

Surprisingly, a hillwalker consumes as much energy in a day as a marathon runner. So Colin Meek asks the specialists what the best food to eat is before, during and after your walk.

Fuelling your feet

In 2002, 16 volunteers were asked to complete a strenuous 21km rough walk in the Lake District as part of a study into the energy needs of walkers. All were given the same breakfast but were then split into two groups - eight were allowed just 616kcal and the other eight more than 3,000kcal.

The results are important for everyone who takes to the hills or walks longer than a few hours at a time. While average finishing times were similar, tests found that the low-energy intake group fared considerably worse than those who had eaten more. Reaction times were slowed and their balance impaired during the day. Some had significantly lower core temperatures than their better-fed counterparts and most found it hard to keep up, showing early symptoms of exposure and hypoglycemia (low blood sugar) when the weather was bad. Three of them also sustained minor muscular injuries and one was evacuated after a slip going downhill damaged their knee.

Writing in the Journal of Applied Physiology, the study team concluded that 'the data suggest subjects consuming a low-energy intake may become compromised in their ability to operate safely in the mountainous



environment.' Yet despite this evidence, few walkers embarking on a strenuous day out give much thought to the best way to prepare and re-fuel. So what is the ideal way to eat for a long walk and what is the science behind recommended strategies?

Marathon energy needs

Overall, the walkers in the Lakes study each burned nearly 5,000 calories - the same amount of energy as a runner doing a marathon - which means even the high-energy intake group burned far more fuel than they ate. Three of them couldn't even eat all they were given, revealing how replacing energy isn't always straightforward.

But while marathon runners adjust their diets and prepare their strategies for

weeks before an event, sports and exercise nutritionist Ann Ashworth is quick to dismiss the one enduring strategy that some walkers hold so dear.

"The cooked breakfast is often exactly the wrong thing to have," she says emphatically. "While a fairly large breakfast is clearly a good tactic, the high fat content found in the traditional cooked version slows down digestion in the gut."

Another problem, she stresses, is that fatty foods make people feel full so they don't eat what they really need - high energy carbohydrates. According to Dr Cath Spencer-Smith, sports physician for Pure Sports Medicine, among the ideal choices for a breakfast would be porridge, muesli, wholemeal bagels or beans on toast.

Strategic snacking

All specialists stress the importance of hydrating properly during any form of exercise, but after that the emphasis is on fuel. Nutritionists and dietitians use the glycaemic index (GI) as a measure of how quickly carbohydrates get into the bloodstream. Foods such as white bread, white rice and potatoes have a high GI and foods such as wholegrains and some fruits (such as apples, pears, grapefruit, and dried apricots) have a low GI. A breakfast with a low glycaemic index is a good idea as this means glucose will be released steadily into your bloodstream throughout the morning of your walk.

Your body's preferred fuel is glucose which is stored in your muscles and liver as glycogen. As this is used up, it is important that your body has an alternative source of glucose. As well as a good breakfast, sports dietitian Liz Broad says it is therefore important to start snacking early on during a strenuous walk and eat every hour or so.

"It's very difficult to play catch-up if you're pretty depleted before you start eating," she says. "The aim is to prevent the glycogen store in your liver from running low as this is the source of fuel your body uses to keep your blood glucose level stable between snacks."

However, if you don't eat quickly enough after starting a strenuous walk and your blood glucose level bottoms out, then the classic symptoms are shakiness, light-headedness and headache. For some people, these symptoms will be the first hints of a problem as, according to Dr Spencer-Smith, exercise is known to suppress your sense of appetite. If you don't eat enough quickly then, as the Lake District study showed, your performance will dip significantly.

Recommended trail foods

All the nutritionists walk spoke to said the key strategy for strenuous exercise is to snack on a mixture of high and low GI carbohydrates that are accessible and easy to eat. All of them recommend cereal and sports bars as a quick way to get a lot of calories in without too much volume.

"You can also use sports drinks and power gels," says sports dietitian Becky Stevenson at Proactivate.co.uk. "They are a great thing to keep handy and gels are also a good way of taking on fuel if you can't stomach more bulk." The latter typically contain around 100 kcal

and has been shown to help people in endurance activities. Some gels also contain caffeine.

Assuming you've got the strategy right before and during your walk, what about immediately after? According to Liz Broad, if you are likely to be going out again in the next 24 hours then you should refuel within two hours of finishing your walk as this is when your muscles are most receptive to nutrients.

"At this time you'll want to repair damaged muscles as quickly as possible so a mixture of carbohydrate and protein is important," says Dr Spencer-Smith. "A tuna sandwich is perfect."

"The walkers in the Lakes study each burned nearly 5,000 calories - the same amount of energy as a runner doing a marathon - which means even those with a high-energy intake burned far more fuel than they ate."

and come in different flavours.

Other good options recommended include low-fat sandwiches, dried fruit and nuts, Jaffa Cakes, chocolate, hot chocolate and soups made from pulses (such as lentils). "It is also worthwhile thinking about caffeine for long, strenuous days," says Becky.

There is a lot of confusion about whether caffeine causes dehydration. But Ann Ashworth argues this only happens with high doses equivalent to seven cups of tea, six cups of coffee or three espresso shots. "The diuretic effect in people who are used to drinking tea or coffee will be small," she says. The up-side of caffeine is that the Australian Institute of Sport claims 70-150 mg of caffeine (equivalent to one strong cup of tea/coffee or shot of espresso)



TIMELINES The right and wrong ways to fuel your body over a seven-hour strenuous walk.

<p>MS RIGHT</p> <p>Breakfast of tea and fruit juice with porridge, lightly buttered toast, honey, peanut butter and bananas</p>	<p>7 am</p> <p>Eats a large cooked breakfast of bacon, fried eggs, brownies, fried mushrooms and lots of buttered toast</p>	<p>8 am</p>	<p>9 am</p> <p>Starts walk with a large packed lunch and big bottle of water in rucksack</p>	<p>10 am</p> <p>Starts walk with a small cereal bar and diluted fruit juice</p>	<p>11 am</p> <p>Regularly sips a sports drink from a handy water-pack and snacks every 30-60mins on cereal bars, dried fruit, biscuits, nuts →</p>	<p>11 am</p> <p>and chocolate. Aims to eat c.400kcal per hour</p>	<p>12 pm</p> <p>Stops for a light sandwich with lean ham or chicken and lentil soup</p>	<p>1 pm</p> <p>Stops for two sausage rolls and a quick drink</p>	<p>2 pm</p> <p>Snacks again on high and low GI carbohydrates and uses energy gels when not feeling hungry. She's tired but not flagging</p>	<p>3 pm</p> <p>Eats two pork pies but doesn't feel very hungry. Leaves the enormous piece of cake. Drinks some water</p>	<p>4 pm</p> <p>Doesn't enjoy the rest of the walk. Dehydrated, irritable and cold. Nothing to snack on except the big bit of cake that has crumbled to bits. Can't wait to finish. Drinks rest of his water but has already got a</p>	<p>5 pm</p> <p>She finishes the walk in good shape with some food uneaten. She consumes plenty of diluted fruit juice and a tuna sandwich before setting off home for an evening meal, looking forward to another long walk</p>	<p>5 pm</p> <p>Finishes the walk feeling miserable. Scoops out the crumbs from his lunchbox and eats nothing else</p>
--	--	--------------------	---	--	---	--	--	---	--	---	--	--	--