

Types of Immunity – Descriptive Transcript

Time	Audio	Visual
0:00-0:04	Immunology	"Immunology"
0:04-0:09	In order to understand how vaccines work, we first need to understand how the immune system works	Cells and antibodies move through the body
0:09-0:17	And how vaccines stimulate the immune system to provide protection against infectious diseases	Two cells with different internal structures are highlighted, with an antibody attaching to one
0:17-0:21	This short animation will describe how the immune system fights infection	A macrophage absorbs a virus and shrinks it until it disappears
0:21-0:25	And explain how it responds to a vaccine	A large cell appears with a smaller T cell adjacent
0:27-0:35	The function of the immune system is to distinguish foreign substances from substances that are part of our own bodies	A B cell with an antibody attached appears next to a larger virus
0:36-0:44	The part, or parts, of any foreign substance that are recognised by the immune system are known as antigens	The branch of the antibody fits into the shape of the virus, and they connect
0:45-0:54	Antigens are present on bacteria, on viruses, and on foreign cells from transfusions or organ transplants	A B cell is shown with antibodies moving around
0:54-1:00	Antigens may also be chemicals such as toxins, or components of vaccines	The B cell attaches to a virus through an antibody
1:00-1:05	Innate immunity	"Innate immunity"
1:06-1:15	The body's first line of defence against foreign substances is the variety of physical barriers it possesses in order to prevent entry	Human graphic shows the stomach, and a tear coming out of one eye. Arrows point to the tear to label "tears", to the outer body to label "skin", and to the stomach to label "gastric acid"
1:15-1:19	This includes tears, gastric acid, and skin	
1:20-1:27	However, if these barriers are breached, for example by bacteria entering the body through the skin	A virus enters the body through the arm
1:27-1:38	The antigens encounter large cells, called macrophages, which are residents in the skin. The word macrophage means "big eater"	A macrophage appears in the body next to the virus, and engulfs the virus making it disappear
1:41-1:52	If a macrophage recognises the antigen as something foreign, and not self, it engulfs it be a process called phagocytosis, and can destroy it	
1:54-2:02	Inflammation at the sight also causes the release of small proteins, called cytokines, that help to regulate the immune response	Small spots, labelled "cytokines", enter the body

2:02-2:06	And attract additional macrophages from the bloodstream to the sight	Three more macrophages move towards the original one
2:06-2:21	This first, and immediate response is known as “innate immunity”. Although rapid, it is non-specific, it is the same for all antigens, and the immune system does not retain any memory of the encounter with the antigen	
2:22-2:26	Acquired immunity	“Acquired immunity”
2:26-2:32	Sometimes, the innate response alone is not sufficient to eliminate the antigen	A macrophage appears above a yellow corridor representing the lymphatic system
2:33-2:43	In addition to phagocytosis, macrophages can also transport antigen to sites where an acquired immune response can be activated	
2:44-2:48	When the macrophage, bearing an antigen, enters the lymphatic system	The macrophage moves down into, and travels through, the lymphatic system
2:48-3:00	It circulates towards the lymphoid organs, which include the spleen, tonsils, adenoids, Peyer’s patches, and lymph nodes	A human graphic in red, with the lymphoid organs highlighted in yellow. Arrows point to the mouth to label “tonsils and adenoids”, to the upper arm to label “lymph nodes”, to the lower torso to label “spleen”, and to the pelvis to label “Peyer’s patches”
3:01-3:07	These organs are rich in two types of specialised white blood cells, called lymphocytes	
3:09-3:20	Also known as B cells and T cells, these lymphocytes are distributed in strategic sites throughout the body ready to respond to antigens	A B cell and T cell appear next to the body, labelled “lymphocytes”
3:20-3:25	There are also many B and T cells in the blood	