



HIV INFORMATION

How HIV Causes Immune-Deficiency

The HIV virus attacks and slowly destroys the immune system

HIV enters and destroys important cells which control and support the immune system.

After entering the body, HIV attaches to the CD4 receptors, mainly on dendritic cells and T lymphocytes, known as 'helper' cells (or T4 or CD4 cells). HIV can also attach to other cells, such as monocytes and macrophages if they possess a CD4 receptor on their surface.

After attachment and entry into the CD4 cells, the HIV begins replicating in the cell's DNA, creating more HIV-carrying cells, lowering a person's healthy CD4 count and increasing their viral load.

The CD4 (T4) helper cells are very important in the regulation and control of the immune response

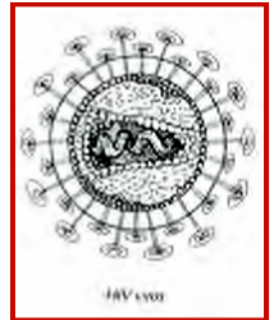
- Directly, or indirectly, they protect the body from invasion by certain bacteria, viruses, fungi and parasites.
- They clear away a number of cancer cells.
- CD4 cells are involved in the production of substances critical to the body's defense (such as interleukins and interferon).
- They also influence the development and function of monocytes and macrophages, which act as scavenger cells in the immune system.

Some of the most important cells of the body's immune or defense system are compromised when they come in contact with HIV. Provided that a person's immune system is initially infected when they are strong and healthy, it can take the HIV virus a number of years to destroy enough of the immune system to cause immune-deficiency and immune-incompetence. Physical symptoms of HIV infection may not be apparent for years after contracting the virus.

After a long period of Infection, usually 3-7 years, enough virus particles have been produced to have compromised the immune system and lead to immune-deficiency. When a person is immune-deficient, the body has difficulty defending itself against infections and diseases like TB and cancer.

Response to HIV Infection

There is a wide variation in how people's bodies respond and react to HIV. In some the virus may cause immune damage and illness earlier than others. There are three general types of responses:





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Rapid Progressors

- People classified as rapid progressors usually develop immune-deficiency in as few as 3 years following initial HIV infection. This is most common in infants, and in patients who have been infected through blood transfusions. In rare cases, progression from initial HIV infection to AIDS can occur over the course of a single year.
- People who have rapidly progressing HIV have a very active and 'aggressive' viral strain. Their bodies cannot suppress the virus sufficiently to delay or stop the progress of the disease.

Slow Progressors

- Slow progressors generally remain well and active without any symptoms of HIV, and with very little or absent immune-deficiency for a period of nearly 10 years.
- After an extended period of years, HIV then begins to progress towards AIDS, and additional treatment is needed.

Long Term Non-Progressors

In a very small proportion (about 5%) of HIV-infected people, there is no obvious disease progression for over 15 years. For reasons still being researched, possibly genetic, these individuals do not develop immune-deficiency despite being infected with HIV for an extensive period of time.

There are complex reasons why some people are rapid and others slow progressors. A few of the most common factors are:

- different HIV viral strains
- the dosage of initial infection
- the body's response to the virus
- the general health status of the individual

For these reasons, among others, it is important to prevent repeated infections as each infection will expose the individual to a varying strain of HIV with a different rate of progression.

When Does Someone Have AIDS?

A person is described as having AIDS when a person's CD4 count has dropped below 200 and/or HIV-related immune-deficiency is so severe that various life-threatening, opportunistic infections and/or cancers occur. These conditions only occur because the immune system is weakened. These infections and cancers are called 'opportunistic diseases', because they take the opportunity provided by the lowered immune state i.e. if the immunity is normal, these diseases would not usually occur.

