Your immune system is a complex force to reckon with. You may not see the service it commits to keeping you well, but there are three strategic stages your body goes through to effectively keep pathogens from entering your body—or from doing too much harm if they make it inside.

First level of Defense
Your body does all it can to prevent pathogens like bacteria, viruses, and unwanted microorganisms from entering your body. This is the ultimate job of the first level of defense—keeping illness out! Your skin is a natural protective barrier working in partnership with saliva, ear wax, mucous and other secretions. On your skin, your body’s natural oils and excretions trap and stop foreign organisms in their tracks at the surface level. A scrape on the knee, or blister on the foot, however, is a different story, stimulating the second level of defense into action.

Second Level of Defense
The second level of defense manifests itself through inflammation. Inflammation is a sign that your body is working to heal an area where unwanted bacteria, viruses, or other pathogens, have entered through the skin or other bodily orifices. There are two kinds of inflammation: acute and chronic.

Acute Inflammation
Acute inflammation is a short-term reaction often incurred from injury—a ding to the shin, muscle repair post-workout, a sliver, or any number of immune-provoking injuries. In the moments after an injury, your body communicates with immune cells called neutrophils, sending them to the injured area to ward off any pathogens at the point of entry that could create infection.

Chronic Inflammation
Chronic Inflammation comes into the mix when inflammation lasts 96 hours or longer. Long-term inflammation is constant stress on the body and could lead to illness and disease later down the road if not treated. To protect the body, in this stage, the immune system gathers up its next team of protective cells called natural killer cells and macrophages.

Natural killer cells are detectives able to find and kill stressed cells in your body. Macrophages, however, are similar to a game of PacMan, where they eat pathogens that get in their path, sending any leftover pathogen bits to lymphocyte immune cells—the third level of defense also known as specific immunity. During this second stage of defense is when you can develop a fever. Your body naturally raises your internal temperature to assist the immune cells with killing-off any unwanted pathogens.
Third Level of Defense

On the occasion that unwanted bacteria, viruses or microorganisms get past the second stage of defense, your immune system brings out its top team players. This is when lymphocytes (white blood cells) come out to the rescue, working to eliminate invading threats. There are two teams of lymphocytes working to get the job done:

**T-Cells:** powerful cells that destroy pathogens. Both the T and B-cells a created in your bones; however, T-cells are created by your body and then stored in the thymus gland, giving them the name T-cells.

**B-Cells:** With the information gathered from the macrophages' in the second stage of defense, B-cells start creating antibodies. These antibodies are proteins that not only fight against the specific antigen/immunoglobulin that entered the body, but have memorized the invader, saving up antibodies to immediately attack the specific invader if ever it returns. (Vaccines work with this component of your immune system)

T-cells and B-cells are a powerful team, a complex and intelligent system that protect your wellbeing on a daily basis. Encourage this fascinating process by learning about and incorporating supportive foods and nutrients into your diet.

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2. Ibid., 38
For more *Thriving* check out Brendan's Thrive Trilogy of books.

*Thrive Foods, Thrive: The Vegan Nutrition Guide, and Thrive Fitness*

(In Canada: *Whole Foods to Thrive, Thrive Diet, and Thrive Fitness*)

USA: Da Capo Press | Canada: Penguin