

## Disorders of the Nervous System

Our whole lives are dictated by the way we feel. Our persona, the way we carry ourselves, our interactions with other people, our moods, cravings, patience, tolerance level, and more are strongly affected by the state of health of our nervous system. In today's fast paced world we are exposed to a variety of conditions that wreak havoc on our bodies. The brain is the control center of the entire body and unless it receives proper nourishment, your life can be a physical and emotional mess.

Brain cells are very capable of manufacturing the quantity of chemicals they need if they are supplied with the nutrients needed to produce those chemicals. Although modern intensive agriculture has depleted most of the soil of nutrients (see *Take Ionic Minerals*, Chapter 5 in *The Amazing Liver and Gallbladder Flush*), most nutrient deficiencies occur due to poor performance of the digestive system and, particularly, the liver. Lack of such nutrients can hinder the ability of our brain to manufacture the chemicals it needs to function optimally.

The brain can function for quite some time with substandard amounts of nutrients, but the price paid includes poor health, fatigue, lack of energy, mood swings, sickness, aches and pains, and general discomfort. Some deficiencies manifest in mental disease.

The nervous system, which includes the brain, spinal cord, pairs of spinal and cranial nerves and autonomic functions, is largely dependent on the quality of the blood. Blood is composed of plasma, a straw-colored transparent fluid, and cells. The constituents of plasma are water, plasma proteins, mineral salts, hormones, vitamins, nutrient materials, organic waste products, antibodies and gases. There are three varieties of blood cells: white cells (*leukocytes*), red cells (*erythrocytes*) and platelets (*thrombocytes*). Any abnormal changes in the blood affect the nervous system.

All three blood cell types are formed in the red bone marrow, which is nourished and maintained by the nutrients supplied through the digestive system. Gallstones in the liver interfere with digestion and assimilation of food, which fills the plasma with excessive waste material and cuts down nutrient supplies to the red bone marrow. This, in turn, upsets the balance of blood cell constituents, disrupts hormonal pathways and causes abnormal responses in the nervous system. Most diseases afflicting the nervous system are rooted in improperly formed blood, brought about by a dysfunctional liver.

Each of the numerous functions of the liver has a direct influence on the nervous system, and particularly the brain. The liver cells convert glycogen (complex sugar) into glucose which, besides oxygen and water, is the major nutrient for the nervous system. Glucose provides most of its energy requirements. The brain, although it constitutes only 1/50 of the body weight, contains about 1/5 of the total blood volume in the body. It uses up vast amounts of glucose. Gallstones in the liver drastically cut down glucose supply to the brain and the rest of the nervous system, which can affect the performance of the organs, senses and mind. At the early stages of imbalance, a person may develop food cravings, particularly for sweet or starchy foods, and experience frequent mood swings or emotional stress.

The liver also forms the plasma proteins and most of the blood clotting factors from the available amino acids. This function becomes increasingly subdued by the presence of gallstones. If the production of clotting factors drops, platelet count will fall and there may be spontaneous capillary bleeding or *hemorrhagic disease*. If a hemorrhage occurs in the brain, it may cause destruction of brain tissue, paralysis or death. The severity of the bleeding may be determined by such triggers as hypertension and alcohol abuse. Platelet counts also drop when production of new cells does not keep pace with destruction of damaged or worn-out cells, which happens in the liver when gallstones cut off blood supply to liver cells.

Vitamin K is also essential for synthesis of major clotting factors. It is a fat-soluble vitamin stored in the liver, and bile salts are required in the colon for absorption. Vitamin K becomes deficient when gallstones in the liver and gallbladder obstruct bile flow, which leads to inadequate fat absorption.

As discussed earlier, gallstones in the liver can lead to disorders of the vascular system. When the blood changes and becomes thick, blood vessels begin to harden and become damaged. If a blood clot forms in an injured artery, a piece of blood clot (embolus) may lodge in a small artery distant to the injury and obstruct the blood flow, causing *ischaemia* and *infarction*. If the infarction occurs in a brain artery, it is called a *stroke*.

All circulatory disturbances affect the brain and the rest of the nervous system. The disruption of liver functions particularly affects *astrocytes* -- cells that form the main supporting tissue of the central nervous system. This condition is characterized by apathy, disorientation, delirium, muscular rigidity and coma. Nitrogenous bacterial waste absorbed from the colon, normally detoxified by the liver, reaches the brain cells via the blood. Other metabolic waste products, such as ammonia, may reach toxic concentrations and change the permeability of the blood vessels in the brain and reduce the effectiveness of the blood-brain barrier. This may permit different noxious substances to enter the brain as well, causing further damage.

If the neurons of the brain no longer receive enough nourishment, there is atrophy of neural tissue, which leads to *dementia* or *Alzheimer's* disease. In case the neurons, which are responsible for producing the brain hormone and neurotransmitter *dopamine*, suffer malnutrition, *Parkinson's disease* results. *Multiple Sclerosis (MS)* occurs when the cells that produce *myelin*, a sheath of fatty material that surrounds most axons of nerve cells, suffer malnutrition. The myelin sheath diminishes and axons become injured.

The liver controls the digestion, absorption and metabolism of fatty substances throughout the body. Gallstones interfere with fat metabolism and affect cholesterol levels in the blood. Cholesterol is an essential building block of all our body cells and is needed for every metabolic process. Our brain consists of more than 10% pure cholesterol (all water removed). Cholesterol is important for brain development and brain function. It protects the nerves against damage or injury. An imbalance of blood fats can profoundly affect the nervous system and, thereby, cause almost any type of illness in the body. Removing gallstones from the liver and gallbladder increases nutrient supplies to all the cells, thereby rejuvenating the nervous system and improving all functions in the body.