

FEATURE 2 January 2019

A scientific guide to the resolutions that are really worth the effort

Being a better you needn't be as hard as you think. From more sleep, to snacking smarter and ditching the gym - we put 10 New Year's resolutions to the test

By **Linda Geddes**

Start embracing nature

In the Shetland Islands, off the north coast of the UK, doctors are handing out some unconventional prescriptions. Along with regular therapies, people with a range of physical and mental ills are being told to take in the sounds and smells of seabird colonies, build woodland dens or simply appreciate the shapes of clouds. A similar scheme in New Zealand found that, six to eight months after receiving a “green prescription”, two-thirds of patients were more active and felt healthier, and almost half had lost weight. Meanwhile, so-called eco-therapy, which involves participating in outdoor activities such as gardening or conservation, is emerging as a promising treatment for mild to moderate depression.

In fact, we have long recognised that people living in greener neighbourhoods tend to have better

Linda Geddes is a consultant for *New Scientist* and

author of *Chasing the Sun: The new science of sunlight and how it shapes our bodies and minds*, published next week

Magazine issue 3211,
published 5 January 2019



© Copyright New Scientist Ltd.

[Back to top](#) 

cardiovascular health and lower levels of stress, regardless of their socio-economic status. Recent research also suggests that city dwellers living near green spaces are at lower risk of type 2 diabetes. And it seems the greater the biodiversity in green spaces, the larger the benefit to our psychological well-being.

Various explanations have been proposed for such findings. Simply being outside boosts exposure to bright light, which is known to be an effective treatment for both seasonal and non-seasonal depression (see “Start brightening up your day”). Then there are the benefits of exercise, social contact and time out from everyday problems. Yet, connecting with nature seems to provide additional physical advantages. “We know that our heart rate slows down, we are less stressed, we

breathe better and our immune responses are improved when we are in green space,” says Rachel Stancliffe of the Centre for Sustainable Healthcare in Oxford, UK. “Although we don’t completely understand those things, we think it is related to a reduced stress response, which is partly a mental and partly a physical thing.”

Some people believe that having evolved alongside nature, we possess an instinctive urge to seek out and respond positively to it. Even exposure to nature in the form of images of natural scenes or recordings of birdsong can reduce heart rate and blood pressure, enhance attention and distract from pain. One study found that diffusing pine oils into people’s bedrooms while they slept led their bodies to produce more natural killer cells, which fight viruses and cancers.

Regardless of the mechanism, getting outdoors is good for you. Add a social and physical element – by joining a hillwalking group or volunteering at a community allotment (see “Start helping others”), for example – and the benefits will be heightened. What could be more natural?

Start learning a new language

At this time of year, many people’s thoughts turn to physical exercise to work off the excesses of the festive season. But mental exercise is equally important. So, what is the best way to hone your mind, improve your thinking skills and help stave off cognitive decline as you age?

Puzzles and brain-teasers are a popular choice, but somewhat lacking. “The problem with things like crosswords and sudoku is that they aren’t very varied,” says Thomas Bak at the University of Edinburgh, UK. “It is like going to the gym and using only one machine: your biceps might become strong, but you won’t be properly fit.”

To get a bigger bang for your buck, you need something more like circuit training or parkour. That is why one of your best options is to tackle a foreign language. This will provide a mental workout comprising many different skills, from perception to the suppression of your native tongue to learning grammatical rules, which can be almost mathematical. If you speak to others, you get the bonus of social interaction too.

Learning a new language may be hard work, but the payoff is impressive. For a start, it can improve your mental focus. Following an intensive, week-long Gaelic course, people were better at paying



attention and suppressing irrelevant information. The effect gradually wore off, however, if they didn't stick with their language practice.

Other studies indicate that people who are bilingual have improved executive function – the ability to plan, organise and complete tasks – although these results have recently been disputed. There is also evidence that they develop dementia four years later, on average, than people who are monolingual – and that they recover faster if they have had a stroke.

If languages really aren't your thing, you might consider taking up a musical instrument or joining a choir, instead. Music training utilises many of the same skills as learning a language, and has been associated with improved memory, attention and empathy. It may even improve your ability to

acquire new languages.

Start cutting back on alcohol

No doubt, you have heard of Dry January. The idea is that by foregoing all booze for a whole month, you make amends for recent excesses and reset your relationship with alcohol. It is a neat challenge. But is it worth the effort?

In the short-term at least, it appears to have health benefits. A recent study of moderate to heavy drinkers who had stayed sober for a month recorded a significant drop in insulin resistance – suggesting their risk of developing type 2 diabetes went down – as well as reductions in blood pressure, cholesterol and two growth factors associated with the development of cancers.

Whether Dry January changes long-term behaviour is less clear, however. Only one study has directly assessed this. It found that people who completed the challenge claimed to be consuming less alcohol six months on: the average number of days per week on which they had a drink had fallen from 4.7 to 3.7, and the number of drinks they consumed each time fell from 3.7 to 3.1. However, 36 per cent of participants failed to complete the challenge, and for this group, the reduction in alcohol consumption at six months was smaller. These results may not be representative either, as three-quarters of participants didn't complete the six-month follow-up survey.

“Overall, I think that initiatives like Dry January are a good thing because anything that gets people thinking about their relationship with alcohol is positive,” says Ian Hamilton at the University of York, UK, who specialises in substance abuse. “The problem is that – even if they achieve the month's abstinence – it kind of lets them off the hook for the rest of the year. I would much prefer for people to go through January drinking, but committing to having at least two consecutive days a week drink-free, which would be easier to sustain.”

Going “damp” rather than “dry” gets support from research published in August suggesting that a drink a day might help ward off dementia, because small amounts of alcohol stimulate the system that flushes toxins out of the brain. But the same month, a large and widely reported study in *The Lancet* concluded that there is “no safe amount of alcohol”. It calculated that consuming even one drink a day – equivalent to 10 grams of alcohol or 1.25 UK units – increases people's risk of developing one of 23 alcohol-related diseases by 0.5 per cent. And the risk rises steadily the more you

drink.

That is sobering. But nothing in life is without risk, says statistician David Spiegelhalter at the University of Cambridge. Even the authors of *The Lancet* paper consider that figure “neither practically nor statistically significant”, he notes. It means that 25,000 people would need to drink this amount for one additional person to develop such a disease each year. “Even if you did believe that number, many people might feel that one drink a day is worth the totally trivial risk – just as many feel it’s worth driving a car or getting out of bed in the morning,” says Spiegelhalter.

He argues for the promotion of two alcohol thresholds: a low-risk one at around 14 units a week, and a high-risk one at around 50 units for men and 35 for women. “At that level, there’s about a one-in-eight chance that alcohol will kill you,” he says. A sober resolution would be to get as close as possible to the lower threshold – and ideally below it.

Start brightening up your day

You may not realise it, but you are probably light deprived. The intensity of light is measured in lux. Standard office lighting tends to be around 200 lux. Even on an overcast winter’s day, it is around 10 times brighter outside, and on a sunny summer’s day it is up to 500 times brighter. Yet, the average Westerner spends around 90 per cent of their time indoors. This is a problem.

Bright light stimulates your brain, boosting alertness and reaction times. It strengthens our circadian rhythms, the 24-hour fluctuations in our biochemistry and behaviour that enable us to perform optimally around the clock. Spending much of the day indoors – along with exposure to artificial light long after sunset – can subdue these rhythms, disrupting sleep and increasing the risk of conditions such as depression and dementia. Light also affects our moods, so much so that bright light is used to treat seasonal affective disorder (SAD), and exposure to it soon after waking is as effective for general depression as antidepressant drugs.

“Bright light stimulates your brain, boosting alertness and reaction times”

One obvious solution is to spend more time outdoors, particularly in the morning when your

circadian clock is most responsive to the effects of light. If that isn't an option, special lighting can help. German researchers found that people exposed for 3 hours during the morning to bright, blue-enriched light (of the sort you get from a lamp designed to treat SAD) improved their reaction times, suggesting they were more alert, both at the time and for the rest of the day. The light also appeared to lessen the effects on sleep and circadian rhythms of being exposed to artificial evening light. All good reasons to brighten up your life.

Start helping others



Roberto Herrett/Alamy

The essence of life, wrote Aristotle, is to serve others and do good. Make this the basis of a New

Year's resolution and you will be doing yourself a favour too.

It turns out that people who volunteer are happier and healthier on average than those who don't. You can get these benefits by giving time to a cause you care about, whether related to the arts, the environment, politics or whatever. However, the biggest boost comes by doing work directly focused on helping others.

It may seem counter-intuitive, but taking on extra responsibilities can reduce stress. Consider, for example, a study by Rodlescia Sneed, now at Michigan State University, and Sheldon Cohen of Carnegie Mellon University. They took blood pressure measurements from around 6700 people aged over 50, then simply let these people get on with their lives for four years before taking another measurement. What she and Cohen wanted to find out was whether volunteering would make a difference and whether more volunteering would provide even more benefits.

The results were conclusive. Compared with non-volunteers or those who had done less than 200 hours of voluntary work in the preceding two years, more active volunteers were 40 per cent less likely to have developed high blood pressure. One possible explanation is that volunteering takes your mind off your own troubles and may provide a sense of perspective. Another is that altruistic behaviour triggers the brain's reward circuitry and the release of the "bonding" hormone oxytocin, both of which can reduce stress. "Stress is very much linked to high blood pressure," says Sneed.

There is even more to be gained by helping others as we age. Sneed recently found that people who help care for their grandchildren stayed mentally sharp for longer than their counterparts. She believes social interaction is the key here.

"There is a lot of evidence that people who have lots of social interaction, or are more socially engaged, have better health outcomes," she says. "Also, when you are doing something productive, such as contributing to an organisation with volunteer work or helping to take care of your grandchildren, that can provide you with a sense of meaning or purpose, which is another thing that seems to really have positive outcomes for health."

Stop your gym membership

Get more exercise! It is the New Year's pledge that tops many people's list. While it is a good one, joining a gym might not be the best way to achieve it. "We may need to allocate more time towards



being active throughout our day, rather than just checking a box saying we've exercised for 30 minutes," says Keith Diaz at Columbia University in New York.

If you have a desk job – or couch-potato tendencies – this applies to you. Diaz and his colleagues found that adults who regularly sat for 1 or 2 hours at a time had a higher risk of early death than those who spent the same overall amount of time sitting, but who got up and moved every half hour or so. One reason is that our muscles help regulate blood sugar levels, but need to be active to do so. Prolonged sitting can also cause blood to pool in the legs, which can damage blood vessels.

Interspersing your day with movement, therefore, seems to be important. But how much is necessary? "Even 1 minute of exercise is enough to prime the muscles and get them contracting and

perhaps offset some of the harms of sitting,” says Diaz. However, the more you do, and the more vigorously you do it, the better. His team found that every 30 minutes of sitting that is replaced with light, physical activity reduces your risk of early death by 14 to 17 per cent. Vigorous exercise lowers it by around 36 per cent.

“Probably the optimal strategy would be to intersperse sitting with some movement, but also get in some exercise at the beginning or end of the day,” says Diaz. This could be done by, say, cycling to work and back, and ensuring you briefly leave your desk every 30 minutes, or even doing some heel raises while sitting.

Another option, if your work environment allows, would be to break up your day with 5 to 10-minute bursts of more vigorous exercise every half hour or so. By the end of the day, you would have completed the equivalent of a gym workout, without setting foot in a gym. Physiologists used to believe that for physical activity to be beneficial it had to occur in bouts lasting 10 minutes or more, but they are increasingly backtracking, says Diaz. A November update to the *Physical Activity Guidelines for Americans* emphasised that any activity is beneficial. “So many people fail at doing the exercise thing for their New Year’s resolution,” says Diaz, “so this might be a different twist on your endeavours to become more active.”

Stop overconsuming

Consider a toaster. To make the metal and plastic components it contains, raw materials must be extracted from the ground, melted or heated, purified and modified, then transported to a factory, or maybe several, to produce the different parts. Once they have been assembled and packaged, the final toasters must be transported again.

No wonder our insatiable appetite for new things consumes so much energy. “A sizeable chunk of our overall carbon and biodiversity footprint comes from just the stuff that we buy week in, week out,” says Mike Childs, director of research at Friends of the Earth UK. “Buying stuff comes in at around 44 kWh per day per person, plus 12 kWh to transport it all,” he says. A whopping 14 kWh per day of this is associated with producing your car. Packaging contributes around 7 kWh a day. By comparison, an average Westerner uses around 20 kilowatt-hours (kWh) of energy each day to heat their home. And if you spread the energy cost of taking a long-haul flight across a whole year, it works out at around 30 kWh a day.

Clearly, we need to buy some stuff, but we can reduce our impact. “Buying more durable products means you will be buying replacements less often, as does repairing items rather than putting them in the bin,” says Childs. Buying second-hand or refurbished items is another good strategy.

What about food? The typical energy costs of food, farming and fertiliser come in at 15 kWh per person per day, says Childs. This is in addition to the other things we buy. Reducing meat consumption is an obvious first step because raising and feeding livestock is so energy-intensive. Cutting food waste could have a big impact too. If food waste were a country, it is estimated that it would have the third-largest carbon footprint, behind the US and China.

That is not all. “Agriculture is the single largest threat to global biodiversity, with large amounts of the tropics being cleared to produce food, often for export,” says Erasmus zu Ermgassen at the Catholic University of Louvain (UCL) in Belgium. “Any dent that food waste reduction makes in the demand for food is therefore a huge benefit, not just in carbon emissions, but in land and water consumption.” It could also save you money – another popular New Year’s resolution. Although, if you want to do the right thing by the planet, resist the urge to spend what you save on more stuff.

Stop scrimping on sleep

According to the National Sleep Foundation, most adults need between 7 and 9 hours of sleep each night. If you are failing to notch up the recommended hours, consider the consequences. Lack of sleep causes accidents: driving on less than 5 hours’ sleep trebles your risk of having a car crash, for instance. It has been linked with pretty much every major disease going, from heart disease to diabetes to cancer. It interferes with your attention, working memory, organisation and time management. It reduces your ability to fend off infection. It makes you hungry, so you are more likely to overeat. And it affects your mood, leaving you feeling irritable and at greater risk of depression.

The good news is that you can avoid all of this with one (seemingly) simple resolution: go to bed earlier.

You may see yourself as an owl, but if you don’t feel sleepy until late, one cause could be artificial light. Several studies have shown that when people are camping, which removes much of the artificial light from their evening, their body clocks shift several hours earlier. The knock-on benefit is that they also feel sleepy sooner and get more shut-eye. When camping, it tends to be cooler too, which is another thing to consider, because your core body temperature needs to drop to initiate

sleep.

To recreate the sleepy camping environment while enjoying the comforts of home, embrace candles, dimmable light bulbs and those that can be adjusted to produce a warmer light, along with apps that filter out blue light from computer and smartphone screens. Lower the thermostat in the run-up to bed: between 16°C and 18°C is considered optimal. Also, if your insomnia is related to stress, perhaps resolve to avoid all work calls and emails in the 2 hours before bed. And, of course, make sure you aren't hopped up on caffeine or alcohol.

Once you have set an earlier bedtime, try to stick to it. Constantly changing your routine is like imposing jet lag on your body – and this isn't conducive to sleep. So, try to wake up and go to bed at regular times to strengthen your circadian clock and control when you feel sleepy and alert.

Stop late-night snacking

Increasingly, it seems it is not just what you eat, but when you eat it that matters. So, if you are struggling to lose weight, or simply want to strike a healthier relationship with food, consider imposing a time limit on your biscuit tin.

The way we process and metabolise food varies across the day, due to 24-hour rhythms in our liver, pancreas, muscles and even our fat cells. Generally, we are better equipped to handle food consumed during the daytime, which makes sense given this is when humans have evolved to be active. Several studies have associated late-night eating with an increased risk of diabetes and obesity. Why should this be?

In a recent study, Marta Garaulet at the University of Murcia, Spain, and her colleagues compared what happened when the same group of people ate their dinner 4 hours before their habitual bedtime, or an hour before it. Even though they had exactly the same meal, eating later resulted in impaired glucose tolerance – a prediabetic state associated with higher-than-normal sugar levels in the blood.

The reason may be melatonin, a hormone we begin to secrete in the evening and continue to release overnight, telling our various organs and tissues to gear up for the night shift. “We think that if you have food together with melatonin, you may have impairments in glucose control or metabolism,” says Garaulet. Supporting this idea, her team found that people with a genetic variant resulting in



receptors that are more sensitive to melatonin had higher glucose intolerance when they ate meals not long before going to bed.

If weight loss is your goal, then besides avoiding late-night snacking, you might also reconsider your attitudes to daily meals. In a previous study, Garaulet found that when women were put on a weight-loss diet, those who ate the bulk of their calories before 3 pm lost around 25 per cent more body mass than women who consumed the same number of calories but ate more of them later in the day.

The adage that one should breakfast like a king, lunch like a prince and dine like a pauper has never seemed truer.