



# Newsletter

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## LITERATURE REVIEW AND COMMENTARY

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### High Fat Diet Prevents Seizures

I hope that everyone had a chance to read the article in the August 21st, 1995 issue of NEWSWEEK titled, "Can Fat Cure Epilepsy?" Doctors at Johns Hopkins Pediatric Epilepsy Center had treated over two hundred children suffering from seizures since 1990 with a high fat diet. The majority of the children improved on the diet and about twenty-five percent became seizure free. They relate the case of a famous film producer's young son who was having thirty to forty seizures a day. The child began the high fat diet in November and was totally free of seizures by December without medications. The improvement is still noted two years later. The diet consists of a three to one ratio of fats to protein and carbohydrates. They conclude that when the body burns the fat, ketones are produced which they feel is responsible for reducing the seizures. However, they are not exactly sure why the high fat diet works.

When one understands the data gleaned from HTMA studies of individuals suffering from seizures, it may help in understanding why the high fat diet is effective. Most patients that we have tested who have epilepsy or seizure disorders show a typical Sympathetic or Fast Metabolic pattern. Magnesium levels are usually very low, and/or a marked elevation in the calcium-to-magnesium ratio exists. Sympathetic neuro-endocrine dominance relates to increased cellular glycolytic activity. This in turn results in excessive pyruvic acid and oxaloacetate production. A low fat diet further increases cellular metabolism. As high amounts of oxaloacetates are produced from carbohydrate metabolism, fats are synthesized and stored instead of being used for energy. When fats are increased in the diet, acetate (acetyl Co-A) is derived and ultimately reduces the excessive cellular glycolytic activity. This also results in a reduction in the metabolic rate and improves the ability to retain the minerals calcium and magnesium. Ketones produced by the fatty acid metabolism can then be used by the brain as a source of energy.

### Metabolic Typing Gaining Recognition

Interest in the recognition of metabolic types is growing steadily, as it is becoming more well known that certain metabolic types are more susceptible to certain disease than others. Body types are often used for this determination, commonly called the pear-shape or apple-shaped body structure. At TEI, we have related body types to HTMA patterns. The apple-shaped body structure as you may know correlates with Fast Metabolism. These individuals tend to accumulate fat centrally or in the abdominal region. The pear-shaped body structure relates to Slow Metabolism with fat accumulation occurring below the waist.

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Other research appears to confirm these findings. Tataranni, et al, have published finding related to central fat distribution in men (J. Am. Col. Nutr. 113, 6, 1994). They found that men with central fat deposition had a higher metabolic rate than men with lower body fat distribution. These individuals also had higher blood pressure, impaired glucose tolerance and reduced insulin sensitivity.

Susceptibility to the effects of xenobiotics is also known to be related to metabolic types. A researcher at Loyola University in Chicago, feels that birth defects due to toxic chemical exposure are based upon a person's metabolic rate. Other researchers speculate that increased risks for developing chemical-related cancers are based upon individual metabolic types based upon cytochrome P450 activity, are at increased risk for aflatoxin-related cancer.

### **Hormones and Immunity**

An article that appeared in the August 95 issue of SCIENCE discussed the difference in the immune response of men compared to women. The researchers stated that women have a stronger immune system than males and that this difference is related to hormonal dominance. It was found that estrogen has a tendency to increase the cellular immune response and androgens have a suppressing effect. Women therefore have a greater susceptibility than men to certain autoimmune diseases such as lupus. High estrogen levels are found in women diagnosed with lupus and may be the reason that this condition is rare in men.

Even stages of the menstrual cycle affect a woman's susceptibility to viral or bacterial infections depending upon the estrogen/progesterone balance. This susceptibility changes as women reach menopause.

In our recent TEI workshops we discussed the immune system based upon sympathetic and parasympathetic HTMA. This could explain the difference in the male and female immune response. Generally speaking, women tend to fall into the parasympathetic neuro-endocrine pattern (Slow Metabolism), and men tend to have a sympathetic neuro-endocrine pattern (Fast Metabolism). The parasympathetic HTMA pattern is associated with dominance of anabolic hormones including estrogen, PTH, insulin, and anabolic adrenal cortical hormones that contribute to an increase in cellular immune response. The sympathetic HTMA pattern is associated with catabolic hormonal dominance that includes progesterone, thyroid, androgen and catabolic adrenal cortical hormones that stimulate the humoral immune response. For more information, see the March/April 1995 issue of THE NEWSLETTER, The Immune System and Hair Tissue Mineral Patterns.

### **Anemia and Serum Ferritin**

Serum ferritin typically decreases with iron deficiency anemia. However, a study in Nutrition Reviews 53, 6, 1995, (Plasma Transferrin Receptor Helps to Predict Iron Deficiency in the Anemia of Chronic Disease), reports that serum ferritin may be unreliable as an indicator of iron deficiency. Simple iron deficiency usually results in a low serum ferritin, but ferritin levels in anemia due to chronic disease can be normal or elevated even when iron stores are depleted. One study cited that two-thirds of an elderly population in a community hospital with anemia had no stainable iron in their bone marrow and yet had normal serum ferritin. The article concluded that in the elderly population with chronic disease the possibility that iron depletion exists should not be overlooked because serum ferritin levels are within or above the normal range.

An interesting case study related to iron was reported by one of our clients, Robert A. Rosen, M.D. An elderly patient's blood test showed a pattern of iron overload suggesting a



possibility of hemochromatosis. However, the HTMA pattern revealed a low tissue iron. Dr. Rosen stated, "it was not clear to me then how to reconcile these conflicting reports." The patient was diabetic and eventually began dialysis. At this time she had anemia and was started on erythropoietin. Her serum iron levels then fell as her hematocrit increased. She was then found to have a low iron and had to be given iron. Dr. Rosen then concluded "it would appear that the hair analysis accurately reflected the backup in the blood. Not because of whole body overload, but because of inadequate tissue utilization." I certainly agree with Dr. Rosen's conclusion. As we know, many minerals are maintained in circulation at the expense of tissue storage. Much more research in this area is needed, particularly related to iron status.