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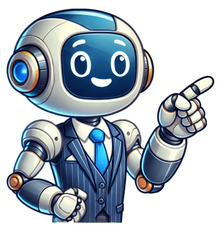

Share on PinterestDesign by Diego SabogalThe immune system is a complex network that constantly works to protect the body from antigens, which have associations with pathogens, including bacteria, toxins, parasites, and viruses. The immune system offers two lines of defense: innate immunity and adaptive immunity.Innate immunity is the first line of defense and consists of physical barriers, such as the skin and mucous membranes and chemical and cellular defenses. The innate immune system is nonspecific because it reacts the same way to all foreign invaders. If the innate immune system is ineffective against a potential threat, the adaptive immune system takes over.The adaptive immune system consists of specialized blood cells and proteins that target the specific cause of infection. The adaptive immune system has a “memory,” which is why a person’s body becomes immune to specific illnesses after initial exposure. A person’s immune system needs to function well for them to remain healthy. Certain illnesses, medications, and lifestyle choices, such as smoking and excessive drinking, can adversely affect immune function. Research shows that a person’s diet can impact immune health as well.Studies suggest that a person’s diet influences their immune system, like all other aspects of health. For example, nutrition can affect the microbiome, gut barrier function, inflammatory processes, and white blood cell function, all of which impact immune function.Dietary patterns and individual foods have associations with increased disease risk, greater risk of allergy, and impaired immune response. Western-type diets tend to contain high levels of saturated fat, ultra-processed foods, added sugar and salt, and overall calories. This diet is often low in foods associated with better health, such as vegetables, fruits, and fatty fish, and has strong links to an increased risk of chronic disease. Research suggests that Western-type diets induce inflammation and alter immune system function, promoting disease development.In contrast, diets rich in whole foods, such as vegetables, fruits, nuts, legumes, and seafood, and low in ultra-processed foods can reduce disease risk and promote healthy immune function.Additionally, a deficiency or insufficiency of nutrients essential to immune function, including vitamin D, zinc, and vitamin C, can also affect immune response. Nutrient deficiencies may be more common in those consuming ultra-processed diets low in whole, nutrient-dense foods.Although it is clear that dietary choices impact overall health, including immune function, the interaction between diet and immune health is highly complex. Scientists are still learning how the foods a person consumes may help or harm immune function.Western-type diets tend to be high in refined carbohydrates, added sugars, saturated fat, and calories. This pattern of eating affects immune function in several ways.Most of the foods in Western diets are ultra-processed and contain high levels of added sugar, which can promote inflammatory responses of the immune system.For example, foods and beverages that significantly impact blood sugar levels, such as soda, candy, sugary cereals, and sugary baked goods, increase levels of inflammatory proteins, including tumor necrosis-alpha (TNF-alpha), C-reactive protein (CRP), and interleukin-6 (IL-6). They also interfere with the function of protective immune cells, including neutrophils and phagocytes. A 2012 study that included 562 adults aged 85 years and older without diabetes found that the participants who had higher blood sugar levels had lower innate immune responses. They also had higher levels of CRP, which is a marker of inflammation.Also, diets high in added sugar and refined carbs may adversely alter gut bacteria, leading to dysbiosis, which involves digestive disturbances, such as bloating. A healthy microbiome is essential to immune function because gut bacteria play a critical role in the development and function of the immune system.Experts have also linked Western-type diets to an altered immune response due to high levels of saturated fat and added salt.Studies indicate that diets high in saturated fat may promote inflammation, modify gut bacteria, and inhibit the functioning of white blood cells. Diets high in added salt have links to excessive immune response, impaired inflammation regulation in the body, and an increased risk of certain autoimmune diseases, such as rheumatoid arthritis.Western-type diets have links to an increased risk of developing several chronic diseases, including certain cancers, heart disease, and type 2 diabetes. Researchers attribute this to the chronic low-grade inflammation and altered immune response that Western-type diets, sedentary lifestyles, and toxin exposure cause. However, research investigating the relationship between diet and immune function is ongoing, and scientists do not entirely understand this complex relationship.While a diet high in ultra-processed foods, added sugar, and excessive calories may lead to immune dysfunction, dietary patterns rich in whole, nutrient-dense foods are beneficial for immune function. Diets high in fiber, such as the Mediterranean diet, promote the production of short-chain fatty acids (SCFAs), including acetate, propionate, and butyrate. SCFAs are end products of bacterial fermentation in the gut and have health benefits.SCFAs act locally and systemically to modulate the immune response. They maintain the health of and improve the immune defensive function of the intestinal epithelium. This is an important part of the immune system that serves as a barrier against microorganisms. It also reduces the production of inflammatory proteins from immune cells.Diets high in fruits, vegetables, olive oil, nuts, seeds, and fatty fish contain high levels of nutrients, such as vitamin A, vitamin C, zinc, vitamin D, B6, B12, copper, folate, iron, and selenium. The immune system needs these nutrients to function optimally.Experts know that vegetarian-based diets reduce markers of chronic inflammation, such as CRP, fibrinogen, and IL-6. This might be partly due to the array of nutrients and nonnutritive components found in fruits and vegetables strengthening the immune system response.Foods rich in healthy fats, fiber, vitamins, protein, minerals, and beneficial plant compounds help reduce systemic inflammation, promote healthy gut bacteria balance, reduce oxidative stress and cellular damage, and improve blood sugar and insulin sensitivity. All of these activities are essential for healthy immune function.Additionally, studies show that supplementing the diet with nutrients including vitamin D, zinc, and vitamin C may help optimize immune function and reduce infection risk.To support immune function, a person should concentrate on following a balanced dietary pattern rich in whole, nutrient-dense foods, especially plant foods, such as vegetables, fruits, legumes, nuts, and seeds. People should avoid or limit ultra-processed foods high in refined grains and added sugar. It is essential to follow a healthy diet to ensure good immune function.Studies show that while certain dietary patterns may lead to impaired immune function, other dietary patterns promote optimal immune function.A dietary pattern low in ultra-processed foods and rich in whole, nutrient-dense foods, such as vegetables, fruits, fish, and legumes, protects against chronic disease risk and supports a healthy immune response. Following a healthy dietary pattern and leading a lifestyle that includes stress reduction techniques, restful sleep, daily physical activity, and other healthy habits is the best way to support the immune system and reduce disease risk.Biology / BiochemistryImmune System / VaccinesNutrition / Diet The term for “immune system” in Spanish is “sistema inmunológico.” The immune system is a complex network of cells, tissues, and organs that work together to protect the body from foreign invaders such as bacteria, viruses, and parasites.The immune system is essential for maintaining good health and fighting off infections and diseases. It includes a variety of specialized cells such as white blood cells, antibodies, and lymphocytes, as well as organs like the spleen, thymus, and lymph nodes.In Spanish-speaking countries, there is a growing interest in maintaining a healthy immune system, particularly in light of recent global health concerns. There are many natural and alternative remedies that are believed to support the immune system, including herbs, vitamins, and supplements.If you are interested in learning more about the immune system in Spanish, there are many resources available online, including scientific journals, health websites, and medical dictionaries. You can also speak with healthcare professionals such as doctors or pharmacists who can provide information and advice on how to maintain a healthy immune system.In conclusion, “sistema inmunológico” is the Spanish term for “immune system,” which is a complex network of cells, tissues, and organs that protects the body from infections and diseases. Maintaining a healthy immune system is important for good health, and there are many natural and alternative remedies that are believed to support immune function.A new category where you can find the top search words and phrases translated into English and Spanish. 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It includes the humoral immune response and the cell-mediated response and consists of a complex of interrelated cellular, molecular, and genetic components. Terms Immune System Preferred Term Term UI T021255 Date01/01/1999 LexicalTag NON ThesaurusID NLM (1985) Share — copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution — You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Principal TranslationsWordReference English-Spanish Dictionary © 2025:immune system n(biological defence mechanisms)sistema inmunitario nm + adj sistema inmunológico nm + adj During flu season it's important to keep your immune system strong to avoid getting sick. Durante la temporada de gripe es importante mantener el sistema inmunitario fuerte para evitar enfermarse. Is something important missing? Report an error or suggest an improvement. Compound Forms:WordReference English-Spanish Dictionary © 2025:immune defense system (US), immune defence system (UK) n(biological mechanisms)sistema inmune loc nom m I take vitamin supplements to boost my body's immune defense system. Is something important missing? Report an error or suggest an improvement. Immunotherapy vs. Conventional therapy (chemotherapy, radiotherapy, surgery) The economic cost of cancer reached $1.2 trillion in 2010, according to the World Health Organization. Despite the investment in treatment and prevention, 8.8 million people died of cancer in 2015. In 2018, more than 1.7 million just in the U.S. will [...] The single most important thing you may ever read on cancer treatment. What is the origin of cancer? The Ancient Greek, 'Father of Medicine' Hippocrates, used the Greek words, carcinos and carcinoma to describe (cancerous) tumors, thus making him the first person, historically, to bestow the disease with the [...] Analytical testing recently completed by the chemists at Integrated Biomolecule Inc. of Tucson, Arizona, has revealed some very startling news. The cultivated Cordyceps produced by Aloha Medicinals has more than four times the nucleoside content, and nearly five times more of the total active ingredients than the wild collected [...] It is important to maintain both your good health and your body's balance. Each time we get sick, a potential vulnerable spot may open in our body's defenses. Over time cell mediated immunity may become inadequate or malfunction. This could allow multiple genetic mutations in the same location (malignant [...] The ability to anticipate future events allows us to plan and exert control over our lives, but it may also contribute to stress-related increased risk for the diseases of aging. The psychologists found that those most threatened by the anticipation of stressful tasks in every segment of daily life, [...] Cancer is the second most common cause of premature death worldwide and 5 million new cases are diagnosed each year in Europe and USA alone. Articles published in the Lancet and the Lancet Oncology show that aspirin, taken daily, may prevent cancer, and could even treat certain cancers. Overall [...] Do you know how much are ANTI-AGING and IMMUNITY connected? How to stay young and never be ill again? In order to look young and well kept as long as possible, live a long life without disease, it is necessary to learn how to prevent and completely change the [...] Nearly 30 years after Nobel laureate Linus Pauling famously and controversially suggested that vitamin C supplements can prevent cancer (NOTE: He stated Intravenous Vitamin C in HIGH Doses can also be used as a chemotherapeutic agent for cancer patients), a team of Johns Hopkins scientists have shown that in [...] In research to be published in the Journal of Biological Chemistry, Dr Cornelia de Moor of The University of Nottingham and her team have investigated a drug called cordycepin, which was originally extracted from a rare kind of wild mushroom called cordyceps and is now prepared from a cultivated [...] Laboratory tests of blood and urine can picture and evaluate the health status of any individual. There are many reasons which can lead to results outside of the "normal range". These results can help you detect potential problems. Blood test results RBC - erythrocytes (red blood cells) which carry [...] Medicinal mushrooms as a source of anti-tumor and immunomodulating polysaccharides. By the term "mushrooms", we generally mean the definition of Chang and Miles (1992) "A macrofungus with a distinctive fruiting body which can be either hypogeous or epigeous, large enough to be seen with the naked eye and to [...] In essence energy arrives from the Sun, but humans are unable to convert it directly to run metabolic processes. Therefore, we depend on photosynthesis to convert solar energy into chemical storage (in the form of carbohydrate). Through catabolic metabolism, carbohydrate is converted into the energy currency of ATP, it [...] Cancers may be wounds that never heal, suggest the first live images of tumors forming. It looks like that cancer cells may be considered lesions that never cure according to the first live images of tumor forming. Seems that individual cancer cells are sending identical distress signals as wounds [...] Scientists have made a key discovery in understanding why tumours may go undetected by the immune system. They remain untreated by the body's own natural defences and therefor can cause tumors to expand. The findings could lead to new treatments for tumors. Under normal circumstances, the immune system creates [...] A new research by American Cancer Society scientists says new information displaying aspirin’s potential role in decreasing the risk of cancer death bring us considerably closer to the time when cancer prevention can be included in clinical guidelines for the use of aspirin in preventative care. The review, released [...] The human immune system is a very complex system build up of numerous functional parts. To understand how the immune system works it is essential to know the functional parts and their rolle in the system therefore we will list you the functional parts and what rolle they play [...] Fontana research associate professor of medicine at Washington University and an investigator at the Istituto Superiore di Sanità in Rome, Italy. and his co-authors write about how cutting calorie intake between 10 percent and 50 percent decreases the activity of pathways involving insulin-like growth factor (IGF-1), glucose and TOR [...] Medical Spanish Phrasebookimmune system()A noun is a word referring to a person, animal, place, thing, feeling, or idea (e.g., man, dog, house).nouna. el sistema inmune (m) means that a noun is masculine. Spanish nouns have a gender, which is either feminine (like la mujer or la luna) or masculine (like el hombre or el sol).(M)People that have AIDS have weaker immune systems than people without it.Las personas que tengan sida tienen sistemas inmunes más débiles que las que no lo tengan.b. el sistema inmunológico (m) means that a noun is masculine. Spanish nouns have a gender, which is either feminine (like la mujer or la luna) or masculine (like el hombre or el sol).(M)Your immune system protects you from harmful pathogens.Tu sistema inmulógico te protege de agentes patógenos dañinos.c. el sistema inmunitario (m) means that a noun is masculine. Spanish nouns have a gender, which is either feminine (like la mujer or la luna) or masculine (like el hombre or el sol).(M)Sometimes babies stay in the hospital longer to strengthen their immune system.A veces, los bebés se quedan en el hospital por más tiempo para fortalecer su sistema inmunitario.Copyright © 2025 Curiosity Media Inc.Machine TranslatorsTranslate immune system using machine translatorsOther DictionariesExplore the meaning of immune system in our family of products. The immune system is the body’s tool for preventing or limiting infection. Its complex network of cells, organs, proteins, and tissues enables the immune system to defend the body from pathogens.A fully functional immune system can distinguish healthy tissue from unwanted substances. If it detects an unwanted substance, it will mount an immune response — a complex attack to protect the body from invaders like bacteria, viruses, fungi, and parasites. It also recognizes and removes dead and faulty cells.In autoimmune diseases and allergies, the immune system mistakenly perceives healthy tissue as unhealthy and launches an unnecessary attack, leading to uncomfortable and sometimes dangerous symptoms.This article will look at some of the main features of the immune system and how it defends the body from pathogens and other invaders. It will also look at problems that can arise with the immune system.Share on PinterestThe immune system consists of a range of components, including:White blood cells circulate in the blood and lymphatic vessels, looking for pathogens. When they find one, they begin to multiply and send signals to other cell types to do the same.The lymphatic system forms a network similar to the blood vessels. It carries a substance called lymph instead of blood. Lymph is a fluid that carries immune-related cells to areas that need them.The body stores white blood cells in different places, known as lymphoid organs. The thymus: A gland behind the breastbone, where white blood cells known as lymphocytes mature.The spleen: An organ at the upper left of the abdomen where immune cells gather and work.Bone marrow: Soft tissue in the center of the bones that produces red and white blood cells.Lymph nodes: These are small, bean-shaped glands throughout the body, especially in the neck, underarms, groin, and abdomen. They link via lymphatic vessels. Immune cells gather in lymph nodes and react when antigens are present. This can lead to swelling. The tonsils, adenoids, and appendix: These are gateways for pathogens to enter the body, so lymphoid tissue is also there.To work effectively, the immune system needs to be able to distinguish healthy from unhealthy cells and tissue. It does this by recognizing signals called DAMPS—danger-associated molecular patterns.Cell damage may be present for many reasons, including:infectious agents, such as bacteria, fungi, or virusestoxins, such as a bite or stingnoninfectious physical damage, for instance, a burna genetic problem within cells, as happens with cancer An antigen is any substance that can spark an immune response. In many cases, an antigen is a bacterium, fungus, virus, toxin, or foreign body. But it can also be a cell that is faulty or dead.The immune system detects pathogen-associated molecular patterns — PAMPs — in the antigen. In this way, various parts of the system recognize the antigen as an invader and launch an attack.There are two main types of leukocytes, or white blood cells:These cells surround and absorb pathogens and break them down, effectively eating them. There are several types, including:Neutrophils: These are also known as granulocytes and provide an early response to inflammation. They kill pathogens but also die as a result.Macrophages: These clean up after a response. They remove pathogens, dead neutrophils, and other debris.Dendritic cells: These activate the immune response and help engulf microbes and other invaders.Monocytes: These can differentiate into dendritic cells and macrophages, as needed.Mast cells: These trigger an immune response when they detect an antigen.Lymphocytes help the body remember and recognize previous invaders if they return to attack again. Lymphocytes begin their life in bone marrow. Some stay in the marrow and develop into B lymphocytes (B cells); others travel to the thymus and become T lymphocytes (T cells). These two cell types have different roles.B lymphocytes produce antibodies and help alert the T lymphocytes. T lymphocytes destroy compromised cells in the body and help to alert other leukocytes.Natural killer (NK) cells are also lymphocytes. NK cells recognize and destroy cells that contain a virus.What do low lymphocyte levels mean?Once B lymphocytes spot the antigen (antibody generators), they begin secreting antibodies. Antibodies are special proteins that lock on to specific antigens.Each B cell makes one specific antibody. For instance, one might make an antibody against the bacteria that cause pneumonia, and another might recognize the common cold virus. Antibodies are part of a large family of chemicals called immunoglobulins, which play many roles in the immune response:Immunoglobulin G (IgG) marks microbes so other cells can recognize and deal with themIgM specializes in killing bacteriaIgA congregates in fluids, such as tears and saliva, where it protects gateways into the bodyIgE protects against parasites and plays a role in allergiesIgD stays bound to B lymphocytes, helping them start the immune responseThere are distinct types of T lymphocytes or T cells.Helper T cells (Th cells) coordinate the immune response. Some communicate with other cells, and some stimulate B cells to produce more antibodies. Others attract more T cells or cell-eating phagocytes.Killer T cells (cytotoxic T lymphocytes) attack other cells. They are particularly useful for fighting viruses. They work by recognizing small parts of the virus on the outside of infected cells and destroying the infected cells.Antibodies lock on to the antigen but do not kill it — they only mark it for death. Killing other cells, such as phagocytes, is the job of natural killer cells.Overall, the immune system strengthens upon exposure to different pathogens. By adulthood, most people have been exposed to a range of pathogens and developed more immunity.Once the body produces an antibody, it keeps a copy so that if the same antigen reappears, the body can deal with it more quickly.Some diseases, such as measles, can be severe if they occur, which is why experts recommend vaccination. If a person has the measles vaccine, they are unlikely to get the disease.If an unvaccinated person has measles once, it is also rare to get it again. In both cases, the body stores a measles antibody. The antibody is ready to destroy the virus next time it appears. This is called immunity.There are three types of immunity in humans:People are born with some level of immunity that will attack invaders from day one. This innate immunity includes the external barriers of our body — the first line of defense against pathogens — such as the skin and mucous membranes of the throat and gut.This response is general and nonspecific.If pathogens manage to bypass the innate immune system, macrophages will attack them. Macrophages will also produce substances called cytokines, which increase the inflammatory response.A person’s protection from pathogens develops as they go through life.Thanks to vaccinations and exposure to various diseases, the body develops a range of antibodies to different pathogens. Doctors sometimes refer to this as immunological memory because the immune system remembers previous enemies.This is a temporary type of immunity that derives from another person.For instance, a newborn receives antibodies from the mother through the placenta before delivery and in breast milk following delivery.This passive immunity protects the infant from some infections during their early life.There are many ways in which the immune system can go wrong. Types of immune disorders fall into three categories:These arise when one or more parts of the immune system do not function.a condition that a person is born with, known as primary immunodeficiencydevelopments over time, for instance, older agea disease that affects the immune system, such as HIV, malnutrition, obesity, or high alcohol usemedical treatment, such as chemotherapy, drugs to treat an autoimmune condition, or medications to stop the body from rejecting a transplantThese conditions can increase a person’s risk of becoming sick or experiencing severe symptoms, as the COVID-19 pandemic has shown.What are examples of immunodeficiency disorders?In autoimmune conditions, the immune system mistakenly targets healthy cells rather than pathogens or faulty cells. It is unable to distinguish between healthy and unhealthy cells and tissue.This usually occurs in one part of the body, such as the pancreas. The destruction of pancreatic beta cells means the body cannot produce insulin, which is how type 1 diabetes happens.Other autoimmune diseases include: celiac diseaserheumatoid arthritisGraves’ diseaseWith hypersensitivity, the immune system reacts in an exaggerated or inappropriate way. It attacks everyday substances, such as dust, as if they were pathogens.asthmafood allergies and sensitivitiesatopic eczemaA severe reaction can lead to anaphylactic shock, where the body responds to an allergen so strongly that it can be life threatening.Here are some answers to questions people often ask about immunity.Tips for boosting immunity include:Innate immunity refers to the defenses people are born with, including the skin, mucous membranes, and various components of the immune system.Acquired immunity comes from vaccines and exposure to diseases. These enable the body to develop antigens that can help it fight the same disease a second time.Passive immunity is protection that comes from another person, for example, when a newborn is temporarily immune to certain diseases because their mother has immunity.Immunity protects the body from bacteria, viruses, and other pathogens that could lead to life threatening diseases.The immune system is a complex system that is vital for survival. When the body faces harmful invaders, such as a virus or a splinter in the finger, it launches an attack to destroy the pathogens. People are born with some types of immunity, but exposure to diseases and vaccinations can also help boost the body’s defenses.Some people have a weakened immune system because of a health issue or medication use. A doctor can advise on how to protect a person’s health when living with a weakened immune system.Ways of boosting immunity include dietary and exercise choices, avoiding alcohol and smoking, and having appropriate vaccinations.Biology / BiochemistryImmune System / Vaccines immune system Translate as you type World-leading quality Drag and drop documents Translate now The human immune system is a very complex system build up of numerous functional parts. To understand how the immune system works it is essential to know the functional parts and their rolle in the system therefore we will list you the functional parts and what rolle they play in the immune system. What triggers them to react and to fulfill their rolle in defending our body from various malicious intruders that can harm us. Antibodies (also referred to as immunoglobulins and gammaglobulins) are are Y-shaped proteins that respond to specific bacteria, viruses or toxins, called antigens. They are produced by white blood cells. Antibodies can bind to toxins, disabling their chemical actions or signal that an invader needs to be removed. These antibodies are divided into five classes. Their names are generally abbreviated. For instance, Immunoglobulin A is abbreviated IgA. Here are all of the abbreviations: IgA, IgD, IgE, IgG, i IgM. Bone marrow produces new red and white blood cells. Red blood cells are fully formed in the marrow and then enter the bloodstream. Most white blood cells mature elsewhere, however, in factories located inside the long bones of our bodies. The marrow produces all blood cells from stem cells. They are called “stem cells” because they are precursors to different cell types. They can branch off and change into specific types of white blood cells, as needed. If germs get through the body’s physical and chemical barriers into the bloodstream, a mixture of liquid proteins called complement is activated and attacks them. The complement system includes a series of proteins. While there are millions of different antibodies in your blood stream, each sensitive to a specific antigen, there are only a handful of proteins in the complement system. They float freely in your blood. Complements are manufactured in the liver. The complement proteins are activated by and work with (complement) the antibodies. They cause lysing (bursting) of cells and signal to phagocytes that a cell needs to be removed. Interferon is another type of protein produced by most cells in the body. The job of interferon is to let cells signal one another. When a cell detects interferon from other cells, it produces proteins that help prevent viral replication in the cell and also stimulates killer cells. There are several hormones generated by the immune system. These hormones are generally known as lymphokines. Some hormones in the body suppress the immune system. These are the steroids and corticosteroids (components of adrenaline). Lymph nodes are basically filters that trap germs and other foreign bodies. The nodes have armies of lymphocytes to deal with the germs. Lymphocytes are a type of white blood cell, which neutralizes or destroys germs. The lymph nodes can become swollen when fighting an infection. Lymphoid organs include the bone marrow and the thymus, as well as lymph nodes, spleen, tonsils and adenoids, the appendix, and clumps of lymphoid tissue in the small intestine known as Peyer’s patches. There are about 2 to 4 pints of lymph fluid in the average body. The spleen filters the blood looking for foreign cells. The spleen is also looking for old red blood cells that need replacement. It is an organ about the size of a fist in the upper left of the abdomen. The spleen contains two main types of tissue: red tissue that disposes of worn-out blood cells, and white tissue that contains lymphoid tissue. Different part of the the spleen specialize in different kinds of immune cells. When microorganisms get carried by the blood into the red tissue, they become trapped by the immune cells known as macrophages. The thymus is located in your chest, between your breast bone and your heart. It is responsible for producing T-cells and is important for T cell maturation. White blood cells are a very important part of your immune system. They are actually a large collection of different cells that work together to destroy bacteria and viruses. Here are the different types, names and classifications of white blood cells working inside your body right now: Leukocytes Lymphocyte Monocytes Granulocytes B-cells Plasma cells T-cells Helper T-cells Killer T-cells Suppressor T-cells Natural killer cells Neutrophils Eosinophils Basophils Phagocytes Macrophages All white blood cells are known as Leukocytes. They act like independent, living single-cell organisms that can move like amoeba and capture things on their own by engulfing them. Most of them are created in the bone marrow and start out as stem cells. There are three types of Leukocytes: And that’s the immune system response in a nutshell. Granulocytes which comprise 50 to 60 percent of all leukocytes. They are further divided into three types of Granulocytes: Neutrophils, Eosinophils and Basophils. Granulocytes get their name because they contain granules. These granules contain different chemicals depending on the type of cell. Monocytes which comprise approximately 7 percent of all leukocytes. Monocytes eventually become macrophages. Lymphocytes which comprise 30 to 40 percent of all leukocytes. Lymphocytes are the white cells that are the key operatives of the immune system. There are two kinds – B lymphocytes (B cells) and T lymphocytes (T cells). Those that mature in bone marrow are called B cells and those that mature in the thymus are called T cells. Most of the organs of the immune system are concerned with the growth, development, and deployment of lymphocytes. These organs are called lymphoid organs. Lymphocytes travel through the blood searching for foreign cells. B cells use antibodies to target bacteria. T cells actually do the fighting. B cells work by using tiny antibodies. There are thousands of different B cells in the blood at any time, each armed with antibodies against a particular germ. But there are only a few of each until there is contact with any particular germ. Then, B cells multiply dramatically very quickly and release large amounts of the right antibodies. The process works like this: when a germ bumps into a B cell, the B cell multiplies, forming versions of itself called “plasma” cells. Plasma cells make antibodies to attack the germ. The antibodies lock on to the target germ to make it easy for phagocytes to eat. Some of the B cells continue multiplying after the germ has been destroyed, so that if the germ returns, there are antibodies ready for it. T cells work a little differently. Because many germs, such as viruses or parasites, hide inside cells, it is the job of the T cells to identify and destroy these cells. There are two kind of T cells: “killer” cells and “helper” cells. Helper cells are the ones that identify the invaded cells and send out the alarm. Killers are the ones that move in and destroy them. This happens because an invaded cell gives itself away with abnormal proteins on its surface. When helper cells encounter abnormal proteins, the send out chemicals called lymphokines that tell killer cells to multiply. The killer cells lock on to the abnormal cell and destroy it. And, like B cells, some killer cells stay around, ready to attack any more abnormal cells they meet. 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