To drink or not to drink? (answers on page 49)

Part one

Ethan is a 16-year-old distance runner who hopes to make the Olympic Games one day – perhaps Rio in 2016. So he has come to you, as his doctor, asking about the best way to keep hydrated while he runs, and to avoid all the complications he has read about in the sports magazines. How much water should he drink while he is running? What type of sports drink should he choose? How should he be treated if he develops dehydration-associated heatstroke, which he has read is the most dangerous problem caused by not drinking enough?

Q1 Which of the following statements are true?

(a) Ethan needs to fill up with extra water before starting his running for the day, to avoid dehydration.
(b) Thirst is an unreliable indicator of dehydration – he needs to 'keep ahead' of his body loss of water due to sweat to avoid becoming thirsty.
(c) Dehydration is a much more dangerous condition than overhydration, so he can drink freely throughout his exercise.
(d) He does not need to take on extra water; he should drink a little only when he feels thirsty, and stop when the feeling dies off.
(e) Sports drinks are unnecessary if he is eating a normally varied diet.

Part two

Ethan asks you to attend one of his sports meetings and you are delighted to accept. At the end of a 10 000 metre track race, one of the athletes 'collapses' and lies on the ground in obvious distress. He is not thirsty.

Q2 What is the most likely cause of his collapse?

(a) Dehydration. (b) Heat stroke. (c) Both dehydration and heat stroke.
(d) Hypotension due to dehydration. (e) Exercise-induced postural hypotension.

Part three

Q3 How would you treat this condition?

(a) Give plenty of extra water.
(b) Apply a cooling fan and cold water to the body.
(c) If he cannot drink, arrange for intravenous fluids.
(d) Give him a sports drink such as Gatorade or Lucozade.
(e) Let him recover by himself, head down, in the Trendelenburg position.

Part four

As a result of your interest in Ethan (who performed well and safely at the meeting) you read more about the complications of endurance running, and become an on-the-spot medic for a marathon. One athlete who has been drinking plenty of fluids throughout the race, collapses at mile 20. He is confused and withdrawn, does not want to co-operate with you in your examination, and has a headache.

Q4 How do you proceed?

(a) Stop all fluids. (b) Give him large volumes of fluids.
(c) Give a salty drink and cool him down. (d) Take blood for sodium levels.
(e) If he doesn't recover very quickly, give a hypertonic (3 to 5%) saline bolus.
(f) Review his future fluid intake accordingly.

Part five

Q5 What do you know about dehydration? Which of the following statements are true?

(a) Dehydration is not an illness, but simply a reduction in body water content that it usually easily reversed by drinking water.
(b) There is hardly any risk that it will occur in a modern endurance event if an athlete drinks when he or she feels thirsty.
(c) It takes a total body water reduction of 15% (equivalent to being waterless in a desert for more than 2 days) for extreme symptoms such as paralysis of the limbs to occur.
(d) A 2% increase in total body water produces oedema and a fall in athletic performance – a much more common problem for water-loading athletes than dehydration.