.

Some claim it's also the "purest" form of salt available as table salt sometimes contains anti-caking agents to prevent clumping. But, you can find salt without these agents — read the ingredients list to see if anything has been added.

Overall, if you prefer pink Himalayan salt over traditional salt, it's your choice — but you should limit it in the same way as you do with regular salt. And, as mentioned, most of our sodium intake comes from processed and packaged foods. So limiting your intake of these foods will have a more positive and protective effect on your health.

Should salt be iodised in the UK?

Iodine is a mineral important for the production of thyroid hormones — these control your body's metabolism. In some countries, table salt is iodised in order to help the population meet their iodine needs, particularly for people who limit dairy and fish intake.

But, in the UK, it's not mandatory to iodise salt. Ideally, you can get iodine from other food sources, instead of increasing your intake of iodised salt to meet your needs. Aside from dairy and fish, some plant foods, cereals, and grains contain iodine —

the levels vary depending on the amount of iodine in the soil.

So, how much salt is safe?

In the UK, it's recommended that adults have less than 6 g/day of salt — equivalent to a level teaspoon. The average intake of salt in the UK is around 8 g/day, exceeding this recommendation. It's also a public health aim to reduce the intake of salt to 3 g/day by 2025. This is in the hopes that it will further reduce the risk of heart disease, the leading cause of death in the world.

Some food labels only show the sodium content, not the salt (sodium chloride) content. To convert sodium to salt, multiply the sodium by 2.5 — for example, 1 g of sodium per 100 g is 2.5 g of salt per 100 g. The recommended 6 g of salt per day is equivalent to 2.4 g of sodium per day.

There are also a number of conditions that require you to avoid having too much salt — like oedema (carrying excess water) and kidney disease. It's also important for babies to have a low intake as their kidneys can't handle it.

Is potassium protective against sodium?

Interestingly, the electrolyte potassium works in the opposite way, lowering your blood pressure if it's raised. Which means it can help protect you against heart disease. Eating a good variety of fruit, vegetables, beans, seafood, and dairy will help you meet your potassium needs.



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Tips to reduce your salt intake

- Limit your intake of high-salt foods like processed meat, cheese, salted snacks like crisps, biscuits, ready-made meals, takeaway meals, and sauces.
- Try to avoid adding salt when cooking or at the table — use alternatives like herbs and spices to add flavour.
- Prepare your own meals as much as possible using fresh foods like fruit and vegetables.
- Opt for canned foods with no added salt or if salt has been added, rinse the food first.
- Read food labels and try to choose foods with less than 0.3g/100g of salt.

Also, if you regularly take effervescent supplements or painkillers, these can sometimes contain a lot of salt. Read the label to see how much salt it contains and then consider whether a tablet or capsule might be better.



Omega-3s and brain health

Most of us are aware of the important role food plays in protecting our physical health. But we don't tend to think as much about its role in supporting our brain and mental health — at least not until something goes wrong. Chartered Psychologist and author of *How To Build A Healthy Brain*, Kimberley Wilson, discusses the key role omega-3 fats play in brain health.

Despite only making up about 2% of your total body weight, your brain is the hungriest organ in your body — it uses up around 25% of your calorie intake when your body is at rest. This high demand for energy comes with a high demand for nutrients. Some nutrients, like omega-3 fats, are particularly important for the healthy structure and function of your brain.

What are omega-3s?

Omega-3s are a family of fats that are crucial for health. The 3 main omega-3s are:

- alpha-Linolenic acid (ALA)
- docosahexaenoic acid (DHA)
- eicosapentaenoic acid (EPA)

Each of these fats plays a variety of important roles in your body. Technically, ALA is the only one of these that's an essential nutrient — meaning your body can't make it, and it must come from your diet. This is because your body can convert ALA into EPA and DHA. But, the rate of conversion is very low, so it doesn't provide you with what you need. This means it's still really important to make sure you get enough of all 3 from your diet, or through supplements if necessary.

What foods are rich in omega-3s?

ALA is found in seeds like flaxseed (linseeds), chia, and hemp, as well as walnuts. DHA and EPA are most abundant in cold-water oily fish like salmon, mackerel, anchovies, sardines, herring, pilchards, and trout. Algae is another excellent source and is what's used to produce vegan omega-3 supplements.

How exactly do omega-3s support brain health?

ALA is found inside the mitochondria (the 'powerhouse') of your cells where it helps cells to generate energy. But, in terms of brain health, it's DHA and EPA that we need to focus on. These fats, particularly DHA, are thought to have played an important role in the evolution of the brain and the development of human intelligence.

DHA makes up 36% of the membrane (outer wall) of your brain cells, where its unique shape helps to maintain flexibility in the cell wall — allowing essential molecules (including water) to flow in and out of your cells. DHA also regulates the behaviour of neurons and cell signalling.

Cell signalling is the transmission of chemical

and electrical messages from one brain cell to another — a process underlying all our emotions, thoughts, ideas, and decisions. Signalling occurs at the synapse, which is the point of communication between brain cells. And DHA supports the formation of healthy, strong synapses. This means that nutrient status, particularly nutrient deficiency, can affect your emotions, thoughts, and so on.

DHA also influences the activity of certain genes, particularly those involved in fat metabolism in your liver — helping reduce the levels of unhealthy fats in your blood. Through this action, DHA helps to maintain healthy blood vessels, which is important for your brain health.

DHA is also crucial for healthy vision. It makes up 50-70% of the fats in the light receptors in your eye and helps to maintain the shape of your retina. And an adequate supply of DHA during pregnancy and breastfeeding is required for healthy brain and eye development and function in infants.

Both DHA and EPA transform in your body to produce compounds that help to resolve inflammation. Inflammation is how your body responds to illness or injury. And in normal circumstances, it's essential to your survival

— fighting off harmful bacteria and viruses and helping you recover from injury. But, left unchecked, inflammation can start to attack your body's healthy tissues, including your brain.

This can contribute to mental health conditions like depression and neurodegenerative disorders like Multiple Sclerosis and Alzheimer's disease.

Depression and omega-3s

Depression is the leading cause of global disability — which means that worldwide more people suffer from loss of quality of life due to depression than diseases like cancer and stroke.

Depression is a complex disorder with many different causes and contributing factors. But, recent research suggests that the availability of healthy fats in the brain might play a role in depression — at least for some people. A recent meta-analysis (where the results of several studies are pooled to look for overall trends) found a beneficial effect of EPA supplements on depressive symptoms. Specifically, around 1g per day of EPA was found to effectively reduce depression, likely due to its anti-inflammatory action.

Building a bigger, better brain

In the past, it was thought that you were born with pretty much all the brain cells you would ever have. But, in the last decade or so, animal and human studies have shown that the adult brain is capable of creating new brain cells — a process called neurogenesis. This is important for overall brain health (low levels of neurogenesis are associated with more severe depression) but in particular for brain ageing.

As we age, from our late 40s, it's common for our brains to shrink by about 1-2% per year. This is considered normal brain ageing and is linked to the poorer memory and cognitive performance commonly seen in older adults. But, DHA has been shown to promote neurogenesis in an area of the brain called the hippocampus — think of the hippocampus as the seat of memory and learning. Indeed, it's the area of the brain first and most severely damaged in Alzheimer's disease.



Consistently, clinical trials of omega-3 supplements have shown increases in hippocampal neurogenesis in the adult brain. And people who eat diets rich in fish and seafood have larger hippocampi and overall brain volume compared to people who don't eat much of these.

Top takeaways

Omega-3 fats are essential for the healthy development and function of your brain, as well as delaying brain ageing. DHA plays a unique and indispensable role in the formation and activity of brain cells, while EPA has important anti-inflammatory actions.

EPA and DHA aren't efficiently produced in your body, but you can get them already preformed in oily fish. So aim for 1-2 servings of oily fish per week. If you don't eat a lot of fish or if you're vegan or vegetarian, you might need to think about taking a supplement that contains both EPA and DHA as you're unlikely to get enough from plant sources (which only contain ALA).



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Boost your omega-3 intake

Brighten up your week with these recipes designed to increase your omega-3 intake. For a plant-based version of the miso bowl, opt for tofu instead of salmon. And for the bircher muesli, get creative with your favourite toppings. A sprinkle of some flax and chia seeds is an easy way to add some extra omega-3!



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Coconut bircher muesli

Ingredients (serves 2)

- 100g oats
- 1½ tablespoon chia seeds
- 50g desiccated coconut
- 2 tablespoons greek/coconut yoghurt
- 1 tablespoon honey or maple syrup
- 350ml milk of choice
- 1 apple (coarsely grated)
- Pinch of cinnamon
- Handful flaked almonds
- Handful pumpkin seeds

Method

1. Combine the oats, chia seeds, cinnamon, coconut, almonds, and seeds in a bowl.
2. Next stir in the honey/maple and then the grated apple.
3. Add the yoghurt and milk and mix well.
4. Store in a sealed container in the fridge for several hours or overnight. Add your favourite toppings.

Salmon miso bowl

Ingredients (serves 2)

- 2 salmon fillets
- ½ head of cauliflower
- 2 tablespoons olive oil
- 1 bunch broccolini
- ½ teaspoon cumin seeds
- 1 clove of garlic
- ½ lime
- 200g cooked brown rice
- 2 tablespoons kimchi
- 1 tablespoon roasted sesame seeds
- 1 tablespoon pickled red onion
- Salt and pepper

Miso dressing:

- 1 ½ tablespoon white miso
- ½ tablespoon sesame oil
- 1 tablespoon tamari/soy sauce
- 1 teaspoon honey
- ½ lime
- ¾ tablespoon water

Method

Roasted cauliflower

1. Preheat your oven to 200 °C.
2. Cut your cauliflower into florets. Add to a baking tray and toss in ¾ tablespoon of olive oil.
3. Roast the cauliflower for about 25 minutes until lightly charred.

Sautéed broccolini

1. Add ½ tablespoon olive oil to a pan on a medium heat. Thinly slice a garlic clove and add to the pan, followed by the cumin seeds. Leave to cook for 1 minute.
2. Add the broccolini to the pan with the garlic and cumin. Cook for 5-6 minutes, tossing every so often.

Crispy salmon

1. Pat the salmon fillets dry with a paper towel.
2. Season all over with a pinch of salt and pepper and squeeze half of a lime over each fillet.
3. Heat ¾ tablespoon of olive oil in a large non-stick pan or skillet over a medium-high heat until hot.
4. Sear salmon skin-side down, pressing lightly so the entire surface comes into contact with the pan. Cook for about 5 minutes until the skin is crispy and golden.
5. Flip and cook the flesh-side of the salmon for 3-4 minutes.

Miso dressing

1. Right before serving, add all of your miso dressing ingredients to a saucepan on a low-medium heat. Cook for 2 minutes, stirring often.

Assemble your bowl

1. Add your rice, cauliflower, broccolini, and kimchi to a bowl.
2. Place the salmon fillet on top and add a drizzle of the miso dressing.
3. Sprinkle with sesame seeds and pickled red onion.



**Season 2 of our podcast, *How does
blank affect your health?*, is here!**



Join us as we hear from leading experts how everything from coffee and sitting to music and sleep affect the different aspects of your health.

How does sugar affect your health?

Sugar is often demonised as being ‘bad for you’, containing ‘empty calories’, or even being ‘toxic’. Should you be concerned or are these claims blown out of proportion? Consultant dietitian and author of *Your No-Nonsense Guide to Eating Well*, Maeve Hanan, explains the role of sugar in your diet and how it affects your health.

Different types of sugar

Sugars belong to the carbohydrate family and are made up of 1-2 simple sugar units called saccharides. While complex carbohydrates, like starch and fibre, are made up of longer chains of saccharides.

Monosaccharides

Monosaccharides are sugars that are made up of 1 saccharide, including:

- Glucose — main source of energy for your body and is formed when you digest most carbohydrate-containing foods like bread, fruit, dairy products, and sugary foods.
- Fructose — naturally found in foods like honey, agave syrup, apples, pears, raisins, and sugar snap peas. Fructose is sometimes added to food in the form of fructose syrup. Fructose can be converted to glucose in your liver and then used as an energy source.
- Galactose — mainly found in dairy products in the form of lactose. Smaller amounts of galactose are present in certain fruits and vegetables like dates, watermelon, tomatoes, papaya, and peppers. This can also be converted to glucose in the liver and used as energy.

Disaccharides

Disaccharides are sugars that are formed when 2 monosaccharides join together, including:

- Lactose (galactose + glucose) — found in dairy products.
- Sucrose (glucose + fructose) — found in table sugar, sugar cane, sugar beets, and maple syrup.
- Maltose (glucose + glucose) — found in pears, peaches, sweet potato, and high-maltose corn syrup.

While there are lots of different types of sugars, there are 2 main groups to consider in terms of nutritional intake:

1. Naturally-occurring sugars — found in foods like fruit, vegetables, and dairy.
2. Free sugars — includes those which are added to foods by manufacturers, cooks, or consumers, as well as sugars naturally present in honey, syrups, and unsweetened fruit juices.



Is ‘natural’ sugar bad for you?

Naturally-occurring sugars in fruit and vegetables don’t count as free sugar because it’s bound up with other nutrients and fibre within the cellular structure of the food. Being packaged in this way means you absorb it much slower than free sugars — so it doesn’t cause your blood glucose (sugar) to spike in the same way.

On top of this, fruit and vegetables are an important source of vitamins, minerals, polyphenols, and fibre. And there’s good evidence that consuming a high intake of fruit and vegetables (6-10 portions a day) is associated with a lower risk of heart disease, cancer, and early death.

Although the natural sugar found in dairy (lactose) isn’t bound within the cellular structure, it’s also absorbed more slowly than free sugars — due to the presence of protein and fats. Lactose in dairy has also been found to pose a lower risk of tooth decay compared to other sugars. And dairy products can provide a number of important nutrients like protein, calcium, iodine, and vitamin B12.

Overall, foods containing naturally-occurring sugars include a wide range of nutritious foods. This is why it’s important to look at foods as a whole, and not focus on the sugar in it.

Are some types of sugar better for you?

There are numerous products advertised as sugar replacements or natural sugar alternatives. These include honey, agave syrup, rice syrup, maple syrup, molasses, and coconut sugar. But these still count as free sugars as they’re a concentrated source of glucose and fructose.

They also generally have a similar impact on your blood glucose levels compared to table sugar. This is with the exception of agave syrup, but this is still only recommended in small amounts due to its high fructose content.

Although these products generally contain small

amounts of vitamins, minerals, or antioxidants, the amounts are insignificant unless you consume a very large amount — which would lead to an excessive intake of free sugars.

The nutritional impact of consuming sugar

A high intake of sugary food and drinks is linked with an increased risk of tooth decay and a high intake of calories. Regularly consuming sugary drinks is also associated with an increased risk of developing type 2 diabetes. And for children and teenagers, studies have found that too many sugary drinks might lead to weight gain and a higher BMI.

But, as glucose is the preferred source of energy for your body, carbohydrates are an important part of a balanced diet. As discussed, foods which naturally contain sugar like fruit, vegetables, and dairy also provide your body with many essential nutrients. So, a ‘zero-sugar diet’ would mean you’re missing out on nutritious foods like fruit, vegetables, dairy, beans, pulses, grains, and nuts.

And while you should limit your intake of free sugars, it doesn’t mean complete avoidance. Some sugary foods can be included as part of a balanced diet. Trying to eliminate all sugar would be highly restrictive and could potentially trigger a disordered relationship with food.

How much sugar should you consume?

UK healthy eating guidelines advise that roughly 50% of the energy we consume should come from carbohydrates. This is reflected in the Eatwell Guide as the majority of this includes carbohydrate-containing foods like whole grains, starchy carbohydrates, fruit, vegetables, beans, pulses, and dairy.

In terms of free sugars, those over the age of two are advised to limit their intake to 5% of total dietary energy. Based on the energy requirements of those over 11 years, this equates to 7 sugar cubes/teaspoons of sugar a day (30g).

The sugar tax

The average intake of free sugar for adults in the UK is 11% — roughly double the recommended amount. This is part of the reason why the UK soft drinks level (A.K.A. The Sugar Tax) came into force in April 2018. This involved taxing drinks with a total sugar content of 5-8g per 100 ml at 18 p per litre. And those with more than 8 g per 100 ml at a higher rate of 24 p per litre.

A year after this tax was introduced, reformulation by soft drinks companies resulted in a 34% reduction in the number of drinks in UK supermarkets with more than 5 g of sugar per 100 ml. This is promising to see, but it’s too early to tell whether this has impacted health outcomes.

Take-home message

Although most people would benefit from eating less free sugar and more high-fibre sources of carbohydrate, sugary food and drinks can still be enjoyed in moderation. No foods are simply ‘good’ or ‘bad’. And considering the above information, there’s no reason to label sugar as ‘bad’ or ‘toxic’ — in fact, it’s the main fuel which your body runs on!

For more from Maeve, check out her recent book ‘Your No-Nonsense Guide to Eating Well’.



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Personalised nutrition: The science of nutrigenomics

Nutrigenomics is the study of the relationship between nutrition, health, and your genome — which has paved the way for personalised nutrition. Personalised nutrition is a relatively new concept where your diet is tailored to your unique genetic makeup. As with any emerging field, personalised nutrition has sparked a lot of controversy. So, what's the truth? Can (and should) your DNA determine your diet?





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Back to basics: The human genome

Your genome is your unique pattern of DNA, found in almost every cell in your body. In 2003, the entire human genome was sequenced — all 3.2 billion base pairs (building blocks of DNA) were mapped out. This is widely acknowledged as one of the largest breakthroughs in modern medicine. It has helped pave the way for a number of revolutionary discoveries — particularly when it comes to personalised medicine.

Many of these breakthroughs have been based on a person's genotype — your unique set of genes responsible for all your genetic traits. This then gives rise to your phenotype — the collection of all your observable and physical characteristics.

The number of possible unique sets of genotypes is huge, and the reason why we're all so unique.

Can your genes determine how you respond to your diet?

In the past few years, there's been a rise in home tests that "promise to unlock the secrets of your DNA". Some of these companies provide advice on how to tailor your diet based on your unique genetic makeup.

This advice is largely based on "SNP analysis". SNP (single nucleotide polymorphisms) are the most common type of genetic variation among people. Each SNP represents a difference in a single DNA building block that makes up a gene.

You have roughly 4-5 million SNPs. And every person has a different variation of SNPs — think of it as lots of different possible patterns. There are over 100 million different possible SNPs and variations across the globe.

SNPs are used as biological markers and can be key in locating genes that are associated with particular diseases and genetic characteristics. This can range from traits like your ability

to respond to a certain drug, to your risk of developing a particular disease. There's also evidence that some SNPs are associated with food intolerance and tendencies to over-indulge. This has led to a new field of "nutrigenomics".

Is it the way forward?

As promising as it might sound, it's important to highlight that this area of science is still in its preliminary stages. Over-simplifying our biochemical processes runs the risk of over-promising the potential benefits.

For example, last year, a project between Harvard Medical School, King's College London, and Stanford University looked to determine the potential genetic factors that could underpin an individual's response to food. The study included 700 identical twins and 400 non-twins. Robust genetic research always involves twins as it allows you to observe the effect that environmental influences have on the same genetic makeup.

Preliminary results of the study confirmed that people, including identical twins, respond differently to the same foods and diet. But the extent genetics played into this was no less than (and in fact smaller than) the effect of sleep habits,

exercise, gut microbiome health, and environment.

So, while personalised nutrition might be useful, the role of DNA testing within this field is still questionable. The best tried-tested approach is still to observe how your body responds to certain foods and adjust your diet based on these results. Listen to your body, follow your energy levels, and trust your instincts more.

The great sleep reset

Recognition of the importance of sleep has skyrocketed in the last decade. In fact, research has shown that sleep underpins pretty much every aspect of health and mental performance. Sleep scientist Dr Sophie Bostock explains how to maximise your alertness during the day and wind down in time for a peaceful night's sleep.

Lockdown and sleep

Sleep helps to optimise our immune system, metabolism, appetite, circulatory system, concentration, reaction time, self-control, memory, and mood. Our sleep needs are individual, but a minimum of 7 hours a night is a good benchmark for most — a small number of people might thrive on less.

Before coronavirus, at least 1 in 3 adults were struggling to get the recommended 7+ hours of good quality sleep. In June, research from Kings College London reported that 63% of adults experienced disturbed sleep in response to lockdown — particularly for people under financial strain. Positively, 24% of adults started sleeping longer and feeling more refreshed.

So, how is it that some people can sleep so well, even in the midst of all this uncertainty and change? By understanding the 3 systems which control when and how well you sleep, you can maximise the quality of your sleep — no matter how little time you have.

1. Circadian rhythms and Zeitgebers

We tend to think of sleep as something that starts at night, but really, sleep and wakefulness are part

of a 24-hour cycle. This repeating daily pattern is called your circadian rhythm. You have a number of different circadian rhythms — including reaction time, temperature, blood pressure, and digestion. All of these are controlled by clocks embedded into your cells. And to help keep these clocks in sync, your body uses signals called Zeitgebers, sometimes called 'time givers'.

The strongest Zeitgeber is light. Light lands on the back of your eye and sends a message to a master clock in your brain. This master clock then spreads the message to all of your internal clocks that it's time to be alert. And when darkness falls, your brain responds to low light by producing melatonin — a hormone which prepares your body for restful sleep.

Other Zeitgebers with alerting effects include food, physical activity, and temperature. This is why eating late at night, intense exercise 1-2 hours before bed, or sweltering in a heatwave, can all interfere with good quality sleep.

Lockdown meant many of us skipped our early morning travel to work and spent less time outdoors. As a result, your exposure to natural daylight was limited, which can cause you to feel sluggish — due to melatonin lingering in your system.

Tips to manage your circadian sleep-wake rhythm

Find a wake-up time you can stick to

Having a regular wake up time 7 days a week anchors your body clock, which helps prepare you for sleep at the same time every night.

Exercise first thing in the morning

To fully kick-start your body clock, exercise in the morning (ideally outside) and have an early breakfast. During the day, sit by a window and take breaks outside to make the most of the sunlight.

Limit your Zeitgebers

To help your body prepare for sleep at night, dim the lights, avoid vigorous activity, keep your bedroom cool, and try to stop eating 2 hours before bed.



Dr Sophie Bostock
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2. Sleep pressure

During your waking hours, a substance called adenosine builds up in your brain, which makes you feel drowsy. The longer you've been awake, and the more activity you've done, the more sleep-inducing adenosine builds up. And the only way to reset sleep pressure and clear this adenosine is to sleep.

During lockdown, you might have had the opportunity to get up later or nap during the day. While a lie in or evening nap might feel good at the time, you might not have enough sleep pressure to sleep by bedtime.

Caffeine makes you feel alert because it masks sleep pressure by temporarily blocking adenosine receptors in the brain. Some people are more sensitive to caffeine than others. But research has shown that the caffeine in a strong coffee consumed 6 hours before bedtime can still interfere with falling asleep and sleep quality.

Tips to manage your sleep pressure

Don't get into bed until you feel sleepy

You're more likely to fall asleep and to sleep through the night if you're really tired. Otherwise, you might just get frustrated and have trouble switching off.

Be tactical about caffeine

Try to avoid caffeinated drinks at least 6 hours before bed. Or switch to decaf by default, and save caffeine for when you need it — the more caffeine you drink, the less of an effect it will have on how alert it makes you feel.

Try a short 15-20 minute nap

If you're feeling sleepy during the day, take a short nap to pep up your mood and alertness. Just try to avoid a nap too late in the day. And keep in mind that naps longer than 30 minutes might cause you to fall into a deep sleep — risking an hour of groggy 'sleep inertia' when you wake up.

3. The stress system and the sleep-stress link

Your 'fight or flight' stress response has evolved to protect you from danger. It's not just threats to your survival that can trigger stress, anything which is novel, unpredictable, or outside your control can dial up your stress levels. Coronavirus, and its legacy, ticks all the boxes.

Your brain responds to stress by becoming more vigilant. If you produce cortisol (a stress hormone) at night, it can interfere with the release of melatonin. Less melatonin makes you more likely to wake during the night, so your sleep won't be as restorative.

To make matters more challenging, a shortage of sleep makes you more sensitive to stress and more prone to impulsive behaviour. On the plus side, the two-way link between sleep and stress means that if you improve your sleep, your emotional regulation

improves and levels of anxiety, depression, and stress can reduce as a fortunate side effect.

Tips to de-stress before bed

Write it down

Put the day to rest by writing down on paper what you need to remember for tomorrow. If the same thoughts pop up in bed, tell yourself they're on the page and let them go. If worries keep intruding, schedule 'worry time' in your calendar the next day when you can focus on these worries.

Have a routine

Every parent knows the importance of a wind-down routine. So set an alarm on your phone to wind down 60 minutes before bed (30 minutes if you're short of time). This is your cue to switch off tech and detach from the day. A warm bath, reading a good book, listening to a favourite song, or cuddles with your partner can all be good wind-down rituals — pick something you look forward to.

Be mindful

Mindfulness practice, where you learn to observe thoughts and feelings without getting caught up in them, can reduce stress and improve sleep. Apps like Headspace and Calm or online mindfulness coaching are good places to start. Even regularly practising a simple breathing exercise, where you breathe slowly all the way in and all the way out, can help to promote relaxation when repeated regularly.

Why is now the time for change?

There's no bad time to improve your sleep, but as the world opens up again, we have an opportunity to be more conscious about the habits we bring back into our lives. I know I've saved a fortune on (decaf) coffee and I've really missed swimming — which I hope to re-start soon.

It's a good time to ask yourself, do you need that third daily cup of double espresso? Could you swap some commute time for a regular wake up time and 10 minutes of morning sunshine? What will it take for you to switch off from work at the same time each night and protect some me-time?

We've all proved in the last few months that we're capable of adapting to change because we have to. Now we have an opportunity to change because we want to. My vote is to focus on sleep — a simple and immediately rewarding place to start!

Tune in to our podcast episode 'How does sleep affect your health?' to hear more from Dr Sophie Bostock.

Breathe it in: how air pollution affects your health



Cesare Attuoni
Thrive

The recent drop in air pollution might be one of the only positives to come out of the current pandemic. Between April and June, traffic plunged to levels last seen in 1955. And at the height of lockdown, nitrogen dioxide levels (a harmful particle emitted by vehicles) were down 56%. Plus, the ever-present clouds of smog enclosing our biggest cities slowly evaporated — allowing Earth to finally take a breather.

But it hasn't lasted long. With restrictions easing and the world economy getting back into motion, pollution levels have risen once more. And after a 3-month dip, pollution is now the same as it was this time last year.

Is it something to worry about?

It's easy to forget about air pollution, dismissing it as something that only applies to those living in big cities. After all, you don't really see it, smell it, or feel it. But, it's not just confined to large urban areas. The most polluted spot in the UK is Chideock, a small village in Dorset – its proximity to a busy A-road means that over 20,000 cars pass through it each day.

Moreover, a 2019 report found that every single A-road and motorway around 19 English towns and cities exceeded World Health Organization (WHO) pollution guidelines. It's no surprise then, to learn that air pollution is the UK's largest environmental risk to public health.

The WHO estimates that pollution is responsible for around 8 million deaths worldwide each year. In the UK, it's estimated at 36,000 deaths a year. And according to a 2018 study, pollution costs the NHS £157 million a year.

So, what exactly is air pollution?

Air pollution is a mix of particles and gases in the air that can harm humans, animals, and plants. According to the WHO, the main pollutants include:

Particulate matter (PM): Created mainly by fuel combustion and road traffic — can increase the risk of heart and lung disease.

Sulphur dioxide (SO₂) and nitrogen dioxide (NO₂): Created by road traffic or indoor gas cookers — can cause bronchial symptoms, lung inflammation, and reduced lung function.

Ozone at ground level: Created by the reaction of sunlight with pollutants from vehicle emissions — can cause breathing problems, lung disease, and worsen asthma.

What happens when you breathe in polluted air?

You breathe in around 10,000 litres of air a day. As you inhale, thousands of particles enter your lungs. Some of these can become lodged in your

lungs, while some smaller particles can end up in your bloodstream. Along with respiratory and heart disease, once in the blood, these particles have the potential to affect other organs in your body.

Some newer studies even show possible connections to brain function. Long-term exposure to polluted air appears to have negative cognitive effects in both adults and children. In children, it might affect neural development. In adults, it's linked to brain ageing. Some animal studies suggest that there might also be an increased risk of dementia.

Tips to combat air pollution

To address the root problems, governments need to collaborate and intervene with policies that drastically reduce pollution on a global scale. But, there are lots of things we can personally do to minimise our impact at an individual level — collectively, this all adds up.

Avoid rush hour

Limit the time spent walking, cycling, and exercising near busy streets or during rush hour. The less time we spend breathing in polluted air, the better.

Wear an N95 or N99 mask

Masks don't tend to keep out smaller particles, but they might minimise your exposure to larger ones. If you do wear a mask, make sure it's good quality and fits well. Masks can sometimes give people a false sense of security, so it's still important to

minimise your time in polluted areas.

Swap driving for walking or cycling

Avoid using cars as much as possible. This might sound like a catch-22. You're encouraged to not cycle in trafficked roads but simultaneously asked to ditch the car. This is where the collective spirit comes in.

If we all start walking and cycling more as a whole then we can truly make an impact — improving not just our own health but the health of others too. More cyclists on the roads also puts more pressure on governments to create cycle lanes and pedestrian areas. If an active commute isn't possible for you, try carpooling or public transport.

At home, simple things like using an exhaust fan in your kitchen and bathroom, not smoking indoors, and minimising your use of candles and wood fires can help to improve air quality.

If all of this sounds like wishful thinking, a quick glance at our European neighbours show that it's more achievable than you might think. Cities like Copenhagen and Amsterdam, famed for their vast population of cyclists, both have significantly lower levels of pollution than London. Across the pond, France's shift towards renewable energy means they have much lower CO2 emissions and fewer deaths related to pollution.

In a nutshell

This is an aspect of health that we can't truly tackle alone. But if the last few months have taught us anything, it's that we can face almost any obstacle. Lockdown brought pollution levels down to a historic low, it's up to us to ensure this progress doesn't go up in smoke.



6 reasons to breathe through your nose

It doesn't tend to get the attention it deserves, but the benefits of this elegant and critical organ are wide. As humans, we've evolved to breathe using our noses. But it's estimated that up to 30-50% of adults breathe primarily with their mouths. Here's why breathing through your nose is so important.

Humidifies air

Small structures in your nose called turbinates help to humidify the air you inhale. This prepares it for your lungs, as they don't tolerate dry air well. This is why with mouth breathing, you'll often find yourself waking up with a dry mouth or scratchy throat.

Filters air

From your nose hairs to the sticky mucus that lines your nostrils, your nose helps to filter out and protect you from dust, pollution, allergens, viruses, bacteria, and much more.

Warms air

Your nose helps to warm up air before it reaches your lungs. Your lungs don't tolerate cold air well — this is why running in cold weather can often trigger a cough!

Increases oxygen uptake

Breathing through your nose adds up to 50% more resistance than mouth breathing. This resistance helps to maintain lung elasticity — allowing them to inflate and deflate properly. Plus, nitric oxide from your nose relaxes and widens your blood vessels. These processes can increase your oxygen uptake by as much as 10-20%.

Controls air volume

Over-breathing is common if you breathe primarily with your mouth. This causes you to lose too much carbon dioxide from your blood. Carbon dioxide helps stimulate breathing, regulates the pH of your blood, and promotes oxygenation of your tissues and organs. Whereas the resistance added by nose breathing helps control the volume of air, preventing this from happening.

Directs airflow

As your nose opens up, so do your lungs. This helps to direct air deep down into your lungs.

Aisling Moran

Editor-in-chief
BSc (Hons) Nutritional Science

Workout with Thriva

Get moving with a quick bodyweight workout designed by our resident trainer, Ria Morgan.

Round 1

Do each move for 45 seconds with 15 seconds rest between moves
Take 30 seconds to rest before round 2

Round 2

Do each move for 35 seconds with 10 seconds rest between moves
Take 30 seconds to rest before round 3

Round 3

Do each move for 25 seconds with 5 seconds rest between moves
Take 30 seconds to rest before round 4

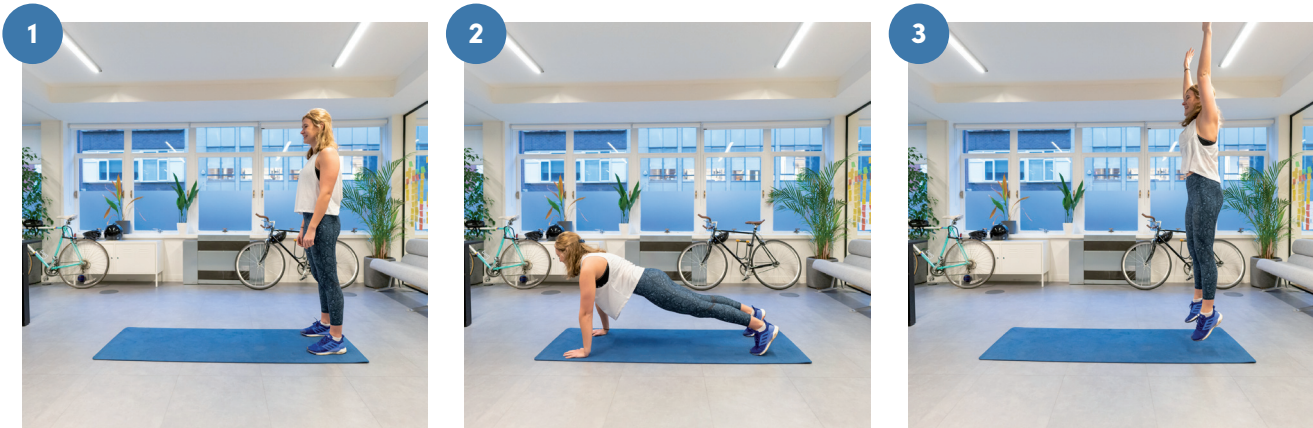
Round 4

Do each move for 15 seconds with 0 seconds rest between moves

Join us **Monday 5th October at 6:30 pm** on Instagram @thrivahealth as Ria takes us through a live version of this workout!

The workout

1. Burpee



2. Plank shoulder taps



3. Squat jumps



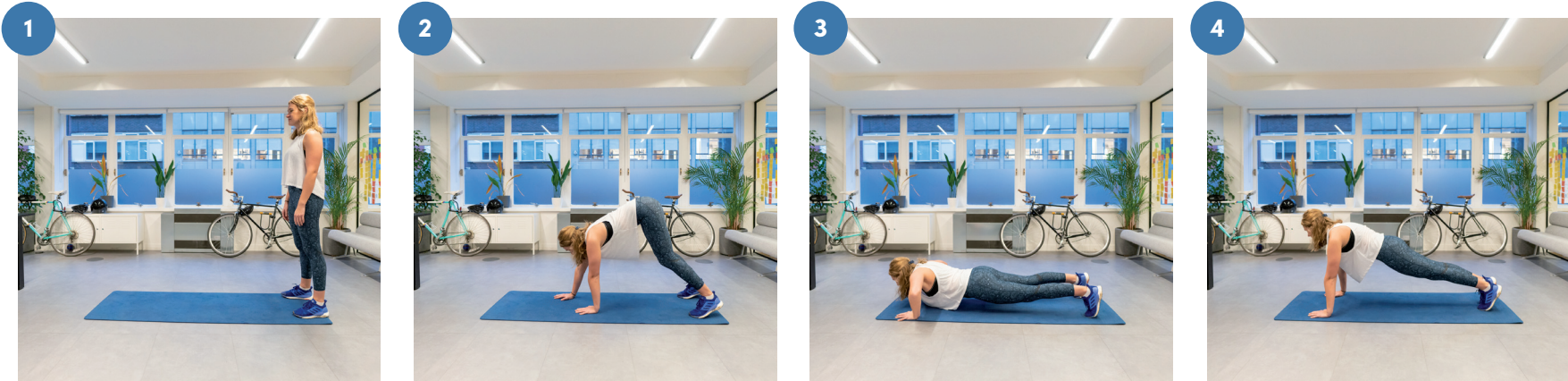
4. Skaters



5. High knees



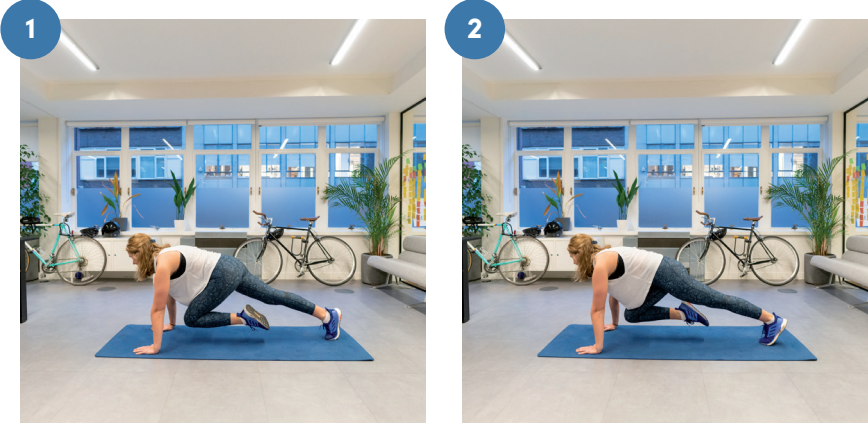
6. Walkout press



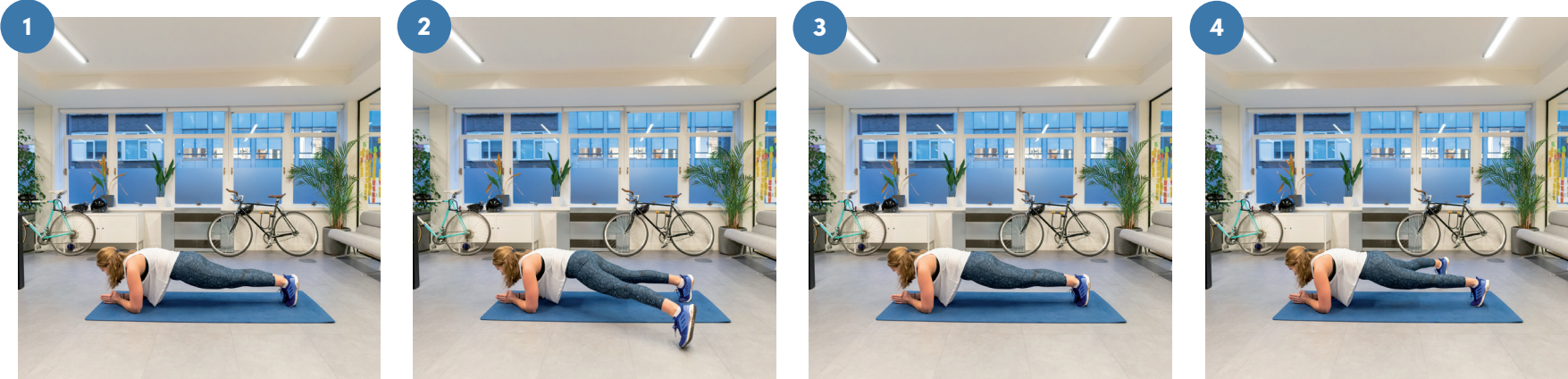
7. Lunges



8. Mountain climbers



9. Low plank side taps





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