

# Diets in neurology

Neurological and psychiatric diseases are examples of diseases for which '*specific diets have lost their relevance*. At the same time, however, maintaining a good nutritional status has become important for improving the prognosis of patients.

Today, neurologists and psychiatrists must fully deal with, for example, enteral and parenteral nutrition and the diagnosis of disorders of nutrition. However, at the same time, the relationship between the brain and metabolic diseases has become significant. Some of the metabolic disorders are caused by psychotropic drugs, which can cause dyslipidemia and metabolic syndrome.

Historically, the most significant were *nutritional measures for epileptics*, who were advised to avoid chocolate, cocoa, and irritants. Today, this is considered obsolete. In epilepsy, only alcohol avoidance remains to be significant.

## Multiple sclerosis

There are centers around the world dealing with dietary measures **in multiple sclerosis**. In particular, omega-3 and omega-6 polyunsaturated fatty acids and vitamin D are given. From a scientific point of view, this is questionable. Epidemiologically, the disease is less common around the equator; its occurrence is higher where there is a higher consumption of saturated fat and a lower intake of long-chain polyunsaturated fatty acids. In these countries, fish consumption is lower and there is also lower exposure to sunlight and reduced vitamin D<sub>3</sub> content.

The dietary measures were combined into the so-called *ARMS diet* (Action for research for multiple sclerosis). Patients had a reduced dose of saturated fat and increased doses of polyunsaturated fatty acids, trace elements and vitamins. Some studies with this diet have shown some clinical effect. Some patients also use the so-called Roger Mc Dogall and Rita Greer Diet, which is more or less a gluten-free diet. However, no clinical effect was demonstrated.

*Rational measures in multiple sclerosis* today represent:

- prevention of obesity, which limits motor activities;
- prevention of malnutrition, which is often also a manifestation of depression from a serious illness;
- help in solving constipation by increased intake of fruits, vegetables and fiber. Constipation accompanies a typical change in intestinal elasticity and reduced physical activity in this disease;
- sufficient fluid intake.

Among the '*scientifically questionable measures*, which, however, cannot harm the patient, are the following:

- reduction of saturated fat intake – limiting fatty dairy products, fatty meat, pastries prepared with saturated fat;
- moderate increase in long-chain omega-3 and omega-6 fatty acids - linoleic acid (vegetable oils, seeds, legumes), arachidonic acid (lean meat, poultry), alpha-linolenic acid (leafy vegetables, broccoli, spinach), eicosapentaenoic acid (fish oil, fish and seafood).

## Parkinson's disease

**Parkinson's disease** in more advanced forms is associated with malnutrition. This is conditioned by tremor, rigidity, dysphagia, depression and organic psychosyndrome. The side effects of drugs also play a significant role. The most important nutritional measure in Parkinson's disease is maintaining a good nutritional status - sufficient intake of fluids, fiber, protein and energy. The side effects of the drugs also contribute to dryness in the mouth and worse swallowing, which further accentuates the motor deficit.

"Low-protein diets" are also repeatedly tested measures. It was hypothesized that amino acids important for the nervous system (phenylalanine, tyroxine, tryptophan) compete with the site of action of L-dopa and reduce the effect of drugs. Strategies include reducing protein intake to 7–10 g/day or 0.5 g/kg of body weight per day with maximum intake in the evening outside of periods of motor activity. The effect of these procedures has never been exactly proven, similar to the increased intake of antioxidants. Recently, on the contrary, it has been reported that a patient with Parkinson's disease should have a varied diet, and should eat spicy foods that stimulate the vegetative nervous system.

## Other

- **Degenerative motor neuron diseases** such as amyotrophic lateral sclerosis or Huntington's disease threaten patients with malnutrition in a similar way to Parkinsonism. It is important to maintain a good nutritional status. However, no specific diets can influence the development of the disease.
- The situation is similar for nervous system trauma, where the prevention of malnutrition and a varied diet are again particularly important, although the specific effects of diets in the rehabilitation phase have not been proven. It should not be forgotten about sufficient hydration and dietary help in treatment of a frequent problem in patients affected - that is constipation.

- The importance of dietary measures in **epilepsy** is minimal. However, it is true that a number of antiepileptic drugs are atherogenic drugs, causing dyslipidemia. It is therefore important to monitor lipids and start a hypolipidemic diet in time and consider such patients as patients with metabolic syndrome.
- **Central cerebral stroke** can be categorized from a nutritional point of view as a disease with significant catabolism and negative nitrogen balance, insulin-resistance and lze z nutričního hlediska charakterizovat jako onemocnění s výrazným katabolismem a negativní dusíkovou bilancí, inzulinorezistance and a frequent rise in glycemia. It is a disease often also accompanied by reduced hydration and ionic disturbances. In the rehabilitation phase, dysphagia and subsequent nutritional disorders are common.
- '*Antisclerotic diet* is of key importance in the prevention of central cerebrovascular accidents (strokes). During self-treatment, care must be taken to ensure adequate hydration and prevent malnutrition. The normalization of glycemia with insulin is important. It is also important not to forget the administration of amino acid solutions in parenteral nutrition and it is advisable to orientate according to the nitrogen balance.
- **Special diets** are not indicated according to the current state of knowledge. However, it should be emphasized that research in the field of both ischemic strokes and neurodegenerative diseases successfully deals with drugs affecting metabolic nuclear receptors (PPARs). The function of these receptors can be modified by the intake of a number of substances of a lipid nature, and thus, similarly to multiple sclerosis, it is possible that dietary manipulation will become of some importance in ischemic brain events.
- A disease with significant metabolic relationships is sleep apnea syndrome, which is a recognized part of the metabolic syndrome and its link to insulin resistance is higher than its link to obesity. Every patient with this disease should try to lose some weight and follow an antisclerotic diet.

## Links

### Related articles

- Dietotherapy
- Diets in psychiatry

### Sources

- SVAČINA, Štěpán. *Dietologie a klinická výživa* [online]. [cit. 2012-03-14]. <<https://el.lf1.cuni.cz/p66466615/>>.