

...we are leading our youth down a path of disease earlier and earlier in their lives. One third of young people in this country are overweight or at risk of becoming overweight. Increasingly, they are falling prey to a form of diabetes that used to be seen only in adults, and these young people now take more prescription drugs than ever before. These issues all come down to three things: breakfast, lunch and dinner.

T. Colin Campbell, PhD, THE CHINA SYNDROME

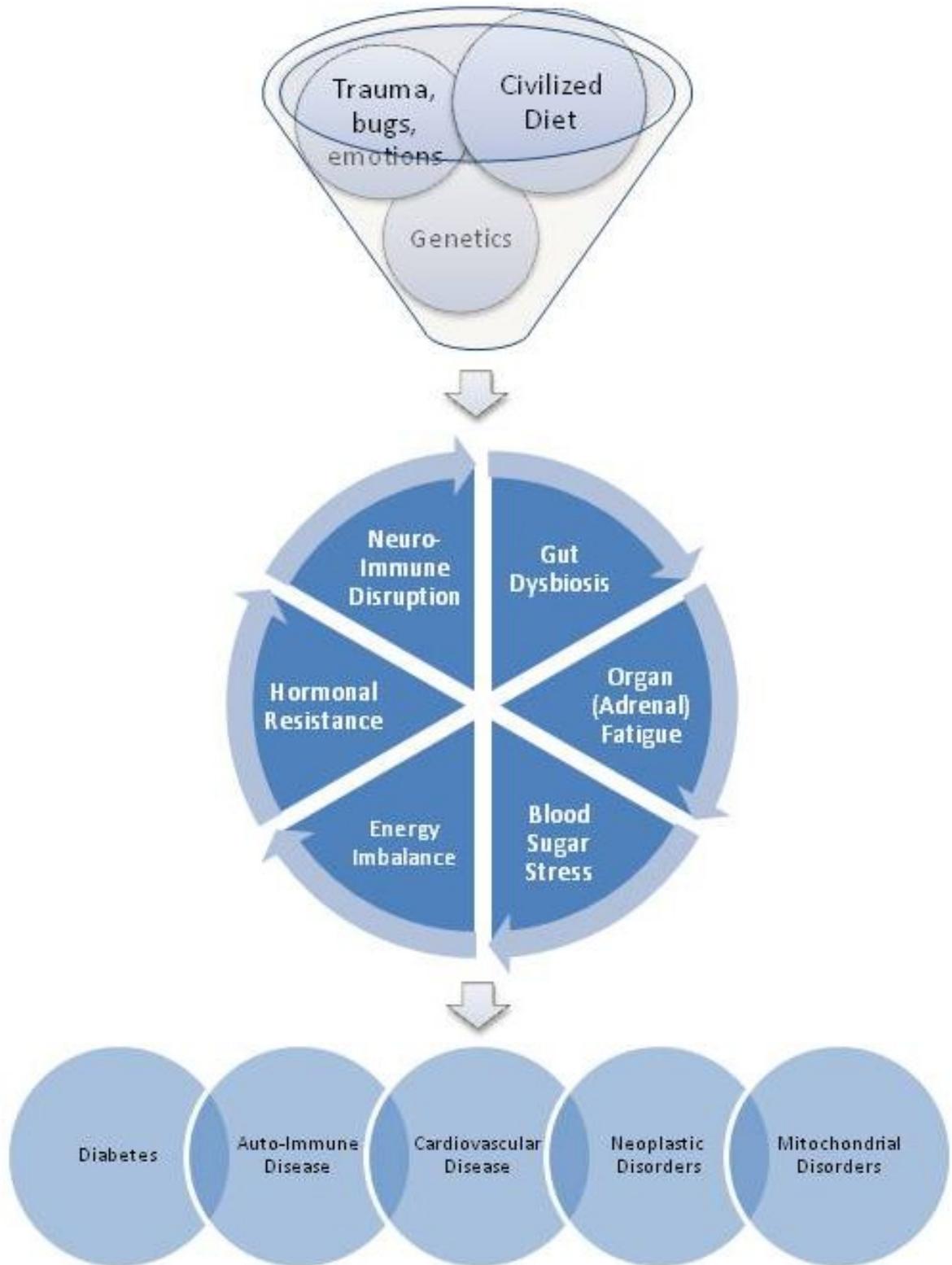
The most efficient means of breaking disease-promoting cycles and correcting chemical problems is with the prime movers – the body's most needed, multi-functional nutrients. Finding the prime movers is the main goal of FBA and enables the doctor to do the most good with the fewest number of nutrients, in the least amount of time. There are many common examples of prime movers such as magnesium, calcium, B vitamins, other minerals, oils and anti-oxidants. However, just taking them in a multi-vitamin form for example, is generally not sufficient as will be discussed further in the next section.

Prime movers basically assist and direct all of the functions in the body. Magnesium for example, is required in seventy percent of all enzymes – the catalyzing proteins that make biochemistry happen rapidly. Some additional functions of prime movers include:

- producing energy^{1 2 3}
- regulating genetic expression^{4 5 6 7}
- activating enzymes^{8 9 10}
- controlling inflammation^{11 12 13 14}
- detoxifying tissues^{15 16}
- regulating metabolism^{17 18 19}
- regulating blood pressure^{20 21 22 23}
- regulating emotional stress and neurotransmitters^{24 25 26 27}
- balancing hormones^{28 29 30 31}
- controlling pain levels^{32 33 34}

What you just read could be a list of common patient complaints. The origin of these and other functional problems is not mysterious. Most start with diet. Traumas, ongoing infections, emotional stresses and genetics, as portrayed in the figure below, are also important considerations. Collectively, these concerns promote a vicious energy-exhausting cycle and lead us on a pathway toward disease through unwanted genetic expression.³⁵ Keeping genes in check is the job of the prime movers.

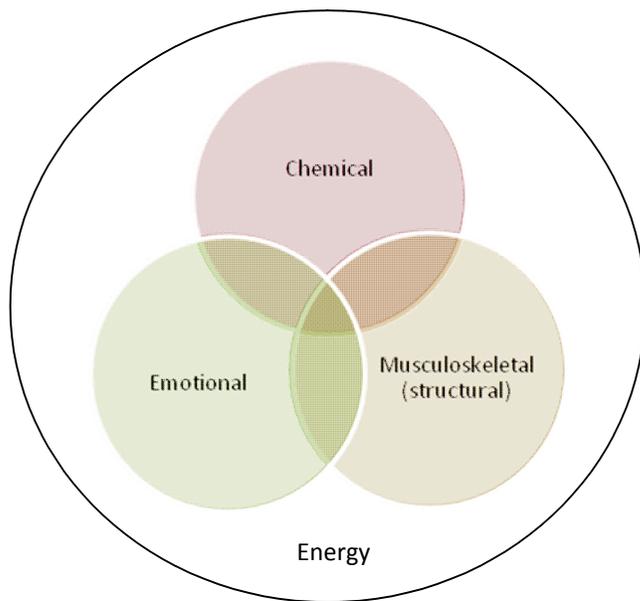
At present, roughly 50 different human genetic diseases arise when the right B-vitamins, called coenzymes, are replaced by the wrong mutant enzymes. This disease-promoting situation is set up when proper levels of B-vitamins are too low, and can be remedied when those levels are high. Raising the levels therefore prevents unwanted gene expression, called polymorphisms,³⁶ the source for many known diseases.



The top of figure 1 shows the three most common reasons why health is initially disrupted, with Civilized Diet being the largest of the three circles. After ingesting food, a healthy body utilizes what is required, stores what is needed for later use, and eliminates what is unnecessary. When there are no hiccups in this process, it acquires and stores prime movers throughout life as we eat the right foods and avoid the wrong ones. However, the high ingestion of nutrient-stripping processed foods found in the modern diet eventually means that hiccups are more the rule than the exception. There are other considerations as well.

FBA practitioners believe in an interconnected and interrelated set of systems that work together to promote the optimal expression of well-being. None of these systems is greater than the other, but each can move to the front of the line depending on the stresses of the moment. In other words, there is a hierarchy within the major systems of the body and that hierarchy is ordered based upon the body's most pressing needs. With any number of circumstances the main concern can change. For instance, a sudden event such as a motor vehicle accident, which results in muscle and joint trauma, could make the musculoskeletal system a top priority. The sudden fear of losing a job or the death of a loved one could make the emotional system a top priority. A weekend binge on junk food and alcohol could make the chemical system a top priority. However, in "normal" life, where stress is somewhat constant and slowe

Figure 1
The Metabolic Progression to Disease



Each of the three major physical systems depends on a constant steady supply of energy. If energy is not flowing properly through the body from organ to organ and from system to system, health issues will manifest. The management and proper flow of energy is the goal of many non-traditional techniques such as acupuncture, tai chi, homeopathy and even laser therapy. Their popularity is evidence of their validity. Knowing this, many patients and practitioners have concluded that energy management is the most important consideration for health. That could be, and often is, true, but the underlying assumption is that there is plenty of internal energy to go around. However, what happens if the total energy in the body is low? Energy therapies are not involved in energy creation, but rather energy utilization and management. So, the pertinent question is, where does energy come from in the human body?

Since humans do not photosynthesize like plants, it is not from the sun, although sunlight is very important for overall health. It is not from muscles or bones, although movement through exercise is critical for overall wellbeing. It is not from thoughts, although thinking good thoughts is very helpful for an overall positive outlook. The only source of energy production is via nutrients contained within the foods. In other words, energy comes from chemistry. Common sense tells us this is true. Exercising in the sunlight while listening to motivational speakers on an iPod, will likely have some health benefits, but even the healthiest, most stress-relieving practices, without proper food, will prove to be in vain as life (energy) gradually dissipates.

Just eating any food won't do. Americans eat plenty of food. Nearly 34 percent of adults are obese; more than double the percentage 30 years ago, while the share of obese children tripled during that time, to 17 percent.³⁷ And yet, nutritional deficiencies are still rampant. No, most people are not exhibiting signs of pellagra, rickets or scurvy, but what they are doing is managing a cluster of issues that prevent them from expressing optimal function. This is true because nutrition determines chemistry, and chemistry determines function. Functional illnesses therefore, are primarily the result of chemical problems.

If you think, "I don't have any chemical problems" you are almost certainly wrong. For instance, if, as a regular part of your present life, you experience pain, insomnia, constipation, fatigue, headaches, PMS, emotional issues such as depression or anxiety, you have chemical problems. If you say things like, "I just have a bad back (knees, hips etc.)," or, "I get up twice a night to go to the bathroom, but that is normal." You have chemical problems. If taking over-the-counter pain, stomach or allergy medication is common place, you have chemical problems. In short, if the regular experience of life is anything other than a pain-free, passion-filled existence, you have chemical problems.

A Quick Look At Diet

He who takes medicine and neglects to diet wastes the skill of his doctors. ~Chinese Proverb

Prime movers are meant to come from the diet and direct the internal chemistry. Common sense tells us that, since chemistry is the source of energy and energy controls human function, if the ingoing chemicals are bad, the internal energy eventually is poor and so will be the overall function of the body as a whole. Therefore eating well is critical to proper function.

According to the United States Department of Agriculture (USDA), more than seventy percent of men and women eat less than two-thirds of the Recommended Daily Intake (RDI) for one or more nutrients.³⁸ Only ten percent of the American population eats five or more servings of fruits and vegetables per day. In other words, the Standard American Diet (SAD) is saturated with low-nutrient, fatty foods comprised of empty calories and little nutritional value. Today ninety percent of the typical American food bill is spent buying processed foods.³⁹

The Industrial Revolution led to the introduction of sucrose (white sugar), mass-produced meats, refined grains, refined vegetable oils, hydrogenated oils and high fructose corn syrup (HFCS). It also created ways of extracting oils and nutrients from foods so that their shelf-life could be extended, which made transporting them across great distances without spoilage possible. However, what was good for convenience and mass consumption was not good for physiology, as these processes greatly diminished, or stripped out completely, the natural prime movers, replacing them with synthetic versions. Synthetic vitamins may help prevent gross nutritional deficiencies, but the dosage required is much greater and in some cases, they may actually cause biochemical imbalances.^{40 41}

Worse yet, today foods are also genetically modified (GM or GMO) to produce greater yields, resist bugs, and be unharmed by potent insecticides and herbicides. Unlike the selective breeding and farming done since the beginning to encourage desirable traits, today scientists are tinkering with the genetic code of foods and animals with some very unpleasant results. Instead of using nature to bring about the healthiest and most productive crops, scientists have delved into a world so complicated it is difficult to even imagine. A single strand of DNA is made up of three billion base pairs. The specialized, or “blueprint” parts of DNA, are the genes, which are estimated to number around 30,000. It is known that individual genes determine height and hair color, but do they also work together as a unit for some greater purpose? Scientists do not know the answer to this question. What they do know, is that adding and subtracting genes in the laboratory regularly generates surprises and unintended consequences such as increasing the toxins in yeast 40 to 200 times, generating new toxins where they never existed before in tobacco, and elevating the starch content in potatoes.⁴² Scientists may take pride in creating a chemical resistant food crop. But common sense should suggest that a plant sprayed regularly with insecticides and herbicides that kill everything in the field except the plant itself, should not be served with dinner. Buyers beware.

The ideal diet then would be full of whole, unprocessed foods. Natural whole foods contain not only macro-nutrition in the form of fats, carbohydrates and proteins, but also micro-nutrition such as enzymes and prime movers. Micro-nutrition is essential in all food since it is the catalyst of digestion, speeding up the entire process and saving energy. Hence, low-nutrition foods, devoid of prime movers, still require them. Since they are not present in the poor quality food itself, they must come from the internal reserves. Therefore, over time, with regular consumption of processed, low-nutrient and perhaps GMO food, deficiencies of prime movers can become widespread.

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