**Vaccines and Herd Immunity – Descriptive Transcript**

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| **Time** | **Audio** | **Visual** |
| **0:00-0:04** | Memory response | “Memory response” |
| **0:04-0:14** | A few of the B cells are stimulated by the T cells to remain as memory cells, and to retain the memory of the antigen-antibody encounter | B cells travel through the body, and one attaches to a grey virus, labelled a “vaccine antigen” |
| **0:16-0:32** | When the memory cells meet the antigen again, either as a natural infection, or in a booster dose of vaccine, antibodies of the right specificity are produced much more quickly and in greater numbers than during the first response |
| **0:34-0:45** | In contrast to the first response, when short-lasting IgM is made, the antibody produced is mainly IgG, which persists for longer |
| **0:47-0:54** | Each time the memory cells encounter the same antigen, the immune response is boosted |
| **0:56-1:07** | Because a pathogen or a vaccine may contain many different antigens, many different B cells are stimulated at once and many different antibodies may be produced | Two more B cells attach to the vaccine antigen |
| **1:08-1:13** | The capacity of our immune system is enormous, and can make billions of different antibodies |
| **1:14-1:19** | If different vaccines are given at the same time, different antibodies are produced at the same time |
| **1:20-1:28** | In a similar way to B cells, there are also T memory cells made as a result of the first encounter with the antigen | T cell secreting cytokines |
| **1:28-1:35** | When these T memory cells meet the antigen again, they are able to respond more quickly and effectively |
| **1:37-1:46** | The specific humoral, cell-mediated and memory responses are known as acquired, or adaptive, immunity | Three sections, one with a B cell attaching to a virus, one with a T cell attaching to a MHC-antigen complex, and one with B cells attaching to a vaccine antigen |
| **1:48-1:51** | Vaccination | “Vaccination” |
| **1:51-2:00** | Vaccination stimulates the immune response that has just been described, but importantly, it does so without the risks of the disease itself | T cells, B cells, and antibodies move through the body |
| **2:02-2:17** | It works by stimulating a pool of B and T memory cells to be made, which, if and when the antigen is subsequently encountered, produce antigen-specific responses fast enough to prevent disease developing | B cell and T cell are highlighted |
| **2:18-2:29** | It also stimulates the production of antigen-specific antibody, including IgG, which persists after vaccination and provides early defence against infection | Antibody appears next to the B and T cells |
| **2:31-2:39** | Knowledge of how vaccines interact with the immune system allows us to understand the vaccine schedule more clearly |
| **2:42-2:48** | What is herd immunity and why is it important? | “What is herd immunity and why is it important?” |
| **2:48-2:56** | A small proportion of people in every population do not respond to vaccines and remain unprotected, despite vaccination | Group of people mostly in blue, but some in white to represent being immunocompromised |
| **2:57-3:03** | In addition, people who are severely immunocompromised are unable to receive live vaccines |
| **3:04-3:10** | Therefore, these people are dependent on not being exposed to infection in the first place |
| **3:11-3:21** | If a sufficient number of people are vaccination in the population, vaccine preventable infections are not able to transmit successfully because most people are immune |
| **3:22-3:32** | Therefore, people who are susceptible are indirectly protected by the presence of these immune individuals. This is known as “herd immunity” |
| **3:32-3:42** | High levels of vaccine coverage must be maintained in the population to achieve and preserve herd immunity, and to protect those who cannot be immunised |