

NUTRIGENOMICS

by Gary Piscopo, N.D., LAc

The increasing interconnection between the physical, nutritional, and informational is becoming progressively more critical within the field of medicine. The old adage "You are what you eat" is finding validation within the high tech world of genetic research--with unintended consequences. The completion of the Human Genome Project, the sequencing of the approximately 30,000 genes that make up the complete set of human DNA (or genome), has led to increased attention in a relatively new area of research--the field of genomics.

Unlike genetics, which is primarily concerned with the individual gene, genomics is the study of the dynamics of a genome as a whole. In one sense, it is the practical application of what we have learned about genes and how they interact with each other as well as their environment. What is now being appreciated is that genes do not function in isolation and that the environment that genes exist within have a significant effect on how and what they express.

Of course, the biological environment that bathes our genes is heavily influenced by what we eat. According to Dr. Jeffrey Bland, director for the Institute of Functional Medicine, the Standard American Diet (SAD)--typically heavy in fast foods and simple sugars--sends a rapid infusion of glucose and other substances into the system. This results in a type of "alarm response" in the body, which can contribute to an underlying sense of stress. This example demonstrates a concept that has long been held in naturopathic medicine: that food can be considered to be a type of information--information that influences both our development and our daily functioning. The appreciation of food as information has contributed to a convergence of genomics, nutrition, and medicine that is now being referred to as "nutrigenomics."

Nutrigenomics could basically be defined as the science of using an individual's genetic information to assist in making nutritional and dietary choices. At first glance, this would seem like a wonderful collaboration. In fact, it sounds very similar to a naturopathic principle, that of respecting the ecological individuality of each unique person. A closer look, however, raises some disturbing questions.

International Nutrigenomics Conference

In April 2002, the first international nutrigenomics conference took place in the Netherlands in cooperation with companies like DuPont, Nestle and Unilever. One wonders about how such corporations plan to utilize the sensitive data concerning the human genome, given their obvious concern for profit and financial expansion. Certainly a case could be made that issues which are currently unpopular to the average consumer, such as the destructive impact of globalization on traditional food cultures and the unknown effects of genetically engineered food, could be made more attractive utilizing nutrigenomics.

Marketing "enhanced food"

A marketing campaign touting food that was "enhanced" to meet the specific genetic needs of whole populations would be appealing to many. Putting that aside for a moment, an even larger issue looms. Granting for the sake of argument that such "enhanced" foods were superior, who would have access to them? Nutrigenomic techniques are very expensive and foods resulting from these techniques would be similarly expensive. Could this contribute to the beginning of a nutritional hierarchy that could, in turn, mirror a genomic hierarchy based on class and money?

As with many medical interventions that offer to "improve" on what nature provides, there are complexities and unforeseen side effects that need to be assessed. Our need to shift through relevant information in order to make intelligent, informed choices leads to another interesting consideration. If food can be considered to be information, can information be considered to be food? Certainly this is the view held in Chinese and Tibetan medicine. In Chinese medicine, the element of Earth relates both to the digestive system and to mental activity. Imbalances in the Earth element can be due to gastrointestinal problems but can also be due to psycho-emotional issues, such as excessive worrying and the lack of self-nurturance. Therefore, an intimacy with the capacity of one's mind to understand, sort, and assimilate information is just as critical as attention to one's diet. While there is currently no "psychogenomics," there is a long tradition advocating the importance of "knowing oneself," as well as thoughtfulness to the influences that individuals surround themselves with. In the pursuit of health, both for ourselves and for the planet, the proper balance of quality food and wholesome information needs to be considered. Perhaps then, it will be clear that we are much more than what we eat.

About the Author

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