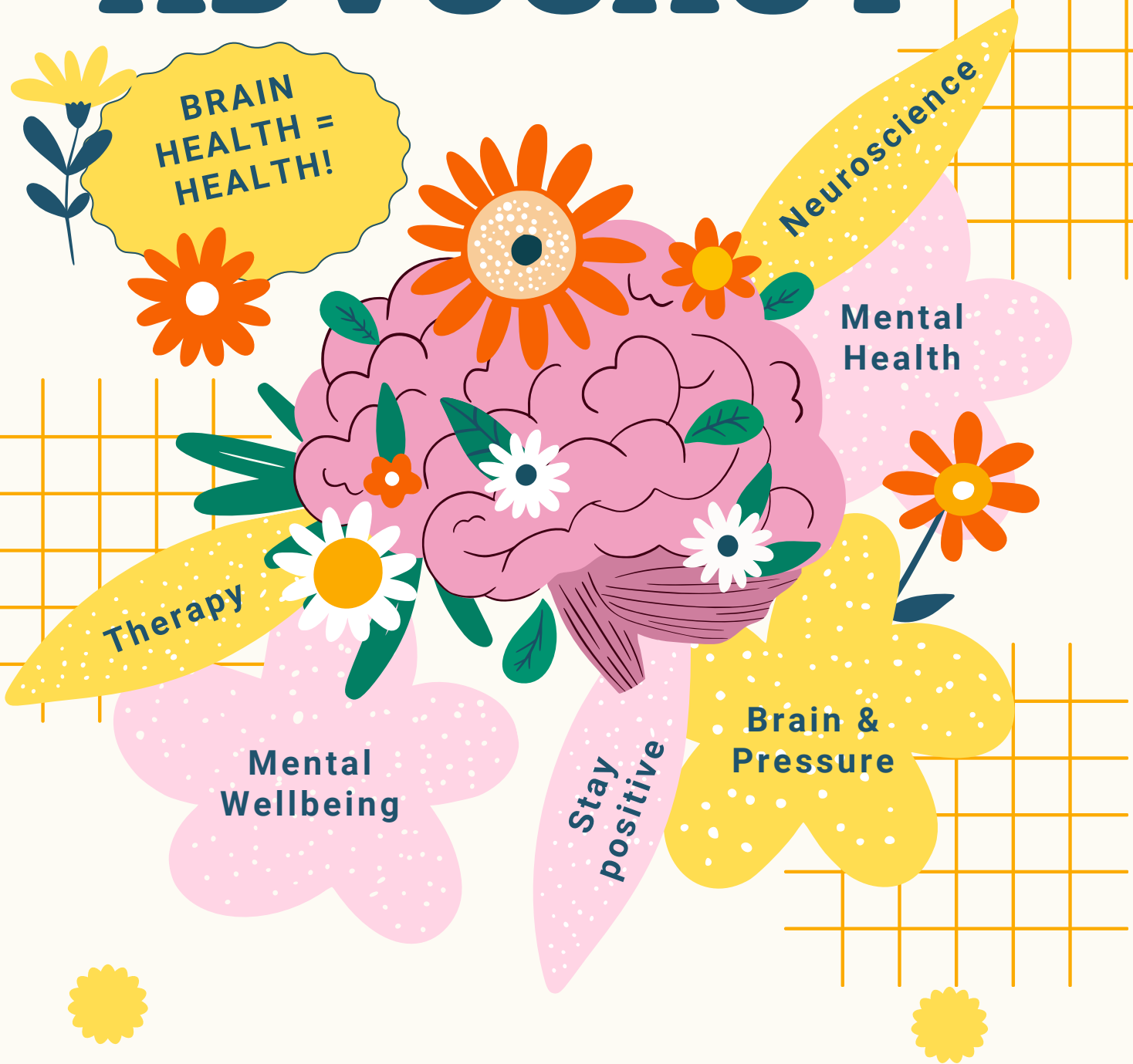
Brain Health ADVOCACY



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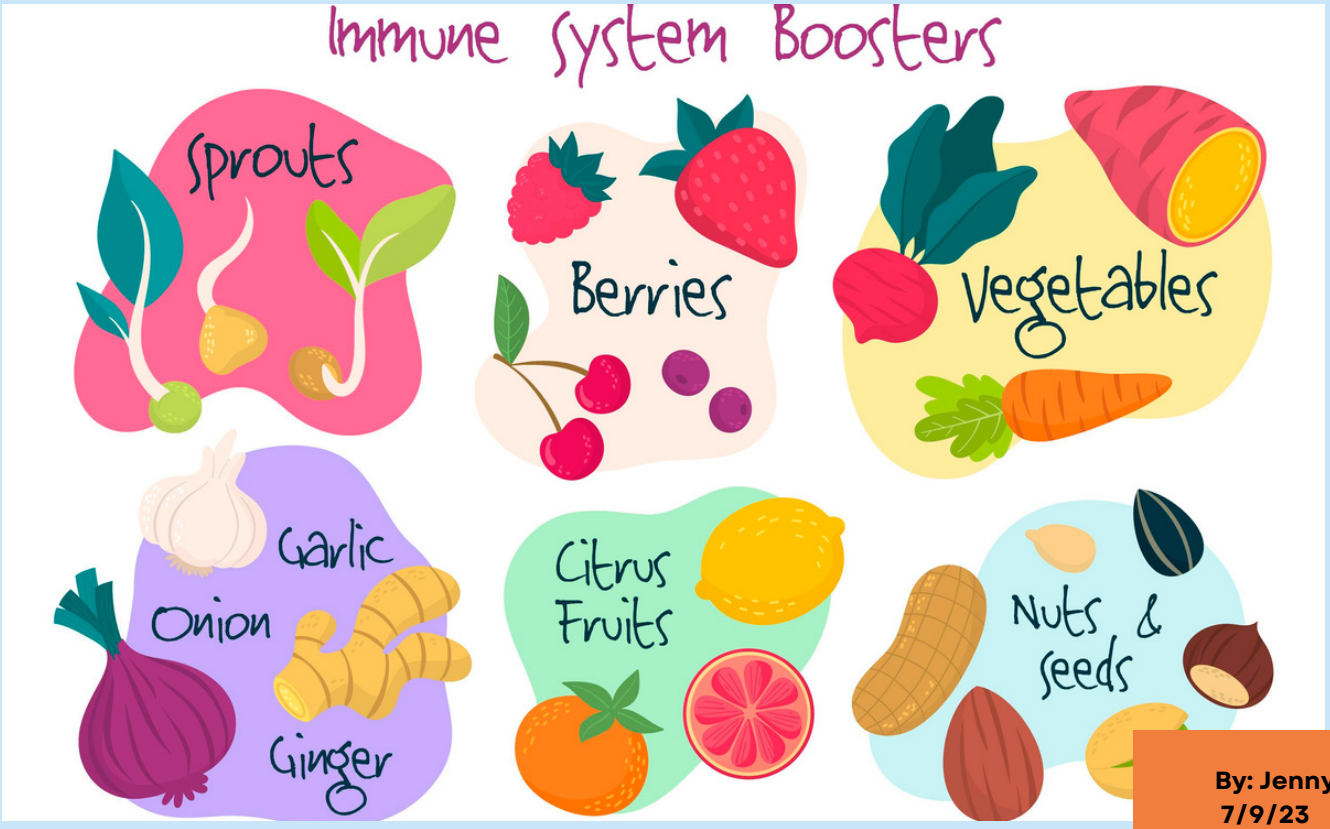


By: Jenny Ma
7/9/23

Fueling Your Brain: The Impact of Nutrients on Brain Health

Introduction

The brain, as the control center of our bodies, requires proper nourishment to function optimally. While maintaining cognitive health doesn't have a magical solution, research indicates that certain nutrients play a crucial role in supporting brain function and overall brain health. In this article, we will explore the key nutrients that benefit the brain and discuss their diverse effects on brain health.

Nutrients for Brain Health

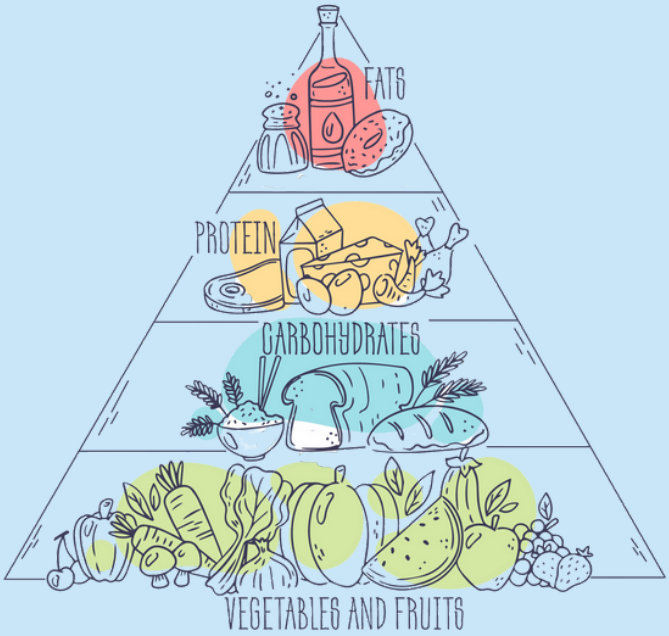
1. Leafy Greens: Vegetables like kale, spinach, collards, and broccoli are packed with brain-boosting nutrients such as vitamin K, lutein, folate, and beta-carotene. These plant-based foods have been associated with slowing cognitive decline and supporting brain health

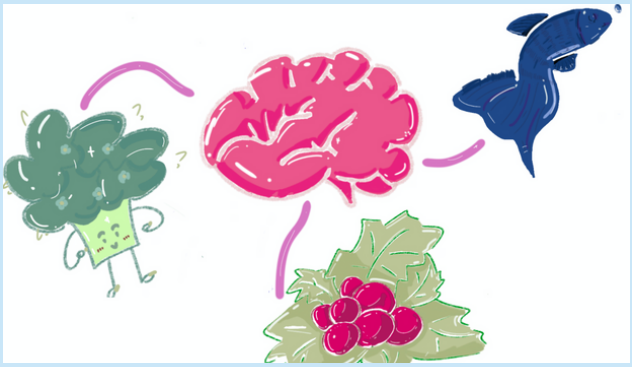
2. Fatty Fish: Fatty fish like salmon, trout, and sardines are rich in omega-3 fatty acids, which are essential for brain health. These healthy fats have been linked to lower levels of beta-amyloid, a protein associated with Alzheimer's disease. Regular consumption of fatty fish or omega-3 supplements can help protect against cognitive decline

3. Berries: Blueberries and other deeply colored berries contain antioxidants called anthocyanins, which reduce brain inflammation and oxidative stress. These effects contribute to improved brain aging and memory. Including berries in your diet can enhance memory and cognitive processes.

4. Coffee and Tea: Caffeine found in coffee and tea can enhance alertness, mood, and concentration. By blocking adenosine, a chemical that induces sleepiness, caffeine promotes increased brain activity. Regular coffee consumption has also been associated with a reduced risk of neurological disorders such as Parkinson's and Alzheimer's. The high antioxidant content in coffee contributes to its beneficial effects .

5. Walnuts: Walnuts are a valuable source of protein, healthy fats, and alpha-linolenic acid (ALA), an omega-3 fatty acid. ALA-rich diets have been linked to improved cognitive function and lower blood pressure. Including walnuts in your diet benefits both heart and brain health .





Artist: Sizheng Li

Effects on Brain Health

Each nutrient affects brain health differently. Leafy greens provide vital vitamins and antioxidants that protect against cognitive decline.
Fatty fish and omega-3 fatty acids support the development and maintenance of brain cells, promoting better memory and cognitive function.
Berries' high antioxidant content combats inflammation and oxidative stress, contributing to improved brain aging and memory.
Coffee and tea, through caffeine and antioxidants, enhance alertness, mood, and concentration while reducing the risk of neurological disorders.
Walnuts, rich in ALA, support cognitive function and contribute to healthier arteries and blood pressure .

Conclusion

Maintaining a healthy brain requires a balanced diet incorporating nutrient-rich foods. Leafy greens, fatty fish, berries, coffee, tea, and walnuts are top choices for brain health. By including these foods in your diet, you can support brain health and potentially reduce the risk of cognitive decline . Remember, your dietary choices play a crucial role in keeping your brain sharp and functioning optimally.

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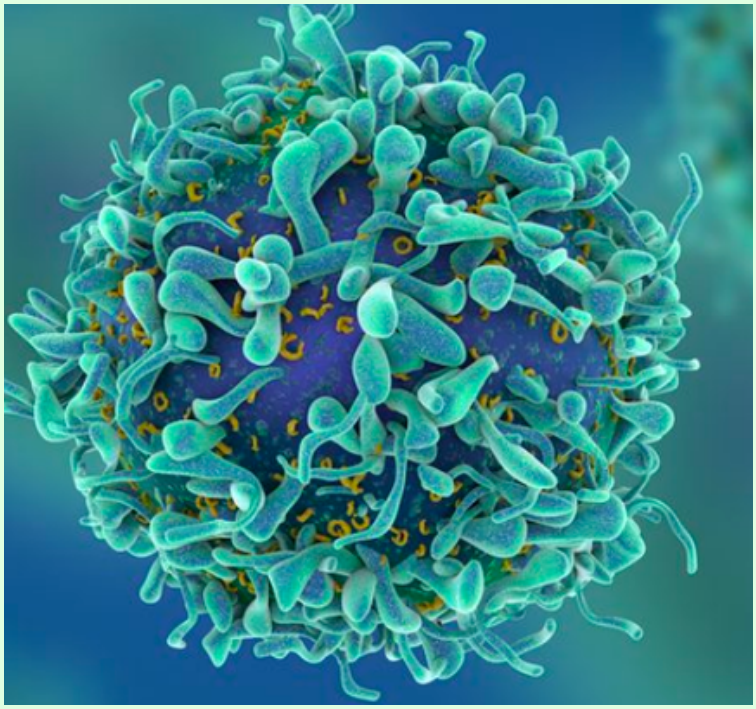
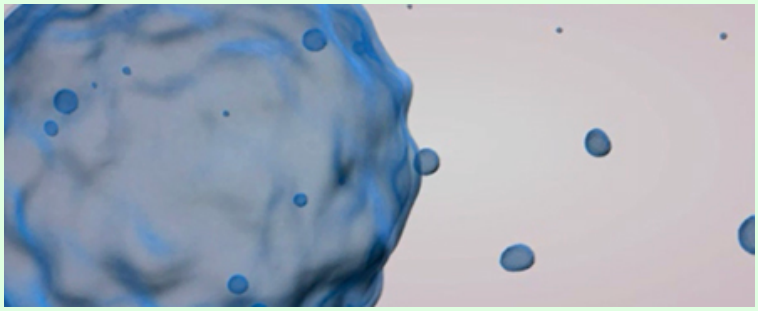
IMMUNOCYTE

By Charlotte
7/10/2023

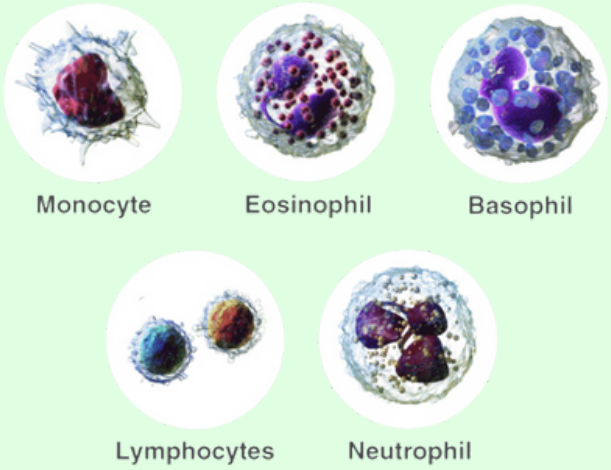


The cell is the basic unit of the life form. And the basic structures of a cell are the nucleus, which contains genetic information, the cytoplasm (cytosol), which contains fluid liquids and chemical reactions would occur in this place and the cell membrane which is selective and made up of mainly lipids and proteins. In addition, as a human, whose body contains trillions of cells. To go in-depth, there are roughly 37 trillion cells in our bodies. Each cell has its structures and functions. What I want to talk about today's topic, is related to immunocytes. Further, we can regard them as guarders as they can against pathogens and so protect our bodies.

When we get a cold, the most probable symptom that can occur is a fever. You may probably not know that a mild fever is good for you because this indicates that your immunocytes are doing their jobs. Therefore, a mild fever is good for you when you have a cold, isn't it?

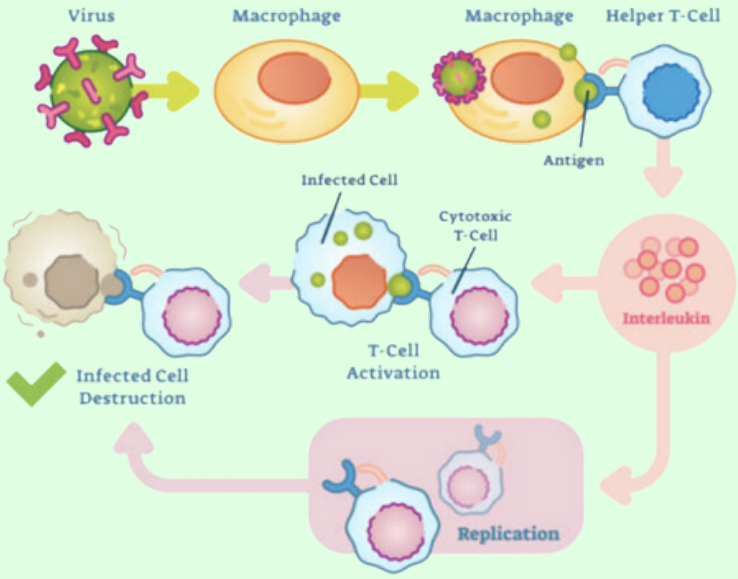


To begin with, what are the immunocytes? Immunocytes are also known as white blood cells. These cells are related to our immune system and they are the main roles in that system, which can help humans against pathogens. In addition, there are five types of white blood cells, for example, monocytes, lymphocytes, neutrophils, basophils, and eosinophils.



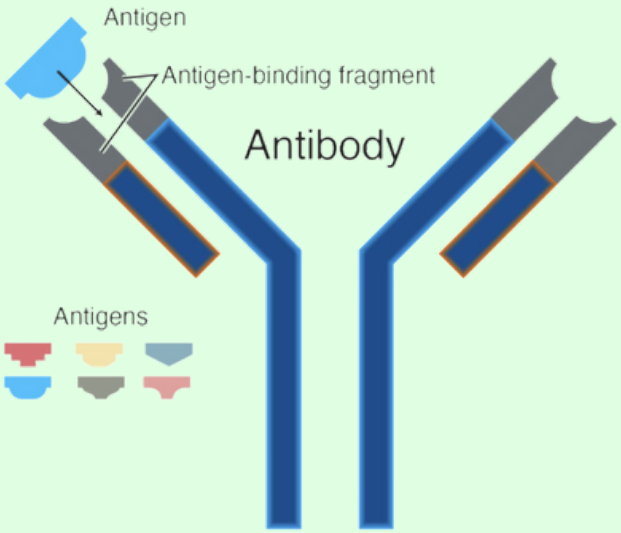
Each of them has its structures and functions. Following this, I would like to talk in more detail about lymphocytes as they play a key role in keeping our health. There are two types of lymphocytes, which is T cell and B cell. T lymphocytes can help people from getting infections whilst B lymphocytes can produce antibodies which are proteins that can protect you when there are unwanted substances such as pathogens entering your body.

As I mentioned above that T cells play a role in the immune system, but where can we find them? The answer is that they can be found mainly in lymphoid organs like tonsils, bone marrow, and spleen. T-cell activation is an important process to know to ensure an effective immune system. T-cell activation is a process that recognizes and later kills foreign pathogens. To begin the T cell activation, there are 2 signals that we need to know. First, the APC needs to engulf and digest the pathogen and its specific antigens, capturing its information. Then, it will attach the major histocompatibility complex, or MHC for short. There is a point that you need to notice that the CTL would bind to MHC I whilst the Th would bind with MHC II.



However, the activation could not be activated as this is only the first step of the activation. Then, there is a second signal so-called co-stimulation. In this case, the signal is provided by a receptor expressed on the T cell called cd28. Then, cd28 would bind with a protein which is the b7. Therefore, the activation would occur and a lack of binding would lead to the death of cells.

For B cells, which function is to produce antibodies. when foreign substances are entering our body, because of their specific antigens, B cells could recognize and encounter them. And it is activated when the CD40L on the surface of the Th binds with the CD40 protein on the surface of the B cell and BCRs have been cross-linked.



On the other hand, if the T cell and B cell are attacked, which would cause a significant consequence. One of the problems is leading to an autoimmune disorder. That means our immunocytes would attack our cells or tissues. And if you get this kind of disease, you may feel tired (fatigued), have headaches, and more. Once you get this disease, your immune system could not be recovered. Fortunately, some ways enable your immune system to be controlled. For example, you can eat anti-inflammatory drugs which can reduce inflammation and pain. Also, you can apply physical therapy like doing more exercises.

In conclusion, immunocytes play a key role in maintaining our body's health. Just like soldiers in our bodies to help their owner. Of course, if you get autoimmune diseases caused by T cells and B cells being attacked, even though the system can not be recovered. However, you can control it in different ways. Therefore, keep an optimistic attitude, one thing you need to remember is that methods are always more than trouble.

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Learning

BRAIN HEALTH-- STROKE

Jancy Zhang
07/21/2023

Introduction to stroke

A stroke, also called a brain attack, occurs when the blood supply to part of the brain is blocked or when there is a bursting occurring in the brain's blood vessels. In these ways, the brain could be partially damaged or die, causing lasting brain damage and long-term disability. In severe cases, death may occur.

The brain is the organ that manages our daily activities, preserves our memories, and develops thoughts, feelings, and verbal expression. The brain also regulates a variety of functions such as breathing, digestion, etc. To function properly, your brain requires oxygen. Brain cells will start to die within a few minutes of a blockage in blood flow, as the brain cells are unable to receive oxygen. This results in a stroke.

Learning more about stroke is important as the sooner treatment is given, the more likely the damage could be minimized. It is important to remember the signs of stroke so that we could seek emergency help as soon as possible.

Types of stroke

Ischemic stroke and hemorrhagic stroke are the two forms of stroke. An ischemic stroke happens when the blood vessels to the brain are blocked by blood clots or other substances. Whereas a hemorrhagic stroke occurs when an artery in the brain leaks blood or ruptures.

Signs of Stroke

F.A.S.T. is an easy method for identifying stroke.

Face: Are there any signs of face drooping on one side when the person smiles?

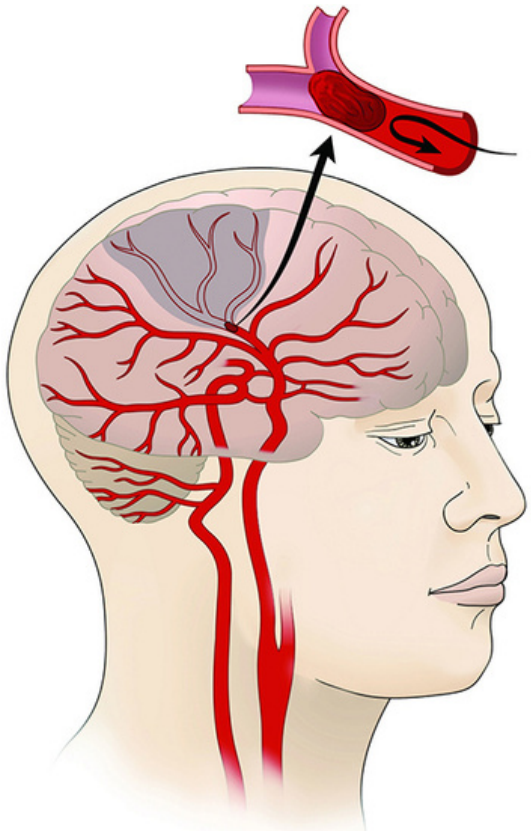
Arm: Are there any signs of one arm lower when the person raises both arms?

Speech: Are there any signs of unclear speech from the person when he/she repeats what you say?

Time: Act fast and call 999 and seek emergency help if you identify any of the signs.

How to prevent stroke?

1. Control your medical conditions such as controlling high blood pressure, and controlling diabetes. Moreover, if you have any of these conditions, seek treatment to help reduce your risk of stroke: high cholesterol, carotid artery disease, peripheral artery disease, atrial fibrillation (AFib), heart disease, sickle cell disease or obstructive sleep apnea,
2. Don't smoke or quit smoking as cigarettes increase the risk of having a stroke.
3. Manage a healthy weight. Other stroke risk factors including high blood pressure, cardiovascular disease, and diabetes are all influenced by obesity. You can always calculate your body mass index (BMI) to know if you are within the healthy range of weight.
4. Eat a diet rich in fruits and vegetables. A diet containing five or more daily servings of fruits or vegetables may reduce your risk of stroke.
5. Exercise. Exercise can enhance the general health of your blood vessels and heart as well as reduce your blood pressure and raise your level of HDL cholesterol. Additionally, it aids in stress reduction, diabetic management, and weight loss.
6. Drink alcohol in moderation, if at all. Drinking excessive amounts of alcohol raises your chances of high blood pressure, ischemic strokes, and hemorrhagic strokes.
7. Beware of illicit drugs. A transient ischemic attack (TIA) or a stroke has been linked to several street drugs, including cocaine and methamphetamine.



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WHAT NEGATIVE IMPACTS DOES CHRONIC STRESS BRING TO YOUR BRAIN?

PRESSURE &BRAIN

By: Jancy Zhang

What negative impacts does chronic stress bring to your brain?

There are lots of negative effects that chronic stress can bring to our brains. Memory loss is one of the effects of prolonged stress that researchers have seen. People who are under stress frequently forget things. According to research, even a little stress, like being late for work, may make you forget basic things like where your keys are. High cortisol levels have even been linked to deficits in short-term memory in research on aged rats. The core theory is that the brain is diverting its resources because it is in survival mode, not memory mode, according to Dr. Kerry Ressler, chief scientific officer at McLean Hospital and professor of psychiatry at Harvard Medical School.

Both gray matter and white matter make up your brain. White matter connects brain regions and conveys information, while gray matter is used for decision-making and problem-solving. Chronic stress has been shown to lead to an overproduction of the myelin sheaths that make up white matter and a decrease in the production of gray matter. A gray matter and white matter imbalance could result in permanent changes to the brain's structure. The emergence of mental illness may also be influenced by an imbalance between white and gray matter in the brain. According to the notion, the timing and balance of communication are hampered when some brain regions have an abundance of myelin. Additionally, it was discovered that persistent stress can harm hippocampus function. Memory, notably spatial memory, memory consolidation, and memory transmission, are all regulated by the hippocampus.

Researchers have proposed that long-term stress can even damage developing neurons in the hippocampus of the brain. One of only two places where neurons are made is the hippocampus.Even though it does not appear to have an impact, new neurons created during stressful times have a higher chance of dying within a week, according to studies.

While the size of the brain as a whole tends to stay roughly the same, it has been discovered that persistent stress in otherwise healthy people can lead to shrinkage of the brain's regions responsible for emotions, metabolism, and memory. When exposed to severe stressors, those with chronic stress were also more likely to undergo brain shrinkage. This implies that those who are constantly stressed out may find it more difficult to handle additional stress.

So what could we do if we want to relieve our stress? Here are some tips:

1. Exercise
2. Eat a health diet
3. Meditate
4. Play some relaxing music
5. Reach for help

THE Key to Brain Health:

MAINTAINING MENTAL WELLNESS

by: Yolanda
07.31.2023

When we discuss health issues, physical health is undoubtedly of paramount importance. However, we often overlook another crucial area - mental health. The health of our brain plays a significant role in overall mental health. So, how should we maintain mental health to enhance brain health?

Firstly, we must clarify: brain health is the cornerstone of mental health. It is responsible for our various functions like thinking, memory, emotions, attention, and self-awareness. If there is a disorder in brain function, it could lead to various mental health problems, including depression, anxiety, and schizophrenia, among others. Therefore, maintaining brain health is an effective means of preventing these diseases.

So, how do we maintain brain health? On the one hand, we need healthy living habits. This includes a balanced diet, moderate exercise, sufficient sleep, and avoiding smoking and excessive drinking. These habits can help maintain the physical health of the brain and improve the brain's blood supply, thereby enhancing brain function. On the other hand, we need healthy psychological habits. These include a positive attitude, good emotional management, effective stress coping, and rich social activities. These habits can help maintain the psychological health of the brain, and improve the brain's emotional regulation and self-control, thereby enhancing the brain's psychological function.

In addition, the health of the brain is also related to our age, gender, genes, and environment. For example, with the increase of age, the function of the brain may gradually decline. Some people's genes may make them more prone to mental illnesses. Environmental stress and stimuli may also affect brain health.

Overall, maintaining brain health is a complex process that requires our continuous effort. However, as long as we have the correct knowledge and strategies, we can certainly achieve this goal. After all, the health of our brain not only relates to mental health but also to our overall health and quality of life.