

### **Darryl is too tired to play**

Darryl is a seventeen years old African American living in London with his parents, Ervin and Miriam – his father is a diplomat. Darryl has just come back from an amazing school trip to Belize where he spent 6 weeks working on green projects.

He can hardly talk about anything else and has decided he wants to go to university to do Environmental Studies and then go back to Belize. Not even a nasty infection whilst he was there put him off – the local doctor gave him some sulfa-something and he was fine. He feels worse here than he did there – which is why his mother has insisted he comes to see you, his GP. She's convinced he's brought an exotic tropical disease back with him, but he thinks she's just fussing about nothing much.

You look him over and notice the whites of his eyes look tinged with yellow. Apart from that nothing is obviously amiss, although you notice his hands feel very cold. On examination his heart and lungs sound absolutely fine. You ask him why his Mum is worried. He looks a bit sheepish and says he feels tired all the time and that since he came back, he's been going to bed at 9 every night – before he went away, he'd be up till 2 and have no trouble getting up in time for school the next morning, but he rationalises that life seems so boring now compared to Belize.

You ask him about his social life. For the first time he looks troubled – his main social activity is football, but he admits that he's been too tired to play since he came home and he is missing that. A suspicion starts to form in your head...

### **Mentor notes**

#### Aims

1. To explore the possible causes of tiredness.
2. To apply understanding of the physiological response of the human body to exercise to a Case study.

3. To appreciate how diseases may affect the individual's ability to exercise and the role of exercise in the detection of disease

### Learning Objectives

At the end of this PBL case students should be able to:

1. Plan a differential diagnosis of the case by identifying the commonest causes of tiredness
2. Describe the effects of graded exercise on pulse, arterial blood pressure, pulmonary ventilation, oxygen consumption and carbon dioxide production in healthy subjects
3. Identify the factor that limits maximal exercise capacity in humans
4. Discuss the causes of chronic anaemia, diagnosis and treatment
5. Describe the effect of chronic anaemia on the physiological response to exercise
6. Compare the response to exercise in a subject with chronic anaemia to that in a healthy subject
7. Discuss the role of doctors in the prevention of infectious diseases that can affect travellers abroad

### Prompt Questions

- What is Darryl's main complaint?
- How can Darryl's tiredness be explained?
- What conditions or health problems cause tiredness?
- What "exotic tropical disease" is Darryl's mother referring to?
- How does tiredness link to anaemia?
- What happens when you exercise on a treadmill or a bike?
- What makes your heart beats faster?
- What makes you stop during strenuous exercise?
- What information can doctors gather from an exercise test (e.g. running on a treadmill)?
- What conditions or health problems can be detected during an exercise test?
- What would you advise a traveller to do before going abroad and why?