



NUTRITION: MEDICINE OF THE FUTURE

The medicine of the future will no longer be remedial, it will be preventive; not based on drugs but on the best diet for health. This document explores the issue:

What is Optimum Nutrition?

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NUTRITION: MEDICINE OF THE FUTURE

The subject of nutrition is massively wide and deep. There is so much to know and so many seemingly contradictory theories on the subject of nutrition and its relationship with human physiology and mental function. Most people, even (or perhaps especially) when partly informed by means of articles on the subject in magazines, etc., find they are confused. The purpose of this site is to provide a clear explanation of the basic principles of nutrition and its effect upon your health.

Tomorrow's Medicine

2500 years ago, Hippocrates, the "Father of Medicine", said to his students, "Let thy food be thy medicine and thy medicine be thy food". Moses Maimonides, the great 12th century physician, repeated the Hippocratic statement when he said, "No illness which can be treated by diet should be treated by any other means". In essence, Hippocrates and Maimonides were insisting that their students practice **nutrient therapy**.

This type of medical therapy is being used by doctors today, but only by a minority. It is more likely to be applied by nutritionists who have studied the specialist subject of nutrition in depth. There is little training in nutrition at medical schools and unless a doctor has pursued the study of nutrition out of choice, he or she is unlikely to be sufficiently informed to advise about optimum nutrition.

In 1968 one of the great minds of this century, twice Nobel prize winner Linus Pauling, coined the term *Orthomolecular Nutrition*. "Orthomolecular" is, literally, "pertaining to the right molecule". Pauling proposed that by giving the body the right molecules (optimum nutrition) most disease would be eradicated. This Website is based on Pauling's premise that "**Optimum nutrition is the medicine of the future**".

Ortho vs. Toxic Medicine

Orthomolecular doctors and nutritionists believe that the treatment of infectious and degenerative diseases should be a matter of varying the concentration of "right molecules" (i.e. vitamins, minerals, trace elements, amino acids, enzymes, hormones, etc.) which are present in the body. The optimum nutritional micro-environment of every cell in the body is vital to achieve or restore optimal health; deficiencies in this environment cause the body to be more susceptible to disease and degeneration.

The list of necessary nutrients is the same for every human being, but the relative amounts needed by each individual are as distinctly different as the shape of people's bodies, and for this reason a "one for all" daily nutritional requirement is impossible to specify.

Why is this? Because the kind of food you eat, the physical, mental and emotional stress you experience, the environment in which you live and work, your inherited biochemical and physiological make-up, the constituents of soil in which your food is grown, the contents of water you drink, the amount of exercise you have, and many other factors, determine the fact that you are a unique individual with unique needs.

In other words, your *optimum daily need* is determined by your own biochemical uniqueness, which in turn relates to your mental and spiritual state. Optimum nutrition is not just about preventing or reversing disease states, to cross the line where deficiency is directly causing disease; more than that, it is about living optimally, where you have room to stretch your physical, mental and spiritual "muscles" to the full, without overstepping the threshold at which cellular health in any of the systems of the body becomes threatened.



By contrast, *Toximolecular medicine*, used by the majority of doctors (especially in the past 50 years) is the administration of drugs at sub-lethal levels. Drugs, of course, are alien chemicals which serve to cover-up the disease process - to mask the difficulty, not eliminate the real cause. They offer symptomatic relief but often at the cost of severe and dangerous side effects. They create dependence on the part of the patient and often complicate the doctor's job by erasing valuable clues as to the real source of the trouble.

Of course, drugs can save the life of an ill patient, as can surgery and the other techniques at which doctors are so expert. But the paradigm is changing. As a doctor in Dublin recently said, "The evidence for nutritional therapy is becoming so strong that if the doctors of today don't become nutritionists, the nutritionists will become the doctors of tomorrow."

Patrick Holford, Director of the Institute for Optimum Nutrition in London which is at the forefront of research and education in this field, makes this very clear:

"Tomorrow's medicine will not be about using nutrients *instead* of drugs. It will be about looking through a new pair of glasses which reveal the true causes of disease. In most cases these lie in faulty nutrition, pollution, stress, negativity, addiction and lack of exercise - the greatest cause of all being ignorance. The original meaning of the word 'doctor' is "teacher or learned man" and that is perhaps the most important role a health professional can perform."



*"It's a new dietary device we're trying out.
It basically delivers an electrical shock
whenever you consume junk food."*

Cartoon by Jerry King

So what is a healthy diet?

What is a healthy diet? Most people don't know, not because they're ignorant or don't care - it's because they're confused. There is so much conflicting advice about diet and nutrition, who can blame us when we throw in the towel and eat pizza?

You may hear much conflicting advice and confusing information, but actually, hidden away among the self-serving propaganda of a lot of the food industry there are very clear guidelines for healthy eating. After years of research and campaigning, there are finally official and nutritionally sound guidelines for a good diet. The message is plain: a low saturated fat, moderate protein, high complex carbohydrate diet is the way to go. Stated simply, **the golden rules for a healthy diet are:**

Avoid stimulants such as sugar, coffee, tea and cigarettes, and limit alcohol.

Avoid saturated (animal) fats and hydrogenated (processed) fats.

Avoid simple (refined) carbohydrates, including white bread, biscuits, cakes and other processed foods.

Avoid unnatural additives, flavourings and preservatives.

Eat more beans, lentils, seeds, nuts and wholegrains.

Eat more vegetables, raw or lightly cooked, organically grown.

Eat several servings of fresh fruit every day.

Drink plenty of filtered water.

It works for weight loss but more importantly it's the cornerstone of optimum nutrition - an approach to diet and health that says food can be both pleasure and medicine, and that diet has a crucial role to play in disease prevention and longer, healthier living.

Many people would like to believe that as long as they take their vitamin supplements they can keep eating all the "bad" foods they desire. But you can't rely simply on supplements, or on a healthy exercise routine, or on a well-planned diet alone. All three are essential.

Of course it is good to eat foods rich in vitamins and minerals. But this is only one criterion. Good food should also be low in saturated fat, salt and fast-releasing sugars and high in fibre. Alkaline-forming foods (foods high in calcium, magnesium and potassium) are preferable - such as all fruit and vegetables, millet, seeds, almonds, brazils, herb teas, yoghurt, bean sprouts. These help to buffer the acids that result from the metabolism of proteins, refined foods and stimulants. Such a diet will also be low in calories. And to further help keep your weight in check, eat earlier in the day, rather than later when the metabolism slows down. And of course, exercise every day.

The best sources for essential nutrients include:

Carbohydrates - *Beans, lentils, wholegrains, vegetables, fruit*

Protein - *Nuts, seeds, beans, lentils, wholegrains, vegetables, and small quantities of animal produce*

Fats - *Nuts, seeds, cold-pressed vegetable oils, wholegrains, oily fish used in moderation*

Water - *Filtered water, still bottled water, fruit and vegetables*

Vitamin A - *Carrots, watercress, spinach, cabbage, squash, sweet potatoes, melon, pumpkin, broccoli, apricots, beetroot and tomatoes, eggs, fish liver oils, cheese*

Vitamin B Complex - *Wholegrains, seeds, nuts, vegetables, beans, lentils, eggs, milk, yoghurt, liver, poultry, fish, meat, eggs*

Vitamin C - *Berries, tropical fruits, peppers, tomatoes, cabbage*

Vitamin D - *Fish, dairy products, egg yolk*

Vitamin E - *Wheatgerm, unrefined vegetable oils, avocados, seeds, nuts, beans, peas, fish, egg yolk*

Vitamin K - *Kelp, alfalfa, cauliflower, leafy green vegetables, potato, tomatoes, polyunsaturated oils, dairy products*

Calcium - *Peanuts, sunflower seeds, dairy foods, bones in small fish, green leafy vegetables*

Chromium - *Brewer's yeast, egg yolk, mushrooms, wholewheat bread, molasses*

Iron - *Green leafy vegetables, dried fruits, wholegrains, beans, lentils, fish, meat*

Magnesium - *Green leafy vegetables, nuts, seeds, soya beans, wholegrains*

Potassium - *Fruit - particularly bananas, vegetables*

Selenium - *Nuts, seeds, wholegrains, fish, meat. eggs. dairy products*

Sodium - *Fruit, vegetables contain all you need*

Zinc - *Nuts, seeds, wholegrains, wheatgerm*

The Need for Supplements

We are not all alike. The needs for your particular lifestyle must be adequately covered, and this is where the need for supplementation comes in. For example, if you smoke and drink alcohol frequently your nutritional needs will be higher. If you are pregnant, if you live in a polluted environment, if you have a high stress occupation or are suffering emotional stress, if you suffer from allergies, if you have any sort of disease, degenerative illness or inherited weakness - all of these factors may increase your needs.

The poor nutritional quality of many purchased foods is another factor. Depleted soils and lengthy storage, as well as toxicity from pesticides, antibiotics, additives, and so on can make an apparently healthy food of little value. Tests have shown that, for example, most people do not obtain adequate zinc, folic acid or the essential fatty acids in their diet, and health (physical and mental) suffers - the weakest link of the inter-acting bodily systems inevitably gives way.

Deficiency of any of the essential nutrients (below the RDA amount) will, over a period of time, result in illness. Recent research has shown that most of the population in Western countries is deficient in at least a few nutrients (the most common being zinc, selenium, B and C vitamins) and literally on the edge of illness.

Moreover, individual nutritional needs are frequently higher than the RDA amounts, and to reverse the effects of decades of poor diet and the resulting toxicity, yet alone to attain optimum health, larger amounts are required - as part of an improved diet and usually supplements as well.

Sensible supplementation is not just an "insurance policy", it is a necessity. Of course, if you have been eating a typical diet containing all sorts of nutritionally dubious foods and drinks, you first need to start eating an improved diet combined with a balanced regimen of nutritional supplements to begin detoxifying the body and strengthen your immune system.

An Optimum Nutrition Formula

If you take supplements your most important decision should be "which multi?" Why? Because vitamins and minerals are essential for almost every function of the body. They are vital for energy and they protect you from premature ageing and degenerative diseases. And because they work together they need to be taken in a balanced formula, not just in isolation (except for the purpose of remedial therapy under the guidance of a professional).

The question is, how much do you need? Many multis shortchange you, especially with minerals. There's a big difference between the amount required to prevent deficiencies that would lead to serious degeneration, and the amount of each vitamin and mineral you need for optimum health. A few years ago, scientists at the University of Alabama worked this out for every nutrient and called the amounts Suggested Optimal Nutrient Allowances or SONAs. The following formula is based on SONAs and gives the amount of each essential vitamin and mineral that you need for optimal health.

The formula provides:

Vitamin A 7500 i.u. - Retinol, a fat-soluble vitamin and antioxidant, derived from animal sources such as dairy foods, fish liver oil, eggs and liver. Like other fat-soluble vitamins, this form of vitamin A can build up in the body tissues causing undesirable side effects if taken in excessive amounts (much more than 7500 i.u. per day). Excess should particularly be avoided by pregnant mothers or those expecting to become pregnant. A good supply of vitamin A is however essential for optimal functioning of the eyes, gums, skin, the mucous lining of the nasal sinuses, respiratory and digestive tracts. Also for bone development, production of sex hormones and normal immunity.

Deficiency symptoms: mouth ulcers, poor night vision, acne, frequent colds or infections, dry flaky skin, dandruff, thrush or cystitis, diarrhoea.

Beta Carotene 2500 i.u. - Vegetable pre-cursor to vitamin A, found in orange/red fruit and vegetables, that is not toxic in larger amounts (it is converted in the body to vitamin A only as and when required). As an antioxidant it helps prevent cancer and premature ageing and protects the heart and arteries.

Vitamin D 300 i.u. - Ergocalciferol, a fat-soluble vitamin derived from animal sources (fish, dairy, eggs). Needed for the absorption, utilisation and retention of calcium, normal sexual function, and calcification of bone to maintain strong bones and teeth. Helps prevent loss of calcium from urine. Made by the body when exposed to sunlight. Toxic in excess (more than 1500 i.u. daily) as this may cause calcification of the liver.

Deficiency symptoms: joint pain or stiffness, back ache, tooth decay, muscle cramps, hair loss (in extreme: rickets in children, osteoporosis in adults).

Vitamin E 150 i.u. - D-alpha tocopherol is a fat-soluble antioxidant found in nuts, seeds and vegetable oils which it helps to prevent becoming rancid, just as it protects fats within the body from oxidation. Its antioxidant properties help limit the damage to all body cells caused by naturally present free oxygen radicals, and therefore helps prevent cancer and ageing. Needed for maintenance of a healthy heart and circulation, normal sexual function, proper growth and repair of skin. Helps heal scar tissue, oxygenate muscles and maintain immunity.

Deficiency symptoms: lack of sex drive, exhaustion after light exercise, easy bruising, slow wound healing, varicose veins, loss of muscle tone, infertility.

Vitamin K (not included) - Phylloquinone, fat-soluble, required for blood clotting, is found in many vegetables, dairy products and wholegrain cereals. It is also produced by healthy intestinal bacteria, so it is rarely deficient except in young infants (nursing mothers should eat cauliflower and cabbage).

Vitamin C 300 mg - Ascorbic acid, a water-soluble antioxidant found in fruits and vegetables. Strengthens the immune system - fights infections. Makes collagen, the inter-cellular glue, keeping bones, skin and joints firm and strong and strengthening blood vessels. A powerful antioxidant, helping to detoxify pollutants and protect against cancer and heart disease. Helps make anti-stress hormones and needed for metabolism. Helps the absorption of iron from food. Most animals make the equivalent of several grams of vitamin C daily; however, by a quirk of evolution, humans cannot produce their own, so we really do need the benefit of further supplementation.

Deficiency symptoms: frequent colds, lack of energy, bleeding or tender gums, easy bruising, nose bleeds, slow wound healing, red pimples on skin (in extreme: scurvy).

Vitamin B1 37.5 mg - Thiamin, a water-soluble vitamin, found in association with other B Complex vitamins in wholemeal products, brown rice, many vegetables, meat, nuts and dairy, is unstable and frequently destroyed by cooking or by preservatives. B1 is needed for carbohydrate metabolism and may be deficient in those on a high sugar diet. Helps maintain appetite, normal functioning of the nervous system, eyes, hair, heart and other muscles. Helps keep mucous membranes (digestive lining, lungs, etc) healthy. It is needed for digestion, growth and maintenance of muscle tone.

Deficiency symptoms: tender muscles, eye pains, irritability, poor concentration, prickly legs, poor memory, fatigue, loss of appetite, nausea, stomach pains, constipation, tingling hands, rapid heart beat (in extreme: beriberi).

Vitamin B2 37.5 mg - Riboflavin, a water-soluble B Complex vitamin found in vegetables, fish and dairy, works particularly closely with vitamins B6 and B3 and selenium. It assists in the metabolism of proteins, carbohydrates and fats and therefore is needed for energy. It plays a role in cataract prevention and is needed for healthy mucous membranes, skin, nails, hair and the absorption of iron. It is also a necessary factor in healthy functioning of the nervous system and helps to regulate body acidity. Requirement is increased with with alcohol or drug abuse, consumption of coffee, the contraceptive pill, antibiotics and pregnancy. Unrequired B2 harmlessly colours the urine yellow.

Deficiency symptoms: burning or gritty eyes, sensitivity to bright lights, sore tongue, cataracts, dull or oily hair, eczema or dermatitis, split nails, cracked lips.

Vitamin B3 75 mg - Niacin or nicotinic acid, a water-soluble B Complex vitamin found in vegetables, fish, dairy and unrefined cereals, has a vasodilatory effect (felt as flushing of the skin) which helps take nutrients to cells and remove toxins and also reduce stickiness of the blood. (Niacinamide, another form of the vitamin, does not have this beneficial effect). B3 is essential for energy production, normal digestion, nerve function and the skin. Helps balance blood sugar and lower cholesterol and triglyceride levels. It is also needed for the production of vital hormones such as cortisone, oestrogen, progesterone and thyroxine. Deficiency can occur with alcohol or drug abuse, or protein deficiency, and may, in extreme cases, result in pellagra (dermatitis, diarrhoea and dementia).

Deficiency symptoms: lack of energy, diarrhoea, insomnia, headaches or migraines, poor memory, anxiety or tension, depression, irritability, bleeding or tender gums, acne, eczema/dermatitis.

Vitamin B5 75 mg - Pantothenic acid, a water-soluble B Complex vitamin found in eggs, lentils, unrefined grains and vegetables. B5 is essential in energy production and the synthesis of hormones and blood cells. It is needed to make the neurotransmitter acetylcholine and therefore for proper brain activity and nerve transmission. It is also needed by the adrenal glands to make glucocorticoids, the anti-stress hormones, and has been found helpful in arthritis and relieving joint pains and stiffness. Helps healing and counteracts allergy effects. Maintains normal hair pigment.

Deficiency symptoms: muscle tremors or cramps, apathy, poor concentration, burning feet or tender heels, nausea or vomiting, lack of energy, exhaustion after light exercise, anxiety, teeth grinding.

Vitamin B6 75 mg - Pyridoxine, a water-soluble B Complex vitamin found in meat, fish, vegetables, bananas, wholegrains, seeds and nuts, may be toxic in extreme doses (above 1000 mg). Works with other B Complex vitamins, zinc and magnesium. Required for the metabolism and synthesis of proteins. Needed for making energy, utilizing essential fatty acids, keeping levels of the female hormone oestrogen stable (and therefore effective in preventing pre-mentrual

tension). Essential for efficient nerve transmission, protein digestion and utilisation, making healthy red blood cells and antibodies. Involved in the maintenance of the circulation, the skin, the immune system and the production of chemicals in the brain which govern mood, sleep patterns, etc. Helps absorption of B12 and maintenance of fluid balance in the body.

Deficiency symptoms: infrequent dream recall, water retention, tingling hands, depression or nervousness, irritability, muscle tremors or cramps, lack of energy, flaky skin, anaemia, peripheral neuritis, convulsions, lesions of the skin or mucous membranes.

Vitamin B12 15micrograms - Cyanocobalamin, a water-soluble B Complex vitamin found in fish, eggs, meat and dairy produce which often works together with folic acid in the body. Needed for making energy. Essential for the production of red blood cells and is also needed to make DNA. Helps make the myelin sheath that insulates nerve cells. Vegans and vegetarians are susceptible to deficiency and other causes are: alcohol, coffee, smoking, lack of calcium or iron, diabetes and liver disease. In extreme may cause pernicious anaemia.

Deficiency symptoms: poor hair condition, eczema or dermatitis, mouth over sensitive to hot or cold, irritability, anxiety or tension, lack of energy, constipation, tender or sore muscles, loss of muscle co-ordination, fatigue, sore tongue, drowsiness, pale skin, menstrual problems.

Folic Acid 150 micrograms - Folic acid is water-soluble, part of the B Complex group of vitamins, found in leafy green vegetables, citrus fruits, eggs, organ meats, wholegrains, seeds and nuts but often destroyed by overcooking. Required for protein synthesis, works with B12 in the formation of red blood cells and is also vital for rapidly dividing cells and the developing foetus. It is needed to make RNA and DNA and therefore essential for the repair and manufacture of all cells. Needed for proper growth, brain activity, normal nervous function. Recent research indicates that folic acid may play a protective role against heart disease due to its ability to lower homocysteine levels; along with B6 and B12 it reduces the risk of heart attacks. It also helps to regulate histamine levels in the body. As with B12, anaemia will result when folic acid is low. 400 micrograms is needed prior to and during pregnancy to prevent spina bifida or other neural tube defects. It is adversely affected in the body by alcohol, coffee, coeliac disease, oral contraceptives, stress, the taking of drugs and smoking.

Deficiency symptoms: eczema, cracked lips, premature grey hair, anxiety or tension, poor memory, lack of energy, fatigue, breathlessness, anaemia, poor appetite, stomach pains, depression.

Biotin 75 micrograms - Biotin, a water-soluble co-enzyme which works with the B Complex vitamins, is found in many vegetables, nuts, seeds, fish, milk, eggs. Biotin is part of many enzyme systems and is involved in the conversion of amino acids to protein. It is involved in the production of energy from carbohydrates, fatty acid metabolism and the conversion of folic acid to a biologically active form. It helps maintain healthy skin and hair, good muscular tone and a balanced hormonal system. Promotes healthy sweat glands, nerve tissue and bone marrow. Antibiotics, excessive intake of alcohol, coffee or raw eggs will inhibit dietary intake.

Deficiency symptoms: dry skin, greyish skin colour, poor hair condition or hair loss, premature grey hair, leg cramps, tender or sore muscles, poor appetite or nausea, eczema or dermatitis, depression.

Choline 30 mg - Choline is a constituent of the emulsifier lecithin, found in egg yolks, meat organs, green leafy vegetables, wheat germ, soy beans, and can be made in the body so strictly speaking it is not a vitamin. It helps make acetylcholine and is therefore essential for brain function. Necessary to help break down accumulating fats. Reduces lactic acid build-up in muscles.

Deficiency symptoms: Poor memory, high blood pressure, excess cholesterol, fatigue, degeneration of the liver.

Inositol 30 mg - Like choline, a constituent of lecithin, needed for hair growth, healthy arteries, normal fat and cholesterol metabolism.

Deficiency symptoms: eczema, high cholesterol, poor hair condition or loss of hair.

Minerals are originally extracted from the soil by plants. Like vitamins, they may be obtained directly from plants or indirectly via meat. However they are frequently refined out of foods and over-farmed soils may be deficient in trace minerals. Natural organic chelates are preferred because they are readily absorbed.

Calcium 500 mg (as citrate, phosphate and carbonate) - Calcium (found in dairy, fish, eggs, root vegetables, pulses, nuts, wholegrains and water) is the most abundant mineral in the body, of which 99 per cent is found in the bones and teeth. The remaining 1 per cent circulates in the blood and has many functions. The 800 mg daily requirement is needed for growth and maintenance of bones and teeth, nerve transmission, regulation of the heartbeat, and muscle contraction. It is needed for blood clotting, for helping to maintain the right acidity in the bloodstream and for insulin production. Absorption is increased by exercise and adequate vitamin D status, and decreased with exposure to lead, consumption of alcohol, coffee and tea and a lack of hydrochloric acid in the stomach. Continued stress leads to calcium loss. With hormonal changes, post-menopausal women are particularly prone to osteoporosis (weak and porous bones) since the lack of oestrogen negatively affects calcium absorption.

Pregnant and breast feeding women may also need extra calcium, accompanied by magnesium.

Deficiency symptoms: muscle cramps, tremors or spasms, insomnia or nervousness, joint pain, osteoarthritis, tooth decay, high blood pressure.

Magnesium 225 mg (as citrate, aspartate, or other organic form) -

Magnesium is present in green leafy vegetables, peas, nuts, brown rice, wholemeal products, seeds and some fruits (and therefore is more commonly deficient than calcium). It is involved as a co-factor in most enzyme reactions in the body and is necessary for the production of energy. It works together and in balance with calcium in maintaining bone density and in nerves and muscles. For bone integrity, calcium needs to be balanced with magnesium, preferably 2:1. Calcification of soft tissues can occur if there is a calcium/magnesium imbalance. The two minerals also act together in the regulation of blood pressure. A lack of magnesium is strongly associated with cardiovascular disease. Shortage of magnesium can also lead to loss of control over the relaxing and contraction of muscles, as again, calcium and magnesium act in balance. Magnesium may be lost through food processing and refining, and its absorption reduced with a high-fat diet, so it is widely deficient among those with a fast-food diet, and indeed, is deficient in most Western people! Magnesium has been shown to be beneficial for women with pre-menstrual cramps or sugar cravings, especially when taken in conjunction with vitamin B6. Deficiency may also arise with prolonged treatment with diuretics. It is a primary cause of most ADD cases and other types of learning disability and psychological disturbance.

Deficiency symptoms: Muscle tremors or spasms, "restless leg syndrome", chronic weakness and exhaustion, insomnia or nervousness, high blood pressure, headaches, irregular or rapid heartbeat, constipation, excessive muscle tension, fits or convulsions, ADD and hyperactivity, difficulty with mental concentration and memory, nausea, apathy, depression, anorexia.

Potassium (not supplied) - Potassium (found in fruits, vegetables and wholegrains) works in conjunction with sodium in maintaining water balance and proper nerve and muscle impulses. The more sodium is eaten the more potassium is required and so a relative deficiency of potassium is widespread, with the high amounts of salt in typical diets.

Deficiency symptoms: vomiting, abdominal bloating, muscular weakness, loss of appetite (more likely to occur in those taking diuretic drugs, laxatives or corticosteroids). This is not supplemented in this Formula because of the large amounts required which are best obtained from dietary sources. Magnesium-potassium-aspartate, however, is a particularly effective combination in its 'anti-fatigue' and cholesterol lowering effects.

Iron 15 mg (as citrate or other organic form) - Iron (found in meat, eggs, nuts, beans, oatmeal) is needed as part of the haemoglobin molecule to carry oxygen around the bloodstream, and for the production of hydrochloric acid for protein digestion in the stomach. A deficiency of iron can result in anaemia. Those particularly at risk include pregnant women, children, women with heavy menstruation and people with malabsorption problems.

Deficiency symptoms: pale skin, sore tongue, fatigue or listlessness, loss of appetite or nausea, heavy periods or blood loss.

Zinc 15 mg (as citrate or other organic form) - Zinc (found in meat, shellfish, herrings, wheat germ, eggs, cheese, nuts, pumpkin and sunflower seeds) is needed for normal functions of taste and smell, for insulin formation, reproductive and immune systems, tissue renewal, and for healthy bones, skin and teeth. It is essential (along with B6) for protein synthesis including hormones, enzymes and antibodies. It is needed for over 90 enzymatic processes in the body. High levels are found in semen and a deficiency is linked to male infertility; zinc is also necessary for a healthy prostate gland. Hydrochloric acid, necessary for digestion of proteins and assimilation of minerals, is dependent on zinc and B6 for its secretion by the stomach. Zinc is vital for the growth and maintenance of the nervous system; therefore it is important in brain function and deficiency is linked to depression and anxiety, and it is an important factor in schizophrenia. Stress increases the need for zinc. With zinc deficiency there is increased risk of having a baby with low birth weight or premature. Women suffering from postnatal problems frequently benefit from supplementing zinc and B6. It is especially important to supplement because most zinc is lost in food processing or never exists in substantial amount because of nutrient-poor soil. Vegetarians and others on a high fibre diet may need more zinc to offset the additional phytate present, which binds to zinc and other minerals, making them less easily absorbed by the body.

Deficiency symptoms: poor sense of taste or smell, white spots on the fingernails, frequent infections, slow wound healing, stretch marks, acne, poor skin condition, low fertility, pale skin, irritability, tendency to depression and anxiety, poor digestion, loss of appetite, impotence, prostate enlargement, growth problems.

Manganese 4.5 mg (as citrate or other organic form) - Manganese (found in tropical fruits nuts, seeds, wholegrains, green leafy vegetables, eggs) is associated with iron metabolism and utilisation of vitamin E and B vitamins. It has a critical role in the activation of over 20 enzymes involved in growth, digestion and assimilation of nutrients, the nervous system, healthy cartilage and bones, cell protection against viruses, and making energy. Manganese is found in female hormones and is required in the production of nucleic acids that are part of the genetic code. Forms part of the important antioxidant enzyme

Superoxide Dismutase. Reduced fertility, birth defects and growth retardation may, in part, be a result of manganese deficiency.

Deficiency symptoms: muscle twitches, joint pain, childhood growing pains, dizziness or poor sense of balance, fits or convulsions, sore knees, fatigue, nervous irritability, and in some cases: schizophrenia, Parkinson's disease and epilepsy.

Iodine 45 micrograms (as iodide) - Iodine (found in kelp, vegetables grown in iodine-rich soil, onions and all seafood) is needed for thyroid hormones which control metabolism.

Deficiency symptoms: slow mental reaction, weight gain, lack of energy.

Copper 75 micrograms (as citrate or other organic form) - Copper (found in peas, beans, wholegrains, liver, seafood) is essential for the utilization of Vitamin C and is required to convert the body's iron into haemoglobin.

Deficiency symptoms: anaemia, edema, rheumatoid arthritis. In excess, copper lowers zinc levels and produces hair loss, insomnia, irregular menstruation, depression and schizophrenia. The balance of zinc and copper in the diet should be 15:1.

Chromium 30 micrograms (as picolinate) - Chromium (found in liver and seafood, wholegrains, mushrooms and asparagus) is part of the Glucose Tolerance Factor (with B3 and amino acids) necessary for the regulation of blood sugar levels. Chromium works with insulin for normal glucose metabolism and conversion of amino acids into protein. Continued stress or frequent sugar consumption depletes the body of chromium. A diet high in refined carbohydrates can also lead to deficiency as the food processing removes much of the natural chromium content. Other causes of depletion include infection, strenuous physical exercise and pregnancy. Deficiency is implicated in adult onset of diabetes. Impaired glucose utilisation can promote sugar conversion to fats and cholesterol leading to obesity and arteriosclerosis.

Deficiency symptoms: excessive or cold sweats, dizziness or irritability after 6 hours without food (hypoglaecemia), need for frequent meals, cold hands, need for excessive sleep or drowsiness during the day, excessive thirst, addiction to sweet foods.

Selenium 45 micrograms (as selenomethionine) - Selenium (found in seafoods, liver and kidney and in small amounts in other meats, grains and seeds) helps maintain a healthy heart, eyes, liver, skin and hair. Part of the important antioxidant enzyme Glutathione Peroxidase, giving the body protection against cancer, premature ageing and degenerative diseases. Needed for prostaglandin formation, involved in hormone balance. Potentiates the antioxidant function of Vitamin E. Helps produce CoQ10, required in cells to make energy. Selenium is particularly vulnerable to loss during food processing and the low amounts found in fruit and vegetables make this especially

important for vegetarians to supplement. Considerable loss of selenium occurs in the seminal fluid. There have been indications of a connection between inadequate selenium and Downs Syndrome.

Deficiency symptoms: family history of cancer, signs of premature ageing, cataracts, high blood pressure, frequent infections.

Degenerative diseases have three main causes: malnutrition, incomplete digestion and internal pollution. These are reversed by nutrient enrichment, improved digestion, and detoxification.

Good multi-vitamin and mineral supplementation will provide nutrient enrichment, and will supply many factors that improve digestion and help to detoxify the body. Daily consumption of such a multi-supplement is very desirable for maintaining optimum health (along with an excellent diet and plenty of exercise) but it is just a starting point of a nutrient program intended to correct existing deficiencies and their associated symptoms.

A particular individual may need more of the nutrients in which he or she has been deficient or on the edge of deficiency for many years. A guide to this requirement is the deficiency symptoms listed above.

Other important factors include essential fatty acids (eg seed oils or fish oils), enzymes and special complex carbohydrates that can aid the digestive system, beneficial bacteria and the many phytochemicals that are found in live plant foods (exemplified by the many valuable herbal remedies) that play an important role. These factors can be provided by an optimum diet, but as with vitamins and minerals, supplements may be helpful to remedy ailments.

I would suggest the above basic formula (based on SONA recommendations) as a starting point in conjunction with additional Vitamin C, an Essential Fatty Acids supplement (such as 'Udo's Oil') and also any particular vitamin or mineral that is found to be deficient - based on the above outline of symptoms - in an individual.

For an excellent range of complementary supplements, you could not do better than to visit [Don Lemmon's Supplements](#) page and order from there.

Also, I recommend to everybody who is genuinely interested in achieving optimum health, that they visit a qualified nutrition consultant. There really is no substitute for this, even if you feel just fine - their advice will help you to stay that way! Following a detailed personal analysis you will know which particular nutrients are needed, and in what precise amounts, to correct deficiency symptoms or states of ill-health such as hypoglycemia, Candida,

chronic fatigue, poor digestion, high toxicity, trace element pollution, etc. as well as possible allergic responses that need handling. If you are being prescribed medication by a doctor, it is essential that this also be taken into account.



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Health Insurance

This routine will do a great deal to keep you healthy:

1. First thing, instead of a coffee, take a glass of hot filtered water and squeeze in half a fresh lemon - this will clean out your system of toxins.
2. A good, healthy breakfast is the most important meal of the day. With a meusli breakfast, add ground flax seeds, providing the essential fatty acids. Also mix in some lecithin granules. The oats and lecithin will help control cholesterol and give the fibre you need. Add a banana for potassium and tryptophan.
3. Accompany this with a glass of diluted fruit juice, with a pinch of powdered vitamin C. This will repair your arteries, provide anti-oxidant protection and boost your immune system.
4. An extra organically-fed, free-range boiled egg gives you the protein and B vitamins you need for energy, especially B12.
5. Take a good multi-vitamin/mineral supplement with a similar formula to the above daily requirements. If the formula doesn't contain much calcium and magnesium, also take a CalMag tablet.
6. For snacks eat fresh fruit. At lunch and dinner (preferably early and light) include plenty of well-washed, briefly-steamed vegetables. Choose organic produce if possible, to avoid food with toxic pollutants.
7. Save on your health insurance!

Don Lemmon

Many stars of athletics, martial arts and body-building consult Don Lemmon to find out the real facts on nutrition, how to lose fat and build muscle, and how to achieve and maintain optimum fitness.

He makes some extremely valid points and is best known for his website, DonLemmon.com which boasts 20 million visitors and 100,000 Newsletter subscribers over the past three years alone. Don wants to clear the air about hype and pure nonsense surrounding what works, and what doesn't.

Q: Should I take vitamin and/or mineral supplements?

Don: Everyone needs vitamins, minerals (70 of them) and essential fatty acids (10 of them) all from natural NOT synthetic sources. I discuss that in my book and website. I can provide them for you and I do so cheaper than my competitors because I get mine directly from the original source without diluting or destroying the nutrients in packaging. I also toss in free audio and video cassettes with each order.

Q: What supplements do you use yourself and what do you recommend?

Don: I use the TJ Clark vitamin and mineral plus Udo's oil DAILY without fail. Anything else is choice and preference. TIP: If fish oil smells like fish, it is spoiled. If someone suggested you take fish oil, smile, turn and RUN.

Q: Is this in your book?

Don: Yes and no. My book covers 90% of everything anyone would ever need, but the other 10% comes from the counseling they get for free after getting a copy. Everyone has individual concerns, and that's how I address them all, individually. Athletes have questions your grandmother wouldn't.

Q: I have seen your first book and that is 100 pages. I hear it's been replaced by a new 250 page version. Tell me about it.

Don: This one contains more diets, recipes, workouts, history and the science behind the program itself. Most people haven't a clue regarding biochemistry but I have made things so simple, that you might want to teach most professors a few new tricks! I now include free consultation with a real physician, free audio cassettes and free video tapes too. It's a great package. See DonLemmon.com for more info. I am excited about it, but don't take my word for it. Look around the site.

Q: Tell me about low carbohydrate diets.

Don: Low carb diets work and then fail both for the same reason. It's not good for the long term and no one I know has truly succeeded on one.

Q: Tell me about the glycemic index.

Don: My 12 Food Groups cover all the foods allowed and not allowed on any diet. That offers less limitation than the supposed holy glycemic index. If it is bad for you, don't eat it. If you aren't sure what it is or what's in it, don't eat it. Is an apple or orange bad for you? Hardly. Juices, probably.

Q: What is your opinion of Barry Sears and his Zone Diet?

Don: This program only works temporarily for women, for men not at all and fails as fast as it shows even a hint of promise. All this guy did was take the typical diet of 20% protein, 20% fat and 60% carbs and then cut the carbs in half. By doing so, this temporarily eliminates a good half of what people do wrong. Too many carbs. So it works at first. However, you can only get so far as the other necessary changes were never facilitated.

Q: What percentages of fats, proteins and carbs do you recommend for a bodybuilder, a fitness competitor and/or a high school student, and finally for my grandmother?

Don: While at the end of a day your calories might fall into this or that percentage of certain macro-nutrients, it still isn't so important. But to be technical, bodybuilders or those with more muscle require a higher percentage of carbs than even muscular women do. It is entirely based upon overall muscle mass and that's pretty much it. So yes, it's different for each, but you would need to tell me your current lean body mass to give you an accurate answer. Age and sex are not relative. Neither is the amount of fat you carry. Only muscle burns calories and can allow for an accurate response.

Q: Why, if at all, should I take vitamin and/or mineral supplements?

Don: Never bother with expensive ones but we do need to supplement because our production and cooking habits have destroyed our chances of foods actually containing what we need. It's frightening what lands on our plates. Couple that with eating white bread, bleached oils, and oh wow!

Q: Why does it seem to take a long time for supplements to have a beneficial effect? Is that always the case?

Don: Not with TJ Clark's colloidal minerals and a whole food vitamin like Standard Process offers. They're easily absorbed by the body and get to work immediately. Cheap too. In fact, most colloids you get are from TJ Clark originally but then some other company added sugars, juices, water and dilutes them. And that is the reasoning alone there. Sugar and excess water interferes with mineral transactions at a nervous system level. Pills, usually are coated so well the body can't bust them open. Chew them at meal time. The body needs to accept nutrients with food. You'll notice a difference the first time.

Q: I've heard that eating organically produced food is better for you. Why is that?

Don: Depends. Organic usually just means LESS chemicals. That is better but so is simply washing your food. Most chemicals are stored in an animal's organs and skin than in the meat if we are discussing meat foods.

Q: Can the pesticides used in food production really have an adverse effect on me? Who do you believe - the farmers or the complainers?

Don: I blame the businessmen. Farmers are forced to play by the rules or not play at all. It is tough. But definitely, wash your food first. Scrub it. We can only guarantee best if we grow it ourselves. At least by cleaning and eating fresh we will profit most.

Q: What about the excessive use of antibiotics on animals and poultry to increase their speed of growth - can that harm us humans?

Don: Again, most is stored in the organs which we can literally SEE the tumors in. We can either starve or try to clean up what we do eat. There are more pesticide problems than antibiotic problems by the way. Almost all food is affected in some way but it is usually plants first. Animals are at least fed fresh foods along with the drugs 75% of the time.

Q: I was in a health food shop the other day and the guy suggested taking Vitamin E to lower my blood pressure, but I thought this might not be sound advice, as my doctor didn't mention it. Doctors seem to disregard nutritional treatment - who is right?

Don: Physicians go by heresy just as you do. Very few medical schools require nutrition as a course. It is sad as the body IS nutrients. Vitamin E may not help but a good flax seed from say Flora Inc is great. Udo's Oil works wonders too. And no, I am not paid by these companies. Don't even tell them I sent you. Just go there. I will say one thing, anyone who trusts a \$6 an hour vitamin salesman is a fool. Anyone who trusts a physician with nutrition is crazy too.

Q: How can I find out if I'm getting enough vitamins and minerals in my diet? And what else do I really need - there seems to be a million and one different supplements that you can buy.

Don: If you use a tablespoon of Udo's Oil, 2 TB of TJ Clark's minerals and chew a simple multi-vitamin you can't lose unless you aren't eating real food as well. These 3 products should only cost in TOTAL \$36 a month.

Q: I don't like taking pills - how can I be sure of a balanced diet without supplements?

Don: Only one of the above are pills. I am not familiar with a liquid multi-

vitamin yet. But I do know those who take the oil and minerals profit more than those who only use vitamins. There are 100 odd nutrients we need daily. Vitamins deliver under 20. The oil and minerals deliver over 80.

Q: I know that eating oily fish is good for me but I'm concerned about farmed salmon, as I've heard they are fed a carcinogenic substance to make the flesh pink. Is this true?

Don: Eating a little salmon is better than avoiding 'healthy' food for the fear of contamination. Any vegetable in the store or beef in the butcher's section is just as bad or just as good however you slice it. Fresh water fish is great stuff but you can get by on flax seed oil instead. By time you cook salmon fat, it is no longer nourishing anyways.

Q: What should I take to help me through the menopause?

Don: Flax seed oil and the minerals. Double your protein intake. 4 protein meals and 2 carbohydrate snacks would be best for you. One protein meal should be farm fresh eggs, another cottage cheese, a third tofu and a fourth a meat or fish.

Q: I'm told the RDA amounts on the back of supplements may not be enough to correct deficiencies.

Don: Actually they aren't if the vitamin source is synthetic. If you buy a whole food source, A LOT less will do the trick EVERY time.

Q: When is the best time to take supplements?

Don: Always with meals.

Q: I'm trying to help my teenage daughter cope with PMT. What do you recommend?

Don: A more balanced diet and the mentioned supplementation. Results were better than any prescription.

Q: Is it better to have goat's milk and cheeses rather than cow's?

Don: Is it best to have ANY dairy BEFORE it is pasteurized. That kills what is good in it. Cheeses are fine usually if in curds, but yogurt and milks need skimmed to digest. Hard cheese is like lard, and hard to digest for anyone. Goat milk is great but so is cow milk. Tiger's milk is unbelievably good too.

Q: I get terrible headaches around my periods. Is there anything you recommend to help.

Don: All of the above. Essential fats regulate your hormones and that's what the periods are all about.

Q: How can I begin to find out if I may be intolerant or allergic to foods like cereals and milk products, as they are contained in so many things we eat?

Don: Like with pasteurization, excessive processing of food kills the natural enzymes that the food should have contained within it, which assist in digestion. So the rawest most natural foods are never a problem. I teach [food separation](#), similar to combining but with better results. Some things aren't meant to be eaten with others and on occasion, alone even.

Q: What nutrients are most commonly deficient in the typical Western diet?

Don: Minerals, essential fats and protein. We are vitamin-aholics!

Q: My metabolism is slowing down and I'm putting on weight rapidly, whilst still eating the same or even less. Is there any way to reverse this?

Don: Eating less only slows the metabolism down. So does poorly combined foods. It's what and how you eat that matters. I have said for years that you can exercise all day and eat whatever you want OR eat right and only exercise when you feel like it.

Q: Could nutritional factors be behind the regular depressions I lapse into, even when things are going well in other ways.

Don: Every single time. Do not get me wrong, other human beings love to play with your emotional issues but nutrition always assists you in dealing with it.

Q: My exams are coming up in a few months. Is there a way to boost my brain power and increase memory?

Don: Sounds redundant but - see all of the above. Especially about the fats. They carry the other nutrients and oxygen across the brain barrier.

Q: I'm addicted to smoking. Is there anything that could help me to give it up? And what could I incorporate into my diet to help prevent lung cancer?

Don: Actually, proper nutrition clears out the stored nicotine in your body. Over time you will naturally crave less and less to where you will stop completely. I'm often notified of how my clients have gone cold turkey on their habits. Wild how a little more food, properly separated, fully digested, and a cleaner more nourished body will treat you!

The supplements Don recommends are available from his web site and described [on this page](#).

You can [email](#) Don for advice.

Further Articles

Supplements: Are They Necessary & Are They Safe?

The argument goes that eating a varied diet rich in fruit and vegetables delivers the right amount of vitamins and minerals to the body and that high doses of synthetic supplements are unsafe. So don't bother with supplements. But this is a misleading distortion of the truth

The following Questions & Answers are based on an article by Dr John Briffa, 'The Great Vitamins Debate: Lifesavers or a deadly menace?'

Should we always stick to Recommended Daily Allowances?

Not necessarily. The RDAs, established more than 50 years ago, represent the level of nutrients needed to prevent deficiency diseases. For instance, 60 mg of vitamin C (the RDA) is deemed to be the amount of this nutrient we need to consume each day to keep us from getting scurvy. In practice, RDAs are of little relevance for many reasons.

To begin with, the RDAs take no account of individual circumstances. The fact is, nutritional needs vary enormously. Requirements for nutrients can vary according to genetic make-up, sex, age, levels of stress, activity levels, alcohol consumption, pollution, smoking, the use of prescription medications, pregnancy and menopause. The RDAs make no provision for the special requirements individuals may have for nutrients.

The other major failing of RDAs is that they are based only on the levels of nutrients necessary to prevent deficiency. However, we know that vitamins and minerals have a crucial role to play in the prevention of illness and maintenance of optimum health. Generally, the levels of nutrients required to achieve these important health-giving effects are way in excess of the pitifully low RDAs.

Isn't it true that the whole supplements industry is all about money?

The manufacturers of nutrient supplements are no doubt in the business of making money. However, I do not believe that the motivation for the industry as a whole is entirely financial. It is clear that the nutritional supplements industry provides products to the public which often have very significant health-giving properties.

Natural remedies are generally very safe and often help where conventional medicine has failed. I feel that the supplements industry is generally proud of the fact that through its efforts, more individuals have the opportunity to improve their health.

Wouldn't we be better off simply eating a healthy diet?

A healthy diet is the cornerstone of any nutritional approach to health. However, intensive farming methods and food processing have stripped our food of much of its vital nutritional content. Many of the foods we eat today are nutritionally lacking. Even if we eat a 'healthy diet' it is virtually impossible to get the amounts of nutrients across the board that we need for optimal health.

Another reason why supplements may be advised is when it is not practical to obtain a nutrient from the diet at the levels required to produce a particular effect. An example of this is vitamin E in the prevention of heart disease. Studies have shown that taking 100-200 IU of vitamin E each day reduces the risk of heart disease by about 40 percent. It is, however, virtually impossible to consume this amount of vitamin E through diet alone.

Another example is folic acid, which is recommended by doctors at a dose of 400 mcg per day for pregnant women. To get this quantity of folic acid via the diet is impractical, which is why the medical profession recommends supplementation in this instance.

I am often asked whether people need to take supplements. The answer is that no one *needs* to take supplements. However, if an individual is interested in preventing illness and optimising their health, supplements can have a useful role to play.

Is there any evidence that people live longer or are any healthier taking handfuls of supplements every day?

Yes. The evidence linking vitamin E to prevention of heart disease is a case in point. Vitamin E has been shown to dramatically reduce the risk of heart attack in people with existing heart disease. There is also good evidence that selenium can reduce the risk of cancer. And the list goes on.

Numerous scientific studies demonstrate that nutrients can be effective in treating a wide range of conditions. It is important to remember that while we know people do not get sick because of lack of a prescription medication, nutrient deficiencies are quite often an important factor in disease.

Don't most vitamins just pass through the body, in effect throwing money down the drain?

The body will generally dispense with what it doesn't need and nutrients are no different in this respect. Excess nutrients are removed from the body, often through the urine. Yet a significant proportion of nutrients that are consumed are retained by the body - according to individual needs - and go on to play a vital part in all bodily processes. Even the nutrients that are expelled will exert some influence as they pass through the body. It is possible to take too much of certain vitamins and minerals, especially those that are not water-soluble, but

such toxic amounts are way in excess of normal supplementary recommendations.

Point by point, how do you answer charges that:

Too much vitamin A causes birth defects, dry skin, scaly skin, headaches, fatigue, painful bones and loss of appetite?

Vitamin A in excess may give rise to all the symptoms listed here, just as a deficiency of the vitamin also gives rise to unhealthy symptoms. However, the smallest daily supplement generally considered to generate any risk of birth defects is 25,000 IU per day. To be on the safe side, it is recommended that pregnant women should take no more than 10,000 IU per day. Packaging of products containing vitamin A now carry a warning to this effect.

With regard to the other problems associated with vitamin A useage, the scientific literature shows that vitamin a is safe in adult men and post-menopausal women at a dose of 30,000 IU per day. This is about several times the dose of vitamin A found in multivitamin supplements.

Too much vitamin D leads to high blood calcium, headaches and appetite loss?

Vitamin D plays an essential role in the absorption of calcium from the gut and may therefore help prevent osteoporosis and other conditions. Recent tests showed that the majority of elderly people are deficient in vitamin D. The toxic effects of vitamin D have been found only at doses which exceed 2,000 IU per day in adults. This is many times the dose found in mutivitamin supplements. The danger occurs when an over-zealous person misguidedly takes prolonged mega doses of the individual vitamin, without having a severe deficiency proven by tests (mega doses of vitamins are sometimes appropriate to deal with deficiency symptoms but this is best administered with the guidance of a nutrition consultant or doctor).

Too much vitamin E can thin the blood and may be dangerous for those on certain medications?

Vitamin E is a natural blood thinner, which in part accounts for its beneficial effect in the prevention and treatment of heart disease. Certain medications, notably warfarin, also thin the blood and this effect may be enhanced too far by the additional taking of vitamin E. For this reason it is generally advised that individuals on warfarin or other anti-coagulant medication do not take vitamin E. If you are receiving medication for any health problem you should always check with your doctor before taking nutritional supplements (or any other dietary change) in case there is such a contra-indication.

Too much folic acid can disguise a deficiency in B12 with potentially serious neurological consequences?

It is true that folic acid supplements may mask the symptoms of vitamin B12 deficiency. Nerve damage can result, which may not be responsive to further B12 supplementation. For this reason, it is an established natural health practice that folic acid is given either with B12 or as part of a B Complex supplement containing B12. It is actually conventional doctors who tend to prescribe use of folic acid on its own.

The same is true for other nutrients: just as each can have a beneficial preventative or healing effect, if taken over-zealously, in isolation, in excess amounts over a long period, or if taken inappropriately, then harm can result. But don't be scared off from using supplementation by such stories of what can happen if they are used misguidedly. They *are safe if used sensibly*, and more than that, they can help you lead a healthier, longer life!

Feeling Exhausted?

Mental and physical exhaustion are very common symptoms, linked to the stressful lifestyle, poor diet and lack of exercise that so many people suffer. This article describes just what is going on and what you can do about it, describing the symptoms of stress and touching on the related topics of hypoglycemia, hypertension and Chronic Fatigue Syndrome.

Definition of fatigue: abnormal tiredness and lack of energy; mental and physical weakness; depression; lethargy

There are many possible causes of fatigue, including:

- Hypoglycemia (and resulting adrenal exhaustion)
- Stress (with nutritional and glandular reactions; made worse by stimulants such as sugar, cigarettes and coffee)
- Anaemia (possible shortages of iron, B12, folic acid, copper, vitamin C)
- Toxicity (from diet; pesticides; additives; drugs; pollution; cigarettes)
- Allergy (tends to be the things you feel you must have or can't do without)
- Glandular imbalance (thyroid etc)
- Poor elimination or digestion
- Low or high blood pressure
- Improper diet (excess saturated fats; excess refined carbohydrates; junk foods; overeating; inadequate fruit and vegetables; skipped breakfast; too much alcohol; excess animal protein or on the other hand a protein deficiency)
- Lack of demanding exercise
- Birth control pill
- Overweight
- Overwork
- Lack of sleep
- Sedentary occupation
- Heavy metal poisoning, including from fillings
- Shallow breathing

Stress & Fatigue

What does stress have to do with fatigue? Plenty. Neuroscientists at the University of Virginia have studied the relationship between stress and glucose. During times of stress, glucose is released by the hormone epinephrine (adrenaline). Excess glucose stimulates the fat enzyme, lipoprotein lipase. This results in excess stored body fat. Also, during stress the body craves very high fat, high glycemic (high in quickly absorbed sugars) foods in order to balance out anti-stress chemicals.

In the West, consumption of high calorie, high glycemic, nutrient-deficient, high fat foods is the norm. High glucose levels in the blood are counteracted by insulin, resulting in a 'blood-sugar low', causing tiredness and hour or two after meals. And if stress is continuous, this condition can come on at any time, and may eventually lead to adult-onset hypo-glycemia. Moderating consumption of high glycemic foods not only reduces your chances of developing diabetes, it also reduces stored body fat and helps keep energy levels high.

A combination of factors account for the increase in incidence of hypoglycemia. They include:

1. Incorrect ratios of proteins/carbohydrates/fats in our diet
2. Deficit of adequate nutrients and minerals (due to over processed soil and foods)
3. Overabundance of high glycemic foods
4. Lack of exercise
5. Excess meat consumption
6. Excess dietary fat consumption
7. Over consumption of 'empty calorie' foods
8. Stress

High Blood Pressure

Stress increases blood pressure, as does too much saturated or hydrogenated fat in the diet. Coffee, sugar, tobacco and alcohol don't help either, neither does salt. Overweight is another important factor, and lack of exercise. An entirely vegetarian diet is the most straightforward way to reduce blood pressure. In terms of supplements, take plenty of B Complex, C, E, Niacin, Calcium and magnesium.

Hypotension is helped greatly by taking the amino acids L-tyrosine and L-phenylalanine. You also need enough iodine in the diet (such as from kelp). This is better than taking salt as salt has other negative side effects (affecting the sodium/potassium balance and mineral losses). As well as increasing blood pressure, this combination boosts the thyroid giving you more energy and mental alertness. The amino acids are taken (1g each) between meals, away from other proteins. It also helps to take an Amino Complex (1g) after meals. Improved

adrenal function (see below) will enable decrease of blood pressure through the production of adrenaline and aldosterone, and antidiuretic hormone from the pituitary.

Stress is the biggest drain on vitamin and mineral resources, so you also need to take a daily (generous) multi supplement. Plus added vitamin C (several grams); 1g calcium, 500mg magnesium; and also 250 mg extra B5 (pantothenic acid) which is particularly drained by stress. And some essential fatty acids to complete the nutritional picture. Vitamins, etc. take months to replenish, so you need to stick with it.

Emotional stress combined with stress on the immune system would leave you susceptible to the ME phenomena (see below), which is really immune system failure. Recovering from ME is a matter of rebuilding strength through both emotional repair and moving to a diet that supports the extra nutritional drain that such stress causes, to reverse the dwindling spiral.

The less 'on the edge' you are, the more tolerant your systems will be to such factors as toxic trace elements (see the Mercury Poisoning article) and electromagnetic pollution.

To help reduce emotional stress, I recommend the Release Technique, described in [Transforming the Mind](#) and moving on from that, the [New Life Course](#) of personal development would be a great life enhancer. The course teaches many ways to manage mental stress and increase happiness.

NOTE: Stress causes a type of hypoglycemia by depleting the adrenal glands which respond to any fear, anxiety, worry or similar emotion, as if they were emergency conditions. A wide range of physiological reactions are evoked to provide sufficient energy to meet this 'danger'. Eventually the adrenal glands become exhausted and, as vital energy reserves become taxed, fatigue results. Unlike true nutritional hypoglycemia, this does not necessarily occur just between meals, but may be more related to situations of stress or emotion. If this stress fatigue is coincident with a refined diet and especially if caffeine is regularly consumed, the hypoglycemic state may take on a totally unpredictable character.

Hypoglycemia is glucose intolerance, cause by the adrenals being worn out from constant stress and/or by too much sugar/stimulants/refined carbohydrates. To remedy this, the following is helpful:

Eat small, frequent meals, avoiding refined carbohydrates and eating complex carbohydrates and proteins which release energy slowly. Use a good multi-vitamin and mineral supplement like Solgar VM2000. Take additional calcium and magnesium in 3:2 ratio. Avoid fried food and hydrogenated fat, tea, coffee, alcohol, cigarettes, food additives. Drink filtered water and avoid aluminium utensils. Using digestive enzymes and acidopholus to improve digestion and

colon health is also a good idea. Help yourself or get help with stress management.

Chronic Fatigue

Chronic Fatigue Syndrome (ME) is basically a weakened immune system causing chronic weakness. To remedy this, in addition to the above, also supplement vitamin C, starting at 1g per day and building up to 3 or more grams - you will get slight diarrhoea at the point of maximum absorption, at which point reduce the dose slightly. (Note: you need to maintain a mega-dose of vitamin C as abruptly reducing the dose can cause symptoms of C deficiency). Aloe Vera, Echinacea and garlic also help. If you still have problems, allergic reactions may be making the symptoms worse, in which case try cutting out wheat, then if that doesn't work after five days, try eliminating dairy produce. Also watch out for foods you have a craving for - the body has a strange way of desiring more of the foods to which it is intolerant (due to poor digestion or faulty absorption).

Many vitamin and mineral deficiencies are also related to lack of energy. So the supplements approach described above should help, along with improved diet.

Glutamine, the amino acid, may also be a valuable supplement in cases of fatigue. This form of blood sugar supplies brain energy, reduces muscle fatigue, and it also helps the colon to heal, reducing the symptoms of colitis and thereby reducing blood toxicity.

The meditation, deep breathing and relaxation exercises in the New Life Course will help, as will the reduction of stress-inducing distorted thinking, again handled in the course. Getting good exercise and also regular massages also helps, and attention to any of the other factors listed above. So this is a broad based (and very common) problem that does require an holistic approach.

Taking Exercise

Taking frequent effective exercise is probably one of the best physical stress-reduction techniques available. Exercise not only improves your health and reduces stress caused by unfitness, it also relaxes tense muscles and helps you to sleep.

Exercise has a number of other positive benefits you may not be aware of:

- It improves blood flow to your brain, bringing additional energy and oxygen which may be needed when you are thinking intensely.
- When you think hard, the neurones of your brain function more intensely. As they do this they build up toxic waste products that cause foggy thinking in the short term, and can damage the brain in the long term. By exercising you speed the flow of blood through your brain, moving these waste products faster. You also improve this blood flow so that even when

you are not exercising, waste is eliminated more efficiently.

- Exercise increases the release of chemicals called endorphins into your blood stream that give you a feeling of happiness and well-being, counter-acting the depression that fatigue may induce. Surprisingly, one feels much more energetic when taking regular exercise.

An over-strenuous approach to exercise may actually damage your body. Certainly one should enter gradually into an exercise regime and not cause strain on inflexible muscles and joints; so this is best done under the supervision of your doctor or a fitness professional, or at least a good book on the subject. The most important thing to remember is that exercise should be fun - if you don't enjoy it, then you will probably not keep doing it.

Nutrition in the Treatment of Depression

This article (extracted from "Alcoholism--The Biochemical Connection" by Joan Larson) was written especially to help alcoholics, who are particularly prone to suffer from depression, but the information it contains will be valuable for every person who frequently feels depressed or unable to sleep through anxiety. Until these nutritional factors are handled no amount of positive thinking or psychotherapy can make much headway. This is the reason that I, as a psychologist, initially became interested in the subject of nutrition.

If you have been unsuccessfully battling depression, you are not alone. At least 40 percent of all alcoholics in the United States are affected. I say 'at least' because our Health Recovery Center study found that almost two-thirds of our clients are depressed at entry. In fact, most alcoholics I have treated suffered from some degree of depression.

It is tempting to pin the blame for hopelessness and despair on the external events that can be triggered by alcoholism, such as the deterioration of a marriage or the loss of employment. To be sure, some of the depression alcoholics report is a result of the negative course life can take when you drink too much. You will be relieved to learn that this type of situational depression is self-limiting and will pass when your life begins to improve. Counseling or group therapy can be of enormous value here. But depression among alcoholics usually runs much deeper than the situational variety I have just described.

Depression often has biochemical roots that stem from the destructive effect of alcohol on the normal chemistry of the brain. Research has verified the relationship between biochemistry and depression. Autopsies of people who have committed suicide have revealed biochemical disruptions that may be unique to suicidal depression. In this chapter you will learn to recognize the warning signs of this tragedy in the making.

No amount of counseling or psychotherapy can help people who suffer from biochemically induced depression. I learned this the hard way: watching my son fight the deep sadness and feelings of hopelessness that descended upon him as his depression worsened. The counseling he received was excellent, but words have no power to reverse the biochemical disruption caused by alcoholism and drugs. In fact, therapy's focus on the unhappy or unsatisfactory external events marring the lives of such seriously depressed people only creates more misery.

My search for an explanation for Rob's suicide led me to studies that confirmed the connections between brain biochemistry and depression and offered methods of repair that succeed far more reliably than any form of talk therapy. I learned that there is no single biochemical glitch that explains all depression. At

my clinic, we treat seven different sources of depression affecting alcoholics. In this article, you will learn which of the seven may underlie your depression, (in some cases, two or more may be to blame). You will also learn how to overcome your particular chemical problem or problems. This may mean taking more nutrients. It may require further changes in your diet. Or you may need drug treatment to correct a medical condition that can precipitate depression. First, of course, you'll have to confirm that you are depressed. Then you can evaluate the severity of your case.

How Can You Tell if You are Depressed?

Although two-thirds of the clients at my clinic are severely depressed when they enter the program, many do not realize they are affected. Men in particular are inclined to attribute the feelings induced by depression to other causes. Some blame their inability to handle stress well. Others reject being labeled depressed because of the social stigma often unjustly attached to this condition. Some are simply so overwhelmed by alcoholic symptoms that their depression is masked. Even so, depression is not difficult to spot if you know that certain behaviors are red flags to the condition:

- Withdrawal from activity; isolating yourself
- Continual fatigue, lethargy
- Indecisiveness
- Lack of motivation, boredom, loss of interest in life
- Feeling helpless, immobilized
- Sleeping too much; using sleep to escape reality
- Insomnia, particularly early morning insomnia (waking very early and being unable to get back to sleep)
- Lack of response to good news
- Loss of appetite or binge eating
- Ongoing anxiety
- Silent and unresponsive around people
- An "I don't care" attitude
- Easily upset or angered, lashing out at others
- Inability to concentrate
- Listening to mood music persistently
- Self-destructive behavior
- Suicidal thoughts or plans

How to Tell if Your Depression is Psychological or Biochemical

Biochemical depression has certain symptoms that distinguish it from the depression stemming from negative life events. You have reason to suspect that you are biochemically depressed if any of the markers listed below describes your depression:

You have been depressed for along time despite changes in your life
Talk therapy has little or no effect; in fact, psychological probing--questions like "Why do you hate your father?"--leave you as confused as Alice at the Mad Hatter's tea party
You don't react to good news
You awaken very early in the morning and can't get back to sleep
You cannot trace the onset of your depression to any event in your life
Your moods may swing between depression and elation over a period of months in a regular rhythm (this suggests bipolar, or manic-depressive, disorder)
Heavy drinking makes your depression worse

How Serious Is Your Depression?

As important as identifying the cause of your depression is determining the depth of your feelings. If you often have suicidal thoughts, please confide in your physician and a close friend or relative. You will recover, but in your present state you need the support of someone you trust. Share this information and together do the detective work needed to discover what is responsible for your continued depression.

The Seven Kinds of Alcoholic Depression

As I noted earlier, at my clinic we have identified seven sources of biochemical depression affecting alcoholics:

1. [Neurotransmitter depletion](#)
2. [Unavailability of prostaglandin E1](#)
3. [Vitamin/mineral deficiency](#)
4. [Hypothyroidism](#)
5. [Hypoglycemia](#)
6. [Food and chemical allergies](#)
7. [Candida-related complex](#)

[These may not only affect alcoholics but any of us who suffer from depression.] Where do you fit in? Let's begin with the most likely biochemical scenario.

Neurotransmitter Depletion and Depression

Neurotransmitters are the natural chemicals that facilitate communication between brain cells. These substances govern our emotions, memory, moods, behavior, sleep, and learning abilities. Neurotransmitters are manufactured in the brain from the amino acids we extract from foods, and their supply is entirely dependent on the presence of these precursor amino acids. Alcohol destroys these essential precursor amino acids which is probably why alcoholics seem so emotionally muddled and depressed. Without adequate amino-acid

conversion, neurotransmitters are no longer produced in sufficient amounts; this deficiency causes "emotional" symptoms, including depression.

The two major neurotransmitters involved in preventing depression are serotonin (converted from the amino acid L- tryptophan) and norepinephrine (converted from the amino acids L- phenylalanine and L-tyrosine). You can resupply the vital neurotransmitter precursors and reverse depression by taking daily amino-acid supplements. Your symptoms will determine which amino acid you will take for depression: L-tryptophan if your symptoms are sleeplessness, anxiety, or irritability; L-tyrosine or L-phenylalanine if your symptoms are lethargy, fatigue, sleeping too much, or feelings of immobility.

Tryptophan to Serotonin

The amino-acid tryptophan found in large amounts in milk and turkey is the nutrient needed to form serotonin, which controls moods, sleep, sex drive, appetite, and pain threshold. Eating disorders and violent behavior have also been traced to serotonin depletion. Replacing serotonin can lift depression and end insomnia. In one notable study, a medical researcher in Holland demonstrated that a combination of tryptophan (2 grams nightly) and vitamin B6 (125 milligrams three time a day) could restore patients with anxiety type depression to normal in four weeks. Depression accompanied by anxiety and sleep disturbances is most likely to respond to tryptophan.

How to Take Tryptophan

Until the U.S. Food and Drug Administration prohibited the manufacture and sale of tryptophan in the United States in the fall of 1980, we used it for ten years at the clinic without any ill effects. This amino acid has also been widely used in England and Canada. Last year, however, a number of deaths and illnesses in the United States were traced to batches of tryptophan manufactured in Japan. In response, the FDA removed tryptophan from the U.S. market. At the time of this writing, the ban remains in effect. I want to caution you against using any tryptophan purchased before the FDA barred its sale. I am confident that eventually tryptophan will again be freely available in this country. At that point, you can purchase a fresh supply. Here are guidelines for its use:

Tryptophan alone will not be converted to serotonin. To insure that it is properly used, you must also take vitamin C and vitamin B6 (see table below)

Tryptophan is converted to niacin before its final conversion into serotonin. If your body is deficient in niacin, the tryptophan you take will supply you with niacin, not serotonin. For this reason, it is a good idea to take a B-complex vitamin daily. This will give you both vitamin B6 and niacin and allow the tryptophan to be converted to serotonin.

Of all the amino acids, tryptophan is least able to cross the blood-brain barrier. It must pass this biological hurdle in order to be converted to serotonin. Always take your tryptophan on an empty stomach.

Safety and Side Effects

Orthomolecular physicians have safely used tryptophan in doses of one to six grams daily. Since it is not stored in the body, it cannot accumulate to toxic levels. However, taking high levels of tryptophan can produce some side effects:

- Drowsiness the next morning
- Bizarre or strange dreams (rare)
- Increased blood pressure in persons over age sixty who already have high blood pressure
- Aggressiveness (this rare side effect can occur in the absence of sufficient supplies of the nutrients needed for normal conversion of tryptophan to serotonin.)

Formula for Depression Due to Serotonin Depletion

Nutrient	Dose	Directions
L-Tryptophan	500 mg	2 to 8 capsules per day in divided doses (1 or 2 midmorning, 1 or 2 midafternoon, 2 to 4 at bedtime, on an empty stomach)
Vitamin B6	50 mg	1 capsule 3 times per day
Vitamin C	1000 mg	1 capsule per day
Niacin	500 mg	1 capsule per day (non-time released)

*Use tryptophan only if the FDA lifts the current ban on its sale.

Who Should Not Take Tryptophan?

- Anyone who takes an MAO (monoamine oxidase) inhibitor for depression; do not take tryptophan until ten days after giving up MAO inhibitors
- Anyone with severe liver disease (a damaged liver cannot properly metabolize tryptophan or any other amino acid)
- Pregnant women (you may be able to take five hundred to a thousand milligrams of tryptophan, but only with the approval and supervision of your physician)

Tyrosine to Norepinephrine

The amino acid tyrosine, found in large amounts in cheeses, has an amazing effect on depression. A number of studies have found that it can succeed where antidepressant drugs fail. In the brain, tyrosine is converted into the neurotransmitter norepinephrine, which has been described as the brain's version of adrenaline. You can appreciate the power of norepinephrine when you realize that the effect produced by cocaine comes from the drug's ability to activate norepinephrine while inhibiting serotonin. This chemical reaction causes the brain to race until the supply of norepinephrine is depleted. The crash leaves addicts exhausted, depressed, extremely irritable, and craving more cocaine. Large doses of tyrosine can reduce withdrawal symptoms and prevent serious depression among cocaine addicts. We have used tyrosine at the Health Recovery Center for the past few years with no adverse effects. The usual dose is three to six grams per day, taken on an empty stomach. You must take vitamins B6 and C to facilitate conversion of tyrosine to norepinephrine (see table below).

L-Phenylalanine to Norepinephrine

As an alternative to tyrosine, you can take the amino acid L-phenylalanine, which also can be converted into norepinephrine. A number of studies have confirmed L-phenylalanine's amazing antidepressant effects. In one, this potent amino acid was found as effective an antidepressant as the drug imipramine (Tofranil). L-phenylalanine has one important advantage over tyrosine in treating depression. It can be converted to a substance called 2-phenylethylamine or 2-PEA. Low brain levels of 2-PEA are responsible for some depression (before it converts to tyrosine, which then converts to norepinephrine). If you are affected, L-phenylalanine will be better for you than tyrosine. The only way to find out is by trial and error. I recommend that you start by taking L-phenylalanine. If you find that it makes your thoughts rush (an effect that is often described as the brain "racing"), you don't need 2-PEA and should switch to tyrosine. The only other disadvantage to taking L-phenylalanine is its slight potential for raising blood pressure.

There is also some evidence that excess L-phenylalanine can cause headaches, insomnia, and irritability. For these reasons, it is important to start with a low dose. L-Phenylalanine doses can range from 500 milligrams to 1500 milligrams daily taken on an empty stomach. Overdose symptoms are headaches, insomnia, and irritability.

Formula for Depression Due to Norepinephrine Depletion

Nutrient	Dose	Directions
L-Tyrosine	500 mg	4 to 10 capsules per day in 2 or 3 equal doses on an empty stomach
OR --		
L-Phenylalanine	500 mg	1 to 3 capsules per day in equal doses on an empty stomach
Vitamin B6	50 mg	1 capsule 3 times per day
Vitamin C	1000 mg	1 capsule per day

Who Should Not Take Tyrosine or L-Phenylalanine?

- Anyone with high blood pressure should avoid phenylalanine or take very low doses (one hundred milligrams) at first and monitor blood pressure as dosage is increased.
- No one taking an MAO inhibitor for depression should take either tyrosine or L-phenylalanine
- No one with severe liver damage should take any amino acid.
- Do not take any amino acids during pregnancy except with the approval and supervision of your physician.
- No one with PKU (phenylketonuria) should use L-phenylalanine.
- No one with schizophrenia should take either amino acid (except with a physician's approval and under their supervision.)
- No one with an overactive thyroid or malignant melanoma should take either amino acid.
- If you are being treated for any serious illness, consult your doctor before taking these amino acids.

Unavailability of Prostaglandin E1 and Depression

Another biochemical cause of depression is a genetic inability to manufacture enough prostaglandin E1 (PGE1), an important brain metabolite derived from essential fatty acids (EFAs). The problem is the result of an inborn deficiency in omega-6 essential fatty acid. Alcohol stimulates temporary production of PGE1 and lifts the depression.

If you have been depressed since childhood, your introduction to alcohol was probably an extreme relief. But this relief is short-lived. When you stop drinking, PGE1 levels fall again and depression returns. To banish it, you turn again to alcohol. Thus a deadly spiral begins toward alcoholism.

During the last fifteen years, researchers have learned to restore normal PGE1 levels in alcoholics and eliminate both the depression and the need to drink for relief. A substance called gamma-linolenic acid (GLA) is easily converted to

PGE1. I have seen some amazing recoveries from depression within three weeks of GLA treatment. Take the case of Colleen, a high school English teacher:

Colleen described her childhood and teenage years as withdrawn and lonely, "I can't remember not being depressed," she told me. In college, she drank alcohol for the first time and received the shock of her young life. Her world brightened in a way she had never before experienced. She felt different. Friendly. Happy. The effects lingered into the next day, and then gloom closed in again. After experiencing the dramatic lift in her spirits, she was convinced that she had discovered a magic elixir in alcohol. In a short time she was drinking a few beers every day. The alcohol never failed to banish her depression.

As her college years passed, Colleen's alcohol consumption escalated. She needed to drink more and more to get the lift she sought. She also began to experience deep depressions in the days following heavy drinking. After college, she began teaching high school English. Controlling her depression with alcohol became a real balancing act. Eventually, her drinking came to the attention of her peers and her students. Colleen was appalled at the idea that she was a problem drinker. She decided to prove she could live without alcohol. The next ten years were some of the most miserable of her life. She joined AA and sought psychiatric help for her severe depression. Sadly, no antidepressant drug relieved her misery. It was hard to keep teaching, hard to keep living.

Her depression had reached the suicidal stage when she reasoned that alcohol could put an end to her despair. Her decision to resume drinking didn't take much reflection. Predictably, her alcohol intake began to escalate rapidly. This time, no one sympathized. Her principal ordered her to treatment. Three weeks after completing an inpatient program, she was back at employment and drinking again to medicate her depression. A second round of treatment left her temporarily dry and depressed. Colleen was on a merry-go-round she couldn't get off. When she called the Health Recovery Center, she was crying, "I have alienated everyone because I won't stay sober, but being drunk feels better than being depressed."

I often think someone up there does watch over people, it seems more than coincidence that Colleen found her way to one of the few treatment centers in the country that would run tests and restore her chemistry to normal. Within three weeks, her depression had vanished. She no longer needed nor craved alcohol.

Colleen's was a classic case of chronic depression caused by too little PGE1. Although alcohol blocks production of additional amounts of this metabolite, its

active effect is to enhance what little is available in the brain. Eventually, a no-win situation develops and alcohol becomes the only way to prevent depression. The solution, of course, is to provide the brain with the PGE1 needed to reverse the depression. If your body can't do this normally, you can correct the problem by taking gamma linolenic acid (GLA) in the form of Efamol (a trade name for oil of evening primrose). The formula for EFA deficient depression (see table below) includes three supportive nutrients in addition to Efamol: zinc, needed for formation of gamma-linolenic acid (GLA); vitamin B6 for metabolism of cis-linolenic acid; and vitamin C, to increase production of PGE1. When you take GLA and its co-factors, depression magically lifts and won't return as long as you continue to take the formula. Colleen now uses this natural substance daily instead of alcohol, and her world has brightened up permanently.

Do You Have an EFA Deficiency?

In his book "Essential Fatty Acids and Immunity in Mental Health, Charles Bates, Ph.D., provides a list of factors that suggest an essential fatty acid deficiency:

- Ancestry that is one-quarter or more Celtic, Irish, Scandinavian, native American, Welsh, or Scottish.
- A tendency to abuse alcohol or feel that it affects you differently from others; trouble with alcohol in your teenage years.
- Anxiety or depression during hangovers
- Depression among close relatives
- A family history of alcoholism, depression, suicide, schizophrenia, or other mental illness.
- Depression that persists while you are abstinent from alcohol.
- A personal or family history of Crohn's disease, hepatic cirrhosis, cystic fibrosis, Sjogren-Larsson syndrome, atopic eczema.
- A personal or family history of ulcerative colitis, irritable bowel syndrome, premenstrual syndrome, scleroderma, diabetes, or benign breast disease.
- Experiencing an emotional lift from certain foods or vitamins.
- Winter depressions that lighten in the spring.

Formula for Depression due to EFA Deficiency

Nutrient	Dose	Directions
Efamol	500 mg	3 capsules, 3 times per day with meals (9 per day); can be reduced to 6 per day after 1 month
Zinc picolinate	20 mg	1 capsule with food
Vitamin B6	50 mg	1 capsule 3 times per day
Vitamin C	1000 mg	1 capsule per day
Niacin	100 mg	1 capsule with food daily

Vitamin and Mineral Deficiency and Depression

The effect of nutritional deficiencies on brain chemistry can cause depression, anger, listlessness, and paranoia. Unfortunately, the connection between depression and vitamin and mineral deficiencies is often missed. At Johns Hopkins University, sixty-nine cases of scurvy (total vitamin C depletion) were discovered at autopsy, and yet the disease had not been diagnosed before death in 91 percent of these patients.

One of the most dramatic cases of vitamin and mineral deficiencies I have seen involved a man I'll name Paul. He had been arrested four times for drunken driving but continued to drink daily. His probation officer brought him to the Health Recovery Center. The three of us had to decide if an outpatient program would be proper for someone as depressed as Paul. The court had just ordered him back to treatment; judging by the miserable look on his face, it was the last place he wanted to be. Paul was thirty, divorced and living alone. He rarely ate more than one meal a day, usually fast food or junk food. He lived on coffee, cigarettes, and beer. Paul confided that he was probably going to lose his sales job because he could no longer motivate himself. He blamed all of his troubles on depression. There were so many aspects of his life-style that suggested a real depletion of the natural chemicals he needed to recover from alcoholism and depression that I urged Paul to let us work with him. Two days later, after receiving his B-complex shots, Paul remarked that we must have injected him with an amphetamine. The effect of restoring these life-giving substances was dramatic. He also made many life-style changes that contributed to his recovery, but one of the most important was the replacement of certain key natural substances that helped relieve his depression.

The B-Complex Vitamins

The B-complex vitamins are essential to mental and emotional well-being. They cannot be stored in our bodies, so we depend entirely on our daily diet to supply them. B vitamins are destroyed by alcohol, refined sugars, nicotine, and caffeine--the very substances that most alcoholics consume almost to the exclusion of everything else. Small wonder that deficiencies develop.

Here's a rundown of recent findings about the relationship of B-complex vitamins to depression:

- ◇ Vitamin B1 (thiamine): Deficiencies trigger depression and irritability and can cause neurological and cardiac disorders among alcoholics.
- ◇ Vitamin B2 (riboflavin): In 1982 an article published in the British Journal of Psychiatry reported that every one of 172 successive patients admitted to a British psychiatric hospital for treatment of depression was deficient in B2.

- ◇ Vitamin B3 (niacin): Depletion causes anxiety, depression, apprehension, and fatigue.
- ◇ Vitamin B5 (pantothenic acid): Symptoms of deficiency are fatigue, chronic stress, and depression. Vitamin B5 is needed for hormone formation and the uptake of amino acids and the brain chemical acetylcholine, which combine to prevent certain types of depression.
- ◇ Vitamin B6 (pyridoxine): Deficiency can disrupt formation of neurotransmitters. Vitamin B6 is a co-enzyme needed for conversion of tryptophan to serotonin and phenylalanine and tyrosine to norepinephrine. I have discussed the relationships of these neurotransmitters to depression.
- ◇ Vitamin B12: Deficiency will cause depression.
- ◇ Folic acid: Deficiency is a common cause of depression.

Vitamin C

Continued vitamin C deficiency causes chronic depression, fatigue, and vague ill health.

Minerals

Deficiencies in a number of minerals can also cause depression. I would like you to familiarize yourself with the minerals that can underlie depression so you can better understand the rationale for taking supplementary doses:

- ◇ Magnesium: Symptoms of deficiency include confusion, apathy, loss of appetite, weakness, and insomnia.
- ◇ Calcium: Depletion affects the central nervous system. Low levels of calcium cause nervousness, apprehension, irritability, and numbness.
- ◇ Zinc: Inadequacies result in apathy, lack of appetite, and lethargy. When zinc is low, copper in the body can increase to toxic levels, resulting in paranoia and fearfulness.
- ◇ Iron: Depression is often a symptom of chronic iron deficiency. Other symptoms include general weakness, listlessness, exhaustion, lack of appetite, and headaches.
- ◇ Manganese: This metal is needed for proper use of the B-complex vitamins and vitamin C. Since it also plays a role in amino-acid formation, a deficiency may contribute to depression stemming from low levels of the neurotransmitters serotonin and norepinephrine. Manganese also helps stabilize blood sugar and prevent hypoglycemic mood swings.
- ◇ Potassium: Depletion is frequently associated with depression, tearfulness, weakness, and fatigue. A 1981 study found that depressed patients were more likely than controls to have decreased intracellular potassium. Decreased brain levels of potassium have also been found on autopsy of suicides. You can boost your potassium intake by using one teaspoon of Morton's Lite-Salt every day.

The Safety of Supplements

Vitamin C and the B-complex vitamins discussed above are all water soluble. This means that they can't accumulate in your body or be stored for future use. Amounts above and beyond your current nutritional needs are dumped into your urine. As a result, there is no danger of overdose. Unlike water soluble vitamins, minerals can be stored in your tissues. [Refer to the Optimum Nutrition Formula for the RDAs and suggested optimum levels.] For therapeutic doses you will need the advice of a qualified nutrition consultant. Do not exceed the recommended therapeutic doses, since accumulation of minerals in the body can be dangerous.

Hypothyroidism and Depression

The stress showed on Mary's face as she described how weary and depressed she felt. Her husband and children demanded too much of her and she drank to escape the pressures and responsibilities. Mary had been in our program for two weeks. She was now alcohol free and making life-style changes. Still, she had very little energy and didn't seem to be recovering very fast. As we talked, she inadvertently offered several clues to the source of her problem. She complained that even on her restricted diet she simply couldn't lose weight. Exercise was out of the question. She was just too tired, even though she slept up to ten hours a night. She was wearing a heavy sweater even though it was a warm spring day. She said she had a hard time keeping warm and was very susceptible to catching colds. By the end of our session, I had heard enough to refer her to our physician for a thyroid test. Symptoms of hypothyroidism (low thyroid function) include:

- Depression
- Mental sluggishness
- Confusion
- Poor memory
- Fatigue
- Low sex drive
- Brittle hair
- Dry skin
- Puffiness around the eyes
- Cold hands and feet
- Sleeping more than eight hours a night
- Susceptibility to colds and infections

Researchers speculate that hypothyroidism causes depression because there is an insufficient supply of oxygen to the brain, since people with low thyroid function do not use oxygen efficiently. Linus Pauling contends that all depression could be eliminated if brain cells received sufficient oxygen.

Testing

If you have any of the symptoms listed above, you can test yourself for hypothyroidism with a procedure first described in the Journal of the American Medical Association by thyroid expert Broda Barnes, M.D. The test could not be simpler. People with low thyroid function have lower than normal temperature because they are not burning up as much food as they should. All you have to do for this test is determine whether your body temperature is lower than normal. Use a digital or basal thermometer, not a fever thermometer. The basal type is commonly used by women trying to get pregnant--or trying to avoid pregnancy--to determine when ovulation occurs on the basis of an increase in body temperature. Basal thermometers are available in most drugstores. Place the thermometer snugly under your armpit for ten minutes. If it registers below 97.8 degrees and if you have symptoms of hypothyroidism, you probably need thyroid hormone. This home test can give you a fix on your thyroid status. If you haven't yet been tested, you can ask your doctor to check further. The usual laboratory tests for thyroid (T3, T4, and TSH) do not always tell the whole story. But a new test, the fluorescence activated microsphere assay (available from ImmunoDiagnostic Laboratories in San Leandro, California) will often reveal abnormalities less sophisticated tests miss.

In Mary's case, standard lab tests indicated low-normal thyroid function, but her morning temperature never rose above 96.9 degrees. We treated her with Armour Thyroid, a prescription drug. It relieved her depression and eliminated her mental sluggishness and fatigue. She also lost weight. If your home thyroid test shows that your temperature is consistently below 97.8 degrees, see your physician to discuss treatment. If the doctor wants more information on your testing method, refer him or her to Dr. Barnes's book "Hypothyroidism: The Unsuspected Illness". Another useful book is "Solving the Puzzle of Illness" by Steven Langer, M.D. Dr. Barnes has published more than a hundred papers and several books on the role of the thyroid gland in human health. He treats thyroid disorders with natural desiccated thyroid rather than synthetic thyroid preparations. The advantage of natural thyroid over synthetic is that all thyroid hormones are replaced with the natural product, whereas synthetics have not yet been able to duplicate nature completely and do not affect two troublesome symptoms of hypothyroidism, dry skin and water retention.

Hypoglycemia and Depression

In his studies of twelve hundred hypoglycemic patients, Stephen Gyland, M.D., found that 86 percent were depressed. More recently, positron emission tomography (PET) scans have verified that glucose metabolism is often reduced in the brains of patients suffering from depression. The table below, which is based on Dr. Gyland's studies, compares the symptoms of hypoglycemia and depression. It is no accident that both conditions are so common among alcoholics. If hypoglycemia underlies your depression, you should begin to notice an improvement soon after you adopt a better diet that no longer supports the hypoglycemia.

Symptoms of Hypoglycemia and Depression

Hypoglycemia	Depression
Nervousness	Nervousness
Irritability	Irritability
Exhaustion	Exhaustion
Faintness, cold sweats	---
Depression	Depression
Drowsiness	Drowsiness
Insomnia	Insomnia
Constant worrying	Constant worrying
Mental confusion	Mental confusion
Rapid pulse	Rapid pulse
Internal trembling	Internal trembling
Forgetfulness	Forgetfulness
Headache	Headache
Unprovoked anxieties	Unprovoked anxieties
Digestive disturbances	---

Food and Chemical Allergies and Depression

The connection between food allergies and depression was a revelation to me. I was treating a young woman who was both alcoholic and depressed. I expected to find some food or chemical sensitivities because she had a terrible withdrawal hangover when she stopped drinking, indicating an allergic/addicted response to alcohol. But I was not prepared for the Jekyll and Hyde changes that I witnessed.

By the end of the week-long modified fast, Carol was feeling much better. Her depression was gone and her energy had returned. Then she tested wheat. Within two hours she crashed. Crying over the telephone, she told me she was too depressed to continue the program. The next day she apologized. We were

both grateful to find a major trigger to her depression. After her severe reaction, I expected Carol to avoid wheat religiously. At the time, I didn't understand the addiction aspect of the allergic/addicted response. Carol had enormous cravings for breads and pasta, so her resolve lasted only a few days. Then she succumbed to temptation and ate pizza for lunch. An hour later, she arrived at her treatment group sobbing inconsolably while the others groped for emotional explanations for her behavior. After her wheat reaction wore off, her depression again lifted.

Wheat is not the only substance capable of triggering a maladaptive reaction within the brains and nervous systems of sensitive people. Alcohol, certain foods (particularly the grains from which alcohol is made), and many chemicals (particularly hydrocarbon-based products like gasoline and paints) can also cause reactions. Food addiction keeps us coming back for more of certain foods. We love the initial mild energy they provide as they bring us out of our withdrawal state. We don't understand that the downside of this addiction is depression, anxiety, and mental confusion, the result of the inevitable withdrawal in the nervous system and the brain. So be suspect of foods that you feel you cannot do without.

Candida-Related Complex and Depression

During the last five years, we have seen a steady parade of clients who are fighting an internal war with an overgrowth of a common intestinal yeast called *Candida albicans*. I can usually tell on the basis of a first interview who is a probable candidate for treatment of candida-related complex (CRC). People suffering from this problem appear depressed, tired, anxious, and so spacey that they can't follow what I'm saying. They tell me they continually crave sugar as well as alcohol, and they have telltale signs of yeast invasion throughout their bodies. Their immune systems are so depressed that most foods cause bloating and produce allergic/addictive responses. If you suffer from CRC, your depression won't lift until these yeast colonizers are brought under control.[Visit your nutrition consultant for a full program to handle this all-too-common condition.]

Suicide and Depression

Before we leave the subject of depression, I want to discuss a painful subject: suicide, the final solution to depression. If your life, like mine, has been seared by the suicide of a family member, you may find the answers you have been seeking. And if you have been trying to cope with overwhelming depression and are plagued with thoughts of suicide, you will find a welcome warning that can help you avert tragedy. Over the years, I've learned that alcoholics often conceal the fact that family members have taken their own lives. But if I tell them about my son's suicide, the truth comes rushing out: "My father shot himself" or "Several times, my mother took a deliberate overdose of pills" or

"My son hung himself." The pain of these tragic deaths is often compounded by a family code of silence.

Often, those touched by the tragedy are tormented by guilt. They can't stop wondering whether they could have done something to prevent the suicide, whether they missed warning signs that tragedy was approaching. Recent scientific findings provide some of the answers to these agonizing questions and offer comfort and insight.

Most people experience some major disappointment or stress in the course of life, but suicide is rarely the outcome. And, there is no good evidence suggesting that most depression predates alcoholism or that any personality traits underlie alcoholism. Indeed, researchers have so far failed to find genetically transmitted depression among most alcoholics. Instead, studies suggest that the prolonged use of alcohol causes biochemical changes in the brain associated with depression and suicide. The most striking of these findings (from the National Institute of Mental Health) shows that the neurotransmitter serotonin is almost depleted in all the brains of suicides examined during autopsies. Since alcoholism causes the destruction of tryptophan and other precursor amino acids needed for production of the antidepressant neurotransmitters, it's not surprising that many alcoholics are prone to depression and even suicide. As I have explained earlier in this chapter, alcohol can also precipitate depression by destroying a number of other natural chemicals, including

- ◇ The neurotransmitter norepinephrine, formed from the amino acids phenylalanine and tyrosine
- ◇ Endorphins
- ◇ Essential fatty acids needed to form brain metabolites, including prostaglandin E1 (PGE1)
- ◇ B vitamins, which supply the brain's energy and maintain mental and emotional balance
- ◇ Trace elements and enzymes that govern the body's hormonal balance

A cerebral allergic reaction to alcohol or other substances can cause suicidal depression. High levels of toxins from *Candida albicans* overgrowth can also affect the brain and central nervous system and induce suicidal depression. Alcoholism promotes both proliferation of candida and escalation of cerebral allergies. Since alcohol can inflict so much biochemical damage on the brain and nervous system, it should not be surprising that many alcoholics attempt suicide. One recent study found that up to 40 percent of all alcoholics try to take their own lives at least once; another study found that 26 percent of the deaths of treated alcoholics were suicides. If you feel that you or someone close to you is a suicide risk, please re-read this chapter carefully and encourage the changes

recommended to restore normal balance and banish depression once and for all.

Where Do You Fit In?

Now that you are familiar with the various problems that can underlie depression, it's time to determine what to do about the one(s) that may be responsible for your own state of mind. Here are the options:

1. Restoring the neurotransmitters serotonin and/or norepinephrine
2. Replacing essential fatty acids to create PGE1
3. Restoring key vitamins and minerals
4. Treating hypothyroidism
5. Correcting hypoglycemia
6. Avoiding foods/chemicals responsible for cerebral allergy/addiction
7. Treating candida related complex

Don't be surprised if you fit several of these seven categories. Heavy alcohol use wreaks havoc on your biochemical balance. But with a repair program you can restore your health. In some cases you'll need a physician's help or the help of a nutrition consultant. I can't overemphasize the importance of expert medical advice when you are dealing with depression, especially if it is severe. It is equally important to choose a professional attuned to your special needs. Orthomolecular MDs are experts in both allopathic and nutritional science who treat disorders at the cellular level with biological weapons--nutrients that nature has provided in its own system of defense for millions of years. An orthomolecular psychiatrist or physician can help you address the following problems:

- Restoration of neurotransmitter levels via amino-acid therapy
- Vitamin, mineral, and essential fatty acid testing and restoration
- Thyroid testing and treatment
- Hypoglycemia testing and treatment
- Allergy testing and treatment
- Candida testing and treatment

For a list of such physicians in your area, contact the American Academy of Environmental Medicine, P.O.Box 16106, Denver, CO 80216, (303) 622-9755.

Nutrition and Cancer

Inadequate nutrition is one of the root causes of cancer, and although under-used by medical doctors, nutritional therapy can play an important part in recovery from cancer.

The subject of preventing and fighting cancer is of course a vitally important one. Treatment of cancer should be under the direction of your doctor and preferably also a Nutrition Consultant liaising with the doctor. A proper nutritional strategy is required and therefore an individual consultation on the matter is recommended.

The aim of this article is to describe the basic physiology of cancer and provide information about the role of nutrition in cancer prevention and treatment.

What is a carcinogen?

A carcinogen is a chemical or other environmental agent that produces cancers. Such a substance induces cell damage, affecting either the behaviour of a cell (DNA damage) or the permeability of the cell membrane - frequently because of the affect of free radicals on double bonds in phospholipids and DNA. This results in a cell which is incapable of utilising oxygen or nutrients and so it reverts to glycogen metabolism and becomes a lactate fermenting cell, growing and proliferating rapidly in an undifferentiated manner, to form a tumour mass of cancer cells. Metastasis (migration of cancer cells) may be controlled by a strong immune system.

Four major groups of carcinogen are:

1. Smoke - benzoprenes from cigarettes and exhaust gases or smoked foods, which damage cells in the lungs. Food heated to high temperatures until burnt (eg fried, grilled or barbecued) contains carcinogens.
2. Common food dyes, preservatives and additives. Nitrosamines are formed in the gut from nitrates in fertiliser and meat colouring.
3. Metabolic by-products - including peroxides, the by-product of respiratory metabolism.
4. Environmental sources - such as pesticides (eg DDT), plastics, detergent, radioactivity (eg X-rays), inhaled free oxygen radicals (FORs) from polluted air, and UV radiation from the sun. Also occupational pollutants (eg asbestos), and water pollutants and added halogens (chlorine, fluoride).

What allopathic treatment is available for the cancer sufferer? Allopathic treatment is the use of a method which is "incompatible with or antagonistic to the condition being treated" (Greek allo = different, as opposed to homeopathy from Greek homeo = same). For the cancer sufferer this includes surgery to remove cancer growth (though this does not prevent a recurrence), radiation therapy to kill off cancer cells (though this also destroys healthy cells and

damages the immune system) and chemotherapy using cytotoxic drugs to kill cancer cells (this is also poison to the rest of the body but more discriminate cytotoxins are being developed).

Hormone therapy (not strictly allopathic since it uses natural products of the body, eg steroids) is also used for anti-inflammatory effect, and can be helpful in cancers of organs under hormonal control including breast and prostate. Medical immunotherapy involves reintroducing cultivated killer T-cells to boost natural defences.

What are the main types of cancer? The forms of cancer represent different kinds of tumour and respond differently to treatment:

- Carcinoma (90% of adult cancer) - malignant tumours of the epithelial cells lining body cavities and glandular organs, eg lung, colon, breast, uterus, prostate, etc. Melanomas are cancerous growths of melanocytes, skin cells that produce the pigment melanin.
- Sarcoma - very malignant tumours of the connective tissues, muscle, bone and cartilage.
- Leukaemia - a cancer of blood-forming organs affecting growth and development of leukocytes (white blood cells). Lymphoma is a malignant disease of lymphatic tissue, causing excess lymphoid cells. Multiple myeloma occurs in bone marrow causing excess plasma cells.

What are the characteristics of a cancer cell?

The primary characteristic of a cancer cell is that it is starved of oxygen and nutrients, and so it reverts to a non-oxygen requiring (anaerobic) form of metabolism utilising glycogen, resulting in a build up of lactic acid. This occurs because of an increased or decreased permeability of cell walls or altered behaviour due to genetic (DNA) mutation, the effect of free radical damage.

The cells lose the ability to differentiate from one another and form clumps and invade surrounding tissues. As the cancer develops, the tumour obtains its own blood supply for nourishment and elimination, competing with normal tissues for space and nutrients. Cancer cells have the ability to migrate into the blood or lymph system where a weak immune system may fail to prevent their spread.

They are also able to move directly through surrounding tissues with the aid of pseudopodia. Some cancer cells secrete enzymes that break down collagen, the substance which binds cells and tissues together, allowing easier migration - vitamin C directly counters this process. Cancer cells also do not produce the enzyme which breaks down essential fatty acids (delta-6-desaturase) and thrive on arachidonic acid (found plentifully in meat and milk). Essential fatty acids such as GLA from Evening Primrose oil counter this imbalance.

What are metastases?

One property of malignant cells is their ability to undergo metastasis - the spread of cancerous cells from the initial (primary) tumour to a body cavity or fluid (blood or lymph) or by migration through tissues, which may result in the development of metastases - secondary tumours.

Why is the disarming of free radicals so important in cancer prevention?

It is important to disarm free radicals because they can damage double bonds in phospholipids of cell walls and of DNA, altering cell permeability and causing genetic mutation affecting cell behaviour (including abnormal growth patterns such as proliferation of undifferentiated cells). Damaged mitochondrial membranes (the energy power-houses inside every cell) reduce the ability of cells to utilise oxygen.

The vitamins C, E and A (beta carotene) have an anti-oxidant effect, disarming free radicals. They work closely with the important anti-oxidant enzymes Superoxide Dismutase (SOD) containing zinc, manganese and copper, and Glutathione Peroxidase (GP) containing the mineral selenium.

What nutrients have been shown to be effective in the prevention and/or treatment of different types of cancer?

Nutritional therapy is not a cure for cancer, but certain vitamins and minerals may prevent deterioration and spread of the cancer, and boost the immune system.

The primary anti-oxidants are: vitamins C, A (beta carotene) and E, and the minerals zinc and selenium. Many other natural substances also have powerful anti-oxidant effects, such as Pycnogenol, Lycopene, CoEnzyme-Q10, N-Acetyl Cysteine.

Minerals that support the anti-oxidant enzyme SOD are: manganese, and copper and zinc in 1:15 ratio; and to support the anti-oxidant enzyme GP: selenium.

Immune enhancing vitamins are: B2, B5, B6 and B12; folic acid*; vitamins A, C and E and zinc*. (*Growth enhancing so if malignancy present, use to normalise levels only).

Nutrients to detoxify carcinogens: vitamins C and A, and selenium.

To help restore normal cell membrane development and cell oxidation: Essential Fatty Acids (such as Evening Primrose oil, seed oils and fish oils).

Potassium keeps cells alkaline and is toxic to cancer cells, so keep the diet high in potassium (fruits) and low in sodium (salt).

What diet will help?

By improving the diet towards optimum nutrition, all the family will benefit.

Daily eat one salad, 3 pieces of fruit, 5 lightly cooked or raw vegetables (one green leafy for B vitamins and magnesium). Nibble a handful of nuts and seeds daily for zinc and good quality oils. Twice a week eat oily/white fish. Experiment with vegetarian dishes using peas, beans and lentils. Drink plenty of water between meals.

Avoid foods with added salt. Avoid sugar and other foods with concentrated sweetness. Avoid meat and dairy foods - try to have more vegetarian sources of protein. Avoid processed and fast foods with long lists of preservatives and additives. Avoid frying foods and avoid regular consumption of tea or coffee - for alternatives try diluted fruit juices and herb teas. Avoid alcohol and certainly don't smoke.

What supplements should I take?

If cancer has been diagnosed, you should always seek approval from your doctor for a nutritional strategy. Nutrients simply enhance health and only your doctor will know if an allopathic treatment is necessary as an urgent life-saving measure, and some drug prescriptions conflict with normally required nutrients.

However, prevention of cancer is something every responsible adult can take in their own hands, and the principles are clear. First and foremost, optimum nutrition is required, and this will help to protect you from environmental carcinogens, and to strengthen all the body systems in case you have an inherited weakness. Secondly, supplementing the diet with nutrients proven to help prevent cancer is a wise step to take.

Vitamin C, taken in generous doses (such as 3g or more over the day), is the primary nutrient to help prevent cancer and, indeed, to promote good health. High levels of vitamin C may cause slight diarrhoea - if this occurs, reduce the amount slightly, then gradually increase back to the original amount, or even more if your gut will tolerate this vital anti-cancer substance. Do not suddenly cease this supplementation, however; to do so may result in deficiency symptoms as the body has got used to high amounts in circulation.

In addition, Proanthanol is a very powerful antioxidant which works synergistically with Vitamin and this combination is the best anti-cancer measure you can take. The product has also been shown to inhibit tumour production in the skin and to protect against the carcinogenic effect of tobacco smoke.

Selenium is a vital element to both prevent and treat cancer. A synergistic mix with other antioxidants such as vitamins A, C and E and glutathione, etc (they need each other to work best) is desirable.

A clean and rapid colon is required to prevent colon cancer and supplementation of Acidopholus along with adequate fibre in the diet is of assistance here.

Mercury Toxicity

If you have a good diet, avoid obesity and do not smoke, then your chances of good health are greatly increased, as these are very much the senior factors. It is wise to take account of other factors though. We are all exposed to environmental toxins, such as harmful chemicals in the water, on and in our food, and in the air. As well as testing for biochemical imbalances in the system, including deficiencies of important nutrients, a nutrition consultant will also check for excess amounts of toxins such as lead, aluminium, cadmium, etc. Even our fillings can cause problems. We would like to draw your attention to an individual case of Chronic Fatigue Syndrome (CFS, also known as ME) which was not resolvable by nutritional means alone. This was because the real cause was Mercury poisoning, a form of toxicity which has very similar symptoms to CFS. If you have had a lot of dental fillings with silver/mercury amalgam, and you suffer from chronic fatigue, you may have the answer right there in your mouth! The following article relates the moving experiences of a CFS sufferer who resolved his illness only when he eventually discovered that dental mercury poisoning was the cause!

Chronic Fatigue Syndrome? or Low Level Mercury Poisoning?

By Jeff Clark 7/3/96

Dear CFS Sufferer,

Your situation is of great interest to me. I too have suffered similarly for a long time. In my case I have found a root cause and solutions! Now that I am back to good health, I want to share my story with you. I want you to know what I have found, to see if my experiences can help you in reversing your health problems.

My Chronic Fatigue Story

I moved to Portland, Oregon in 1983 after graduating from college in Montana. Financially, I had to struggle through school: food, books and tuition were my priorities, with very little left for anything else.

At graduation I was 23, and strapping healthy. There was only one exception to my excellent health, bad teeth. During childhood I had developed a large number of serious cavities resulting in 13 teeth with major fillings. By the end of college many of these fillings were in disrepair. The university health clinic dentist repeatedly did patch work, admonishing me that I needed to go get things fixed properly.

I started work at Tektronix, Inc. in Beaverton, OR, May 1983. Six months later my dental plan vesting was completed, and I began having my teeth fixed. In a 3 month period, each and every filling was replaced. When it was over I was proud of my teeth. My dentist did excellent work. My mouth was restored to great condition.

Three months later I started having a sore throat, sniffles, and some fatigue, not unlike a flu. My new job produced stress because of the demands of meeting a product development schedule, and because of my own demands to prove myself in my new career. For the longest time the sore throat persisted, and slowly, almost imperceptibly, my strength began slipping away.

By 1986 my symptoms were an exact match for CFS. I was having night sweats, swollen lymph glands, loss of memory, constant headaches, inability to concentrate, numerous vague aches and pains, extreme fatigue, a high level of anxiety and emotional instability.

My life consisted of fighting my way through work each day, and collapsing on the sofa in the evening. Sleep, that refreshing friend, could not revive my energies, no matter how long I rested. Work was all I could muster. Off hours and weekends were spent attempting to rest and recover. My girlfriend, now my wife, Carmen, wondered how we would ever have a life together. We wanted children, and many other happy things. If all I had energy for was work, how could I help raise children? have a home? have a happy life together?

I went to several doctors. Yes, there were Epstein-Barr titers, but no sign of active virus. Endocrinology checked out. Blood chemistry revealed a perfectly normal 26 year old. At some point I was tested for AIDS, even though my risk level was in the extremely low category. With no great surprise, AIDS wasn't the cause either. My doctor decided it must be stress, it must be psychosomatic, it must be in my head. He gave me the name of a psychologist on "pill hill", maybe he could help. I never went. Of course I was stressed out. There was something drastically wrong with me, and no one could figure out what it was. I was a young man, I had so much life to live. I began to resign myself to a life of chronic fatigue.

In 1983 I weighed in at a muscular 190 pounds. At the end of 1986 my weight was down to 150 pounds. Food didn't work for me any more. I ate vigorously, enormous amounts to retain weight, it just barely kept me alive.

Carmen and I started to notice a pattern in my symptoms. Whenever I would eat something sweet, or drink a soda pop, all of my symptoms would go off together like a 3 alarm fire. This reminded Carmen of a girlfriend who had developed chronic yeast infections. We picked up the "Yeast Connection" book, and the name of a Natural Path who had helped the friend recover. This began my odyssey into the fringes of conventional medicine.

There were some strong clues with the yeast theory. Eliminating all forms of sugar, and testing myself for food allergies helped to stabilize my situation. Some stool tests and we were convinced that somehow yeast had taken over my body chemistry. My illness gained a focus, it became a pitched battle with chronic yeast infection. The center of my yeast problem was my lower intestine.

I became an expert on how to kill those little buggers in my gut, and it helped. My energies increased a little, and my symptoms eased somewhat.

In 1988 Carmen and I decided to marry. We had a life characterized by less than normal energy, and burdened with an onerous picky diet, but we had a life. My Natural Path kicked me out because she couldn't see any way to progress me further. I was now in maintenance mode. Never giving up the desire for a cure, I tried a few more doctors. We found some MD's who would prescribe Nizoral and other prescription yeast killing drugs. A couple rounds of this stuff brought me up another level of health, but still didn't cure me. The only proof I needed of not being cured was to stray from my diet. If I were to have something sweet, I'd be sick again. The drugs are not a long term solution, because they will destroy your liver if you keep taking them. When I went off the drugs my symptoms would slowly ratchet up again.

In 1992 we had our first daughter. By 1994 I had 4 of my largest dental fillings replaced with crowns, and my physical life was stable, the best it had been since 1983. I was not cured, but I was not as desperate as before.

A friend heard a nutritionist speaking on the radio. This expert was talking about chronic yeast infections. She contended there is an underlying cause for people who are unable to shake chronic yeast. I hadn't been able to shake yeast by any method, conventional or unconventional, after 8 years of trying. My attention was riveted. The nutritionist believes that heavy metal poisoning is the culprit. Astonishingly, almost the entire baby boom generation, including me, has been systematically exposed to low levels of one particular heavy metal, mercury.

Mercury is 50% of the material found in silver / mercury amalgam dental fillings.

My mind went back to 1983. My word!, it was my dental fillings that had made me sick!

How I Was Cured of Chronic Fatigue

Today it is July 1996. There are no longer any silver / mercury amalgam dental fillings in my mouth. I have been through 6 chelation treatments. Chelation is a method of extracting mercury from human chemistry.

The measurable mercury in my system is now within normal acceptable limits. At the beginning of 1995 my body mercury levels measured at 4 times the acceptable limit. Who knows what the levels were in 1986, when I was deathly ill?

My vitamin chemistry is in balance, the chronic yeast is gone. I no longer have to treat for yeast. I can eat sweets. Ice cream doesn't ruin me for 3 days anymore. There is no food to which I am sensitive. My weight is back up to 180

pounds.

I feel great!

Sleep is my friend, returning me to the land of the refreshed every morning.

My mind is sharp, and my emotions are stable. I'm finally cured.

I lost 11 of my best years to sickness, but I am not bitter. I am thankful that the next years of my life can be that normal happy life Carmen and I have always desired. We have 2 daughters now, the second one came in 1995. Together, Carmen and I have enough energy to make it all work.

Ironically, the doctor in 1986 was right, it was all in my head, just not the way he was thinking. While my dentist and his colleague were willing to replace all of my fillings, they are skeptical. They and the ADA (American Dental Association) are in strong denial that the mercury in dental fillings has any ill effects on peoples health. Everyone agrees it is well established that high level mercury poisoning exists, and is a serious health problem when it occurs. Somehow, the majority of the dental industry believes you just can't get any poisoning at all from silver / mercury amalgam dental fillings.

I'm no medical or mercury expert. Based on my experiences, I feel qualified to hypothesize that there is truth on all sides. When the number of amalgam dental fillings is small, and the size of those is not so big, and the fillings are replaced sparsely over a long period of time, a healthy person probably can't accumulate enough mercury to have any symptoms of mercury poisoning.

When there are a number of amalgam dental fillings, they are large, they are drilled out and repacked with fresh amalgam in the shortest amount of time, I know first hand that a person can become quite sick.

My current doctors have speculated that the health of some people is more sensitive to low levels of mercury, this is probably true.

In my case, there is now a very clear before and after story. I have wished for myself to be well for a long time, and have done many things over 8 years to become better, without complete success.

By directing my efforts at removing the silver / mercury amalgam fillings in my teeth, and by going through chelation to remove the accumulation of mercury in my body, I finally have a cure.

What Should You Do?

If you've made it this far, then it's time to talk about you, which is the main reason for me writing.

My story represents what science calls anecdotal evidence. Anecdotal evidence is proof of nothing more than a series of events occurred. There may or may not

be any cause and effect relationships between any of the events, it could all be coincidence. At best, anecdotal evidence is a clue, the basis for a hypothesis. A hypothesis requires rigorous, repeatable experimentation to produce true scientific proof. I personally don't have another 11 years to give for producing this kind of proof.

Therefore, my experiences are uniquely mine. I provide them here for you to use as a clue, for you to use as a single reference point in forming a hypothesis about your own health problems.

My experiences may apply to other people who are suffering CFS. My experiences do not necessarily apply to everyone who suffers CFS.

Here are the indicators I suggest looking for in forming your own hypothesis about how low level mercury poisoning may be affecting your health.

- Do you have numerous large, silver / mercury amalgam fillings in your teeth?
- Does your CFS include a sequence of events where dental work involving silver/amalgam fillings precedes the development of symptoms?
- Have you ever worked in a dentist office or dental lab?
- Can you think of any other ways you may have been exposed to mercury?, for example: a broken thermometer? or skin lotion from Mexico? or eating fish from a volcanic or mining area?

If you can answer a definitive no to all of these questions, then my experiences probably don't apply to your health problems.

If the answer to any of these questions is yes or maybe, then it's worth your time and effort to have your mercury levels tested. You may have elevated mercury levels, and may be suffering from low level mercury poisoning.

My wife, family and friends regularly tell me they cannot believe how well I am now, having witnessed how ill I had once been.

May you too find a root cause to your illness and become well soon !