



Role of the Immune System in Human Health

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Description

The human immune system is a network of biological processes that protects the body from disease. It recognises and responds to a wide range of pathogens, from viruses to parasitic worms, as well as cancer cells and objects like wood particles, differentiating them from the organism's own healthy tissue. The immune system plays a significant part in defending your body from potentially harmful substances, germs, and cell changes. Normal humans don't notice it as long as their immune system is functioning normally. However, if it ceases to function properly, for example, because it is weak or unable to struggle particularly destructive germs then humans become ill. Germs that your body has never seen before are also more likely to make you sick. Some germs are only harmful the first time they come into contact with you. These include childhood illnesses such as chickenpox. We wouldn't be able to fight harmful things that enter our bodies from the outside or harmful changes that occur within our bodies if we didn't have an immune system. The primary functions of the immune system are to attack disease-causing microorganisms (pathogens) such as bacteria, viruses, parasites, or fungi and remove them from the body, to recognize and neutralize toxic substances in the surroundings, and to fight disease-causing changes in the body such as cancerous cells.

The immune system can be activated by a variety of substances that the body does not recognize as its own. These substances are known as antigens. Antigens include proteins found on the surfaces of bacteria, fungi, and viruses. When these antigens bind to special receptors on immune cells (immune system cells), a cascade of events occurs in the body. When the body

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first comes into contact with a disease-causing germ, it usually stores information about the germ and how to fight it. Then, if it comes into contact with the germ again, it recognises it right away and can begin fighting it more quickly. Proteins can be found on the surface of the body's cells as well. However, those proteins do not usually cause the immune system to attack the cells. The immune system may mistakenly believe that the body's own cells are foreign cells. It then attacks the body's healthy, harmless cells and generally it's called an auto-immune response.

The immune system is mainly divided into two subsystems: the innate (non-specific) immune system and the adaptive (specific) immune system. Both of these subsystems are linked and collaborate whenever a germ or a potentially harmful substance triggers an immune response. The innate immune system, also known as the non-specific immune system, provides a general defense against harmful germs and substances. It primarily fights with immune cells such as natural killer cells and phagocytes (also known as "eating cells"). The major function of the innate immune system is to battle toxic substances and pathogens that enter the body through the skin or digestive tract. The adaptive (specific) immune system produces antibodies that are used to fight specific germs with which the body has previously come into contact. This is also well-known as a "learned" or "acquired" immune response. Immunization reproduces the body's natural immune response. In the body is injected a vaccine (a small amount of a specially treated virus, bacterium or toxin). The body then produces antibodies against it. If a vaccinated person is exposed to the actual virus, bacterium, or toxin, they will not become ill because their bodies will recognize it and know how to effectively attack it.