**Conquering Infections**

**Introduction**

Recurrent infections, chronic infections and poor response to antibiotic therapy are common health problems today. Research conducted at Analytical Research Labs for the past 40 years has cleared up some of the mechanisms of infection, the reasons for poor response to traditional therapy and effective new approaches for overcoming infections.

**Nutrients And The Mechanisms Of Infection**

**Zinc, Vitamin A and Mucus Membranes**

One important way the body protects itself against infection is to maintain the integrity of the skin and mucus membranes to resist bacterial invasions. Zinc and vitamin A are two nutrients required to maintain the skin and mucus membranes.

**Zinc and vitamin A are synergetic nutrients, meaning that they assist or potentiate one another.** Sometimes vitamin A alone is effective against infections, but in other cases zinc must be added for vitamin A to be effective. Zinc is required to mobilize vitamin A from storage in the liver.

**Deficiencies of zinc and vitamin A are widespread for many reasons.** Zinc is deficient in our soil today and hence is deficient in food. Refined and processed foods are even more deficient in zinc. Vegetarian diets which are relatively high in copper and low in zinc can contribute to a zinc deficiency. Stress and the use of birth control pills also are major contributors to a zinc deficiency.

**Vitamin A levels are commonly inadequate today due largely to a low dietary intake.** Vitamin A, or its precursor B-carotene, are found in orange and yellow vegetables, broccoli and fish oils. Even if a person consumes vegetables containing B-carotene, many are unable to convert beta-carotene to vitamin A due to lowered thyroid or liver activity.

**Today's deficiencies of zinc and vitamin A are usually subclinical, meaning that overt symptoms of deficiency are rarely present**. Yet we find that supplementing with these nutrients often produces dramatic benefits for those suffering from infections.

**White Blood Cells and Vitamin C**

Another important defense system against infection involves the lymphocytes, classified as helper cells, suppressor cells and killer cells. Vitamin C, as well as other nutrients, are known to play a key role in maintaining this system. Many diets are deficient in vitamin C, due to overcooking of food, food refining, shipping of food long distances and lack of C-containing foods in the diet. Also, stress, air pollution, copper toxicity and other factors can dramatically increase the body's need for this nutrient.

Again, deficiency is generally subclinical, but low levels of vitamin C can seriously impair the body's ability to fight infection.

**Toxic Metals**

Mercury toxicity is known to suppress immune function. Cadmium displaces zinc from the body and thereby impairs the immune system. Other toxic metals also directly or indirectly damage many delicate enzyme systems necessary for an adequate response to infection. Some degree of mercury and cadmium toxicity are present in the majority of people today. Sources of mercury include seafood, dental amalgam, water pollution, pharmaceutical and occupational exposure.

Sources of cadmium toxicity include drinking water, refined food, zinc deficiency and air pollution. Today, toxic metals are often present at birth, due to heavy metals accumulated by the mother.

**Breakdown Of The Energy System**

All body systems, including the immune system, depend upon adequate generation of biochemical energy within each body cell. Many people with recurrent infections complain of low energy and fatigue.

Many nutrients are required for production of adenosine triphosphate (ATP) in the glycolysis and Krebs cycles, including manganese, magnesium, zinc, copper, iron and vitamins B1, B2, B3, B6 and E.

Subclinical deficiency and/or unavailability of these nutrients is widespread. Physical or emotional stress, environmental pollution, diets consisting of refined foods, toxic metal poisoning and imbalances in the metabolic rate can all contribute to inadequate levels of these nutrients. Stress for example depletes vitamin C and zinc.

**Tissue Mineral Patterns Commonly Associated With Infection**

Correlation of over 200,000 hair analyses at Analytical Research Labs has revealed several important tissue mineral patterns associated with infection. Correction of these patterns has resulted in resolution of even longstanding infections and reduced the incidence of infections in those individuals prone to recurrent infections. These patterns are the following:

**Imbalanced Oxidation Rate**

A slow or fast oxidation rate, as measured on a tissue mineral analysis, reduces the amount of adaptive energy available for healing. The entire energy system is affected by this imbalance. Both slow and fast oxidation, especially if extreme, are associated with an increased tendency to infection.

Fast oxidation is associated with low copper and zinc levels, two nutrients essential for immune function and energy production.

Slow oxidation is indicative of low thyroid activity, which is known to be associated with increased susceptibility to infection.

Recent research indicates that low thyroid activity is associated with the inability to convert beta-carotene to vitamin A. This is one reason why giving vitamin A in high doses to infection-prone individuals can result in remarkable improvement. Slow oxidation is also associated with copper toxicity and zinc deficiency.

In our experience, slow oxidizers commonly suffer from an increased tendency for infection. Very slow oxidizers lack sufficient energy to combat infections. Excess copper and other toxic metals are usually present, even if they are not revealed on the first hair mineral test.

**Iron and Copper Imbalance**

One of the body's initial responses to infection is that iron is withdrawn from circulation and stored in the liver, while copper is released into the circulation. Circulating iron favors' infection, while available copper inhibits infectious processes. The fast oxidizer is commonly deficient in copper. Slow oxidizers often have biologically unavailable copper, even though hair levels may be elevated. Thus, an imbalance, as determined by a hair mineral test, can be a major indicator of an infection tendency.

**Zinc and the Zinc/Copper Ratio**

**Zinc deficiency, biounavailability of zinc, or antagonism of zinc by cadmium or copper will impair immune function.** Zinc is involved in the synthesis of all body protein. Zinc is also required for the integrity of the skin and mucus membranes of the body - critical tissues in defending against infection.

**Excessive zinc supplementation** can also impair immune response, however, because zinc lowers copper levels. Balance is always a key to optimum health.

**Low Hair Sodium/Potassium Ratio**

An important indicator of a tendency toward infection is a sodium/potassium ratio of less than 2.5:1, as determined by a hair analysis. The hair must not be washed at the laboratory to obtain accurate readings. The lower the sodium/potassium ratio, the greater the tendency for infections to occur.

The sodium-potassium balance is involved in maintaining normal electrical potential of the cells and transport of nutrients across cell membranes. A low sodium/potassium ratio is associated with impaired liver function and protein catabolism. It also indicates adrenal exhaustion and possibly excessive cortisol secretion. It is well known that excessive cortisol impairs one's infection-fighting ability. Bear in mind, that low levels of cortisol, as found in slow oxidizers, also impairs the immune system.

**Dietary Factors**

**A discussion of nutrition and infections would not be complete without mentioning the role of diet**. The ingestion of refined flour, refined sugar, white rice and other processed foods reduces both the vitamin and mineral content of the diet. A refined food diet will increase the tendency for infections. Whole foods, raw foods and minimally processed foods have a protective effect.

**Raw foods such as salads, fruits and raw nuts and seeds provide vitamins C and E to help prevent infections.** Yellow and orange vegetables provide B-carotene, another protective nutrient against infections. Vegetable and fruit juices, such as carrot juice, provide higher amounts of these nutrients. The only drawback with the use of juices is their high sugar content. In some people, the sugar content affects blood sugar levels and enhances the proliferation of yeast organisms. Fluctuations in blood sugar and candida albicans infections weaken the body and could offset the benefits derived from the juices.

**The importance of adequate protein in the diet has already been discussed.** Adequate protein for most individuals is about 6-9 ounces of protein food per day. Vegetarian proteins (nuts, seeds and beans) have less fat and cholesterol. However, pure vegetarian diets in some instances may increase infections due to their low content of zinc and high content of copper.

**Food sensitivities or allergies can increase infections.** This is well documented with regard to ear infections in children. The elimination of offending foods, often milk products in children, can have a great impact in preventing infections. At times, food allergy testing may be advisable to identify foods that are contributing to recurrent infections.

Sensible eating habits such as regular, sit-down and relaxed meals enhance the absorption of nutrients and thus exert a protective effect against infections.

**Stress And Infection**

A recent study in the New England Journal of Medicine reported that a significant factor determining whether an exposed person contracted a cold was psychological-emotional stress. This finding correlates with our nutritional data. We know that stress depletes vitamin C and zinc and affects cortisol levels as well. Stress also impairs the absorption and digestion of all nutrients. A complete approach to overcoming infections should include controlling psychological stress as much as possible.

**A Case History**

Susan, age 18, was referred for nutritional analysis due to recurrent colds, flu and sore throats. Susan seemed to pick up every cold that was going around and was rarely well for more than a month at a time. Further questioning revealed that she was also frequently tired and craved sweets.

Susan's hair mineral test revealed a mineral pattern of extreme slow oxidation. Her calcium and magnesium levels were elevated off the chart. Her sodium and potassium levels barely registered on the mineral chart. Cadmium and copper levels were elevated as well.

Correction of Susan's problem began with a discussion of her diet and lifestyle. She overate on sweets and soda pop and her diet was low in protein. She also ate irregularly and sometimes stayed up late at night. She was told to eat regular meals, have some protein with each meal and go to bed early.

**Supplementary nutrients included B-complex vitamins, manganese, zinc, vitamin C, adrenal glandular, vitamin A, zinc, copper and manganese.** This combination was given to increase her oxidation rate, offer extra immune system protection and begin eliminating toxic metals.

Within two weeks, Susan noted an increase in her energy level. Her mother noted a significant improvement in her attitude and outlook as well. Since beginning her nutrition program two months ago, Susan has not had a single cold or flu episode. This is a common response, although in some individuals, rebuilding the immune system can take up to a year or more depending upon the severity of the problem.

**Reducing The Tendency For Infections**

A complete nutrition program, based on tissue mineral analysis, is the best way in the long run to reduce any tendency toward infection. These programs are designed to rebuild and restore the energy system, eliminate toxic metals, correct mineral imbalances and restore the functional integrity of all body systems.

During the rebuilding process, which can take from several months to several years, adding extra vitamin A or B-carotene to the nutritional program will help prevent a recurrence of infections. B-carotene or vitamin A in dosages of 50,000 to 100,000 units daily may be given.

**Antibiotic Therapy - How It Works And Why It Can Be Ineffective**

Antibiotics have been one of modern medicine's miracle drugs. Antibiotics are effective in helping to destroy a wide range of bacterial organisms. Many antibiotics act by mobilizing copper or manganese (depending on the antibiotic) from the liver, which enables the body to better fight-off infection.

Antibiotics will not be as effective if the body's stores of manganese or copper are depleted, which can occur with repeated use of antibiotics. Repeated use also tends to produce resistant strains of bacteria. Antibiotics do not, of themselves, strengthen the body's immune system. As a result, infections frequently recur. Antibiotics can also cause liver and kidney damage, yeast overgrowth and allergic reactions. Our feeling is they should be used only when less toxic and more physiological methods have not been successful, or in an emergency.

We realize that this is a reversal of medical thinking, which advocates medicine first and nutrition second. However, our experience is that many infections can be cleared up utilizing only the regimen listed above, in conjunction with common sense hygienic measures such as rest, reduction in food intake and other supportive measures.

**Conclusion**

The problem of infections has always plagued humanity. Today many people suffer from recurrent infections and low resistance to infection. Modern nutritional research provides us with methods to both increase resistance to infection and combat even serious infections using simple, non-toxic nutritional regimens.

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