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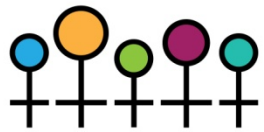
Understanding the Immune System

Together, we can change the course of the HIV epidemic...one woman at a time.

#onewomanatatime

www.thewellproject.org

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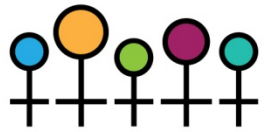


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Understanding the Immune System

Your immune system is your body's defense system

- Made up of **cells and organs** that protect your body from outside invaders that can cause infection and disease
- Gets rid of abnormal pre-cancerous cells, and cancerous cells that are growing out of control
- When it's working, it fights off infection and keeps you healthy
- When it isn't, germs and other abnormal cells in the body can more easily cause disease



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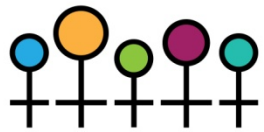
Key Organs of the Immune System

Skin:

- Single largest organ of the body
- First line of defense against germs – provides a physical barrier that keeps bacteria and viruses from entering the body

Bone Marrow:

- Makes white blood cells that protect the body from invaders and possibly dangerous abnormal cells
- From the bone marrow, white blood cells travel to **lymph organs**

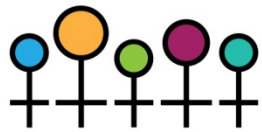


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Key Organs of the Immune System

Lymph Organs:

- **Lymph Nodes**
 - Located in the neck, armpits, abdomen, and groin
 - Contain cells ready to fight invaders
- **Spleen**
 - About the size of a fist; located at the upper left of the abdomen
 - Filters blood; identifies and gets rid of worn-out white blood cells

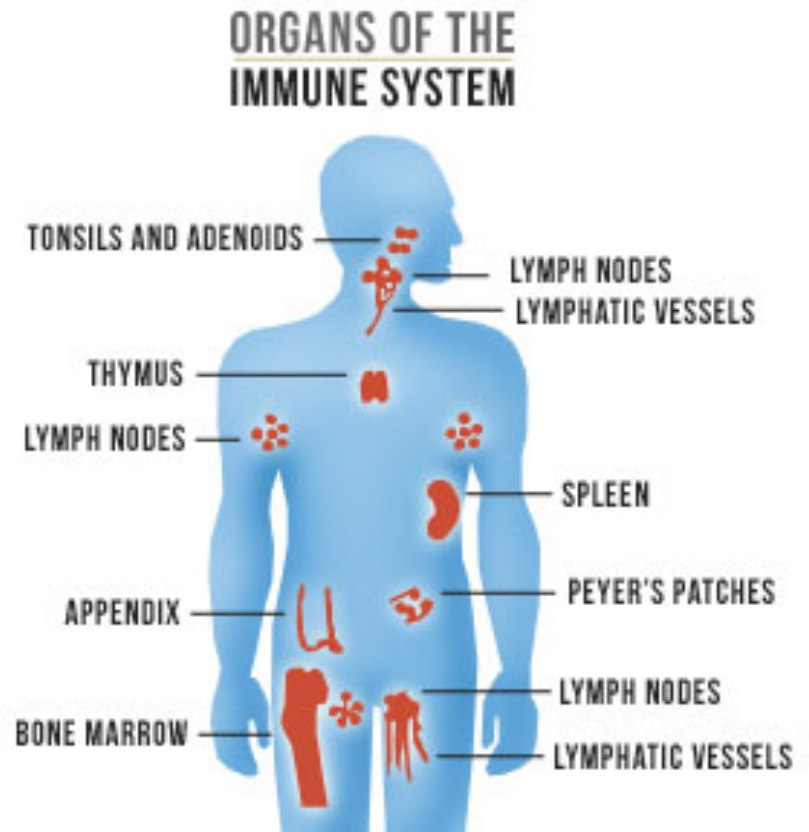


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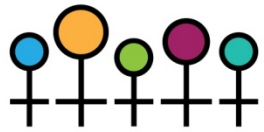
Key Organs of the Immune System

Other Lymph Organs:

- Peyer's patches
 - Clumps of tissue in the small intestine
- Thymus
- Appendix
- Tonsils and adenoids



Credit: AIDS.gov



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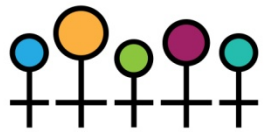
Key Cells of the Immune System



Credit: NobelPrize.org

Key immune system cells include:

- Neutrophils
- Dendritic cells and macrophages
- Helper and killer T cells
- Natural killer cells
- B cells

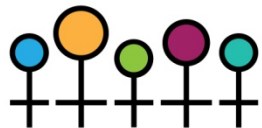


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HIV and the Immune System

Your immune system recognizes and produces antibodies to HIV, but **antibodies alone are not enough to eliminate HIV**

- HIV changes (mutates) faster than the immune system can respond
- The HIV antibodies your body creates do not protect you against HIV or help you clear HIV from your body
- This is why having antibodies to HIV does not mean you are protected from HIV

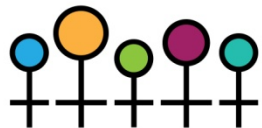


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HIV and the Immune System

HIV turns CD4 T cells that would kill it into **factories for making more copies of itself**

- As HIV reproduces, it damages or kills CD4 cells
- Without CD4 cells organizing the immune system to respond, immune cells do not know which invaders to remove from the body
 - Therefore at risk for opportunistic infections (OIs) and cancers that usually do not harm people with healthy immune systems

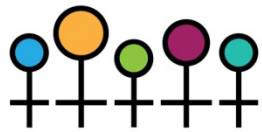


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HIV Reservoirs

- Collections of inactive, “resting,” or latent HIV-infected cells
- Known reservoirs include immune cells in gut, lymphoid tissue, blood, brain, genital tract, bone marrow
- Completely eliminating HIV from the body will require emptying the reservoirs/preventing latent cells from multiplying

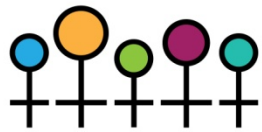
Early treatment with a combination of HIV drugs can minimize the size of the reservoir



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HIV and the Immune System

- Newer HIV drugs are more effective at stopping HIV from multiplying and infecting more CD4 cells
- Since CD4 cells are key to healthy immune response, this can give your immune system a fighting chance to replenish its supply of CD4 cells and to defend itself (you!) against opportunistic infections



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Learn More!

- To learn more about this topic, please read the full fact sheet on this topic:
 - Fact sheet: [Understanding the Immune System](#)
- For more fact sheets and to connect to our community of women living with HIV, visit:
 - www.thewellproject.org
 - www.facebook.com/thewellproject
 - www.twitter.com/thewellproject