

# PLAY *it* COOL

**IF YOU'RE STRUGGLING TO BRAVE THE COLD, HERE'S WHY RUNNING WHEN THE MERCURY DROPS IS A SMART MOVE... AND HOW TO MAXIMISE THE BENEFITS**



It's not often we have cause to envy hedgehogs, but their ability to snooze through winter can seem pretty desirable when it's particularly nasty outside. It can be all too tempting to bunker down for a runners' hibernation of sofa and box sets, but that would mean missing out on a multitude of training benefits. Here's why you should turn your thinking on its head and learn to embrace the joys of running in wintry conditions.

## *Cold comfort*

You might think that it would be equally undesirable to run in stiflingly hot or biting cold weather, but in reality our bodies find it far easier to run in winter conditions, according to Professor John Brewer, head of applied science at St Mary's University in Twickenham, London. 'We ran tests on subjects in our heat

lab, which involved them running in temperatures of 8C and 24C [the averages of a British winter and summer],' he says. 'They ran three 40-minute runs at 70 per cent of their VO2 max and were assessed on the differences in sweat loss, heart rate, blood lactate and thermal sensation, which means their level of comfort.' The runners rated thermal sensation 32 per cent higher when →

running in the cold – an increase of almost a third in their level of comfort and, crucially, in their perception of their ability to sustain the effort in that temperature. In other words, you feel stronger and more confident when you are running in cold weather.

### Gain, not pain

Next time you dream about running in places where warm breezes ruffle palm trees and a post-race cocktail is always an option, consider this: Britain's average winter temperature is closer to a runner's ideal training environment, says Chris Tyler, senior lecturer in environmental physiology at Roehampton University, southwest London. 'Studies [at the University of Aberdeen's medical school] have shown that the ideal temperature for making endurance performance gains is actually 10-11C,' he says. 'Either side of that and you start experiencing a drop in how long you can keep going at the same intensity.'

Tyler goes on: 'One of the main factors is heart rate. Your heart has to work harder to maintain the same intensity when it's hot compared with when it's cold. In heat you have to send blood to the skin to be cooled by evaporation, which means to maintain your cardiac output – how much blood you pump around the central part of the body for it to function effectively – your heart rate must go up. In the cold the opposite is true; you're not sending blood to the periphery, so you end up with greater central blood volume, which means for the same pace you can run that at

a lower heart rate – up to around 15 beats per minute fewer.'

Take that idea a step further and you can use chilly conditions to turn up your performance gains, while minimising risk. 'Running with a lower heart rate means you're going to be less fatigued at the end of a run,' says Tyler. 'Winter is a great time to use the comparative lack of tiredness and muscle fatigue to practise things like midrun surges, kicking near the end, adding fartlek sections or throwing in a few late hill reps to make the adaptations you need to increase your strength, speed endurance and ability to push hard through discomfort in a race.'

You can then take full advantage of this by signing up for one of our pick of the month's best races on p108.

### Don't sweat it

Running in the cold means you'll need to take on less fluid than in the heat. So far, so obvious, but what may surprise you is just how much less. The St Mary's research showed that, on average, subjects lost almost twice as much fluid through sweat in the summer conditions (1.3L) than they did in winter training (0.7L) over the course of a 40-minute run. 'This means you'd have to carry and consume twice as much of your chosen drink to replace fluid in the heat,' says Brewer. 'One runner lost 1.6 per cent of their body weight through sweat on a 40-minute hot-temperature run; if you lose over two per cent you're then getting into the dangerous range where loss of motor function can come into play. So if

## 'WINTER IS A GREAT TIME TO PRACTISE MIDRUN SURGES'



**COLD SNAP**  
Running in winter can actually help you become faster and stronger.

keeping adequately hydrated is sometimes tricky, you'll find it much easier both physiologically and logistically in colder weather.'

The fact that you also don't feel as thirsty in cold conditions is also an important performance tool, says Tyler. 'Very recent research that hasn't even been published yet shows that people who believe they are hydrated can perform better in the short term, even if they're not,' he says. 'In the study, two groups of athletes were deliberately dehydrated, but only one group was told this would happen. The group who were not told they were dehydrated performed five per cent better in subsequent exercise tests.' Five per cent might not sound much, but that would take your 5K time down from 25 minutes to 23:45, says Tyler.

### Spring in your steps

However cold the day, rest assured that running will thaw you from within. Muscles generate heat every time they contract (hence shivering, which is your muscles contracting involuntarily to warm up). And once you start running you'll really crank up your internal thermostat. 'As soon as you start to move at greater than walking pace there's a big increase in your metabolic rate,' says Brewer. 'The average person will have an oxygen uptake of 3ml per kg of body weight per minute when they're at rest. But if they start to run at about 10 minutes per mile that figure will jump to around 30ml per kilo per

minute of oxygen that they need to function. That tenfold increase in metabolic rate brings a tenfold increase in heat production.'

Have faith that you'll have stopped shivering and be quite warm after 10 minutes or so, and since you don't want to be shedding – and carrying – multiple layers, Brewer's advice is to dress as though it is 20C warmer outside than it is. 'It may seem Baltic when you first step outside but this is just peripheral cold on the surface of the skin,' says Brewer. 'Inside you're not actually as cold as you feel.'

The message is: be bold, start cold. But the exception – and the key areas to keep warm – are your extremities, says Tyler. 'When you're cold, you start to shut off the peripheral blood supply,' he says. 'Your body redirects the blood to your core to warm you up, so your hands, ears, nose and toes can all still get cold while the rest of you is fine. This is why you sometimes see footballers wearing gloves with a short-sleeve shirt. It looks odd but actually makes sense.'

Tyler also suggests that if you don't want to go through that initial shivery discomfort barrier, you should get a light sweat on by warming up thoroughly indoors before you step out [see *Stoke the fire*, below left].

### Freeze the pressure

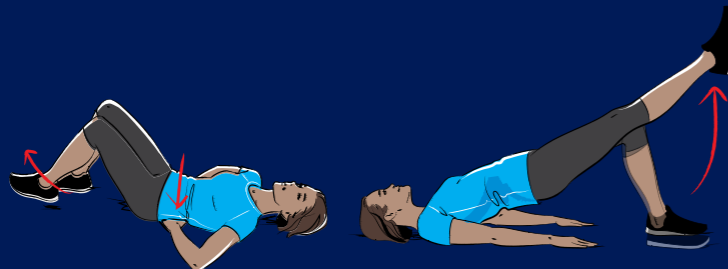
Good news for those suffering from data overload. If you need a break from your sports watch, winter is the time to do it, says endurance coach Tom Craggs (runningwithus.com). 'Increasingly with the march of technology, runners worry about hitting pace or splits,' he says, 'either for training purposes or because they don't want their Strava friends to see that they logged a less-than-perfect run. In the winter this has more risk attached to it because in the pursuit of a minutely fine-tuned session I've seen clients pull cold muscles, or slip and fall on wet or icy ground.'

Craggs recommends leaving your watch at home and running by perceived effort rather than pace. You will be less prone to slips and you'll learn more about your body as you tune in and get a better sense of what's going on under the bonnet.

If your competitive urge is not so easily dampened, 'take a drive into the countryside away from your normal environment and try running on different surfaces', says Craggs. 'The new and unfamiliar challenge to your muscles will take the sting out of your brain telling you to go harder. That and the – hopefully – beautiful surroundings will make you relax and remember why you go running in the first place.' ❧

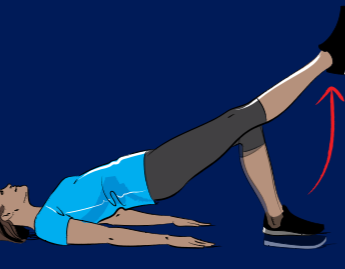
## Stoke the fire

This 10-minute cold-weather warm-up from endurance coach Tom Craggs, which can be done in your house, gets your body primed to brave the cold in comfort and injury-free. 'These five exercises are a combination of activation of key muscles used in running, and dynamic stretching,' says Craggs. 'Do each exercise twice, for 45 seconds, with 15 seconds' rest, before moving on to the next move.'



### THE FINGER CRUSHER

**WHY** To engage your lower abs and activate your hip flexors.  
**HOW** Lie on the floor in a sit-up position. Place your hands under the arch in your back and engage your lower abs and pelvic floor to push your spine onto your hands (to 'crush' your fingers). Keeping the pressure, add alternate leg lifts (a few inches off the floor).



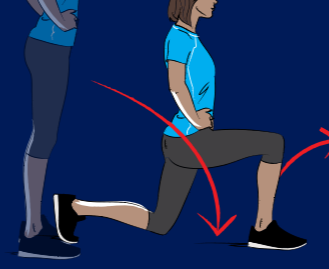
### BRIDGE

**WHY** It wakes up the glutes, and develops hip and spine stability.  
**HOW** From a sit-up position, engage your glutes and push your hips up to form a line from your shoulders through your hips and to your knees. Keep your hips high by squeezing your glutes. To add difficulty, extend one leg at a time out in a straight line, hips held high.



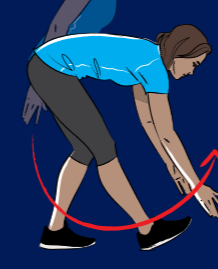
### ANKLE/ CALF MOBILISATION

**WHY** Protects against Achilles, calf, shin and plantar issues.  
**HOW** Standing in a clear hallway, lift one foot and very slowly put it back down, landing with the toe and ball of the foot first, rolling the rest of the foot down so the heel lands last. Repeat with the other foot and continue alternating, moving slowly backwards as you go.



### WALKING LUNGE

**WHY** Works the key running muscles; strengthens the core.  
**HOW** Stand in a hall. With hands on hips, step forward with one foot into a lunge, your back heel lifted, squeezing the glute of your rear leg. Now use your front leg to stand up and bring your back leg into a lunge. Keep going, toes, hips, knees and chest pointing forward.



### HAMSTRING SWEEP

**WHY** Stretches posterior chain.  
**HOW** From standing, put one leg straight out, with just your heel on the ground. Bend your back knee slightly and push your bum out as if you're about to sit down. Reach forward and, hands dangling, sweep your arms forward and backwards for 2-3 secs. Repeat on the other leg; alternate every few seconds.

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