

# SUNDAY SUPPLEMENT

When he found out about a new supplement boasting PB-smashing potential, **David Bradford** couldn't resist giving it a try. Would it help him achieve his goals? And is taking supplements a smart way to improve - or an unsporting shortcut?

At the end of last year, I read a report heralding a new supplement as: "the biggest discovery for distance running for a long while". The article's author, an experienced club runner, had used the substance, called Ark-1, in several races, and deduced that it had improved his 10-mile and half marathon PBs by four and five minutes respectively. Could it be true? A performance-boosting drink offering instant results was certainly an enticing prospect. Could Ark-1 really help me run faster? There was only one way to find out.

Despite having improved steadily over the past few years, my race times had plateaued recently. I'd not set a PB at any distance above 5k since spring 2010. A fear was creeping in that I'd hit my natural limit and would not improve without seriously increasing my mileage

- with all the associated injury risks. Now there was another way: a powder promising immediate improvements. I couldn't resist giving it a try... all in the name of journalistic research, you understand.

Having taken delivery of a tub of Ark-1, I wrote down the objectives I hoped it would help me achieve: new PBs at 10k and half marathon. I would launch an Ark-assisted assault on my current 10k PB (33:17), at Chichester, in February, and my half-marathon mark (73:41) would come under attack two weeks later, at Brighton. I was not expecting to transform, superhero-like, into Mo Farah: I would strive for sub-33 minutes at 10k and sub-73 at half marathon. Training had been going well; I'd hit 50 miles per week for two months, including a good mix of easy runs, speed endurance and tempo sessions. Could Ark-1 provide the extra boost I needed to revise my overripe records?



### SCIENTIFIC BOOST

Extra confidence was inspired by the results of a study on Ark-1 carried out at the University of Exeter. Interpreting this research requires a short science lesson: the most important active ingredient in Ark-1 is L-arginine, an amino acid that, when ingested, reacts with oxygen in the body to form nitric oxide (NO). NO is a powerful neurotransmitter ('messenger molecule') that has been shown to reduce blood pressure and improve blood flow - indeed, it is one of the key active ingredients in Viagra!

The University of Exeter study, led by eminent sports physiologist Professor Andy Jones (see box), tested the exercise-tolerance of nine "recreationally active" men after they had consumed a dose of Ark-1 (or placebo control). The participants were put through several rounds of moderate and high-intensity exercise tests. During the moderate-

intensity exercise, the 'oxygen cost' after Ark-1 supplementation was found to be 10 per cent less than with the placebo, indicating increased aerobic efficiency. Blood pressure was also "significantly reduced". In the high-intensity tests, "time to task failure" (i.e. time to exhaustion) after drinking Ark-1 increased by 20 per cent.

The scientists concluded that the margins of exercise improvement they recorded would equate to "a one to two per cent reduction in time taken to complete a set distance", i.e. in a real-life racing situation. Their results were "meaningful for athletic performance", therefore, but did not portend miraculous improvements in races. Keeping my ambitions in line with the research findings, I set my sights on Ark-1-fuelled enhancements of 20-40 seconds over 10k and 44-88 seconds over half marathon distance - in both cases, easily enough to achieve my PB targets. Game on! ►

# 78 ENDURANCE

## FIRST TEST

On the morning of the first big test, Chichester 10k - where I'd set my existing PB last year - I was feeling heavy-legged. In the week leading up to the race, I had suffered sore calves in training and feared race-rustiness. Conditions were not terrible but neither were they ideal, with a moderate south-easterly breeze gusting ominously. Ark-1 starts to take effect 45 minutes after consumption - it doesn't have to be 'loaded' over a prolonged period - so I obediently mixed one-and-three-quarter scoops of the powder with 250ml of water (the minimum Ark-1-to-water ratio), as instructed, and gulped it down. It has an odd taste, sweet and bitter at once, but synthetically 'fruity' and not at all unpleasant. There was no immediate effect or sensation, which was a relief, given the link with Viagra!

In the early stages of the race, I felt confident and relaxed, and passed the 5k marker in 16:21 - an unofficial PB. Things were looking promising. Unfortunately, the wind was against us in the second half, particularly along the final 3k section,



Putting Ark-1 to the test over cross-country

which is mostly downhill and usually provides an opportunity to make up time. At the finish, I stopped my watch at 33:14, narrowly inside my old PB, but my gun time was awarded as 33:17 - exactly equalling my time from last year. Damn! Had Ark-1 made a difference? It was hard to say for sure: equalling my PB, in my first road race of the season, in conditions significantly tougher than last year's, was a decent result but hardly clear evidence of chemical enhancement.

Meanwhile, my brother Matt, who had also taken Ark-1, annihilated his PB, smashing his old record by more than a minute - and almost beating me in the process. Like me, however, he was unsure about attributing the improvement to Ark-1. He knew he was in the shape of his life and that a revision of his PB was overdue - a point confirmed two weeks later, when he ran without the supplement and broke his half-marathon PB by an even greater margin. We had uncovered one of the major pitfalls of using supplements: being unable to ascertain for sure whether or not they work.

## NEXT OUTING

It was a similar story the following week, in a Sussex League cross-country race at Lancing on a hilly course. I took the same dosage, in the same way, to much the same effect: I felt OK but not brilliant in the race. As at Chichester, conditions were slightly worse than in the previous year. I'd foolishly opted for 9mm-length spikes instead of the usual 15mm, and struggled for grip on the muddier sections. Even so, my finish time was 22 seconds faster than in 2010 - an improvement of roughly one per cent. Did I run faster because of extra NO coursing through my veins, thanks to Ark-1? It was, again, very difficult to be certain.

The following week's Brighton Half Marathon, my third attempt with Ark-1, delivered a breakthrough. I felt great from the gun and, despite running faster than ever before, felt totally under control and not at all frantic - more like a tempo run than a race. For the first time, it was tempting to suspect that L-arginine was tangibly helping me. I ran strongly throughout, passing and staying ahead of several rivals who had previously beaten me, and finished sixth, in 72:30 - smashing my old PB by 71 seconds. That's 1.6 per cent faster - at the top end of the range of improvement anticipated by the Exeter study. But I still wasn't convinced.

There were other variables to consider: most importantly, the improved Brighton course, which was flatter and smoother, with fewer twists and turns than in previous years. Conditions were excellent, too: it was cool and cloudy with only a slight breeze. In other words, it was the right time and right place to run faster than ever, supplement or no supplement. Despite slashing a decent chunk off my PB, my improvement wasn't inconsistent with my progress in training, so I couldn't confidently attribute it to Ark-1. And, in truth, I didn't really want to...

*Having improved my half marathon PB by more than a minute 'under the influence' of Ark-1, I can hardly conclude that "it didn't work for me". But the fact remains - I am not convinced*

## UNFAIR ADVANTAGE?

An added complication when you use a supplement like Ark-1 is that it divides your motivations. You want it to work and help you run faster, but you don't want it to be the defining difference between you and your rivals. To put it bluntly, I didn't want to feel like a cheat. Ark-1 was completely legal, of course, but my rivals (as far as I knew) weren't taking it. If it worked, wasn't I exploiting an unfair advantage? How do real drug cheats cope with this inner conflict? I guess they prioritise their own success above their rivals' right to fair play, above the rules of the sport, and above their own integrity.

I have since resolved that taking Ark-1 is OK because there is never complete parity between competitors. Runners are not all the same - we have different bodies and different lives; for instance, a rival may have a genetically superior cardiovascular system and more spare time to devote to training, but such advantages don't amount to cheating. Having battled with my conscience, I am content that using a legal supplement like Ark-1 is no more sly or 'unfair' than being clued-up about nutrition and eating the right things.



David mixes up his pre-race cocktail



Equalling his 10k PB at Chichester

The scientific case for Ark-1 (and L-arginine) is compelling but not overwhelming. There is evidence that it increases NO production in the body, which in turn helps circulate blood and nutrients to working muscles. The University of Exeter study was very encouraging, but its subjects were "recreationally active" - the results may have been different with highly trained athletes. Likewise, alternative test methods may have produced a different outcome; in the method used, measuring exercise-tolerance until exhaustion, psychological factors are liable to influence participants' performance.

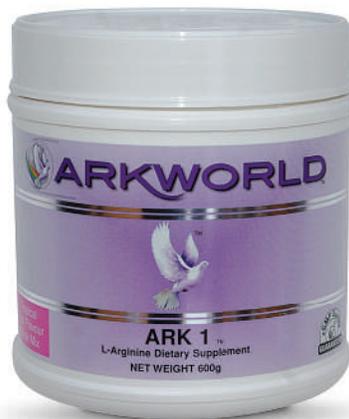
Other investigations with supplemented L-arginine have failed to demonstrate a clear link with increased NO production and/or improved performance. It is worth bearing in mind too that the body produces NO from nitrates (and arginine) which occur naturally in nuts, cereals, fruits

and vegetables. Indeed, in a similar study with beetroot juice (rich in nitrate), the University of Exeter researchers recorded results almost as promising as those with the L-arginine supplement Ark-1.

Having improved my half marathon PB by more than a minute 'under the influence' of Ark-1, I can hardly conclude that "it didn't work for me". But the fact remains - I am not convinced. In my most recent 'supplemented' race, a local cross-country, I recorded a time that was marginally slower than my performance over the same course a year ago. So, the experiment is over; it is time for me to go cold turkey.

I feel slightly nervous about competing without Ark-1, but I don't want to become psychologically dependent on drinking the bitter-sweet tippie before every race just to feel confident. Even so, if your running has hit a plateau despite consistent training, an L-arginine product like Ark-1 may be worth a try. My experience testing it reminded me that running always involves uncertainty because innumerable variables influence each and every performance. Investing in a supplement, as with any attempt to run a PB, requires the courage to speculate, to take a leap of faith.

RF



At the moment, Ark-1 is only available in 600g tubs, costing £59.95, but that's enough for 30 races. To order, go to: [www.highperformancearginine.com](http://www.highperformancearginine.com)

## Q&A WITH PROFESSOR ANDREW JONES

Andrew Jones is an internationally respected physiologist who has worked with many elite athletes including Paula Radcliffe. Last year, he led a study investigating the effects of the L-arginine supplement Ark-1

**Rf:** *In layman's terms, what is L-arginine and how does it affect the body during exercise?*

**AJ:** L-arginine is one of the substrates required for the body to produce nitric oxide (NO). NO is essential in a wide variety of physiological processes including the regulation of vasodilation and therefore blood-flow to tissues. NO also seems to play a key role in matching cell oxygen supply to demand, in regulating muscle contraction, and in aerobic energy production in the mitochondria.

**Rf:** *Based on your research, do you think L-arginine supplements will prove effective for runners?*

**AJ:** Our work with the Arkworld product [Ark-1] suggested a reduced oxygen cost in submaximal cycle exercise (i.e. improved efficiency) and an increase in the time to exhaustion during high-intensity exercise. However, although the Ark-1 is sold mainly as an L-arginine supplement, it also contains a variety of other potentially bioactive components, so we cannot say for sure that the effects we saw were due to L-arginine per se.

**Rf:** *Does L-arginine have any detrimental side-effects?*

**AJ:** Not to our knowledge. It is a naturally occurring amino acid and any excess would simply be excreted.

**Rf:** *Are there natural alternatives to this supplement?*

**AJ:** Yes. High-nitrate products such as beetroot juice also result in increase NO production but via a different mechanism.

### Alternative supplements - 5 other supplements popular among runners

#### 1. CREATINE

One for the sprinters, creatine boosts muscle strength. Not advised for endurance athletes as the extra muscle mass leads to greater bodyweight.

#### 2. IRON

Iron is vital to help blood carry oxygen to muscles. A balanced diet usually

provides a sufficient quantity, but the supplement form is highly effective for those suffering from a deficiency.

#### 3. GLUCOSAMINE

Believed by many to help protect joints and ligaments, glucosamine is particularly popular among older runners. However, some recent studies

have called its effectiveness into question.

#### 4. OMEGA-3

Available in fish oil and flaxseed supplements, Omega-3 fatty acids are believed to have an anti-inflammatory effect, as well as protecting heart health and even boosting brain function.

#### 5. SODIUM BICARBONATE

Commonly known as baking soda, sodium bicarbonate has been shown to increase exercise tolerance by suppressing the build-up of lactic acid - but only for short, intense bouts of exertion. Another one for the sprinters, then.