

Carbo Loading – taken from Runners World.

Rid yourself of any old-fashioned ideas you might have about carbohydrate-loading. There's more to high-carb regimes than endless bowls of pasta, and done effectively, carb-loading is one of the best ways to get ready for endurance events like marathons and triathlons.

Why do I need to carb-load?

Your body can only store enough glycogen (energy) to sustain 90 minutes of exercise. After this point, without sufficient extra fuelling you're in danger of running out of energy and coming up against the dreaded "wall".

Sports drinks and carb gels are great for topping up your energy levels during a long run or race, but increasing your carb intake three days before the race will help make sure you reach the startline with maximum energy available to run at your best.

What's the science behind it?

Carb-loading's original incarnation was developed in the 1960s as a way of boosting athletes' glycogen stores before endurance events. Carried out during the final week before a big race, it started with a three-day regime of heavy exercise and a low-carb diet to strip the body of glycogen. Then, a few days before the race, athletes would flood their bodies with energy by doing exactly the opposite – that is, laying off exercise and tucking into a high-carb diet instead.

The theory behind this approach was that clearing out the body's energy stores would encourage it to store much more energy than it would have done otherwise.

However, the initial 'depletion' stage often proved exhausting. The heavy training load was sometimes a case of too much, too soon before a big race; and the low-carb diet left runners hungry and low in morale in the run-up to race day. Runners also found it tough to stuff themselves with enough carbs in the final three days to fill their glycogen stores to capacity.

Nowadays, the most common approach to carb-loading is simply to up the proportion of carbs in your diet three days before race day. That way, your body still has time to store up plenty of energy but you avoid the detrimental effects of the glycogen depletion stage.

What should I eat and when?

In general, you need around 5-7g of carbohydrate per kilogram of body weight or 60 per cent of your daily calorie intake from carbohydrates. This usually works out at around 1,500kcal from carbohydrate per day for most women and 1,800kcal for men.

However, during the carb-loading period aim to up your carbohydrate intake to 8-10g per kilogram of body weight (Anita Bean, *The Complete Guide to Sports Nutrition*, (A C & Black, 2003). For a 70kg runner, that works out at between 560g and 700g per day. Each gram of carbohydrate equates to around four calories, so that's up to 2,800kcal carbohydrates per day during the carb-loading phase (for a 70kg runner).

To reach your carbohydrate target, try to eat little and often rather than just super-sizing your usual meals. Eating five or six smaller meals is much more palatable than stuffing yourself only to feel queasy and lethargic. It's also worth remembering that it isn't necessary to radically increase your daily calorie intake as a whole - it's simply about increasing the proportion of carbs on your plate.

Meals that are high in carbohydrate include:

- Wholegrain bread with peanut butter
- Large bowl of porridge or cereal with milk
- Large bowl of spaghetti carbonara (pasta with eggs, parmesan cheese and bacon)
- Grilled chicken breast with a large serving of brown rice

For a quick way to top up your carb count, try one of these quick-and-easy snacks. Each is crammed with 75g (300kcal) of carbohydrate:

- 1 large handful of raisins, dried apricots or other dried fruit
- 2 energy bars
- 3 slices of bread thinly spread with honey
- 4 thick slices of bread or toast
- 5 rice cakes spread with jam

Of course, if you're still finding it hard to cram enough carbs in, sports drinks are another alternative.

Should I still eat protein?

Adding protein to your meals will give you an extra energy boost too. Protein slows the digestion of carbohydrates, lowering the GI (Glycaemic Index) of the meal and encouraging the body to release energy slowly and steadily rather than in a quick hit – just the thing for endurance events.

Tuck into protein-packed carbs such as beans, lentils and peas or pop a chicken breast on a large portion of rice for the same GI-lowering effect.

And finally...

Your body also stores around 3g of water for every gram of glycogen so during the carb-loading phase it's not uncommon to gain extra weight (around 1-2kg). But don't worry – this extra weight is primarily made up of the carbohydrate you'll need to power you through your race, so you should use it all up on race day!