

## OPTIMAL HEALTH

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## "Live Long And Prosper" Part 2

Last month we began a three-part series dedicated to the question of how to live long, and why some people do and others don't. In March we looked at 'Why me?', 'Why Am I Still Sick?', and 'Our Central Control of Health – the Immune System'.

Access previous March newsletter at <http://www.aminomics.com/pdf/March2015Newsletter.pdf>

This month we'll cover, 'We Eat Too Much, Yet We Suffer From Malnutrition', 'Our Chemistry Changes As We Age', and 'ISM's Approach to Wellness'.

To your good health!

**Kathryn O'Neill, CEO**

## We Eat Too Much, Yet We Suffer From Malnutrition

We like the idea that food can be the answer to our ills, that if we eat nutritious foods we won't need medicine or supplements. We have valued this notion for a long, long time. The Greek physician Hippocrates proclaimed nearly 2,500 years ago:

**"Let food be thy medicine and  
medicine be thy food."**

So how can malnutrition run rampant in one of the richest nations on earth? Another way of putting this could be: Why are so many obese people, clearly with enough calories available, still deficient in key nutrients?

In this country, food is plentiful. In 1940, a very small percentage of our purchased food was processed. Today, that figure is over 90%! Most of it is processed, artificial, laden with cellular and neurotoxic chemicals, dyes, preservatives, and additives; it is irradiated, fractionated, microwaved, sprayed with pesticides, fungicides, and herbicides; it is stored for long periods or shipped in hot weather; it is contaminated and genetically modified.

Technically, we are not starving to death. In fact, we are eating more than enough calories, but we are getting far too few real nutrients. We're

limping along with symptoms of nutrient deficiencies that we've been conditioned to expect and accept.

The immune system is extremely sensitive to the body's state of nutrition. Every day the immune system produces billions of new cells, which busily communicate with one another by means of vast array of messengers. The functioning of all these cells is profoundly affected by what we eat (and don't eat). The quality of our cellular machinery is only as good as the quality of the 'building blocks' the body has to work with.

Not everyone has the same nutritional needs. Some individuals need more of a particular vitamin, mineral, protein or enzyme than others. As one example, people vary widely in their ability to maintain tissue levels of vitamin C.

Nutritional needs change throughout the various stages of life. While overall caloric needs tend to decrease with age, the requirements for individual micronutrients (vitamins and nutritionally essential minerals) do not decrease. In fact, the needs for some micronutrients, such as calcium and vitamin D, actually increase with age. Older adults may also need more dietary antioxidants, such as vitamins C and E, as well as certain B vitamins, including vitamin B6, folate, and vitamin B12. Micronutrient deficiencies are quite common and older adults are especially vulnerable.

ISM believes there are three key nutrition issues in our world today:

1. Too many calories from the wrong foods
2. Not enough water
3. Too few nutrients

### **1. Too many calories from the wrong foods**

Starting almost 80 years ago, every living organism studied – from yeast to humans – has shown the robust life-extension and disease-protection effects of calorie restriction.<sup>3,4</sup>

A widely publicized study showed that drinking just one 12-ounce sugar-sweetened soda daily resulted in an 18-22% increased risk of type II diabetes.<sup>5</sup> While health-conscious people may avoid sodas, there are so many sugar-spiking foods in our diets that virtually none of us are immune.

The research is conclusive – the longer you wait to tame age-related blood sugar increases, the greater your odds of succumbing to diabetes and its associated increased risk of heart attack, stroke, kidney failure, cancer, and blindness.<sup>6,7,8</sup>

High-fructose corn syrup represents over 40% of caloric sweeteners added to foods and beverages.<sup>9</sup> It is often the sole caloric sweetener in soft drinks. The digestion and metabolic effects of fructose differ from that of glucose. Fructose is metabolized in the liver in a way that favors formation of new fat. Unlike glucose, fructose does not induce normal satiety signals. Fructose thus contributes to overeating that can lead to weight gain. High fructose consumption has numerous adverse impacts including fatty liver, insulin resistance, elevated triglycerides, and fat deposition into tissue.<sup>10</sup>

### **2. Not enough water**

Generally, water as a nutrient receives little attention. However, of all the nutrients, water is the most important, serving many essential functions. Adequate water intake reduces stress on kidney function, which tends to decline with age. Adequate fluid intake also eases

constipation. With the aging process, the ability to detect thirst declines, so do not wait until you are thirsty to drink water.

### 3. Too few nutrients

Farmers today can grow two to three times as much grain, fruit, and vegetables on a plot of land as they could 50 years ago, but the nutritional quality of many crops has declined. We have more food, but it's worth less in terms of nutritional value. Today's food produces 10 to 25 percent less iron, zinc, protein, calcium, vitamin C, and other nutrients.<sup>11</sup> The amount of protein, calcium, phosphorus, iron, riboflavin (vitamin B2) and vitamin C have substantially declined over the past half century.<sup>12</sup>

The evidence indicates there are at least two forces at work:

1. Since the 1940s, yield increases produced by fertilization, irrigation, and other environmental means used in industrial farming tend to decrease the concentrations of minerals in those plants.
2. There is often a substantial decline in nutrient concentration when plant breeders develop high-yielding varieties without a primary focus on broad nutrient content.

How does the lower nutritional value of food

affect us? Here are just a few examples:

- **Magnesium:** 58-80% of the population is deficient. Magnesium is a crucially important mineral for optimal health, performing a wide array of biological functions.
- **Vitamin D:** Researchers estimate that 50 percent of the general population is at risk of vitamin D deficiency and insufficiency, and this percentage rises in higher-risk populations such as the elderly.<sup>13</sup>
- **Omega 3:** We eat too many inflammatory omega-6 fats (think vegetable oils) and too few anti-inflammatory omega-3s, setting the stage for cardiovascular disease, cancer, depression, Alzheimer's, rheumatoid arthritis, and diabetes, just to name a few. The ideal ratio of omega-3 to omega-6 fats is 1:1, but the typical Western diet is between 1:20 and 1:50.
- **Choline:** Data shows that 90 percent of children and adults are not getting enough. Choline helps keep your cell membranes function properly, plays a role in nerve communications, prevents the buildup of homocysteine in your blood (elevated levels are linked to heart disease), and reduces chronic inflammation.<sup>14</sup>

#### The list goes on and on<sup>15</sup>:

<b>Calcium</b>	Average diet contains 40 to 50% of RDA	Brittle nails, cramps, delusions, depression, insomnia, irritability, osteoporosis, palpitations, periodontal disease, rickets, tooth decay
<b>Chromium</b>	90% of diets deficient	Anxiety, fatigue, glucose intolerance, adult-onset diabetes
<b>Iron</b>	Most common mineral deficiency	Anemia, brittle nails, confusion, constipation, depression, dizziness, fatigue, headaches, inflamed tongue, mouth lesions
<b>Niacin</b>	Commonly deficient in elderly	Bad breath, canker sores, confusion, depression, dermatitis, diarrhea, emotional instability, fatigue, irritability, loss of appetite, memory impairment, muscle weakness, nausea, skin eruptions and inflammation

<b>Vitamin B5</b>	Average elderly diet contains 60% of RDA	Abdominal pains, burning feet, depression, eczema, fatigue, hair loss, immune impairment, insomnia, irritability, low blood pressure, muscle spasms, nausea, poor coordination
<b>Potassium</b>	Commonly deficient in elderly	Acne, constipation, depression, edema, excessive water consumption, fatigue, glucose intolerance, high cholesterol levels, insomnia, mental impairment, muscle weakness, nervousness, poor reflexes
<b>Vitamin B6</b>	Vitamin B6 status is usually associated with low concentrations of other B-complex vitamins, Vitamin B6 is involved in innumerable aspects of metabolism and immune function, especially in amino acid pathways, hence ISM's direct concern for optimal levels.	Direct B6 deficiency may result in seizures, irritability, depression, inflammation, anemia and skin disorders. However, the greater risk is related to its role in so many other metabolic and immune chemical reactions.
<b>Selenium</b>	Average diet contains 50% of RDA	Growth impairment, high cholesterol levels, increased incidence of cancer, pancreatic insufficiency (inability to secrete adequate amounts of digestive enzymes), immune impairment, liver impairment, male sterility
<b>Vitamin C</b>	20 to 50% of diets deficient	Bleeding gums, depression, easy bruising, impaired wound healing, irritability, joint pains, loose teeth, malaise, tiredness.
<b>Zinc</b>	68% of diets deficient	Acne, amnesia, apathy, brittle nails, delayed sexual maturity, depression, diarrhea, eczema, fatigue, growth impairment, hair loss, high cholesterol levels, immune impairment, impotence, irritability, lethargy, loss of appetite, loss of sense of taste, low stomach acid, male infertility, memory impairment, night blindness, paranoia, white spots on nails, wound healing impairment
<b>Copper</b>	25% of adults don't get their daily requirement for copper.	Deficiencies in blood cells, bone and connective tissue abnormalities, and neurologic disorders.

## Our Chemistry Changes as We Age

What is aging, and why do we become ill as we get older?

When we think of someone as old, we tend to think of that person as having lived a certain number of years: 70, 80, 100. ISM's focus is not on how long someone has been alive, but on the decline in physical ability and health that tends to occur once a person reaches later life. Aging involves a variety of factors – including our genes, our environment and infections with

harmful viruses and bacteria. These factors – genetic, environmental and biological – can overlap and cause us to begin the aging process, called 'senescence', and senescence goes all the way down to the cellular level.

When we are young, the cells in our body also tend to be young, in that they look and act similarly to the first generation of cells we start out with when we are first developing in the womb. As we get older, however, the cells in

our body are many hundreds or thousands of generations removed from the original cells, and the strands of code on the end of the DNA – the telomeres – get shorter. If the telomeres are in good shape, as they are in young people, each new generation of cells functions well. When the telomeres get too short, however, each new generation of cell functions and reproduces more poorly, to the point where the cells sometimes can't reproduce at all.

What does this have to do with aging?  
Defective cells lead to real problems. If our

muscle and bone cells can't make new cells that function well, this makes it more likely that our muscles and bones will be weak. Defective brain cells can lead to coordination and memory problems. Defective immune cells aren't as able to keep infections and cancers at bay. It is this last category of senescence, called immunosenescence, that has particular relevance for ISM. We'll talk more about immunosenescence next month.

**Consider just a few of the biochemical changes as we age:**

<b>Taurine</b>	Disease states including liver, kidney, or heart failure, diabetes, and cancer can all cause a deficiency in taurine (an amino acid). Aging bodies often cannot internally produce optimal amounts.
<b>Protein</b>	We need more protein to offset the age-related loss of muscle tissue. When we lose muscle mass, we tend to lose bone mass as well, initiating a whole downward spiral of increased frailty and diminished function. Although our calorie needs decrease as we age, our protein needs actually increase. That means we need to get a bigger and bigger percentage of our calories from protein. But that's exactly the opposite of what happens for many seniors. <sup>16</sup>
<b>Glutathione</b>	Glutathione is made from three amino acids, namely glycine, glutamic acid and cysteine. Glutathione is present in every cell of your body and is essential for life itself. As people grow older, the levels drop and this can result in an increased susceptibility to metabolic stress, a factor that greatly accelerates the aging process. <sup>17</sup>
<b>DHEA</b>	A hormone that is the precursor for testosterone and estrogen. DHEA decreases by 95% in many people by age 75.
<b>Testosterone</b>	The hormonal stimulus for sex drive in both men and women is testosterone, which declines with advancing age in both sexes. Testosterone also plays an important role in maintaining muscle mass and strength and bone density.
<b>Estrogen and Progesterone</b>	The 'female' steroid hormones estrogen and progesterone play important roles in maintaining bone density and strength, sexual function, mental function and in countering the effects of menopause.

<b>Melatonin</b>	A hormone that is a highly potent antioxidant, which has been described as the pacemaker of the aging clock in humans. It is released every night to help induce sleep and recuperation from fatigue.
<b>Coenzyme Q10</b>	An essential component of healthy mitochondrial function where it facilitates and regulates the oxidation of fats and sugars into energy. About 95% of cellular energy is produced in the mitochondria. Aging humans have been found to have over 50% less. It recycles other antioxidants, and deficiency accelerates DNA damage and leads to fatigue, muscle weakness, soreness and eventually heart failure.
<b>Carnosine</b>	Long-lived cells such as nerve and muscle cells contain high levels of carnosine which is made up of the amino acids beta-alanine and L-histidine. Muscle levels of carnosine correlate with the maximum life spans of animals. Carnosine enables the heart muscle to contract more efficiently. Aging causes irreversible damage to the body's proteins (glycation). Carnosine interferes with the glycation process.
<b>NAD+</b>	Aging is accompanied by increases in both mental and physical fatigue, along with a loss of motivation. This is in part the result of reduced levels of a compound called NAD+, found in every cell in the body that enables the transfer of energy from the foods we eat to vital cell functions and is required to 'turn off' genes that accelerate degenerative aging processes. NAD+ levels decline as we age.

## ISM's Approach to Wellness

At ISM Clinic and Lab, we see our clients as our employer, in charge of their own health choices. Our goal is to provide the most complete integrative healthcare analysis, identify the best options, and to support them in whatever course of action seems best to them. We look 5-10 years out, rather than at one particular set of symptoms.

Symptoms are your body's way of telling you that something isn't right. They are not the cause of the illness or disease.

- A stuffed-up nose isn't the cause of a cold, it is a symptom.

- Heart attacks aren't the cause of heart disease, they are a symptom.
- Cancer is not the cause of a disease, it is a symptom.

At ISM we know our clients as people rather than diseases or a collection of symptoms. We focus on the needs of the individual, and we address the breakdown of the body's immune and metabolic function by balancing the body's core components to optimal levels.

**“Optimal Health” is written and produced by staff, associates and friends of Immune System Management Inc.**

It is our philosophy that diverse health care modalities can work in conjunction with each other as part of a unified team rather than in competition. Such an integrated approach ultimately will lead to safer and more effective health care.

Optimal Health will act as a gathering place and forum for comments and articles from medical professionals, educators and researchers from all health care specialties to the ultimate benefit of both the patient and the health care provider. We aim to share up-to-date news, information and diverse views for the growing integrative, alternative and complementary medicine movement, particularly as it applies to cancer and other chronic diseases.

Your comments and article contributions are welcome.

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