3.31

Presenter: **3.31. Exercise A. Listen and check.**

Voice:
a. There are many ads which use BOGOF.
b. A jingle is a tune which is memorable.
c. A tag line is a slogan which contains the name of the product.
d. A big name is a person who is famous for movies, sport or television.
e. A big name ad contains a personality who endorses the product.
f. A bribe is money which encourages someone to do something.
g. A punchline is an ending which is funny and makes people laugh.
h. Ads with punchlines have a set-up which prepares people for a particular ending.
i. A narrative is a story which is usually in many episodes.
j. People may like the characters who appear in narrative ads.

3.32

Presenter: **3.32. Grammar box 13. Listen to the sentences. Where does the speaker pause?**

Voice:
Customers who buy a packet of biscuits get another packet free.
Twenty products which are basics are in the promotion.

3.33

Presenter: **3.33. Exercise B2. Listen and check your ideas.**

Voices:
a. Advertisers who use BOGOF start the advert with the normal price.
b. People who are aural learners need to hear new information.
c. Farmers in the States who use irrigation are worried about the future.
d. A third of the water which is used for irrigation comes from the Ogallala Aquifer.
e. People who apologize a lot often give a reason for their actions.

4.1

Presenter: **4.1. Theme 4: Living life to the full**
Lesson 4.1. Vocabulary for listening: Cells, tissues and organs

Exercise A1. Listen and write the number of each word in the correct place on the diagram.

Voice:
1. ankle
2. arm
3. chest
4. elbow
5. foot
6. hand
7. hip
8. knee
9. neck
10. ribs
11. shoulder
12. thigh
13. wrist
14. head

4.2

Presenter: **4.2. Exercise C1. Listen to part of a lecture about physiology. When the lecturer stops, number the next word.**

Lecturer:
1. OK. So first let's look at the levels of organization that make up the human …
2. At the lowest level, we have the cell. This is the smallest unit of life and every part of the body is composed of …
3. These cells can take in nutrients, convert nutrients to energy or carry out specialized …
4. Cells are grouped into tissues. Each kind of tissue is designed for a particular …
5. For example, muscular tissue is able to contract while nervous tissue conducts …
6. At the next level, some tissues combine to achieve a particular objective. These tissues are called organs. For example, the stomach, the lungs and the …
7. At an even higher level of organization, we have organ …
8. In each system, different organs work together – for example, the mouth, the stomach, the small intestine and the large intestine all play a role in …
9. The highest level is a group of organs working …
10. Groups of organs in the same body are called organisms. For example, humans, animals and ...

4.3

Presenter: **4.3. Exercise C2. Listen and check your answers.**

1. OK. So first, let's look at the levels of organization that make up the human body.
2. At the lowest level, we have the cell. This is the smallest unit of life and every part of the body is composed of cells.
3. These cells can take in nutrients, convert nutrients to energy or carry out specialized functions.
4. Cells are grouped into tissues. Each kind of tissue is designed for a particular purpose.
5. For example, muscular tissue is able to contract, while nervous tissue conducts electricity.
6. At the next level, some tissues combine to achieve a particular objective. These tissues are called organs. For example, the stomach, the lungs and the heart.
7. At an even higher level of organization, we have organ systems.
8. In each system, different organs work together – for example, the mouth, the stomach, the small intestine and the large intestine all play a role in digestion.
9. The highest level is a group of organs working together.
10. Groups of organs in the same body are called organisms. For example, humans, animals and plants.

4.4 DVD 4.A

Presenter: **Lesson 4.2. Real-time listening: organ systems**

Lecturer: Welcome, everyone, to this core course in Physiology. I understand we have BioMed students, Sports Science students and some others, so I hope you all find this a useful introduction to Human Biology. OK. In today's lecture, we're going to look at some of the different body systems and their functions in humans. Then next time, we will look briefly at problems associated with each system. I'm not going to talk about all the systems, because I just want to give you an overview. But I will talk about the function of each system and some of the components. I will also try to show you how systems fit together, I mean, the way in which one system helps another system or enables it to operate. How they are interrelated, in other words. I've given you a handout with the systems on – have you all got one of those? Good. You might want to fill in some of the detail as we go along.

Right. What I'm going to do in this session is firstly, the skeleton – the bones and so on that keep us upright. Secondly, I'm going to mention the way the muscles enable the bones to move, and then, thirdly, the nervous system which sends messages to the muscles from the brain. So that's the skeletal system, the muscular system and the nervous system. Next, the digestive system – the stomach, and so on. Of course, it's this system that supplies the nutrients to enable the other systems to work, to grow and to repair. OK. Where was I? Let's see. Skeleton, muscles, nerves, digestion – ah, yes, right. What comes next is the respiratory system – the mouth and nose – breathing, if you like, although I'm going to point out that it's a bit more than that. Then finally, we have the circulatory system, based on the heart, which sends the blood around the body.

4.5 DVD 4.B

Lecturer: Right, so ... let's consider the first system. The skeleton. What the skeleton does, basically, is keep us upright. It also gives the body its basic form, its basic shape. The human *skeletal system* is made up of 206 bones. The structure forms a strong internal framework for the body, which protects the organs involved in the other human body systems. It provides the basic strength for the rest of the body. Did you know bone can be four times as strong as concrete? Anyway, the main bones are, of course, the skull, which contains the brain, the ribs which protect most of the main organs – the heart, the lungs, the liver, the kidneys, and so on – and the pelvis, or hips, to give the bones their common name. Oh, and of course, the spine – the bones which run down the back. The spine, or vertebral column, comprises 33 bones or vertebrae. Just going back to the function of the skeleton for a moment … Bones don't only provide strength. They also store important minerals and vitamins. The bones meet at joints – for example, the hip joint and the shoulder joint, which are ball and socket joints. They give maximum movement, up, down, left, right. Then there are the knee joints and elbow joints, for example. They are hinge joints, like on a door. Oh, and I forgot to say – bones make red blood cells, too.

The next system is the *muscular system*. The muscles are attached to the skeletal bones and, basically, the primary function is to enable the body to move. Muscle tissue has the unique ability to contract. However, and this is quite interesting, it cannot then expand to its former position by itself. That's strange, isn't it? It contracts, but then it needs another muscle to work in opposition, to pull it back to its original position. These groups are called antagonistic pairs, and are the basis for human movement. *Antagonistic* … it comes from *antagonist*, clearly. Like the person in a story who opposes the hero, the protagonist. Sorry, perhaps you don't know anything about literature. Still, you get the basic idea. I understand we have a lot of people from Sports Science on this course. Well, for you, important muscles in the arms are the biceps and triceps. Across the stomach we have the abdominal muscles – from *abdomen*, of course. These are sometimes called *abs* for short. We also have the important muscles in the back of the thigh, which are often called the hamstrings. Oh, and of course, the Achilles tendon in the back of the ankle. Athletes often injure that part of their body. Now, what was I talking about? Right, the muscles are attached to the bones in pairs. Each one can only contract, but when one contracts, the other expands and vice versa. But how do we make the muscles contract? That's the next system. Oh, um, did I mention, there are over 600 muscles in the human body? And you have to learn them all. No, only joking!

It is the central nervous system that controls muscle contraction. The system is two-way. What I mean by that is, the system gathers information from nerves throughout the body and takes it to the brain through the spinal column. It uses electrical impulses. The brain is the primary processing centre for the body. If the decision is taken to react to a particular stimulus, the brain sends the necessary impulses to the muscles – electricity again. The main parts of the nervous system are the nerves, as I've just said, the brain, obviously, and the spinal cord, which runs down the spine. We can see now why the skull and the spine are so important. They protect key parts of the central nervous system. So we could say that it's the

nervous system that interfaces with the external environment. I mean, it gets messages *from* the environment and it tells the body to move *through* the environment. For example, it senses heat with the nerves in the fingers and tells the hand to move away.

Right, so we have seen that the skeletal system provides the basic structure for the body and the muscular system is attached to the skeletal system. The muscles need instructions to move and they come from the central nervous system. But what provides the body with the necessary energy to do things, and the nutrients to enable the body to grow and repair? Well, the *digestive system* is responsible for converting foods into usable substances along the digestive tract. These substances are then absorbed into the blood. We take food in through the mouth and down the oesophagus in the neck and chest. The food is broken down in the stomach and then absorbed into the blood stream through the walls of the intestines. But, and this is very important, at this stage, the nutrients are in the blood, they are *not* in the muscles and nerves and so on. We'll see how they get there in a few minutes.

Right, so we have supplied the blood with nutrients, but, in fact, the body cannot use those nutrients without oxygen. So we need another system. What we need is the respiratory system. Now, some people think that respiration is the same as breathing but that's not true. Respiration is not just about taking in air and giving out CO_2. It's the exchange of oxygen and carbon dioxide between cells, the blood and air in the lungs. It's the lungs which suck in air using strong muscles between the ribs … Oh, I should have talked about those muscles on the way through! They are called the *diaphragm* and they sit under the lungs. They move up and down to contract and expand the chest cavity, and that movement pulls air in and pushes carbon dioxide out. Sorry about that. Can you add the diaphragm to the muscular system?

Oh dear, I see we are nearly out of time. So, very quickly, the last system for today. We've seen that nutrients enter the blood from the digestive system, and oxygen enters the blood from the respiratory system, but of course all this is pointless if the blood just sits there and doesn't move. We need a system to move the blood around the body. We need … the circulatory system. It was an English physician, William Harvey, who discovered this system in the 17th century. The blood is pumped out of the heart through the arteries to the skeletal system, the muscular system, the nervous system, the digestive system and the respiratory system. The nutrients and oxygen leave the blood and enter the cells of the organs and then the blood returns to the heart through the veins.

That's enough for now. There are other systems and I'd like you to research those before the next lecture. The details are on the handout. OK. Thanks very much. In the next lecture, we'll be looking at what happens when something goes wrong with one of the systems. Oh, and I meant to point out that we have tutorials on Wednesday. I'm going to ask you questions about the systems we've talked about today, so have a look at your notes between now and then.

4.6

Presenter: **4.6. Lesson 4.3. Learning new listening skills: Additional information in lectures**
Exercise A3. Listen to the correct pronunciation and check your ideas.

Voice:

a. bronchi
b. colon
c. larynx
d. nasal
e. sciatic
f. pharynx
g. cerebellum
h. trachea
i. trapezius
j. brachi

4.7

Presenter: **4.7. Exercise C. Listen and make notes. Add extra information in the correct place.**

Lecture 1: Studies of the effects of TV violence

Lecturer 1: I'd like you to do some work on research studies into violent television. I'll give you some references to start you off and then I'd like you to find at least three more. OK, so in order, then, we have Berkovitz, 1969. He carried out a laboratory experiment with university students. The study involved participants watching violent films to see if they acted more violently than the control group. Parke et. al. worked with young offenders in an institution. The result was similar to Berkovitz. And on the other side? Well, nothing really, although there is one well-known study – this was Charlton et. al., 1999 – which looked at the introduction of television on the island of St Helena. Their results were not significant. There was no increase in aggression. Did I mention the date for Parke et. al.? It was 1977. Oh, and sorry. I forgot to say that Williams did a study with 6- to 11-year-olds in Canada. This is an interesting study, actually. The researcher looked at the impact of television on a community which did not have television before. It was in the early 70s – you'll have to find the exact date. The introduction of TV led to a significant increase in aggression in the community.

Presenter: **Lecture 2: The history of the Internet**

Lecturer 2: So where have we got to? Right ... The late '70s. By then, we had most of the parts for the Internet in place. But an important piece was missing. The big breakthrough was made by Tim Berners-Lee, a British scientist working in Switzerland. He wanted all the scientists in his laboratory to be able to look at each other's documents. He realized that every document needed an address so you could find the document on another computer. So Berners-Lee invented a way

of addressing documents. He called the address *http – hypertext transfer protocol*. Berners-Lee also invented a simple program, called a browser. This program allowed the user of one computer to look at documents on another computer. And, hey presto – we had the Internet. Sorry, I see some of you are looking a little blank. I should have explained *hypertext*, shouldn't I? The ht in http. Berners-Lee knew about hypertext but you didn't! The idea of hypertext was invented by a man called Ted Nelson in the 1960s. It is a way of connecting documents so you can jump from one to another. And while we're going back over this, I meant to point out that this was in 1990. The Berners-Lee breakthrough, I mean.

Presenter: **Lecture 3: A comparison of Chile and Pakistan**

Lecturer 3: Let's look at population now. As before, I'm going to look at three sub-areas under this heading: the total population, the density and the urban:rural split. Pakistan has a large population, but Chile's is quite small. The population of Pakistan is 185 million, whereas Chile's population is about ten per cent of that size. Pakistan has a much higher density of population than Chile – 177 people per square kilometre against 20 per square kilometre. Um. Sorry. Did I mention the actual population of Chile? It's 17.3 million.

Next, land. As you know, we consider area, percentage of agricultural land and availability of natural water, that is, lakes and rivers. Both countries are large. In fact, they are almost about the same size. Pakistan has an area of 803,000 square kilometres whilst Chile is slightly smaller. Both countries have quite a high percentage of agricultural land. Pakistan has 30 per cent agricultural land and Chile has 21 per cent. Just going to back to area, Chile is 756,000 square kilometres. Where was I? Oh, yes, natural water. Both countries have permanent lakes and rivers. The most important river in Pakistan is the Indus, while the most important river in Chile is the Loa.

Ah ... I forgot to give you the urban:rural split, didn't I? I think I did. Well, the population of Pakistan is more rural than the population of Chile. The split in Pakistan is 34 to 66, whereas in Chile it is 87 to 13.

4.8

Presenter: **4.8. Skills Check. Listen. What has the lecturer forgotten in each case?**

Lecturer 1:

1. I forgot to say that Harvey discovered the circulation of the blood in the 17th century.
2. Did I mention that Harvey was English?
3. I should have told you about white blood cells.
4. I meant to point out that arteries are normally bigger than veins.
5. Just going back to the skeletal system for a minute, the bones in the lower part of the spine are joined together.
6. Can you go back and add that there are special heart muscles?

4.9

Presenter: **4.9. Lesson 4.4. Grammar for listening: Cleft and pseudo-cleft sentences**

Grammar box 16. Listen to the sentences. Does the speaker pause in any of the sentences?

Voice:

What I'm going to do first is [PAUSE] talk about each system.
What the skeletal system does is [PAUSE] support the body.
What Harvey did was [PAUSE] experiment with fish and snakes.

It will be next week that we look at sports injuries.
It is the brain which controls the nervous system.
It was Harvey who discovered the circulation of the blood.

4.10

Presenter: **4.10. Exercise A1. Listen to the beginning of some questions or statements.**

Voice:

a. What is …
b. What we'll look at …
c. What Alcmaeon did …
d. What doctors …
e. What were …
f. What can …
g. What did …
h. What I'm going to …
i. What Kendrew …
j. What was …
k. What Schwann …
l. What the arteries …

4.11

Presenter: **4.11. Exercise A2. Listen to the whole of each question or statement and check your answers.**

Voice:
a. What is the solution?
b. What we'll look at first is the digestive system.
c. What Alcmaeon did was distinguish between veins and arteries in 520 BCE.
d. What doctors are hoping for is more research during the next ten years.
e. What were we talking about?
f. What can we do about the problem?
g. What did Aristotle say about the heart?
h. What I'm going to concentrate on next week is the functions of the cells.
i. What Kendrew described in 1960 was the structure of the oxygen-carrying protein in muscles.
j. What was the date of the first heart transplant?
k. What Schwann discovered in 1836 was the first animal enzyme.
l. What the arteries do is take oxygenated blood from the heart.

4.12

Presenter: **4.12. Exercise C1. Listen to the beginning of some pseudo-cleft sentences. Letter the logical way to complete each sentence.**

Voice:
a. It will be next week …
b. It was a man called Bell …
c. It was the invention of the telephone …
d. It was the telephone …
e. It was in 1879 …
f. It was after the invention of the telephone …

4.13

Presenter: **4.13. Exercise C2. Listen to the whole sentence in each case and check your answers.**

Voice:
a. It will be next week that we look at the history of the telephone.
b. It was a man called Bell who invented the telephone.
c. It was the invention of the telephone which really began high-speed communication.
d. It was the telephone which Bell invented.
e. It was in 1879 that Bell invented the telephone.
f. It was after the invention of the telephone that the telegraph declined in popularity.

4.14 DVD 4.C

Presenter: **Lesson 4.5. Applying new listening skills: The PRICE of sports injuries**

Lecturer: Welcome, everybody. This session is on dealing with sports injuries. So today we are going to look at fascinating issues like the difference between strains and sprains, and bruises and contusions. You'll know all about those by the end of today. We'll also talk here about compression and elevation, but they're not injuries. They're treatments.

OK. Let's start by looking at this photograph. *[points in direction of screen]* What has happened here? She has hurt her leg, but what has she done, exactly? Fallen over? Twisted her ankle? Pulled a muscle? We say all these things, don't we? But what do we mean by 'twisted an ankle' or 'pulled a muscle'? These expressions don't tell us about the actual injury. To understand that, we need to look inside the body.

Now, I hope you remember your Core Physiology course, but just in case you've forgotten everything already ... let's quickly look at this illustration. What have we got here? Yes, the knee joint. Let's make sure that we can recognize the important parts of this joint – and any joint, in fact. So first, we have bones, of course. These give strength and support to the body. But we must connect the bones together. How do we do that? We use ligaments. Ligaments connect bone to bone. To put it simply, they stop the bones from pulling apart. But ligaments don't *move* the bones. What we need to move the bones are muscles. In this case, the muscles make the knee bend and straighten. So here, we have some muscles. But muscles don't connect directly to bone. We need another kind of tissue, which is called tendon. Tendons connect muscle to bone. Right, so here we have the muscle again, and this is the tendon, connecting the muscle to the bone.

OK. Now, let's start the lecture proper. What we're going to talk about is, first, the common causes of injury and then, the basic treatment. As far as causes are concerned, there are two basic types of injury – trauma and overuse. So what we need to do is look at each of those in turn. Now, after all kinds of traumatic injury, there is always inflammation and swelling, so what I'm going to do is look at trauma – the minor types and then the major types, then what I'll do is discuss inflammation and swelling. What are they and why are they important? Then, with regards to treatment, there is a very useful acronym, PRICE – that's P-R-I-C-E – which helps us remember the basic actions. So causes of sports injury and the price of treatment, if you like. Oh, and physiotherapy. Very important kind of treatment nowadays.

4.15 DVD **4.D**

Lecturer: Right. So let's begin. Types of sports injuries. We can divide sports injuries into two types. The first is the result of trauma. The second is the result of overuse. Let's look in detail at the first kind and then I'll just say a few words about the second kind.

OK. Trauma. *Trauma* means 'a wound or shock produced by sudden physical injury'. Traumatic injuries are most common in contact sports. That is, sports where the athletes are supposed to come into contact with each other. So football is a contact sport and so is rugby, but tennis and basketball aren't. If the players come into contact with each other in basketball, for example, one or both of them will be disciplined by the referee.

Now, under trauma, we need to distinguish between minor items and major items. The first minor item is the bruise, which is the colouring of the skin after an injury. You know what happens. You bang your knee and, sometime later, it changes colour. It goes blue or purple. This change of colour is caused by blood leaking from damaged cells. So that's the first kind of minor injury.

The second minor item is called a strain – that's *strain* ... Oh, by the way, I should have said, we don't use the word *bruise* in physiology. We call this colouring of the skin a contusion. Contusion.

Now, where was I? Ah yes. The second minor item is a *strain* with a *t* and the third one is called a *sprain* with a *p*. So strain and sprain. Yes, I know. It's annoying that they are so similar in pronunciation but it is important to distinguish between these two. In a *strain*, it's the muscles that are affected. Strains happen when the muscle is torn. In a *sprain*, it's the ligaments that are damaged. They can get damaged in traumatic injuries by being displaced – I mean moved – out of alignment. And that's what we call a *sprain*. How can you remember the difference between a strain and a sprain? Well, just think of *muscle* strain and *ligament* sprain.

The fourth kind of minor injury is related to the tendons. Do you remember that tendons connect muscle to ... bone? That's it. There is one very well-known tendon in the back of the foot, in the heel. It's called the Achilles tendon. It's named after the Greek hero, Achilles, because the story goes that it was the only part of his body that could be injured. But that's not important really. Damage to the tendons is quite common in sport, although it mainly happens through overuse – so we'll come on to that in a minute.

What we need to look at now is inflammation and swelling. In all cases of traumatic injury, the body responds in the same way. The dead or damaged cells release chemicals. These chemicals carry messages to the body's immune system – that's the system that protects the body – and the immune system sends cells to repair the damage. The result of this is ... you've guessed it – inflammation and swelling. So, we can see that inflammation and swelling are natural parts of the healing process. However, and this is very important for sports scientists so listen carefully – too much inflammation or swelling can slow down healing.

Did I talk about *major* trauma? No, I don't think I did. OK, so *major* trauma involves fractures in bones. A *hairline* fracture is, as the name implies, very small, the width of a human hair. There is no displacement of the pieces of bone. A complete fracture means the bone is broken in two or more parts.

Now, one more thing to say about inflammation and swelling. Inflammation and swelling happen at the same time, but they are not the same. Inflammation means getting hot or inflamed. As you know, the site of an injury always gets hot. Swelling, on the other hand – or foot, of course – means getting bigger, which you are also familiar with after an injury. Fluid leaks into the tissue and it swells. Now, back to inflammation. It was Lan Zhou in 2010 who conducted a study of inflammation – it's cited on your handout – Lan Zhou, 2010. The professor found that inflamed cells produce *insulin-like growth factor 1* … don't worry about the full name, it's always called IGF-1. Now IGF-1 is a chemical that increases the speed of muscle regeneration. In other words, it helps the muscle to grow again. It also helps to heal damaged tissue. So can you see the importance of this research? It's clear from the work of Lan Zhou that inflammation should be *managed* but not removed altogether. We need some inflammation …

Ah, just going back to fractures for a minute. I think I forgot to ask a crucial question. What's the difference between a fracture and a break? The answer is – they are the same thing. It's a bit like contusion and bruise. One is the medical term, the other is the common word.

OK. So that's the first type of injury – *traumatic*, mainly from contact sports. The second type is *overuse* injury and it can happen in all sports, contact and non-contact. In fact, some people are saying now that overuse injuries are far too common, and are the result of sportspeople playing too much sport, or training too much or both. But that's not relevant to this lecture. The most common overuse injury for sportspeople is RSI, or repetitive strain injury, which, obviously, results from an athlete repeatedly using the same joint or set of muscles. For example, a tennis player will use the elbow joint on one arm all the time which is why injury to that joint is sometimes called 'tennis elbow'. One official name though is *tendinitis*, which of course refers to the tendon. The tendon becomes inflamed because very, very small tears in the muscle do not repair properly.

Which brings us on to the second main overuse injury – major muscle tears. This can happen, for example, in weightlifting. However, there is a strange point about muscle tears. They are actually the way the muscle grows. If you use a muscle a lot, it tears a little. It's sometimes called a micro-injury. Then, if you rest the muscle, it repairs itself, but in the process, it grows bigger, so next time it can deal with the load that you put on it. The problem comes if you do not give the muscle enough time to repair the micro-injury and then you develop a real injury. So remember that. It's tearing muscles slightly which makes them grow.

OK. So, we have seen a little about the types of sports injuries. Clearly, trainers and coaches should do everything they can to reduce the risk of injury during training and in matches themselves. But I'm not here to talk to you about this now. I'm more interested today in the treatment.

4.16 DVD **4.E**

Lecturer: Obviously, there are specialist treatments for each individual injury and companies make a lot of money selling special creams and bandages and pills and so on, but they all work on some general principles. These principles are sometimes given the acronym PRICE – we'll see why.

Firstly, the P stands for *protection*. This means 'stop playing as soon as you notice the injury' to prevent making the damage worse. If possible, don't put any weight on the injured part. Sounds easy, but of course a lot of athletes are encouraged to play through the pain and carry on even if their leg is falling off. This is just stupid. It's pain that warns you to stop! If you ignore it, you will injure your body more, maybe much more.

R is pretty simple. It stands for *rest*. What your body needs after an injury is to stop using the hand or arm or leg or whatever. In most cases, the body will recover from a sports injury by itself, if it is given enough time without stressing the injured area.

I is for *ice*, which can be a bag of frozen peas or a specialist cold pack. Cold serves two purposes. Firstly it is a mild anaesthetic so it reduces the pain, but, more importantly, it reduces the amount of swelling, which is caused by blood rushing to the injured area. The ice reduces blood flow, which is a good thing for a short time, but you should never leave ice on for more than 20 minutes. You could damage the area more than the original injury. In fact, there is quite a lot of uncertainty about ice treatment. Read the article by Macauley from the *Clinical Journal of Sport Medicine*, 2001 – it's in your reading pack.

Finally, what does E mean? It's *elevation*, or raising. Once again, it is a way of reducing blood flow to the injury, and basically you must just get the affected part higher than the heart. So for an injured ankle, the patient can rest in bed with the foot on a cushion or pillow. It's a little harder for an injured arm, but most sporting injuries happen to feet, ankles, legs and hips.

Hang on. I've missed one out. Just going back for a minute, C is *compression*, or squeezing. This also reduces swelling and we can achieve it by wrapping the affected area in a bandage – particularly a compression bandage. But, just as with ice, we have to be a little careful. If the patient experiences throbbing around the area, the bandage is too tight. The blood cannot flow properly and bring the repair cells to the affected area. So unwrap the bandage and rewrap with less compression.

Right. I think I've done them all now. But there is another huge area of treatment for sports injuries that will interest many of you here. Physiotherapy. PRICE is clearly an initial treatment, to ensure that the injury repairs as quickly as possible. But there is another element to getting the athlete back into training and competition – rehabilitation. The aim of physiotherapy is to prepare the body, particularly the injured part, for full use again, and to try to ensure that the injury does not recur.

I mentioned specialist treatments earlier. Some of these are controversial because they are owned by companies which, of course, want to make money from them, but some are accepted now by the majority of sports scientists, at least. For example, the hyperbaric chamber. *Hyperbaric* means 'high weight' or 'high pressure'. The chamber is big enough to take one person or even two or three. The injured patient gets inside and the chamber is then sealed from the atmosphere. The pressure inside is raised. In addition, the patient puts on breathing apparatus so that they are inhaling pure oxygen. Blood supply is reduced by the pressure, which reduces swelling, but more oxygen reaches the damaged tissue which means that healing is speeded up. Some people claim that recovery can be cut by a third or even a half by these chambers. That's sports scientists, by the way, not just the manufacturers of hyperbaric chambers. On your handout you have a reference to one endorsement for this treatment in the *Sports Injury Bulletin*.

Right, so, to sum up. What we have looked at today are the types of sports injury – trauma and overuse, and the basic treatment – PRICE and physiotherapy. Next time, we'll look at a few case studies to see how these general points apply in real life. Thank you.

4.17

Presenter: **4.17. Lesson 4.6. Vocabulary for speaking: Mental and physical conditions**

Exercise B2. Listen to an interview with a sports psychologist. Check your answers to Exercise A.

Interviewer: Hi. Welcome to Sports Hour. To start with today, I'm talking to Emma Gibson, who's a sports psychologist. Welcome, Emma.
Sports psychologist: Thank you. Nice to be here.
Interviewer: OK, so your job is to help sportspeople to perform better, right?
Sports psychologist: Yes, that's part of my job, certainly.
Interviewer: What factors can affect the performance of a sportsperson?
Sports psychologist: Well, we can divide the factors into mental and physical.
Interviewer: What does *mental* mean?
Sports psychologist: 'To do with the brain'. And *physical* means 'to do with the body'.
Interviewer: So can mental factors affect performance?
Sports psychologist: Yes, indeed. Most people think that only physical factors are important, things like colds and flu.
Interviewer: Why do we think that? Because when you have a cold or flu, you get tired easily?
Sports psychologist: Yes, that's right, so that affects your performance, but there is also fatigue, which is extreme tiredness.
Interviewer: Is fatigue a physical condition in itself?
Sports psychologist: Well, yes and no. Fatigue is a symptom of a physical condition. It might be something very simple like lack of sleep or something more serious like heart problems.

Interviewer: Right. So that's physical conditions.
Sports psychologist: Yes – but I must just mention asthma. It's very common now, at least in the West. Many sportspeople have asthma, which is a respiratory problem.
Interviewer: What are the symptoms of asthma?
Sports psychologist: Well, during an attack, people experience shortness of breath. They can't breathe properly.
Interviewer: OK. So we've got colds and flu, fatigue and asthma. What about mental conditions?
Sports psychologist: Well, this is interesting. Mental conditions are probably more important than physical conditions for the top sportsperson.
Interviewer: In what way are mental conditions more important?
Sports psychologist: Well, top athletes often have an obsession with their sport. They think about it all the time.
Interviewer: Isn't that a good thing?
Sports psychologist: It can be. It depends. Sometimes it is good because it means they train harder and perform better. Sometimes obsession is bad because it leads to depression or anxiety – you know, worrying about your performance – your last performance and the next one. Sometimes, you become so obsessive that it causes neurosis.
Interviewer: And what does that mean?
Sports psychologist: Well, neurosis covers a huge range of mental conditions, including unpleasant or disturbing thoughts, aggression, fear and perfectionism – you know, everything has to be absolutely perfect.
Interviewer: And that's bad?
Sports psychologist: Yes. Because it is impossible for anything to be *absolutely perfect*, so you will always disappoint yourself. And you will suffer from depression.

4.18

Presenter: **4.18. Exercise B4. Listen and check your answers.**

Sports psychologist:
a. When you go down with a cold or flu, you get tired easily.
b. Fatigue is a symptom of a physical problem.
c. Many sportspeople have asthma, which is a respiratory condition.
d. During an attack, people with asthma experience breathing difficulties.
e. Top athletes often have an obsession with their sport. They think about it all the time and train hard because they are obsessed.
f. Sometimes obsession is bad because it leads to anxiety – worrying about your performance.
g. Sometimes, you become so obsessive that you experience neurosis.

4.19

Presenter: **4.19. Exercise C2. Listen and check your answers.**

Voice:
1. aggression
2. aggressive
3. anxiety
4. anxious
5. asthma
6. asthmatic
7. depressed
8. depression
9. fatigue
10. fatigued
11. neurosis
12. neurotic
13. obsession
14. obsessive
15. breath
16. breathe

4.20

Presenter: **4.20. Exercise C3. Listen again and repeat.**

[REPEAT OF SCRIPT FROM **4.19**]

4.21 DVD **4.F**

Presenter: **4.21. Lesson 4.7. Real-time speaking: Physical factors in sport**

Student 1: Right. Umm. OK. Er ... fatigue. Um. Fatigue means ... well... tired. Really, really tired. So when you are doing exercise, sometimes you give up. You stop doing it – the exercise, I mean. Um ... because you're tired. And maybe you don't really feel like it. That's it really.
Tutor: OK. So, those are the symptoms. What about the research?
Student 1: Oh, yes, right. Research. Um. If people do a cognitive task – *cognitive* means 'thinking', right?
Tutor: Yes. 'Connected with thinking'.
Student 1: OK. Where was I? Um, yes, if they do that before a physical task, er, then they think the physical task is ... um ... harder.
Tutor: And why do they think that?

Student 1: Um. I don't really know. Oh yeah. I think maybe it changes their view.
Tutor: OK. So it changes their perception. Now, what's your source?
Student 1: Oh, yeah. Um ... some people called – um – Marcora, Stai – um – ano and er someone.
Tutor: Manning. And when was that?
Student 1: In 2009.
Tutor: What were they writing in?
Student 1: English?
Tutor: No, I mean the name of the book or the journal …
Student 1: Um, let me check. Yeah. *The Journal of Applied Psychology*.
Tutor: Psychology?
Student 1: Oh, no. Physiology.

Student 2: I researched asthma, which is an illness of the respiratory system. The symptoms of asthma are an inability to breathe properly. In severe cases, the illness can be fatal. Physical exertion can bring on an attack.
Student 3: So what you're saying is, it could be dangerous for people with asthma to do sport.
Student 1: Well, to some extent. But it's possible that certain sports affect asthmatics more than others. For example, Fitch and Godfrey, writing in the *Journal of the American Medical Association*, 1976, found that swimming very rarely brings on an asthma attack.
Student 4: In other words, asthmatics should only take part in swimming?
Student 1: No, I'm not saying that. The point is that asthma is controllable in most cases.
Student 3: Are you saying that the majority of asthmatics can control the illness with medication?
Student 1: Yes, exactly. In fact, I think there are several top athletes who are asthmatic.
Student 2: What's your source? *[laughter]*

4.22

Presenter: **4.22. Everyday English: Talking about health problems**

Exercise B1. Listen and match each conversation to a photograph above.

Conversation 1.

Voice A: What seems to be the trouble?
Voice B: Well my throat is really sore. And I think I've got a temperature.
Voice A: Mm. I'm just going to feel your glands. Mm. OK. It's nothing too serious. Just strep throat.
Voice B: Oh right. My friend had that recently.
Voice A: Yes. It's very infectious. I'll write a prescription for some antibiotics.

Presenter: **Conversation 2.**

Voice A: Are you feeling alright?
Voice B: Not really. I've got a really bad headache. Feel sick too.
Voice A: You look terrible. And you're very hot.
Voice B: Yeah? But I can't stop shivering. I really don't feel too good.
Voice A: OK, I'm going to call the health centre.

Presenter: **Conversation 3.**

Voice A: What is the matter?
Voice B: Nothing really. Just feeling a bit stressed.
Voice A: Oh. Do you want to talk about it?
Voice B: Well, my student loan hasn't come yet. I've got two essays to finish and I can't sleep.
Voice A: OK … well … let's go and get some fresh air. Then you can tell me all about it.

Presenter: **Conversation 4.**

Voice A: Have you ever had TB?
Voice B: I don't think so. What is it?
Voice A: Tuberculosis. It's a respiratory disease.
Voice B: Oh, right. No, I have never had it.
Voice A: Are you currently taking any medication?

4.23

Presenter: **4.23. Lesson 4.8. Learning new speaking skills: Summarizing and reacting to summaries**

Exercise B1. Listen to three extracts from the discussion in 4.7.

Extract 1.

Student 1: Physical exertion can bring on an attack.
Student 2: So what you're saying is, it could be dangerous for people with asthma to do sport?
Student 1: Well, to some extent.

Presenter: **Extract 2.**

Student 2: In other words, asthmatics should only take part in swimming?
Student 1: No, I'm not saying that. The point is that asthma is controllable in most cases.

Presenter: **Extract 3.**

Student 2: Are you saying that the majority of asthmatics can control the illness with medication?
Student 1: Yeah, exactly.

4.24

Presenter: **4.24. Pronunciation Check. Listen and repeat.**

Voice: It's possible that certain sports affect asthmatics more than others. For example, Fitch and Godfrey 1976, writing in the *Journal of the American Medical Association*, found that swimming very rarely brings on an asthma attack.

4.25

Presenter: **4.25. Skills Check. Listen and repeat the expressions above. Copy the stress and intonation.**

Voice: So what you're saying is, exercise is a good thing?
Are you saying that exercise is a bad thing?
In other words, everyone should do exercise?
Yes, that's right.
Well, to some extent.
No, that's not really the point. The point is, we should do the right kind of exercise.

4.26

Presenter: **4.26. Lesson 4.9. Grammar for speaking: Review of modals**

Grammar box 17. Listen to the sentences in the table. Which part of the verb is stressed in each case?

Voice:
1. We must support statements in essays.
2. People's ideas mustn't be quoted without a reference.
3. Asthma can be fatal.
4. People with flu should avoid exercise.
5. Asthmatics don't have to stop all sport.
6. Fatigue might be caused by lack of sleep.

4.27

Presenter: **4.27. Exercise A2. Listen and check your answers. How does the speaker say the modal in each case?**

Voice:
a. Academic essays must include a list of references.
b. References must follow conventions, for example, brackets for dates.
c. You mustn't include other people's words without a reference.
d. Page numbers must be given for direct quotes.
e. In most cases, personal opinions mustn't be included.
f. Wikipedia mustn't be used as a source.

4.28

Presenter: **4.28. Exercise A3. Listen again and practise.**

[REPEAT OF SCRIPT FROM **4.27**]

4.29

Presenter: **4.29. Exercise B1. Listen and repeat the examples.**

Student 1: Nuclear power is the future for energy supply.
Student 2: Well, it might be the future. But more solar power could be used instead.

Student 1: Lack of clean water is the greatest world problem.
Student 2: Well, it could be the greatest, but food might be a bigger problem.