

Understanding Your Immune System

#1

Today we talk about our immune systems a lot. We worry about what we do to them sometimes, just not often enough. Unfortunately our defense systems take a beating from many outside influences, some of which are beyond our control and some we are ignorant of. Researchers are now telling us that in the last 10 years the average Americans' immune system has decreased in function by 25%! If this is true we are in grave trouble because the germs haven't lost anything. They are more resistant and prolific than ever. The purpose of this series is to highlight some of the risks and dangers that threaten us and give some much needed solutions.

YOUR DEFENSES IN A NUTSHELL:

Frontline: Our natural defenses were designed so well that it is amazing that we could get sick at all. Healthy, unbroken skin is your first line of defense in the battle against germs. After that it is up to the mucous and mucous membranes that line your nose, as well as your saliva, tears, and vaginal secretions.

These secretions contain natural chemicals that routinely destroy unwelcome pathogens. If a virus, bacteria or other invader does manage to infiltrate your system it still must face an array of defenses. The blood stream and lymphatic fluids are teeming with multitudes of cells that are programmed to recognize and destroy invaders.

Second line: Macrophages and Killer cells.

When a pathogen (Harmful germ) crosses the first barrier, the next step for the immune system is to stop its progression using macrophage cells (also called phagocytes (Eater cells) or scavenger cells). A macrophage is a specialized cell that moves through the blood but can also pass through the blood vessel walls. A macrophage works by engulfing a pathogen, which may be a bacteria or inorganic foreign body, and either destroys it or prevents it from escaping to other parts of the body.

These cells are complimented by natural killer cells or NK cells. NK cells, like macrophages, act without a commander or outside directions. NK cells are programmed to destroy any pathogen or cell that carries foreign DNA on contact They have no "memory". meaning they act indiscriminately with invaders on contact, without prior recognition. They generally act by first making contact and then inject toxic chemical granules into the invading cell.

#2: Third line: B and T-cells.

Lymphocytes are a type of white blood cell originating in the bone marrow. They are originally non specific cells called stem cells. According to the bodies needs, some mature into B-cells while others travel via the lymph to the thymus gland and are programmed as T-cells.

B-cells work chiefly by secreting special proteins that are known as antibodies. First the B-cell contacts a pathogen with a special receptor site. It then produces the antibody that will specifically match the receptors on the enemy cell. These antibody substances lock onto or into the specific antigen or disease particle that they are designed to attack. They have an exact fit like a key in a lock. They then can inactivate or kill the pathogen. The body keeps a memory of a prior exposure to a disease and stores replica antibodies for future threats.

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Antibodies are also called immunoglobulins.

T-cells. There are three main types of T-cells. Killer T-cells, Helper T-cells, and Suppressor T-cells.

Killer cells are developed to only attack specific invaders. They use special receptors to recognize the specific antigens to attack. They secrete a substance called interferon, which the body readily uses to stop viruses from replicating. They also inject chemicals known as cytokines into their opponent cells to kill them.

Helper cells work by aiding the killer T-cells by stimulating them and giving them instructions. They sometimes command B-cells to manufacture antibodies.

A scanning electron microscope can show killer (cytotoxic) T-cells attacking cancer cells. There is a sort of “fuzz” on the T cells. Those are glycoproteins. Glycoproteins are an essential part of the function of the cell. They are acquired through specific nutrition. Manapol an aloe vera extract can provide glycoproteins.

Suppressor T-cells are responsible for “calling off the dogs”. After an infection is over the body’s active defenses need to be slowed down or turned off. These cells are essential in balancing the immune system when it gets too offensive.

Many times after a systemic infection (usually viral) the killer T-cells mistake some of the body’s own tissue cells as enemy cells due to similar DNA. Suppressor T-cells are urgently needed or an autoimmune disorder like MS, rheumatoid arthritis, chronic fatigue or lupus can develop.

Additional Immune Functions:

Inflammation is a positive response of a healthy immune system. If the infection is localized to a small region like a finger the response serves well by increasing permeability of capillary walls and tissues aiding the movement of white blood cells, and macrophages. Generally this is facilitated by the release of histamines. If the infection is systemic the inflammatory response causes neutrophils (a type of white blood cell) to release a protein that affects the hypothalamus to turn up the thermostat, resulting in a general fever. Don’t be so quick to break out the Tylenol!

Interferon release is a function of a properly functioning cell that has been invaded by a virus. It releases this chemical, acting as a chemical signal to surrounding cells warning them to protect their RNA from being used by invading viral particles.

Interleukins are cytokines or chemical messengers that are produced by the leukocytes (a type of white blood cells). They help orchestrate the various functions of the many cells of the immune system. Since cells can neither see nor hear, they rely on information to be transmitted via chemical secretions in the circulation to communicate. As in conventional warfare, it is impossible to win a war unless the commanders can communicate with the troops.

#3: THINGS THAT HARM YOUR IMMUNE SYSTEM

Toxic chemicals are everywhere. They are in your food if you are not eating organic foods. They leak into your skin when you sweat while wearing synthetic fabrics.

Most shampoos and lotions are heavy in toxic chemicals. Scientists have discovered that all municipal water supplies are highly polluted with toxic chemicals. They traveled throughout the world and found no exceptions!

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Tobacco products are toxic and are proven killers.

Sugar thickens the serum of the blood and is toxic to the immune cells. Each person in America eats an average of 36 teaspoons daily. That is at least 300% more than is safe to eat.

Alcohol dehydrates and damages cell membranes making them vulnerable to attack. Alcohol is now recognized as a cancer causing agent.

Fat clumps cells together impeding their functions. Most Americans eat at least 3 times more than they should. Fat irritates the walls of your circulatory system making it a less than optimum environment for your immune cells to function.

Lack of exercise can kill you. The only cardiovascular exercise some of us get is blowing out the candles once a year! A big part of your immune system is dependent on a good lymph flow. It doesn't flow unless you get vigorous exercise.

Poor diet may be your number one risk. The standard American diet is high in calories but poor in nutrition. Teenagers eat 2/3 of their vegetables in the form of chips and fries! Americans consume inordinate amounts of meat and dairy products. When experts estimate that more than 80 % of the dairy animals in this country carry leukemia it makes no sense in my opinion to ingest either them or their secretions. Excess proteins limit the amount of oxygen that your red blood cells can carry. Viruses are anaerobic, meaning they prefer a low oxygen environment.

Fruits, vegetables, and grains are high in fiber and elemental nutrition. Eating them fresh is also the best way to consume antioxidants.

Water is a must. Most of us are chronically dehydrated. Would you wash five loads of clothes in the same water? That's what you are asking your body to do every day if you are not drinking enough water. The average adult should drink 10 large glasses every day. Sometimes more when you exercise or when it is hot. Distilled water is empty of junk minerals and toxic chemicals. It can carry away more impurities. It will not de-mineralize your body.

Lack of sleep is an epidemic in America. We all tend to burn the candle on both ends. The result is that we get run down and sick far more often than we should. Get to bed and live!

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