

**What is an unfair advantage in sport?**

*Olympic athletes increasingly depend on technology to help them win – but is that fair?*

**A** What happened to the Australian athlete Ron Clarke in the 10,000 metres at the Mexico City Olympics of 1968 is now virtually forgotten, though at the time it was headline news. Clarke was the greatest distance runner in history: he'd broken more world records than anybody else. But in front of 55,000 horrified spectators, the event went disastrously wrong. In the third lap, one runner keeled over and with six laps to go, two more were carried away. Yet the race was being conducted at a relatively leisurely speed: the halfway time was the slowest since the Paris Olympics of 1924. With two laps to go, Clarke was in the leading pack. "I'd never felt better in a race," he says. But suddenly he too began to struggle, and as the frontrunners moved up a gear, a gap opened up. Clarke remembers nothing of his last lap which he ran in 90 seconds. "Normally I would run it in 64," he explains. He stumbled across the line in sixth place and collapsed. He was administered oxygen and stretchered off the track.

**B** Mexico City is surrounded by mountains and is over 2,240 metres above sea level. That the altitude would have an impact on the Games was predicted – Clarke had raised the issue himself, but had been told by the Australian sports authorities that complaining was regarded as bad sportsmanship. As it turned out, he had good reason to do so. Clearly, the link between athletic performance and altitude needed further investigation.

**C** Although there were few standout performances in distance running at the Mexico Games, they marked a turning point: the start of an astonishing record of success by East Africans. While Clarke lay crumpled in a heap, runners from Kenya and Ethiopia were celebrating their gold and silver medals. The record books confirm how entrenched this pattern has become. The names of the seven fastest men in history over 5,000 metres are Bekele, Gebrselassie, Komen, Kipchoge, Sihine, Songkok and Chereno. They are all from either Kenya or Ethiopia. Between 1997 and 2011, the 10,000 metres men's world record was smashed five times, dropping from 26:31.32 to 26:17.53. Each time, the record was broken by a Kenyan or an Ethiopian. While there is a complex mix of economic, political, social and cultural explanations for the pre-eminence of East Africans, one factor is surely that many of these athletes have lived most of their lives in thin air.

## **READING PASSAGE 2**

*You should spend about 20 minutes on Questions 14–26, which are based on Reading Passage 2 below.*

### **Questions 14–20**

*Reading Passage 2 has seven paragraphs, A–G.*

*Choose the correct heading for each paragraph from the list of headings below.*

*Write the correct number, i–ix, in boxes 14–20 on your answer sheet.*

### **List of Headings**

- i Early research into athletes' physiology
- ii A convenient method of acclimatization
- iii The need for a rational approach
- iv Changes in the body
- v The athletes who break the rules
- vi Well-founded concerns
- vii The surprising outcome of a race
- viii The reversal of a decision
- ix The runners who dominate

- 14 Paragraph A
- 15 Paragraph B
- 16 Paragraph C
- 17 Paragraph D
- 18 Paragraph E
- 19 Paragraph F
- 20 Paragraph G

**D** At high altitudes, a number of physiological alterations occur. Most importantly, more red blood cells and haemoglobin are produced. This, in turn, increases the capacity of the blood to carry oxygen, which feeds the muscles and which gives an advantage to the athletes when they return to sea level. However, it is impossible to train with the same level of intensity in the mountains – aerobic capacity and cardio-respiratory function both suffer at altitude. As a result, the consensus is that the optimum approach to athletic preparation is: Live High, Train Low (LHTL). Yet that has obvious practical drawbacks. Not many people live in the mountains and those who do would prefer not to spend several hours each day driving up and down winding treacherous roads.

**E** That's where the altitude tent – sometimes called the hypoxic tent – comes in. Around two decades ago, two different scientists had the same exciting thought. If they could artificially control the atmosphere within a confined space, they could simulate the effects of high altitude and save an athlete at sea level from the time and expense of travelling to higher ground. Altitude tents have improved over the years: they're not as hot or as noisy as the early prototypes and are much cheaper too. They are also perfectly lawful. Five years ago when the tents were investigated by WADA (the World Anti-Doping Agency), it was ruled that they did not violate the spirit of distance running. It is now routine for athletes to sleep in them in preparation for an event.

**F** However, it is not the case that all new technologies gain approval. In 2008, a staggering 105 world records were broken in swimming, the vast majority achieved by competitors wearing the new Speedo LZR Racer suit. These suits use a high-tech fabric tested in NASA's wind tunnels, which reduces drag and improves buoyancy. The LZR was initially sanctioned by FINA, the international swimming body. But as better suits were produced by Speedo and other manufacturers, and more records were broken, they became increasingly controversial. In a 2009 ruling, FINA changed its mind, banning all suits made with this high-tech fabric.

**G** Going faster, higher, and stronger is integral to the logic of athletics in general, and the Olympics in particular. Athletes believe they need records all the time. And the only way they can achieve records is by improving the clothing, the kit, the training, the nutrition, all to identify minute changes of 0.0001 of a second. But when a new technology is invented, the relevant sports authority has to consider whether to embrace or reject it. In some cases, athletes are granted permission to use the technology; in others, it is banned. But whatever the outcome, rulings should not appear arbitrary: arguments have to be examined and weighed and the rules of logic ought to apply in every case.



**Questions 21–22**

Choose **TWO** letters, **A–E**.

Write your answers in boxes 21 and 22 on your answer sheet.

Which **TWO** of the following statements about Ran Clarke are made in the passage?

- A Clarke was not performing well immediately prior to the Mexico Games.
- B The worries Clarke had before the Mexico Games were not taken into account.
- C Clarke's experiences at the Mexico Games are widely talked about today.
- D At one stage of the Mexico Games 10,000 metres, Clarke was near the front.
- E Clarke was the only runner at the Mexico Games who appeared to be affected by the altitude.

**Questions 23–26**

Complete the summary below.

Choose **ONE WORD** from the passage for each answer.

Write your answers in boxes 23–26 on your answer sheet.

**Do all new technologies gain approval?**

Some people may be puzzled by attitudes towards performance-enhancing technologies in sports. For example, why is the altitude tent considered acceptable, but not the LZR Racer suit? For distance running. WADA concluded that the altitude tent was not contrary to the **23** ..... of the sport. However, the LZR swimsuit, which is made from a special fabric that aids buoyancy and cuts down **24** ..... was banned. Athletes think they have to continually set fresh **25** ..... This is made possible by better **26** ..... and training, as well as improved clothing and equipment. However, when sports authorities have to decide whether to give permission for a new performance-enhancing technology to be used, it is important that their decisions are not seen as arbitrary.