

HEALTH ASSESSMENT REPORT

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BSC Health and care

Introduction to physiology

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Introduction

In this health assessment report I will be explaining what the immune system is. how it works on stress,their immune system and more about How it comprises many I biological systems, ranging from tiny white blood cells to enormous organs, and many complex biological processes. The immune system's role is to protect the host from pathogens like tumour cells and viruses that cause disease.A host's defence mechanism is the immune system. It is made up of several biological components, ranging from single white blood cells to complete organs, as well as numerous intricate biological processes. The immune system's job is to defend the host against

viruses and other disease-causing agents, like tumour cells. The immune system needs to be able to recognise a variety of infections in order to work effectively. Additionally, it must be able to tell healthy host cells from pathogen cells and between malignant or damaged host cells and healthy host cells. The immune system in humans and the majority of other vertebrates is made up of layered defences with higher specificity for different infections or tumour cells. The several layers of the human immune system.

kinds of things are immune systems:

Some varieties of white blood cells are a part of the immune system. Additionally, it comprises blood constituents and proteins like interferon, complement proteins, and antibodies.

Innate immunity examples include the cough reflex.

tears' natural enzymes and skin oils.

Mucus, which collects microorganisms and other tiny objects.

Skin, digestive acid.

Case study

Stress and the immune system

influence the digestive system. Inhibition of digestion occurs during stress. Digestive activity increases after stress. Ulcers may result from this, which could harm the digestive system. Ulcers may also be triggered by the release of adrenaline during a stress response.

Due to increased heart rate and other stress-related factors, the circulatory system is under more strain. By elevating blood pressure, stress can also have an impact on the immune system.

Stressors can alter immunological and inflammatory responses favourably or unfavourably. However, present knowledge of these impacts at the cellular and molecular levels is insufficient to anticipate how a certain stressor would affect a specific immunological or inflammatory function. The development of such an understanding may benefit from three complementary conceptual frameworks that are provided. Additionally, specific instances of how particular stress mediators affect particular immunological or inflammatory end points are discussed, along with an indication of how these observations relate to conceptual frameworks. The prospects for pharmacological intervention to stop the negative effects of stresses on the immune system are examined, and several of the effects discussed are relevant therapeutically. Finally, a few of the elements that are sometimes unexpected.

The immune system is made up of billions of cells that circulate in the blood. Invading and exiting tissues and organs, they protect the body from foreign substances (antigens), including bacteria, viruses, and malignant cells.

White blood cells are the most common forms of immune cells. White blood cells come in two different varieties: lymphocytes and phagocytes.

The immune system's capacity to defend against antigens is diminished when we're under stress. We are therefore more prone to infections.

The immune system's effectiveness can be suppressed by the stress hormone corticosteroids lowers the number of lymphocytes.

Indirect effects of stress, such as those caused by unhealthy behavioural coping mechanisms like drinking and smoking, can also negatively affect the immune system. Headaches, infectious diseases (such the flu), cardiovascular disease, diabetes, asthma, and gastric ulcers are all associated with stress.

Finding of health question and care plan

A healthy immune system keeps infections out of your body and, if they do, destroys them or lessens their damage. Get enough sleep, get active, eat well, maintain a healthy weight, manage your stress, and practise other healthy habits to maintain a strong immune system.

Allergies: The immune system reacts when the body overreacts to a benign substance (such food or pollen). Histamines, which produce allergy symptoms, are

released by your body in response to allergy triggers. A modest allergic reaction (such as sneezing or a stuffy nose) can become severe (breathing problems and even death). Antihistamine drugs aid in symptom relief.

Immune system disorders When the immune system unintentionally targets its own healthy cells, several diseases develop. Examples of widespread autoimmune disorders include lupus, diabetes, Hashimoto's disease, and rheumatoid arthritis.

Primary immunodeficiency disorders: These disorders are inherited (passed along in families). There are more than 100 primary immunodeficiency diseases (PIDD) that prevent the immune system from working as it should.

Infections: HIV and mononucleosis (mono) are well-known infections that weaken the immune system. They lead to serious illness.

Cancer: Certain types of cancer, like leukaemia, lymphoma and myeloma affect the immune system directly. These cancers occur when immune cells grow uncontrollably.

Sepsis: Sepsis is a severe immune system reaction to an infection in your body. This results in extensive inflammation and sets off a chain of unfortunate circumstances that can lead to organ damage, organ failure, and even death.

Drugs: Some drugs, such corticosteroids, can impair the immune system.

Additionally, patients take immunosuppressant drugs after receiving an organ transplant. These drugs lessen the chance of a transplant failure (rejection). These medications do, however, raise your risk of illness and infection.

Normal system

When your immune system is in optimal condition:

Your immune system can distinguish between your own cells and chemicals that are foreign to your body when it is functioning properly. It energises, mobilises, engages in combat with, and eradicates potentially harmful foreign invader microbes. After you've been exposed to pathogens, your immune system picks them up. Your body produces antibodies to defend you against certain particular pathogens. The process

of receiving a vaccine is an illustration of this idea. Your immune system develops antibodies to the foreign cells in the vaccination, which it will swiftly recognise and destroy if you are ever exposed to them again. If you get sick, your doctor may occasionally recommend antibiotics to boost your immune system. But only some germs are killed by drugs. They don't murder.

Three types of immunity exist in humans: innate, adaptive, and passive: All people are born with intrinsic (or natural) immunity, which is a form of all-around defence. As an illustration, the skin serves as a barrier to prevent pathogens from entering the body.

When your immune system is underperforming:

An issue, such as an infection, arises when your immune system is unable to establish a successful defence against an invader. Additionally, occasionally your immune system launches an attack in the absence of an invader or continues to do so even after the invader has been eliminated. These actions cause issues like autoimmune disorders and allergic responses.

Recommendation

How can I maintain a strong immune system?

Your immune system needs nutrition, rest, and a healthy environment to remain robust, just like the rest of your body. Your immune system can be strengthened and

illnesses prevented by making some lifestyle adjustments. In order to maintain a healthy immune system, you should:

Give up smoking.

Maintain a healthy body mass or lose weight.

Consume a balanced diet that is high in fruits and vegetables.

Alcohol should be avoided or used sparingly.

Get adequate rest.

Regular exercise

Regularly wash your hands.

Lessen your stress and concentrate on your overall wellness. Most important is eating healthy foods such as Bananas, chicken, salmon, tuna, green vegetables, and potatoes all contain vitamin B6 (with the skin) Citrus fruits, such as oranges and strawberries, as well as tomatoes, broccoli, and spinach, all contain vitamin C. Almonds, sunflower and safflower oils, sunflower seeds, peanut butter, and spinach all contain vitamin E.

You should consult a doctor if you feel like you're constantly ill or if your symptoms don't seem to go away. Some indications and symptoms could point to an autoimmune condition. These signs consist of:

exhaustion or drowsiness (always feeling tired).

Especially if you also have a fever, sore, achy muscles.

Having trouble focusing or paying attention.

hair falls anywhere on your body that has redness, rashes, or inflammation.

tingling or numb fingers or toes.

Conclusion

Memory cells are two different subtypes of white blood cells (B-lymphocytes and T-lymphocytes) that the immune system uses to keep a log of every pathogen it has

ever eliminated. If the microbe enters the body again, it will be immediately recognised and destroyed before it has a chance to grow and make you sick. Due to the fact that so many distinct viruses or strains of the same virus can cause some infections, such as the flu and the common cold, it is necessary to fight off these illnesses repeatedly. You do not develop immunity to other viruses if you acquire a cold or the flu from one of them.

The immune system responds to foreign pathogens and cancer cells by activating specific and nonspecific immune responses. The goal of immunotherapy is to enhance these responses to control the growth of cancer cells. Knowledge of the influence of stress on immune and cytokine response is evolving.

Your immune system can be harmed or interfered with by several deficits and illnesses. Certain medications make it more difficult for your body to fight infections. Your immune system may assault healthy cells as a result of some medical problems, or it may struggle to defend you against dangerous pathogens.

Reflection

A strong immune system can fight against pathogens or disease-causing microorganisms invading healthy tissue, including bacteria, viruses, parasites, and cancer cells. The fight against the COVID-19 pandemic depends on our ability to comprehend how the immune system functions and how we can better safeguard our bodies.

I Discovered that the body has numerous defences against infections.

The physical barrier of the body, the skin, which guards against diseases and outside invaders, serves as the first line of defence.

White blood cells carry out the majority of the system's essential operations, making the immune system itself a cellular system. I was incredibly curious to learn how white blood cells fight diseases like an army. It was intriguing to read that each type of white blood cell performs a particular duty as a soldier.

In an inflammatory response to germs, neutrophils participate. Histamine and enzymes are released by mast cells during tissue inflammation. When a foreign body is present, dendritic cells signal the body. Histamine is released during inflammation by basophils. Parasites are the focus of eosinophils.

Learning about innate immunity and adaptive immunity was interesting to me.

The body reacts with its inborn, preset immunity" as soon as it recognises a disease, essentially acting as a disinfectant like Lysol by eradicating germs right away. An adaptive immunity is brought on by this. The body produces a lot of white blood cells during adaptive immunity, acting as an army to annihilate whatever antigen it encounters. The fact that adaptive immune responses leave cells behind that "remember" a specific infection and how to kill it was what I found most fascinating to discover. The fact that females had higher immune reactions to invasive infections than males shocked me. This sounds fantastic to me as a woman, yet thereThe fact that females have stronger immune systems than males when it comes to defending against pathogen invasion astonished me. This sounds fantastic to a female, but there is a drawback. Due to this, autoimmune diseases are more likely to affect women. Due to my auto-immune illness, I am immediately impacted by this. After a protracted period of physical and emotional stress in my life, it manifested. I never connected that time period to the emergence of my autoimmune condition. I discovered that persistent stress can actually impair the immune system. This is so that stress-related hormones don't interfere with chemical cues that alert the body to build an immunological response. It is intriguing to study how the body and mind are related.

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