



## Healthy Neurodevelopment with Nutritional Therapy

Hajera Fatima Ali\*

Osmania University, India

\*Corresponding Author: Hajera Fatima Ali, Osmania University, India.

Received: April 07, 2018; Published: June 22, 2018

### Abstract

**Introduction:** To understand abysmally and prove the “You are what you eat” concept, have provided my patients with Diet charts including foods good for mental health to study how regular consumption of these particular foods improved their mental health status. I am the only author of this review article.

**Methods:** Interview administered questionnaire to understand exact dietary habits and current mental health mostly with quantitative answers and sometimes patients were provided to choose from multiple options.

**Results:** With these dietary patterns many of the patients developed in various ways, from improving decision making, they developed a better memory and advanced problem-solving skills.

**Conclusions:** Hence this wider already known fact “You are what you eat” has been proven true with my Research when my patients felt more-happy and were more productive by following healthy diets (particularly known for enhancing brain activity).

**Keywords:** Antioxidants; Toxins/Lead; Neuroinflammation; Serotonin; Nutrition; Amygdala; Nutrition; Vitamin E; Neurotransmitter; Tryptophan

### Introduction

**Antioxidants:** Free radicals are produced in the body as byproducts of normal metabolism and as a result of exposure to radiation and some environmental pollutants. Free radicals are normally neutralized by efficient systems in the body that include the antioxidant enzymes. There is certainly a dietary need for antioxidants to neutralize them. Flavonoids have been reported to prevent or delay memory loss, stroke. Omega-3s reduce inflammation and prevent memory loss, depression, cancer and improve diabetic neuropathy. A healthy diet should consist of about 2 - 4 times more omega-6s than omega-3s. Vitamin C is the most abundant water-soluble antioxidant in the body. There was improvement in the memory of various patients with antioxidant rich diet.

**Toxins/Lead:** According to a report by Health and environment alliance India spends a \$16.9 billion to subsidise fossil fuels. Studies have shown that mothers who are exposed to polluted environments will pass on the effect to their unborn children. According to UNICEF, over 5 lakh children were falling prey to pollution, which was higher than the deaths caused by malaria and HIV combined. With pollution a woman runs a higher risk of preterm delivery. There is evidence to suggest that breast fed babies have better cog-

nitition and IQ scores later in life. Vitamin C rich diet for mother which ensured the minimum effect of pollutants on the baby.

**Neuroinflammation:** Inflammation of the nervous tissue. Carotenes are a set of several hundred fat-soluble pigments, in addition to being precursors of vitamin A, these pigments are also excellent antioxidants and radical-trapping agents, especially for peroxy and hydroxyl radicals.

**Serotonin:** Serotonin is a monoamine neurotransmitter, found in the gastrointestinal tract blood platelets, and the central nervous system. It is popularly thought to be a contributor to feelings of well-being and happiness. A deficit of serotonin leads to depression. Foods that enhance the functioning of Serotonin have proven to contribute to the happiness of pregnant women.

**Amygdala:** The amygdala is one of two almond-shaped groups of nuclei located within the temporal lobes of the brain. It performs a primary role in the processing of memory, decision-making, and emotional reactions. The increase in number of brain cells is most rapid during foetal life and in the first 5 - 6 months after birth. Individuals with larger amygdalae had larger and more complex social networks. Amygdala volume correlates positively with both

the size (the number of contacts a person has) and the complexity (the number of different groups to which a person belongs) of social networks.

**Nutrition:** Zinc is necessary for normal brain development. Goitre (caused by deficiency of Iodine mostly) in mothers during pregnancy leads to children born as cretins and are mentally retarded. The deficiency of Vitamin-K may lead to intracranial hemorrhage in infants. People who are highly nervous and emotional and who worry are particularly susceptible of developing an ulcer. Any form of stress can lead to ketoacidosis. In terms of circulating vitamin status, analysis of the data from 10 cross-sectional studies and one prospective study demonstrated a relationship between low folate and vitamin B<sub>12</sub> and depression.

**Vitamin-E:** Vitamin E is a fat-soluble vitamin found in many foods. It works as an antioxidant, regulates nervous system and also aids in muscle growth. Some of its deficiency conditions include spinocerebellar ataxia peripheral neuropathy and impairment of immune response Alzheimer's disease (AD) occurs as a result of protein oxidation and lipid peroxidation, where the beta amyloid protein induces cytotoxicity oxidative stress and hydrogen peroxide. Vitamin E can block the production of hydrogen peroxide and the resulting cytotoxicity. It reduces beta amyloid-induced cell death and attenuates the excitatory amino acid-induced toxicity in neuroblastoma cells. Vitamin C works synergistically with vitamin E to quench free radicals then regenerates the reduced form of vitamin E. It prevents the development of neurological complications, and in patients with established lesions treatment can arrest or reverse the neuropathy.

**Neurotransmitter:** Thiamine plays a neuro-modulatory role in the acetylcholine neurotransmitter system, distinct from its actions as a cofactor during metabolic processes and contributes to the structure and function of cellular membranes, including neurons and neuroglia. The flavoproteins are also co-factors in the metabolism of essential fatty acids in brain lipids, the absorption and utilisation of iron and the regulation of thyroid hormones. A vast array of processes and enzymes involved in every aspect of peripheral and brain cell function are dependent on niacin derived nucleotides such as (NAD) and (NADP).

**Tryptophan:** Consuming purified tryptophan increases brain serotonin whereas eating foods containing tryptophan does not (or in little amounts). This is because the transport system which brings tryptophan across the blood-brain barrier is also selective for the other amino acids contained in protein sources. High plasma levels of other large neutral amino acids compete for transport and prevent the elevated plasma tryptophan from increasing serotonin synthesis [1-5].

### Bibliography

1. DPR Muller, et al. "Vitamin E and Neurological Function". *The Lancet* 321.8318 (1983): 225-228.
2. Kennedy DO. "Plants and the Human Brain". Oxford University Press; New York, NY, USA (2014).
3. Strain J., et al. "Riboflavin lowers blood pressure: A review of a novel gene-nutrient Interaction". *Nutrition and Food Sciences Research* 2.2 (2015): 3-6.
4. <https://www.ncbi.nlm.nih.gov>
5. Food Science, B. Srilaxmi

### Volume 2 Issue 7 July 2018

© All rights are reserved by Hajera Fatima Ali.