BBC BITESIZE

Hello, I'm Dr Alex Lathbridge and this is Bitesize Biology.

This is the fourth episode of a six-part series on the organisation of plants and animals.

In this episode we're going to talk about disease. More specifically, we're going to talk about two different types of disease, communicable diseases and non-communicable diseases.

And a quick heads up, in this episode we're going to be talking about cancer and other illnesses.

Let's start with cardiovascular diseases which affect the heart or blood vessels.

In the last episode, we talked about how the heart pumps blood to the lungs and around the body to transport oxygen and food. As our hearts are super important, it can leave us in a bit of a pickle when our heart or blood vessels are diseased.

The main cardiovascular disease you are going to need to remember is coronary heart disease. Grab a pen so you can write this down and we'll get into it.

Coronary heart disease is a disease of the coronary arteries. Those are the ones that supply the heart cells themselves with oxygen. They get blocked by fatty materials and so blood flow gets restricted, and that results in less oxygen reaching the heart, which can lead to a heart attack.

Thankfully there are options to help manage coronary heart disease and they both begin with "st," which is good because they stop blood cells getting stuck.

First, stents. These are special tubes that can be inserted into coronary arteries and force them to stay open, therefore helping blood to pass through to the heart, lowering the risk of a heart attack.

However, there can be complications when stents are inserted during the operation and risk of infections from surgery.

Second are statins. These work to reduce cholesterol. You might have heard of cholesterol in things like butter. Too much of it in the blood can cause those fatty deposits to build up in the arteries. Statins are drugs that reduce cholesterol in blood, so fewer fatty deposits form.

Statins have some advantages like reducing the risk of coronary heart disease and strokes, which is what happens when your brain loses blood supply and can increase the amount of good cholesterol in your blood.

But there are disadvantages too. Statins are a long-term drug, so that doesn't suit everyone. There may also be dangerous side effects such as liver damage.

A more major option is a whole heart transplant, sometimes using hearts from donors who have recently died. But when no donors are available, plastic or metal artificial hearts are available. These artificial hearts pump blood around the body.

Artificial hearts are less likely to be attacked by our immune system, but they do have disadvantages. Surgery can be dangerous and lead to infection, and because artificial hearts are mechanical, something could go wrong with them, and they'd need to be replaced.

Inside the heart, heart valves can also be replaced if they need to be. Again, these can be biological or mechanical. Replacement biological valves can be from other humans or mammals like pigs, whereas mechanical valves are man-made.

There is also something called a heart bypass, where blood vessels from elsewhere in the body are grafted onto the coronary artery.

How are you feeling today? Because health is a measure of how well your physical and, or mental wellbeing, is.

Say you have a cold, you might feel under the weather for a few days, but usually you recover and feel better. More serious illnesses are diseases where medical treatment might be required.

There are two types of disease that you need to understand:

1. Communicable Diseases – these can spread between organisms like person to person, or between animals and people. Have you ever caught a cold 'from' someone? Same for things like measles, food poisoning and malaria.

2. Non-Communicable Diseases – these don't spread between people or between people and animals. If untreated, they tend to get worse slowly and can last a long time. Some examples are diabetes, cancer and heart disease. These are non-infectious, you can't catch cancer, heart disease, diabetes or other non-communicable diseases from another person or animal.

Not being funny but it's quite literally in the name. When two or more people are chatting or sharing information in some way, they're communicating. And when two or more people are sharing diseases, they're communicable diseases.

You need to remember three factors other than serious disease that can cause health problems and they can all be linked:

1. Diet. It's important to have a varied diet and eat lots of different things, so our body can function well.

2. Stress. Life can be stressful, everyday stress like exams, annoying family, stuff that you get exposed to online. No matter your age, too much stress can cause very real health problems. Prolonged stress can lead to high blood pressure for example.

3. Life circumstances. Our life's circumstances can affect our health. Not everyone has the same access to medicines, doctors' appointments, information or can afford to buy healthy food or

live a stress-free life. It’s often outside of their control. This is known as health inequality.

Now, there’s one serious non-communicable disease that is unfortunately quite prominent in our society, cancer.

Cancer isn’t one disease. There are lots of different cancers found in different parts of the body, like breast cancer, testicular cancer, lung cancer, and others. Some are a lot rarer than others. Cancers develop in the body by uncontrolled cellular division.

Our bodies need cell division to keep us ticking over, repairing and replacing cells, but if it's out of control, changes can occur to the cells and cause the formation of a tumour, which means a growth or lump of cells formed from uncontrolled cell division.

There are two types of tumour.

1, benign tumours. These are growths or lumps that are not cancerous. They tend to grow slowly, stay in one place, and look a little bit more smooth.

The second type are malignant tumours. These ones are the cancerous ones and are more worrying, because they can invade other parts of the organ or travel in the bloodstream and invade other tissues, that’s known as metastasis.

But remember, cell division is happening all the time, and the body has lots of ways to keep cells under control.

The best thing you can do is just be generally aware of how your body normally feels and if you discover anything that you think “oh, that’s a bit odd,” it’s worth letting a parent or guardian know.

I’m Dr Alex Lathbridge and this is Bitesize Biology – all episodes available to download now on BBC Sounds