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Comprehensive Health Plan for Your Future – Part II

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Nutrients, Free Radicals, Whole Foods, Oxidative Stress

In a comprehensive health plan for your future, why is there so much emphasis on what you eat? In an affluent society, and if you live in America, even if you don't consider yourself affluent, you have habits which reflect affluence, the foods we eat reflect that affluence. Often, whether fast foods, processed, packaged foods or junk food, the "diet of affluence" will accelerate your aging, contribute to disease development and impeded the body's nature defense and restorative functions. When you have grocery stores on every corner, with 73 kinds of cookies, all with large amounts of calories, sugar and "trans" fats, you live in an affluent society.

In simpler times, when people were more active and when they ate more foods directly from their gardens or farms, the health problems we see associated with dietary intake were not as severe. In fact, the healthiness of your diet will be directly proportional to the amount of "whole" foods – naturally occurring foods and unprocessed foods – you eat and inversely proportional – the more you eat the poorer your health – of the processed foods and fast foods you eat. If you eat Pizza more than once a year, you are accelerating the aging process. If you eat at fast food restaurants more than once a year, you are damaging your health. If you eat canned, hydrogenated dried or dyed foods regularly, you are diminishing your body's ability to defend itself and to repair itself.

Nutrient Content of Your Food

Calories, sugar, fats – these are the three factors to consider in choosing your food which we discussed last week. A fourth and maybe the most important is the nutrient content of the food you eat. Learn a new word – phytochemicals – it means "plant chemicals." My children laugh at me at Sunday lunch because I always hold up the broccoli and announce, "Look at all those wonderful phytochemicals."

Phytochemicals are the vitamins, minerals and other nutrients in the fruits and vegetables we eat. Many of those chemicals are not yet understood. Almost all of the supplements which we take for health reasons are extracts of these phytochemicals. There has never been any evidence that any of these phytochemicals are harmful to the human body when obtained through the eating of fruits and vegetables

The “best” and most beneficial phytochemicals are found in brightly colored vegetables. Phytochemicals are what give the vegetables those wonderful colors. Reds, yellows, oranges, purples, blues, all these colors in fruits are the result of the chemicals in those fruits and vegetables which are really good for you. Blueberries are loaded with powerful antioxidants. Broccoli is filled with healthy nutrients (See The Examiner, December 26, 2002). Whole wheat – true whole wheat bread and not just the dark white bread often called whole wheat in the grocery store – is healthy for you. There is an old adage, “The whiter the bread the sooner dead.” When I was a child, we ate a particular brand of white bread. In the processing of the whole grain kernels, 21 nutrients were removed, including most of the fiber. The processor then added 7 nutrients back and called it “enriched bread.” We didn’t know any better; now we do.

Nutrient Supplements

If we age as we should -- eating whole foods and not processed ones, eating more vegetables and fruits and avoiding a diet filled with processed meats, rice, bread, potatoes and sweets -- it is probable that we would not need supplements. However, as we age, our bodies do not absorb dietary phytochemicals as well as they once did. This makes supplementation important.

Also, a process, which starts when we are born and accelerates every year thereafter, results in our bodies accumulating “debris,” by-products of the normal living process. We have discussed these by-products before. Some of them are called “free radicals,” which are the result of the energy production.

Free Radicals

Free radicals have an unnatural molecular structure that are worsened by unnatural forces such as pollution, cigarette smoke, radiation, fried foods, cured meats, stress (mental, emotional and physical), pesticides and other toxic chemicals. Cigarette smoke, including passive smoke, puts billions of free radicals into our blood stream. Our unnatural environment and lifestyle has created an overabundance of free radicals that play a role in every degenerative disease known to man.

A partial list of the more than 60 diseases and disorders linked to free radicals include: Alzheimer's, Parkinson's, AIDS, cancer, premature aging, collagen deterioration, varicose veins, arthritis, asthma, cataracts, retinitis, angina, rheumatism, stress, jet lag, phlebitis, hemorrhoids, heart disease, stroke, senility, swollen extremities, kidney and liver disorders... just to name a few.

A free radical is a molecule or molecular fragment with one electron in its outer shell that is not paired with a companion electron. This is a hazardous, unnatural and unstable state, because electrons normally come in pairs. This odd, unpaired electron in a free radical causes it to collide with other molecules so it can steal an electron from them, which changes the structure of these other molecules and causes them to also become free radicals. This can create a self-perpetuating chain reaction in which the structure of millions of molecules are altered in a matter of nanoseconds (a nanosecond is a billionth of a second), reeking havoc with our DNA, protein molecules, enzymes and cells.

Free radicals do some good by fighting inflammation, killing bacteria, and controlling certain muscles. If, however, free radicals are overproduced and not eventually inactivated, their volatile movements start doing harm by damaging cells and DNA.

Free radicals are unstable molecules because of the unpaired electron. To stabilize themselves, the free radicals rob an electron from healthy cells in our bodies. This process of losing an electron is commonly referred to as 'being oxidized'. Free radicals do this relentlessly and very quickly and can cause a cascade of damage. They can affect lipids, proteins and DNA; it is estimated that DNA receives about 10,000 hits per cell from free radicals per day.

The sources of free radicals include UV radiation, pollution, fatty foods, chemicals, cigarette smoke, exercise, by-products of metabolism, and activated macrophages and neutrophils. These last two are major defensive mechanisms against infection.

Antioxidants

The important role that antioxidants play in human health is only just becoming widely recognized. A key role of antioxidants is to protect us from the damaging effects of free radicals. Free radical damage is implicated in a number of disease states and in the ageing process itself.

Antioxidants protect against oxidation. Antioxidants sacrifice themselves to the free radical and therefore protect our body's cells from free radical damage. Our body has two sources of antioxidants:

Our in-house antioxidants, such as superoxide dismutase, catalase and glutathione
Dietary antioxidants, from sources such as fruit, vegetables, nuts and grains
It has been postulated that up to 70% of all cancers are related to dietary intake. Preventative attempts should simultaneously optimize the status of all essential antioxidants. Nature does not package a single nutrient in a particular food. It is clear that nutrients act together, with optimal levels of several being important for maximum protection.

Vitamins E and C have been recognized for many years as important antioxidants obtained from our diet. In addition, a diverse group of compounds called flavonoids are found in many plants, fruits and vegetables. Animals are not able to produce flavonoids

and so we must get them from the food we eat. Flavonoids not only protect plants, they also protect humans. Diets high in fruits and vegetables provide protection against cardiovascular disease, cancer and other diseases.

Oxidative stress: when free radical levels are too high

The human body has a limited reserve of antioxidant defense capacity. Our bodies continually produce free radicals and other oxygen derived molecules such as hydrogen peroxide. People today are also continuously subjected to many things that increase the level of free radicals within their bodies. As a consequence, the body can be overcome with oxygen derived species that upset cell biochemistry. This imbalance of free radicals in the body is called oxidative stress.

Cells are able to cope with small amounts of oxidative stress as they are quite ingenious and are able to repair minor damage caused by free radicals and other oxygen derived species. However, not all damage can be repaired. The amount of unrepaired damage accumulates in the body over time and can have detrimental effects.

Oxidative stress is caused by a number of conditions:

- An increase in free radicals means that the body's antioxidant defense system is unable to cope
- Antioxidant levels decline with age. Older people are more likely to suffer from oxidative stress
- An increase in the available transition metal ions causes greater amounts of the body's free radicals to be changed into the more reactive peroxy species.

Major oxidative stress can cause grave disturbances in cell metabolism and can contribute to human disease. Tissue damage and injury can also lead to oxidative stress. Oxidative stress results in DNA damage, lipid peroxidation, protein damage and ischemic (lack of oxygen) injury.

How Do You Decrease Your Body's Oxidative Stress?

1. Stop bad habits such as smoking.
2. Decrease or eliminate the consumption of fast, junk, processed or pre-packaged foods.
3. Increase your consumption of whole, naturally occurring foods.
4. Decrease your intake of food dyes, additives, preservatives and artificial substitutes for natural foods.

5. Increase your aerobic activity.
6. Decrease, eliminate or manage stress in your life.
7. Turn the TV off and read a good book, or better yet, read The Good Book.
8. Forgive those who have made you angry, who have offended you or who have harmed you.
9. Do something good for someone else today without the expectation of reward, repayment or appreciation.
10. Loose weight.

Next week, we'll continue discussing this critical part of a comprehensive plan for your health. Do you realize that we're over half way through with our discussion and we have not yet recommended that you take a single prescription medication, blood test or x-ray?

Remember, it is your life and it is your health.