

# It's Our Chemistry

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**H**ave you ever wondered why some people frequently get sick, while others stay well? Why do we age? Why do some people get heart disease, and others do not? Why is it that some of us are much more susceptible to stress, and stress related disorders than others? Why do some people get sick on alcohol and psychotropic drugs, or overuse and abuse them? Why are the cancer rates climbing?

Until a few years ago, no one had the answers these questions. Most of us just hoped that we, or someone close to us, would not be one of the unlucky ones. Historically, this kind of “hoping that it won’t happen to us” philosophy existed for most of human history, and people lived in abject fear of epidemics and plagues. With the advent of modern sanitation practices, the discovery of antibiotics, immunizations and dentistry, most of us no longer fear the infectious diseases that ravaged our ancestors.

The health challenges today are completely different from those of only a few generations ago. But like our ancestors, we still have that “hoping it won’t happen to us” mentality; only the “it” has changed. Now we fear such disorders as heart attacks, cancer, addictions, burn-out and chronic fatigue, and autoimmune disorders. And until just a few years ago, we seemed to be in a helpless position when it came to these problems. But just as with the discovery of antibiotics, science and technology has changed everything. We now have a much clearer idea as to what makes us become and feel unhealthy, and what we can do to prevent it.

Three and one-half billion years of life has created conscious, complex organisms called human beings. Like any complex, biochemical machine, a healthy human body and brain is dependent on the proper

chemicals and fuel, as defined by the design specifications of the manufacturer. Those design parameters have been discovered by biological scientists by “reverse engineering” our 3 ½ billion year old human physiology – studying human physiology in much the same way that Ford engineers disassemble the newest Mercedes model, in order to find out how it works. The bottom line conclusion of all this effort is that two kinds of substances or molecules exist in nature. Those substances which are intrinsically enmeshed into the fabric of life are called nutrients. The other types of substances are those that have been excluded from this design, and they are, at best, inert and can be toxic.

When we push our complex machinery up to or beyond the design parameters, this is referred to as stress. This can greatly increase our requirements for nutrients and/or worsen resistance to toxins. Those most genetically vulnerable to nutrient deficiency, toxin exposure or stress, are much more likely to suffer sooner and more deeply.

**Taken together, these four principles predetermine the entire panorama of health, wellness and disease:**

- I. Toxin Exposure**
- II. Nutrient Deficiency**
- III. Stress**
- IV. Genetic Vulnerability**

## **I. Toxin Exposure**

The first predisposing factor is toxin exposure, more precisely called xenobiotic (xeno=foreign, biotic=to life) substance exposure. There are two kinds of substances in the world – nutrients which support life, and chemicals which are alien to living processes – and have varying potentials to destroy. There are many sources of xenobiotic toxins, such as pesticides and artificial flavorings in food, air pollution, medication, and legal and illicit drugs to name a few. Xenobiotic substances are foreign to life, and are a major cause of disability and death in our age.

### **Common Sources of toxicity are:**

- 1) Herbicides, pesticides, and fungicides in foods
- 2) Artificial flavorings, colorings, additives, and preservatives in foods
- 3) Industrial pollutants in the air, food and water
- 4) Abused drugs (i.e. alcohol, marijuana) legal and illegal
- 5) Electromagnetic radiation and ozone
- 6) Pharmaceutical drugs, prescribed and over-the-counter
- 7) Radon and chemicals that accumulate in unventilated, closed spaces
- 8) Molds, dusts and environmental allergens
- 9) Toxic chemicals from yeast and other unhealthy intestinal microorganisms (dysbiosis)
- 10) Food (protein) allergies
- 11) Toxic, naturally-occurring substances (herbal chemicals, lead, aluminum, etc.)
- 12) Exotoxins generated by infectious disease microorganisms
- 13) Saturated fat and processed carbohydrates

**In summary, toxins can injure four ways. Any one of these areas of intervention will improve our health, longevity, and sense of well being, and improvements in any area will affect the others. The importance of separating them out allows us to target specific nutritional interventions to a specific problem or risk factor.**

- 1) Gastrointestinal (GI) injury**
- 2) Free radical generation**
- 3) Depletion of neurotransmitters**
- 4) General worsening of nutritional status**

## **II. Nutrient Deficiency**

As defined above, all matter in nature is of two types: 1) substances which support life (nutrients), and 2) substances which destroy life (xenobiotics and toxins). Nutritional deficiencies prevent the mind and body from peak functioning as defined by the manufacturers' specifications in three ways. Either the 70,000 or so enzymes that run all of our chemistry and depend on nutrients, will not work as efficiently; or removal (detoxification) of toxins is thwarted; or the ability to cope with stress is worsened; or more likely, some combination of all three.

The nutrients required to sustain human life are:

- 1) Water
- 2) Oxygen
- 3) Sunlight
- 4) Fiber
- 5) Essential amino acids (from protein)
- 6) Essential fatty acids (from fat)
- 7) Essential minerals
- 8) Essential vitamins and phytonutrients

Nutritional deficiency and excess is something we do have some control over. The modern diet has too much of some things,

especially saturated fat, processed carbohydrates and calories, and not enough of others such as fiber. **We would undoubtedly live longer, and feel and function better, if we modified this intake and supplemented with missing nutrients.** Most people are surprised to find out that there are some massive nutritional deficiencies in the western world that are directly related to disease that have assumed epidemic proportions.

There are four deficiencies that account for many of these problems:

- 1) Minerals, the natural salts, such as magnesium or chromium which are crucial to the biochemical machinery itself in our cells.
- 2) Antioxidants, the plant substances that detoxify the cancer causing poisons from our environment that get into our body.
- 3) Essential Fatty Acids, the oils that we can not make therefore depend on plants and fish to supply.
- 4) Fiber to prevent constipation and putrefaction (toxin formation) in the GI contents.

Modern food processing, the inefficient recycling of minerals back into agricultural topsoils and our food chain, and the “fast food on the run” lifestyle have all contributed to this worsening public health menace. Even food cooking destroys many of the essential oils and other nutrients. **We have moved dangerously far away from our ancestral diet that has supported human survival for eons.** Even if we restrict processed carbohydrates and saturated fat, and attempt to conform to an ideal, ancestral, protein rich, high fiber, vegetable diet, the modern diet can not even come close to the optimal nutritional requirements (much higher than the FDA minimum daily requirements), that we need to make a real difference. Toxin exposure and

stress drive our requirements to new heights. It would be nice if we lived in an age where this would not be necessary, but we will simply have to face reality. We live in abnormal times, and we will need to take some abnormal steps to survive and function well. In a few decades from now, this information could be common, everyday knowledge, and most people will probably be supplementing with daily, handfuls of nutrients in order to feel well, function to their peak abilities, and prevent disease.

### III. Stress

Stress is the third factor that predisposes us to disease. **This persistent “fight or flight” condition keeps us in a revved-up state, and our chemistry has to work much harder.** As oxygen is used more for fuel, more free radicals are produced, and minerals and vitamins are used up more rapidly. If these are not readily available to replenish those heightened requirements, we are more susceptible to health problems. This is why stress predisposes us to cancer and heart disease. As with exposure to xenobiotic chemicals, we also have two simple choices here. **Cut down or eliminate the stress, and/or supplement to at least minimize the injury that stress can cause.**

**Common causes of stress are:**

- 1) Over-working, over-activity
- 2) Sensory over-stimulation
- 3) Irrational beliefs
- 4) Unfinished emotional business
- 5) Isolation, lack of support
- 6) Lack of purpose, meaninglessness

Stress also uses up some of our natural “feel good” brain chemicals called neurotransmitters. We have these “feel good” neurotransmitters in our brain, for two well-defined reasons. They are released to modify

pain and stress, to help us “hold it together” in a potentially life-threatening situation. They also are released in order to experience joy and pleasure, which is essential to feeling well and doing our best. Since we now know which of these neurotransmitters are related to certain feeling states (e.g. anxiousness, or tiredness), and we know how they are made from certain dietary constituents, it is a relatively simple and logical solution to supply optimal amounts of these natural precursors in supplements, and restore the “feel good” neurotransmitters more rapidly. **If we “feed” our brains properly, they function better.**

#### **IV. Genetic Vulnerability**

Genetically speaking, we have not changed much, if at all, for about 100,000 years. Therefore, the genetic factor is relatively simple to discuss, because we do not have the technology to change this variable, and probably won't in our lifetime. We are simply not at choice about our heredity, the way that we are about toxin exposure, nutritional deficiency and stress. The inheritance of certain characteristics is important, however, to guide us about our other choices. In a sense, we can utilize what we do have control over (toxins, nutrients and stress) to override our unique genetic predispositions that we have no control over. For instance, if my family is riddled with cancer, I know that I certainly can not do anything about my likely genetic predisposition to the disease. **However, knowing that antioxidant supplementation, avoidance of toxin exposure and regular stress reduction exercises will improve my odds, -- certain lifestyle choices allow me to live with more confidence.**

#### **The Importance of a Healthy Gastrointestinal (GI) System**

When the four factors, (1) toxicity, (2) nutrient deficiency, (3) stress, and (4) genetic vulnerability, unite to cause disease, injury to the gastrointestinal (GI) tract is often the most important predictor of eventual outcomes. **The health of the GI tract has enormous implications for the health of the rest of the body, including the brain.** When the GI tract is injured, the micro-thin barrier that keeps toxins and undigested food particles out and lets nutrients in, breaks down. The nutrients that should get in may not make it, and the waste products that should wind up getting flushed, leak across into the blood stream. These conditions are respectively termed malabsorption or “leaky gut syndrome.” **Therefore, GI injury can greatly complicate two of the four predisposing factors to disease, nutritional deficiencies and exposure to toxic chemicals.** In fact, the toxins generated by the unhealthy bacteria, yeast and parasites in the GI tract, are often the main source of overall toxic exposure. Once the GI tract is injured, malabsorption and leaky gut sets up a vicious cycle of an inability to heal (nutrients can not be absorbed) and toxin overload, which further prevents the GI tract from healing and so on.

**To assist in this regard, there are nutrients which are specifically designed to heal the gastrointestinal lining, and replenish the healthy bacteria that protects, detoxifies, and even synthesizes nutrients for us.** A combination of natural soy, glycolipids to heal damaged tissues, acidophilus and bifidus (the necessary, friendly bacteria), and pantethine (vitamin B5) and other growth factors that specifically help the friendly bacteria grow, may be essential to GI wellness, and thus wellness everywhere else in the body and brain.

## **The Facts about Imbalanced Brain Chemistry and Substance Abuse**

What predisposes some of us to imbalance of brain chemistry? One factor is genetics. Some of us simply don't resynthesize the neurotransmitters as well as others, because our genes inefficiently encode for the enzymes that generate these "feel good" chemicals. Some of us may have the genes to do it, but we lack the dietary amino and fatty acid precursors, and vitamins and minerals that are made into the neurotransmitters. Some of us may even have the right genes and nutrition, but we use up our "feel good" chemistry so fast by living a high stress lifestyle, that we don't replace fast enough to maintain an enduring sense of well being. Finally some of us have adequate genes, good nutrition and reasonably healthy lifestyles, but we are lacking in support systems that give our lives purpose and meaning. This special kind of stress that further erodes the neurotransmitters that are in our brain to buffer us against the occasional stress, dietary indiscretion or isolation. Whatever the cause of the depletion, the biochemical deficiency then causes an urge or compulsion to find an artificial (but temporary) solution. **In it's most extreme and chronic form, this is called alcoholism or drug dependence, and the compulsion can be virtually unstoppable unless the biochemistry is rapidly restored with the depleted nutrients.**

If heavy alcohol and drug use has the potential to cause medical, interpersonal, social and vocational problems, why do some people have such a hard time cutting down and/or stopping? Alcohol, like any mood altering drug, achieves its effects on our moods by stimulating and replacing certain "feel good" neurotransmitters. That is why these psychotropic (tropic=change,

psycho=mind), xenobiotic (foreign to life) chemicals temporarily makes us feel good. The brain responds to the overabundance of artificial "feel good" substance, by making less of its natural neurotransmitters that were depleted from the nutrients in our diet. Some of us don't restore or "feel good" brain chemistry as well as others and it is this persisting imbalance of brain chemistry that causes hangovers, cravings, mood swings, irritability and sleep problems. We are then compelled to modify the deficiency temporarily by again using more alcohol or drugs, which only perpetuates and worsens the problem.

Since we now know that the problem is caused by an imbalance in brain chemistry, and we know which drugs deplete which transmitters, and we also know which nutrient raw materials are used by the brain to synthesize which neurotransmitters, the solution is obvious. **Specific combinations of nutrients help to eliminate the cravings, mood swings, and sleep problems that are all caused by a depletion of brain chemistry, and relapse becomes much less likely.** Treatment programs, designed for those with true substance dependence problems that use these specially formulated products, have dramatically better outcome rates than those who do not.

Whether someone needs treatment or not, I recommend that they consider this information carefully if alcohol or drugs are causing even minor problems in their life. This is not a psychological or moral issue in spite of the fact that many people, even some professionals who treat it, believe that it is. Nor can it be ultimately corrected by various medications that have been touted as treatments for drug and alcohol abuse. They will only replace one destructive chemical with another. We can only rebalance our brain and body physiology, in accordance

with the design specifications as dictated by our billion year-old chemistry. If you believe that you were created by God, then consider this knowledge about nutritional science to be your invitation to participate in life according to God’s Laws. If you do not hold to those convictions, the conclusion is the same. Our marvelous biochemistry can only be balanced by adhering to our ancient, evolutionary design, regardless of the forces that went into its creation.

**Even if you don’t use caffeine or other mild, mind-altering chemicals, you should know that your neurotransmitters, your natural “feel good” brain chemistry, can become imbalanced by other sources of chemicals in your environment,** that you might not even know about. These are called neuroexcitotoxins (neuro=brain cell, excito=overstimulated, toxin=toxic substance) and they can cause mood swings, fatigue, sleep problems and compulsions in other areas of life.

Personalities, Neurotransmitters, Drugs & Precursors			
Life Story or Personality	Depleted or Unbalanced Neurotransmitter	Drug that Replaces or Depletes that Neurotransmitter	Food Nutrient that Restores Neurotransmitter
Bored, easily distracted, risk taker, thrill seeker, tendency to become despondent, difficulty completing tasks and goals.	Catecholamines, especially dopamine and norepinephrine	Cocaine, nicotine, amphetamines, uppers, antidepressants, alcohol	Tyrosine, Vitamins B6, B3, folic acid, copper iron <i>(All included in the LIFT and UPLIFT PAKS)</i>
Pained by life (physical or mental) overly responsible, caretaker, has difficulty enjoying simple pleasures	Natural opioids, endorphins, and enkephalins	Heroin, opioids, morphine, codeine, and drug which fills opioid receptors, alcohol	D-phenylalanine, magnesium aspartate <i>(All included in the ENDORPHIN PAK)</i>
Never felt normal, obsesses or uses compulsive behaviors to feel okay, or be accepted by others	Serotonin, Melatonin	Alcohol, newer “SSRIs” antidepressants	Tryptophan, Vitamins B3, B6, chromium <i>(All included in the RELAX and EAZ PAKS)</i>
Never commits to relationships, “hangs out,” drifts through life (younger), chronic disease (eg., heart disease, diabetes)	Prostaglandins, especially PGI	Marijuana, alcohol	Omega-6 essential fatty acids, GLA (borage oil), Omega-3 essential fatty acids (flax oil) <i>(Included in all of the Nutrient Paks)</i>
Smokes cigarettes to relax, or to fit in	Acetylcholine	Nicotine, cigarettes, tobacco	Choline as bitartrate or phosphatidyl choline, Vitamin B5 (pantethine) <i>(Included in the TOBAC PAK)</i>