



Health & Medicine



Nutrition Evaluation

An Example of Functional Medicine Testing



Dr. Kate Thomsen and Silky

How do you know if you are living a healthy lifestyle? Functional medicine tests look at how cells and organs are functioning, coping, and adapting to your lifestyle over time or in response to stressors. We focus on restoring balance to the body's systems by adjusting the environmental inputs that nurture or impair them – hoping to divert disease. One of our favorite tools that helps us find and correct imbalances is a Nutrition Evaluation, using fasting blood and urine samples. This is a very comprehensive test that evaluates: one's ability to produce cell energy, protein status, vitamin and mineral sufficiency or deficiency, essential fatty acid balance (omega 3, 6, 9...), toxic exposure and, most importantly, oxidative stress. These parameters are affected by your genes, your current "conditions", your lifestyle (diet) and your supplements. We ask you to stop all supplements for 4 days and eat your regular diet to see if what you are offering your body (with its unique genes and conditions) is creating healthy and balanced systems.

The Metabolic Analyses: Your cells and tissues are acting on the environment you give them by building up, breaking down and transforming chemical substances in a process called metabolism. First you have to eat food; digest it (break it down into smaller components) and absorb it (transport

these pieces from the intestines into the blood). The tissues can then build substances or break them down further. Anabolic metabolism is the process of building – as in making structural proteins out of amino acids derived from food proteins. Catabolic metabolism refers to breaking down substances and occurs in the process of making cell energy. The cells use enzymes as catalysts to drive these chemical transformations in organized and predictable metabolic pathways. The enzymes usually depend on vitamin and mineral co-factors. By-products of these metabolic pathways can be found in urine. Nutritional Evaluation of the urine will show whether you are getting all the essential amino acids from your diet. These amino acids are essential for the body and must be obtained from the diet. It is not unusual to find low levels of amino acids in vegetarians, older persons, and people eating low protein diets. The test can also show imbalances in metabolic pathways that depend on certain vitamins and/or minerals. When one pathway that uses magnesium, for example, is imbalanced, most of the other magnesium dependent pathways will be affected too. In these instances, a clear pattern emerges showing one or several vitamin or mineral deficiencies throughout the test. It has been our experience that the B vitamins and magnesium are commonly deficient. It is not surprising for these nutrients is green leafy vegetables – abundantly available, yet often missing from our plates. Imbalances in the metabolic pathways can affect many systems including cell energy production, neurotransmitter processing, gastrointestinal function and others.

Essential Fatty Acids (EFAs): The Nutrition Evaluation measures EFAs in the red blood cell membrane. EFAs are important components of both the structure and function of the fatty membrane that surrounds each of your cells. They assist messaging between cells and are messages themselves – of inflammation and anti-inflammation. We have only begun to know how important they are in our diet: the omega 3s from fish, the omega 6s from grains and vegetables, and omega 9 from olive oil. Many people are aware of the importance of Omega 3s and are taking high quality fish oil and it is reflected in the test results. I have been surprised at the number of people who are low in Omega 9s despite cooking with olive oil. Drizzling fresh olive oil on salads and vegetables appears to be the way to score "adequate" on the omega 9 evaluation.

Toxic Exposure: Toxicity is reflected in several ways in the Nutrition Evaluation. One of the most important ways is the evaluation of heavy metals in the red blood cell membrane. The red blood cell lasts 120 days so this evaluation only detects exposure in the last 3 months. Sadly, I see quite a lot of mercury exposure. Mercury is not only a neurotoxin ("mad as a hatter" – hat makers commonly used mercury) but it is a potent enzyme disrupter. At first, I expected that these mercury exposure results were coming only from frequent sushi eaters. However I commonly find mercury exposure in people eating fish only 2 times per week. I see it in people who swear they only eat Alaskan salmon. They say they thought eating fish was healthy – healthier than eating beef. That may have been true until very recently. I believe that we are seeing

Dr. Kate Thomsen
WOMEN'S HEALTH AND WELLNESS
Pennington, NJ

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Location: Office of Dr Kate Thomsen
252 West Delaware Ave. Pennington, NJ 08534
PHONE: 609-818-9700

coal fired plants that China is building daily. Mercury (present in the exhaust of these facilities) is carried through the air across land masses and drops into waters as it goes. It looks like all fish can be contaminated to some degree. So be careful with your fish intake and do take purified fish oil.

Oxidative Stress: Essentially this is free radical damage to your cells. Your body creates free radicals when it makes cell energy from food, during exercise, and by simply breathing. It also makes its own antioxidants (like CoQ10) to neutralize these free radicals. Your state of health is a balance between free radical damage and anti-oxidant protection. Environmental toxins create more free radical damage and a healthy diet can help to neutralize their effect. Brightly colored fruits and vegetables and nuts and seeds with their many antioxidants add significantly to your protection. The Nu-

both free radical damage to the cells and antioxidant protection. Almost always, people with mercury exposure are tipping the balance toward more oxidative stress.

The Nutrition Evaluation is a great "window" into many cell functions. It shows imbalances in cell systems before standard blood tests detect disease. This gives us the opportunity to restore balance and practice preventive medicine.

Dr. Kate Thomsen has a holistic health practice in Pennington, NJ. She is board certified in Family Medicine and in Integrative/Holistic Medicine. She has been practicing Functional Medicine for over 14 years. For more information see www.drkatethomsen.com or call the office at 609-818-9700.