

High5 put to the test

FOUR MONTHS AGO we appealed for volunteers to test High5's nutrition strategy. Here's the results

BACK in January, we went on the lookout for 32 guinea pigs to take part in a study, putting High5's Race Faster nutrition strategy to the test against participants' usual fuelling habits.

We've all got our preferred methods of keeping the energy flow going through longer rides. The High5 test was designed to see just how much difference could be made by following High5's recommended intake exactly, at set intervals in a controlled environment, as opposed to what riders were doing for themselves. In our January 29 issue, High5 director Mick Atkinson offered to literally eat his shoe if he couldn't make any rider "go faster". We put that to the test.

"The testing has gone really well. Everybody actually seemed to enjoy the four and a half hours on the turbo, which has been a surprise to all of us, and I think they've surprised themselves too," said exercise scientist Dr Andy Cathcart of Glasgow University, the man who administered the

independent test. Participants completed the first part of the endurance test at a steady tempo, mimicking the early part of a race or sportive, before taking a short break and then completing a 40-mile time trial at their 'race pace'.

Reader response

"We had a really big response to the originally request in *Cycling Weekly*. There were at least twice as many responses as we had spaces for," Dr Cathcart added. "We were choosing the riders on the events and experience they had, to make sure it was a test they could manage."

"We wanted to make sure we had a broad spread through different disciplines and age groups. We did have a couple of females, but they dropped out for one reason or another; it's a little disappointing we have an all-male test."

It's worth noting that not all of the participants were using a robust fuelling strategy already, so any improvements weren't a complete surprise to the scientists involved.



Good hydration: Steve Devine



Precisely weighed doses



Testing: wired up to the monitors

"There was someone with a pork pie as part of his nutrition strategy, which he seemed to enjoy. It doesn't make a huge deal of scientific sense, but it's not just about the physiological side, but also whether you enjoy it and want to eat and drink it during exercise."

Modern thinking

One of the key thoughts behind modern sports nutrition is that eating solids during high-intensity exercise is unnecessary. Many of the participants were used to eating bars as their main means of fuelling in races and sportives.

"We focused on giving drinks out regularly to the participants, but they seemed to want to eat more than we wanted to give them during the High5 strategy. It doesn't really help a great deal, as

"There were some major differences in participants' strategies and the High5 routine"

you don't have a lot of blood flow to your stomach during exercise, so you just slow down that ability to get that energy out of food as you don't digest particularly quickly," Dr Cathcart explained.

There were some other rather major differences in participants' own strategies and the suggested High5 routine.

"People were also taking a real gap at the start of exercise and didn't think of absorbing energy until quite a way in, which is quite

common. Rather than waiting to crash, the High5 nutrition strategy provided small doses of energy drink every 15 minutes," he explained. "Some of the people who took part weren't too far off what we would recommend, but others were way off."



THE TESTERS

Our guinea pigs

MOST of our nutritional guinea pigs were taken aback by the longevity of the test, and the stark difference between their own strategies and the one devised by High5. They tell *CW* about their experiences of the experiment



Steve Devine

"I ride sportives and try to drink 500ml of sports drink an hour, but I only carry one bottle, so it's quite driven by that. I eat whatever is available, such as flapjacks and bananas, and I don't tend to use energy bars as I find them very difficult to digest. I've definitely learned I need to drink more because of the test. My body felt better with High5, but I raced faster on my own nutritional strategy. My legs were verging on cramp on my own, which I tend to get a lot; I think the High5 plan helped me to keep them fresher."

this year, and I've started to do more long bike rides towards the training. My nutrition strategy is a bit hit and miss, and I try to just keep a general influx of food; on a long ride, the logistics of carrying more than two big bottles is a bit of a pain. I was faster using the High5 strategy and my weight was actually the same after the test."

consistently had more energy; with my own strategy I was far more 'up and down'. I've learned to keep myself topped up with fluid more; on my own strategy my urine sample was apparently quite a dark colour!"



Peter Jordan

"I'd usually keep hydrated up until an event with a lighter energy drink. I try to stay on solids for the first couple of hours, eat a couple of bars, and as I get towards the end stick to liquids and gels. This has been a bit of an eye opener. It's made me realise you can achieve a lot more if you are hydrated properly. The High5 plan felt a lot more focused. I felt pretty wired! I also felt a little bit hungry when just using the drinks, but it wasn't a problem getting through to the end."



Matthew Conner

"I usually take two or three gels and two Power Bars for 80 miles and try to eat something every half an hour. I'd go through four regular-sized water bottles. When I'm training, I don't tend to use energy drinks at all — I use as little substance as possible — so when I do race it has more effect. I felt with the High5 strategy I



Mitch Philips

"I usually use energy products, about 500ml per hour, during my normal three-hour ride; I'll have a couple of energy bars as well. If it's anything longer, I prefer a ham sandwich! I'm doing an Ironman

"You can achieve a lot more if you are hydrated. The High5 plan felt a lot more focused"

MICK ATKINSON

The boss has his say

"THERE has been a major advance in sports nutrition over the last three years. High5 are at the very front of things with our latest generation of 2:1 fructose and 4:1 protein sport drinks," explains Mick Atkinson, who has been trying to get active people to witness the benefits of sports nutrition more than most.

"Your readers are sceptical of any performance claims, and rightly so, as there is a lot of hype and spin in the nutrition market. This test was a way to further prove our point."

Most of us know that nutrition is important, but Atkinson believes it's the short cut to take to get the best return on investment.

"Sports nutrition is an amazingly cost-effective way of improving performance and the enjoyment of riding. The cost of the product used in this test was just £6," Atkinson reveals. "To get the same benefit from aero kit for your bike would cost thousands of pounds. But it's not just about racing faster; in fact, most riders do not race at all. Everyone aspires to having a great ride."

It became pretty clear during the test that understanding the right routines within nutrition is the obvious key to a better performance.

"I have raced 10 Ironman triathlons, the RAAM, the Trans Alp and Race around Australia. So you know that we really understand endurance riding and what is required in the real world to make athletes ride faster and stronger.

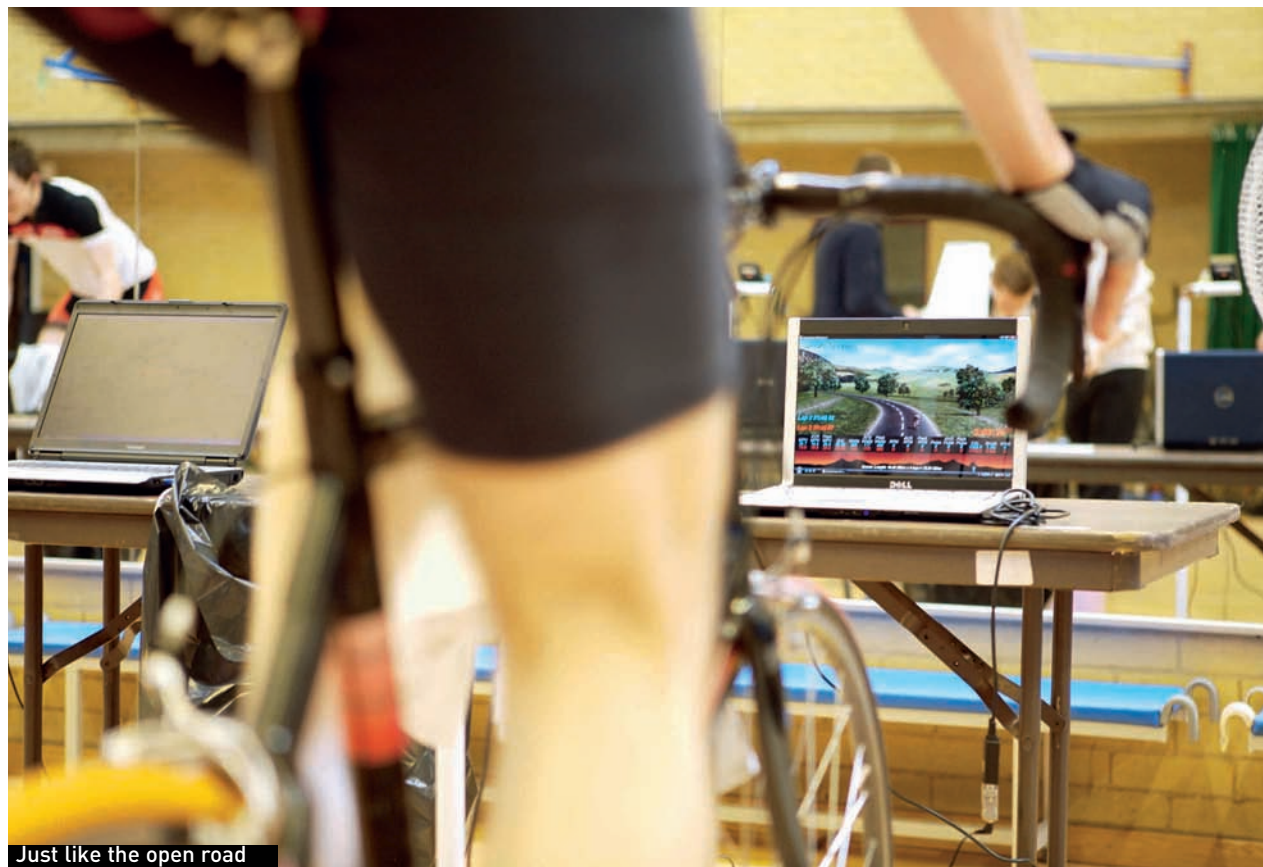
"We don't just have superior products, we know to use them. We have put together Race Faster guidelines for every race distance and weather condition.

"Most riders get their enjoyment from training or social riding. With the correct nutrition, you will simply enjoy your social riding more, be able to keep up with a group

when the pace picks up, be able to ride further, burn more fat during exercise and get fitter faster."

Dr Cathcart was tasked with creating a test that showed consistent results in a controlled environment, but without there being any sort of bias towards the manufacturer providing the product for test. "We've endeavoured to make sure the tests from stage one and two are as constant as possible, by measuring environmental conditions, and monitoring the riders' status before the test by asking them to fill in training logs beforehand," he explained. "We asked them to have an easy or rest day before the test. We got food diaries for the two days prior to the test to make sure there was no excessive carbohydrate loading on one stage and not on the other."

The test results came out predominantly in favour of High5's suggested fuelling strategy. Dr Cathcart concluded: "Part one of the test was designed to be carried out at the same level of effort from test one to test two, to leave the subjects having expended the same amount of energy when they started the time trial. This worked very well, with the riders completing part



Just like the open road

"The test results came out largely in favour of High5's suggested fuelling strategy"



Our guinea pigs, head-to-head

one in almost exactly the same time each time and with the same average power output."

The results

The key finding to report is that, on average, the volunteers completed the time trial 345 seconds faster on the High5 strategy when compared to following their own strategy; a five per cent increase in performance. Twenty of the riders completed the TT faster on the High5 strategy, while six were faster on their own.

When reporting on the reasons for increased performance with the High5 strategy, Dr Cathcart said: "The difference in performance is likely to be down to better delivery of carbohydrate throughout exercise, although the volunteers met the old recommendations for carbohydrate intake (ACSM guidelines are 30-60g/hr).

"As 'additional carbohydrate' in the High5 strategy was fructose, all the extra carbohydrate that was being delivered was potentially available for use as a fuel source far quicker during the test. The volunteers' own strategies also contained more solid carbohydrate sources, and this is also likely to have impaired the absorption of the carbohydrate."

HIGH5 STRATEGY

And the result?

"OVERALL, there was a substantial improvement in performance when the test was performed using the High5 strategy [versus volunteers eating and drinking what they wanted], with no obvious issues encountered by any of the volunteers when using this strategy," said Dr Cathcart.

"An additional reason for the improved performance when on the High5 strategy was the greater fluid delivery. This allowed an increase in sweat and a smaller reduction in body mass from pre- to post-exercise in the High5 trial.

"Neither the participants' own strategies, nor the High5 plan resulted in a clinical state of dehydration, with both groups managing to maintain their serum osmolality (a measure of how concentrated your blood is) with no significant change from pre- to post-exercise in either trial. However, during the High5 trial this was achieved with a lower increase in urine osmolality (a scientific method of measuring how concentrated your urine is).

"While our test shows the clear advantages of High5 products, appreciated by the participants, such a test also specifically highlights the rewards of using a structured and consistent nutritional strategy. With many products claiming to be superior in relation to various aspects of endurance performance, we'd encourage readers to find products that can be used consistently and comfortably to improve your riding experience."



Pick your products well

OBITUARY

Doctor Andy Cathcart

By Carrie Ferguson at the University of Glasgow

AFTER the completion of the *Cycling Weekly* High5 tests, Dr Andy Cathcart travelled to South Africa to work on a collaborative research project at the University of Cape Town. While there, Andy was killed in a cycling accident, aged just 31.

Andy was a remarkable, talented scientist who was just at the beginning of a promising

career. He was also a committed university teacher who was approachable and always made himself available to his students.

Andy was a gifted cyclist who loved nothing more than being out on his bike. He had such a positive influence on so many people's lives; his passion and dedication to all facets of his life remain an example to all those who were privileged to have known him. He will be so sadly missed.