

Impact of nutrition on the brain



The brain is an organ that serves as the center of the nervous system in all animals. The brain is in the head closest to the sensory organs such as vision and smell. It is responsible of controlling the nervous system which work in conjunction to guide our interactions with world around us. The function of the brain is to acquire information from the surrounding world and process it in a variety of ways and not only processing that information but also storing it. It is exclusively responsible for generating patterns of muscle activity and lashing out the emission of chemicals most widely known as hormones. Thus, making brain and the nervous system most complex organ in our body. Since they play such a vital role, maintaining a healthy diet directly correlates to the health of the brain.

It is believed that human evolved from primates and as they are the closest beings to our body's infrastructure, doctors use them to conduct studies to identify why have the size of our brain increased over the years. Melissa Hogenboom from BBC explains in her article how James Higham, a professor in New York universities primatology department, tackled the question of “ why we have such big, heavy brains?” According to Higham and his colleagues, the reason behind the growth of the brain is because of our social behavior, which is the reason why some primates have a bigger brain than the others. However, in the same article she further explains how a recent study published in the journal “ Nature Ecology and Evolution” talks about brain size being more accurately predicted by not the primate's social behavior but by their diet. “ It has long been known that fruit eating primates tend to have bigger brains than leaf eating primates” says Hingham (Hogenboom, “ A change in diet may have helped our brains get so big”,

2017). Hogenboom then goes on to talk about a study led by DeCasien that included the dataset of 140 primate species and concluded by stating “ The new analysis found that diet – not social group size – was the key factor linked to brain size.” (Hogenboom, “ A change in diet may have helped our brains get so big”, 2017)

Our brain is always on and processing information day and night. It controls our thoughts, movements, heartbeat and even our senses even while we are asleep. This means that our brain needs a constant supply of nutrition which comes from consuming premium food. “ Like an expensive car, your brain functions best when it gets only premium. Eating high quality foods that contains lots of vitamins, minerals, and antioxidants nourishes the brain and protects it from oxidative stress.” (MD, “ Nutritional psychiatry: Your brain on food”, 2015) For many years the medical field did not acknowledge the connection between mood and food however, the field of nutritional psychiatry is constantly finding a direct correlation between not only what we eat and how that affects our mood but also the kinds of bacteria that lives in our gut. Doctor Eva Selhub, a contributing editor and a board member of Harvard Medical School explains in her article about serotonin, a neurotransmitter that helps regulate sleep, mediate moods and inhibit pain. She further explains that about 95 percent of serotonin is produced in our digestive system which is lined with millions of neurons which oversee our emotions. Having a higher number of good bacteria means that the body as whole is going to be healthier and fitter as doctor Eva states, “ they improve how well you absorb nutrients from your food; and they activate neural

pathways that travel directly between the gut and the brain.” (MD, “ Nutritional psychiatry: Your brain on food”, 2015)

Medical and nutrition writer Jan Sheehan enlightens the reader’s knowledge in her article “ How does nutrition affect the brain?” by quoting a registered dietitian Joy Bauer “ the more produce you eat, the better off your memory will be. Folic acid, a B vitamin found in peas, broccoli, spinach, artichokes, beets and oranges, appears to be particularly helpful.” (Sheehan, “ How Does Nutrition Affect the Brain?”, 2013) in the same article Sheehan further explains how the intake of omega 3 fatty acid, found in salmon may protect us from memory loss symptoms in our old age. Fernando Gomez goes into further detail into omega 3 fatty acids in his journal “ Brain Foods: The effects of nutrients on brain function.” In his journal Fernando talks about how essential the fatty acid is for normal brain function and further quotes, “ Dietary deficiency of omega-3 fatty acids in humans has been associated with increased risk of several mental disorders, including attention-deficit disorder, dyslexia, dementia, depression, bipolar disorder and schizophrenia.” (Gómez-Pinilla, “ Brain foods: the effects of nutrients on brain function”, 2008) As the human body is inefficient in synthesizing omega 3 acid, we are reliant on the consumption of it by having an intake on rich food that contains omega 3 fatty acid. Just as having a healthy diet has a direct correlation with the health of the brain, it is safe to assume that consuming junk food or food that is high on trans and saturated fat has a diverse effect on our brain. Fernando in the same article states, “ Rodent studies that evaluated the effects of “ junk food”, characterized by high contents of saturated fat and sucrose, have shown a decline in cognitive

performance and reduced hippocampal levels of BDNF-related synaptic plasticity after only 3 weeks of dietary treatment.” (Gómez-Pinilla, “ Brain foods: the effects of nutrients on brain function”, 2008) These results suggest that the diet had a direct effect on the neurons as it elevated the neurological burden which increased the risk of brain injury. Vitamins play another major role. Having a low vitamin consumption can lead to neurological disorders, such as depression and memory loss over time.

Diet, exercise and other aspects of our daily interactions with the environment have the potential to alter our brain health. Looking at all the articles and journals written by nutritionists and doctors it is understandable how particular nutrients influence our brain growth and how maintaining of such nutrients play a vital role in maintaining cognitive function. Looking at the articles, one comes to a conclusion that effects of diet on the brain are integrated with other lifestyle activities such as sleep and exercise. This is the reason why drugs like cocaine have an impact on our behavior. “ Stimulant drugs such as cocaine and amphetamines produce excitement, alertness, elevated mood, decreased fatigue, and sometimes increased motor activity mainly by activating dopamine receptors.” (King, The science of psychology: an appreciative view, 2017, p. 73) A lot of research has been put into as to why having a healthy breakfast is of a great importance to have a healthy living life and reading the journals it seems as if nutrition plays one of the most important part in how our brain performs in day to day task. Since our body and mind are so deeply connected it is essential for us to consume food. If such was not the case then we would not have headaches or feel weak when we get hungry. However, this does not mean

that one should consume all types of food. Looking at the western countries, obesity is a major problem because of which a higher risk of strokes endangers our life. Just like having too much is harmful, consuming too little is also destructive for our body, as is seen in third world countries with shortage of food supply. Therefore, having a controlled diet means having a healthy brain which in turn means having a vigorous body. If the brain controls all the aspect of our body including all our six senses, motions and emotions, it makes complete sense to have a nutritious diet in order to attain better cognitive abilities. However, with all these studies and research there are human errors and there are many practical questions left to be answered, like the design of diet to specifically improve brain function, the amount and type of nutrients that constitutes to healthy brain food and the frequency of time in which to consume such food to maximize the benefits are still a mystery, but doctors all around the world are beginning to uncover the basic principles of the action that food has on the brain and incorporating this knowledge into treatments could prove to be vital in combining mental disease and neurological weakness.

Citations

Gómez-Pinilla, F. (2008, July). Brain foods: the effects of nutrients on brain function. Retrieved March 29, 2017, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2805706/>

Hogenboom, M. (2017, March 27). BBC – Earth – A change in diet may have helped our brains get so big. Retrieved March 29, 2017, from <http://www.bbc.com/earth/story/20170327-why-our-brains-grew-so-big>

<https://assignbuster.com/impact-of-nutrition-on-the-brain/>

King, L. A. (2017). The science of psychology: an appreciative view.

MD, E. S. (2015, November 17). Nutritional psychiatry: Your brain on food.

Retrieved March 29, 2017, from [http://www. health. harvard.](http://www.health.harvard.edu/blog/nutritional-psychiatry-your-brain-on-food-201511168626)

[edu/blog/nutritional-psychiatry-your-brain-on-food-201511168626](http://www.health.harvard.edu/blog/nutritional-psychiatry-your-brain-on-food-201511168626)

Sheehan, J. (2013, February 18). How Does Nutrition Affect the Brain?

Retrieved March 29, 2017, from [http://healthyeating. sfgate. com/nutrition-affect-brain-8283. html](http://healthyeating.sfgate.com/nutrition-affect-brain-8283.html)