



What is the Immune System?

The immune system is an amazingly intricate and complex system that **keeps us healthy** and **protects us against** all sorts of viruses, bacteria, microbes, parasites, and toxins.

To help us understand the power of our immune system, it is useful to take a look at what happens when anything dies, including the human body. Within hours after death, the body is invaded and taken over by a multitude of different bacteria, parasites, etc., and it does not take long for the body to be broken down and dismantled until all that remains is the skeleton. When we are alive this doesn't happen - which just goes to show us **how powerful and important** our immune system is.

Like with many things, **we often don't think about our immune system until something goes wrong with it.** Therefore, taking extra care in **strengthening the immune system** can help prevent many problems related to a weak system, such as many common immune disorders.

How does the Immune System Work?

The immune system has many different components both inside and outside the body. Starting from the outside, there are many different barriers that form part of the immune system.

The immune system is an immensely complicated and intricate system, and like all systems in the body, **it needs to be in top condition to perform optimally.** If it is compromised in any way, it will allow the germs to win the battle and disease will develop. We are surrounded by germs of all descriptions at all times without getting sick. **When our immune system is compromised and cannot effectively fight off the infection,** we become ill.

External Lines of Defense

The Skin – The skin is obviously a **physical barrier to many germs and toxins**, as it contains special immune cells called Langerhans cells that act as warning bells to alert the immune system to any foreign agents. Langerhans cells also regulate the immune response to these agents, evident in the skin's reaction to stinging nettles or a cat scratch. The skin also secretes antibacterial substances which hinder the growth of bugs on our skin.

The Mucus Membrane Linings - The eyes, nose, and mouth are all possible



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ports of entry for invading germs, but our tears, nasal secretions, and saliva all **contain enzymes or cells of the immune system to keep the invaders at bay**. The mucus membrane linings of the respiratory, gastrointestinal, and genitourinary tracts also provide one of the **first lines of defense against invasion** by microbes or parasites.

Internal Lines of Defense

If the germs make it past this first line of defense, they encounter a number of immune components inside the body including:

- The lymphatic or lymph system
- The thymus gland (in your chest)
- The spleen
- Bone marrow
- White blood cells or leukocytes
- Antibodies

The Lymphatic or Lymph System

The swollen glands that we all check for in the neck are in fact lymph nodes that are part of the lymphatic system. The lymph system is similar to the circulatory system, in that it is an **interconnected series of vessels carrying lymphatic fluid**, except that lymphatic fluid is not pumped around the body (like the heart pumps blood), but rather it moves passively. Fluid oozes in and out of the lymphatic system with normal body and muscle movement. **Lymph contains plasma** (the watery part of the blood) and helps to carry nutrients, oxygen, and waste products from the blood cells through the capillary walls. Germs generally find their way into this fluid and are then carried to the **lymph nodes**, which **act as filters**. The lymph nodes filter the fluid, and if there are any germs, the immune cells in the node rise to the occasion to fight them off. **If the lymph nodes swell up** during this process, this acts as a **sure indication of infection**. The filtered lymphatic fluid is then returned to the blood stream where the cycle starts again.

The Thymus Gland

The thymus gland is situated in the chest in front of the heart but behind the breast bone, and is **responsible for producing T-cells**, one of the important **germ-fighting cells** of the immune system. The thymus gland is very important for newborn babies (who need it to survive), but as we get older it becomes less important, as other parts of our immune system manage to compensate.

Bone Marrow

All the **cells of the immune system** are **originally derived from the bone marrow**. Our bone marrow produces blood cells – both red cells, which carry oxygen, as well as white blood cells, which are part of the immune system. There are many different types of white blood cells including T-cells, B-cells, natural killer cells, lymphocytes, etc. and they **all work together to destroy the foreign cells or germs**. The B-cells produce antibodies, or proteins that are specific to the germ (or antigen, which is anything foreign to the body) encountered. Specific B-cells are tuned into specific germs, and when that germ is



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Michele Carelse, Clinical Psychologist



All of our natural remedies are formulated by our expert team of herbalists, naturopaths and homeopaths, and headed by Michele Carelse.

Michele has had years of experience in the manufacturing and use of natural remedies. In addition, she is a trained Clinical Psychologist and has been incorporating natural remedies into her treatment of patients with depression, anxiety, ADD, ADHD and stress for many years with spectacular results.

present, the corresponding B-cell multiplies rapidly and produces the antibodies to destroy that germ. The antibodies then bind to the germ and prevent it from entering our cells. If this is not enough, the antibodies will cover the germ and signal the complement system for assistance.

The Spleen

The spleen is also an important filtration organ, as it searches for and filters out foreign cells as well as old red blood cells that need replacing. In addition, the spleen plays an important role in activating appropriate immune responses by presenting the antigen to the appropriate T or B cells, which in turn can then produce large amounts of anti-bodies.

White blood cells or leukocytes

Immune cells are white blood cells, otherwise known as leukocytes, which are produced in large quantities in the bone marrow. There is a great variety of leukocytes, each with a specific function and role to play in the working of [the immune system](#). Some of these blood cells seek out and destroy foreign organisms, some dispose of infected or mutated body cells, while others release proteins called antibodies that alert other cells to destroy invading organisms.

Antibodies

Antibodies are Y-shaped proteins found in the blood and are made by B-cells. Essentially these proteins are used by the immune system to identify and block the effects of antigens. Thus when an antigen (or foreign cell) is identified, an antibody attaches itself - like a key fits into a lock – and neutralizes the effect of the antigen.

The Complement system

The complement system is a series of different proteins that work with (or compliment) the antibodies. These proteins flow freely in the blood and can therefore rapidly reach the site of an invasion where they can react directly with antigens (molecules that the body recognizes as foreign and potentially dangerous). When triggered, these complement proteins can trigger inflammation, attract eater cells such as macrophages to the area, cover intruders so that eater cells are more likely to destroy them, and directly kill intruders by causing the cells to burst. This in turn signals other ‘clean up’ cells, called phagocytes to come and remove the burst cell. Other substances such as hormones, tumor necrosis factor, and interferons also play an integral part in the functioning of the immune system.

What Can Go Wrong with the Immune System?

[The immune system](#) is **amazingly resilient and powerful**, protecting us daily from a wealth of viruses, bacteria, foreign cells, and our own cells that have “gone bad”, such as cancer cells. However, like with most amazing systems, sometimes things go wrong. There are a number of immune disorders which can be divided up into four main categories:

- Autoimmune disorders
- Immunodeficiency disorders
- Allergic disorders

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- Cancers of [the immune system](#)

Autoimmune Disorders

Autoimmune disorders occur when [the immune system](#) mistakenly attacks the body's own tissues and organ cells. So instead of white blood cells attacking harmful antigens and pathogens, [the immune system](#) starts attacking healthy cells for reasons that are not yet clearly understood. There are more than 80 different types of autoimmune disorders which include:

- Lupus
- Addison's Disease
- Rheumatoid arthritis
- Scleroderma
- Multiple Sclerosis (MS)
- Graves' disease

Immunodeficiency Disorders

This category of [immune disorders](#) occurs when a **part of the immune system is not present or not working as it should**. Some people are born with an immune deficiency (called primary immunodeficiency), in which case they tend to be more inclined to catching colds, getting infections and allergies than most others. Other immunodeficiencies are acquired either through disease, injury, or certain medications. Some of the most common causes of immunodeficiency include:

- HIV (human immunodeficiency virus) and AIDS (acquired immunodeficiency syndrome)
- After-effects of chemotherapy and radiation therapy
- After-effects of other immunosuppressant medication, such as corticosteroids and drugs used to prevent transplant rejection
- Malnutrition
- Sickle cell anemia
- Certain infections such as measles
- Severe burn trauma

Allergic Disorders

Many individuals **suffer from allergies caused by a hypersensitivity reaction** of [the immune system](#) to certain allergens in the environment. Some common allergens which trigger this reaction are dust, pollen, pet hair, bee stings, and certain foods. When these antigens enter the body, the immune system tends to overreact and antibodies quickly cause the release of histamine, which results in an allergic reaction. These reactions differ in severity and may include itchiness, hives, rhinitis, and in more serious allergies, swelling of mucous membranes such as in the nose and throat, leading to potential difficulties and anaphylaxis. Common allergic disorders include:

- Asthma
- Eczema
- Contact dermatitis
- Food, environmental, and insect bite allergies



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Cancers of the Immune System

When cells of [the immune system](#) are over-produced and the normal body mechanisms of keeping them in check fail, they become out of control and the result is cancer. For example, when the body over-produces white blood cells, the result is leukemia. Other cancers associated with [the immune system](#) are:

- Lymphoma
- Hodgkin's disease
- Multiple myeloma

While **not all of these immune disorders are preventable, some are**, and necessary precautions should be taken to ensure that you give your [immune system](#) all the help it needs to remain strong and resilient against illness. Eating a healthy diet, getting enough exercise, practicing good hygiene and safe sex can go a long way to assisting and maintaining your immune system.

Help for the Immune System

Antibiotics treat bacterial infections when [the immune system](#) alone couldn't mount an adequate response against [immune disorders](#). Therefore a **strong and healthy immune system should negate the need for any antibiotics** in the majority of situations, therefore it is so critical to always consider [strengthening the immune system](#) by taking preventative measures, to help avoid unnecessary medication.

Natural remedies have been used for thousands of years to help promote the peak functioning of [the immune system](#) so that the body will be working at its best ability to ward off disease and infection.

What are Antibiotics?

Antibiotics are specific chemicals aimed at killing off the targeted bacteria (they are not effective against viruses and should not be taken for a viral infection). In theory antibiotics are supposed to do this without damaging the cells of our body, but **antibiotics do come with side effects and consequences**. The paradox is that antibiotics were developed to help [the immune system](#), but in reality they actually impair it. This **paradoxical effect** was first noted in 1950, but couldn't be confirmed, and it was only in 1972 at the Baylor School of Medicine in Houston that it was documented that some antibiotics actually prevented white blood cells from attacking and killing bacteria. This included some of the well-known antibiotics used today such as tetracyclines, erythromycin, and chloramphenicol.

It is fairly **common practice nowadays to take probiotics when on an antibiotic** to replace the 'good' bacteria in our digestive tract in order to reduce the gastric side effects of the antibiotics. However, there are also bacteria in the stomach that produce specific proteins that stimulate our immune systems. When these bacteria are killed off too, a temporary halt is put on our [immune system](#) and this increases susceptibility to additional infections.

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The Drawbacks of Antibiotics

Excessive use of **antibiotics sets up a vicious cycle**:

The more you take antibiotics, the more you depress your immune system. The more depressed your immune system is, the more likely you are to get another infection. If you get another infection, you will get another antibiotic, and so the vicious cycle continues.

In addition, because of improper prescribing and usage by patients, **the incidence of antibiotic-resistant bacteria is increasing**. This can lead to serious illnesses as well, as people taking more than one antibiotic for one infection or taking a much stronger, and more dangerous, antibiotic.

Similarly, there are also many over-the-counter preparations available that do as much harm as good, and for which the long-term side effects are not always known. In medical trials, it is usually only the short-term efficacy and side effects that are tested and measured.

It is also important to remember that **many of the symptoms that we seek to treat** are actually the body's way of dealing with the infection and **are proof that the immune system is working** and doing its job. For example, a runny nose with a cold is the body's way of trying to rid itself of germs, and trying to stop this process also stops the body from expelling the pathogen.

Herbal and Homeopathic Remedies for the Immune System

Herbs have been used to treat people effectively for thousands of years – long before anyone knew anything about viruses, bacteria, enzymes, and chemical structures. What they did know was that certain **herbs helped for specific conditions or were able to strengthen and protect from illness or immune disorders**. While there is no doubt that modern medicine has made huge strides and advances in health care, it is only recently that scientists have stopped their singular search for chemicals that kill bacteria and viruses, and are starting to realize that **strengthening the immune system can allow your body to naturally fight off infectious agents** - without the drawbacks of antibiotic therapy.

Many herbs such as Echinacea purpurea, Astragalus membranaceus, Inula helenium, and Withania somnifera are renowned for their antiviral, antifungal and antibacterial properties, as well as their excellent ability to strengthen and assist **the immune system**. These herbs work as a tonic for **the immune system** and are often recommended to **prevent and assist recovery from illness or infection**. Natural knowledge and approaches utilized for centuries are being revived to reclaim their rightful place as part of a **holistic approach to health**.

Self-Care Prevention Measures

Here are some of the lifestyle factors that you can employ to **keep your immune system in peak condition** and able to ward off recurrent infections.

- Make sure that you **get enough sleep** – this means both an **adequate**



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- quality** of sleep as well as an **adequate length** of sleep. Sleep is one of the most important factors in maintaining a strong and healthy [immune system](#)
- Ensure that you have a **wholesome, nutritious diet** rich in fresh fruits, and vegetables (preferably organically grown), whole-grains, legumes and natural oils.
 - **Exercise and keeping active** is not only good for your body and your mind, but also helps to optimize immune functioning. In addition, regular moderate exercise will help to relax you and will also encourage healthy sleep. Not to mention, the more we move, the more our lymph is circulated - thus, the better this system can function.
 - **Maintain a healthy weight.** Being too thin or overweight can equally depress [the immune system](#).
 - Stress is also bad for [the immune system](#). While small amounts of stress can be beneficial, prolonged stress depresses [the immune system](#). If you are experiencing anything like this it is important to treat it. **Anxiety and depression can also compromise [the immune system](#)** – a healthy mind leads to a healthy body.
 - **Laugh** – the chemicals produced when we are happy have receptor sites on cells all over our body so happy minds can make happy, healthy cells
 - **Don't smoke and avoid secondhand cigarette** and tobacco smoke. The chemicals contained, even in secondhand smoke, all depress the immune system and have a negative impact on its functioning.
 - **Reduce exposure to germs.** Practice good hygiene habits such as washing your hands before meals and after going to the toilet. Stay away from people who are sick and, where possible, keep your children in smaller day care centers or crèches.
 - **Avoid the excessive use of antiseptic and antibacterial** soaps, sprays, and other detergents. While these may kill bacteria and other organisms in the short term, they also **contribute towards the development of resistant strains** of bacteria which at times can reach epidemic proportions. Use natural ingredients such as Tea Tree oil and certain aromatherapy essential oils. Do not keep children 'too clean'. A certain amount of 'healthy dirt' is good for [the immune system](#)!
 - We are surrounded by toxic chemicals and pollutants wherever we go, at home and in the environment. Where possible **use safe non-toxic chemicals** at home, in your toiletries and in your gardens.
 - **Avoid excessive sun exposure**, as this can depress the [immune system](#) – this is why cold sores are so common after spending time in the sun. Sunlight is necessary to produce Vitamin D so don't avoid it entirely, just be sensible about the time of day and length of time you spend in the sun, and wear sun block.
 - **Avoid the vicious antibiotic cycle.** While antibiotics may be necessary in some cases, they are generally over-prescribed and used as a first option instead of a last resort. Try **exploring natural health options**, as there are many herbs with a long history of use that are well-known to strengthen different parts of [the immune system](#).

The Natural Approach

While Western medicine has become the norm in many cultures, it is not the only treatment option. Conventional western medicine, often called allopathic medicine, is the system of medicine taught at most medical schools and most pharmaceutical and synthetic medicines are manufactured and marketed according to the principles of allopathic medicine. Allopathic medicine is also

sometimes called orthodox medicine.

Because most of us in the Western world have grown up in a society in which allopathic medicine is the prevailing norm, we forget that, only a few decades ago, homeopathic, herbal and other natural medicines were commonly available – and freely used even by conventional doctors. While there are often heated debates about which system of medicine is ‘better’ than the other, many responsible doctors (whether they are allopathic or not) recognize that both have a role to play in the treatment program.

Natural medicine has often been frowned on by conventional doctors, especially by those who did not have sufficient knowledge of these medicines. However, it is encouraging to note that some medical schools are now beginning to re-introduce it into their course work, thereby providing doctors with a wider range of treatment options from which to choose. In many countries, especially in Europe, India and China, natural and homeopathic medicines are commonly prescribed by conventional doctors and represent a significant part of the total annual drug sales.

Naturopathy is a branch of medicine (just as allopathy is a branch of medicine) which operates according to the underlying philosophy that the body has an innate capacity to heal itself. While natural medicines are often called ‘alternative’ or ‘complimentary’ medicines, they are, in fact, a unique and independent form of medicine in their own right, well able to treat a variety of conditions. Perhaps the term ‘holistic’ medicine is more apt, given the broad range of treatment options and approaches which are to be found within the practice of natural medicine, which encompasses many different disciplines, including herbalism, homeopathy, iridology, osteopathy, chiropractic, therapeutic massage techniques, aromatherapy, acupuncture and many, many more.

Most naturopaths will use a variety of treatment modalities in order to treat their patients in a holistic way to support health, relieve symptoms and prevent future disease. In fact, even the World Health Organization defines health as being "... more than simply the absence of illness. It is the active state of physical, emotional, mental and social well-being." This is a wonderfully clear description of holistic or natural medicine, which strives to support health (thereby relieving or preventing symptoms), rather than simply eliminating disease.

Although allopathic medicine certainly has a role to play and has made a tremendous contribution to medical science during the past century, there is a growing perception that it is not the only answer and that, in many cases, holistic medicine can accomplish just as much, if not more – without the risk of side effects, addiction and sacrifice to health so commonly associated with pharmaceutical drugs. Contrary to common perception, and provided that they are manufactured in the correct way, natural medicines can work quickly and safely to promote healing.

In many cases, they can succeed where pharmaceutical drugs have failed. Despite frequent reports that they are ‘unproven’ and ‘untested’, the opposite is true. Natural medicines have a long history of usage and there is a wealth of empirical evidence to support their effectiveness and safety. In addition, active clinical research is carried out by many academic hospitals and universities to support the extensive traditional and empirical evidence behind natural medicines.

It is also important to know that, like any medicine, herbal and homeopathic medicines must be manufactured in the correct way, following acceptable

procedures and manufacturing methods to ensure maximum effectiveness and safety. Due to the recent rise in popularity of natural remedies, many companies have sprung up to take advantage of the market. Unfortunately not all of them are equipped to manufacture to the correct standards, often resulting in a flood of inferior (and sometimes even unsafe) remedies onto the market –giving natural remedies a bad name.

Even some pharmaceutical companies have rushed to claim their market share by producing so-called ‘standardized’ extracts of herbs and offering these as superior to the tried and tested methods of naturopathic manufacturing. Nothing could be further from the truth. While ‘standardized’ extracts may offer benefit of easy consistency of dosage (and cheaper more efficient production lines), they have grave disadvantages. These include an increase in side effects as the medicines produced in this manner lose the natural protective properties of the herbs. In some cases, these side effects have proved fatal – as was seen in the liver toxicity associated with standardized extracts of kava kava, a herb previously safely used for generations without any known side effects.

Most naturopaths recommend what is called the Full Spectrum Method of extraction – which retains the benefits of ALL the active ingredients within the herb as opposed to isolating only one – thereby providing a more complete treatment as well as superior protection against side effects.

Whatever your choice, always choose wisely. Research what is best for you. If you have a chronic or life threatening condition, don’t make changes without first discussing them with your doctor in order that your condition may be monitored. Well informed and supportive practitioners will support patients who want to take responsibility for their own health.

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