

Orthomolecular Medicine and Megavitamin Therapy: Future and Philosophy

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Introduction: Definition and Scope

"Megavitamin therapy" was first coined in 1952 by psychiatrists Humphry Osmond and Abram Hoffer to describe the large dosages of niacin used in the treatment of schizophrenia and mescaline psychosis. Megavitamin therapy has become a sub-category of Orthomolecular medicine.

The term "Orthomolecular" was first utilized by two-time Nobel Laureate Linus Pauling in 1968 to characterize the treatment of disease with nutrients that were endogenous to the human body. Orthomolecular simply means "correct molecule" which translates into "essential nutrient". Orthomolecular physicians treat disease by varying the dosages of "correct molecules" which are required but not synthesized by the human body. Doctors, adjusting diet, by eliminating junk foods, and prescribing mega dosages of essential vitamins, minerals, trace metals, amino acids, and fats can correct the chemical imbalances of disease.

Orthomolecular medicine has continually expanded and some physicians now recognize that all of man's biological interactions with food, water, air and light are an important part of illness and health. The role of polluted water, air, and artificial lighting as causes of disease has received less attention than the dangers of poor diet, but is just as important because man ingests or absorbs large amounts. For example, cadmium polluted air contributes to high blood pressure and arteriosclerosis; fluorescent lighting can cause hyperactivity; aluminum sulphate cleaned water contributes to senility; water polluted by copper plumbing results in copper overload disorders or possibly forms of arthritis, depression, and schizophrenia.

Orthomolecular therapy can be preventive, protective, and corrective. Its practitioners prevent disease by helping patients become more aware of our dangerously polluted environment and nutrient-stripped refined foods, and thereby avoid these dangers. By the prescribing of mega-nutrients, particularly calcium, vitamin C and zinc, physicians can protect patients against the harmful effects of lead, cadmium and mercury. Orthomolecular medicine began and still focuses upon the correction of

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biochemical imbalances of disease.

Today, Orthomolecular medicine is primarily used in the treatment of psychiatric disorders. Orthomolecular psychiatrists make up approximately one percent of 30,000 of the nation's practicing psychiatrists. The scope of treatable disorders has broadened since the initial treatment of schizophrenia to include epilepsy, autism, senility, childhood hyperactivity, arthritis, colds, herpes simplex virus, allergic and digestive problems. Many more diseases and chronic problems such as back ache, poor memory, psoriasis, etc. are being treated successfully by Orthomolecular therapy.

Treatment of Disease

Treatment of disease with mega-nutrients is the distinguishing therapy of ortho-molecular physicians. The rationale for treatment is arrived at through a variety of clinical tests, psychiatric examinations to determine sense perception, and consultations. Human beings of all types differ in their genetic code, morphological and physiological structures, endocrine activity, metabolic efficiency, and most importantly, because they are within our control, nutritional requirements. Understanding the biochemical individuality of each patient—that is, each person's different nutrient requirements—is one of the basic tenets of treatment. Equally important, physicians must consider how these essential nutrients interact in the human body. Nutrients interact in both a healthful and a harmful way, and harmony of the team of nutrients prescribed is the goal.

Mega-nutrient treatment offered by ortho-molecular physicians varies. Some ortho-molecular physicians embrace other health care unendorsed by the AMA, such as chiropractic and acupuncture. Some utilize drug therapy along with the nutrient approach, to tranquilize psychotic patients. For most the goal is to subsist on nutrients alone. A small minority of physicians utilize hormone therapy but many hormones have been proven harmful (such as estrogens, DES and HCC). Hormone therapy

is distinct from nutrient therapy because hormones are not essential and no minimum daily requirements must be met by our diet. Hormone therapy should be avoided until more is known about the administering of hormones into the body.

The designation "Orthomolecular physician" is a loose classification because the doctors share only the nutritional approach to disease, and even this varies greatly. The meaning of the word "Orthomolecular" has broadened and the term has been abused.

Because Orthomolecular treatments often take months to be effective, the use of mega-nutrients is not thought to be useful in the treatment of temporary symptomology such as pain, mania, headaches, depression, etc. Treatment for these symptoms is usually with aspirin, powerful drugs, and shock therapy, which are ameliorative, not curative. While it is becoming widely recognized that megavitamin therapy cures patients by metabolic correction, it is little known that certain combinations of mega-nutrients can be as immediately effective as aspirin, tranquilizers, or many other drugs. Niacin and vitamin C in dosages adequate to produce a mild flush often provide almost instant relief to the overactive mind and help focus concentration. Calcium ascorbate with zinc has been particularly effective in relieving depression and some types of headache. These treatments have few adverse effects, whereas aspirin damages the stomach lining, and tranquilizers can cause a grotesque disease called tardive dyskinesia. Since lithium is toxic, manic depressive disorders are best treated by B6 and zinc. Megavitamins treat both immediate and long range causes of disease. While a disease may have a sudden onset, it is often rooted in our living habits or personal problems. Rarely is disease localized entirely in one part of the body or localized to one point and origin in time. Since mega-nutrient therapy treats the whole person's metabolic imbalances and is of immediate and long term benefit, there is no justification for the use of drugs except in the case of the critically ill. Generally the use of drugs is a self-deception which sacrifices

long-term health for immediate relief. If mega-nutrients are not entirely effective, rigorous exercise will almost always restore body equilibrium and homeostasis.

Orthomolecular physicians have expanded their utilization of special diets. Hypoglycemia, found in most schizophrenics and in many patients suffering from chronic ailments, has resulted in the standardization of the high protein, low carbohydrate, no junk food, diet. The discovery that food additives, artificial colors, flavors, and preservatives can cause hyperactivity in children and cerebral allergy in adults has resulted in a more differentiated approach to diet. For example, some people must avoid foods containing natural salicylates because the loss of zinc due to chelation is intolerable.

In addition, many Orthomolecular physicians have found that both psychiatric and normal patients have allergies to nutritious foods such as milk, eggs, meat and fruits. This discovery is not exactly new, for Lucretius wrote over 2000 years ago "what is one man's meat is another's poison". Rotating diets, fasting, and allergy testing have become standard parts of ortho-molecular practice. Susceptibility to allergies and additives (BHA, BHT, colors) and overall nutritions form a complex web which interacts dynamically. Adequate nutrition can reduce the need for mega-dosages of nutrients. This is not to say that some allergies, such as lactose intolerance may not be genetic in origin, and/or independent of nutrition.

Ideally, Orthomolecular medicine teaches students and patients an awareness of their reactions to the environment and their individual needs. Good habits of exercise, relaxation, diet and living preferably in a clean community are essential parts of therapy.

Theories to Explain Successful Treatment of Schizophrenics by Orthomolecular Medicine.

Numerous theories have been proposed to explain the effectiveness of Orthomolecular therapy. There are dozens of known disorders of increased vitamin dependency, and schizophrenia may fall into this class.

Pauling has an elaborate set of theories explaining how an increased need for nutrients can occur because of small changes in enzyme and protein structures through DNA mutation. His hypothesis tries to explain what selective advantage an organism could have by losing the ability to synthesize, for example, vitamin C. Pauling postulates that an organism could have less biological machinery and lower energy requirements if it obtained vitamin C from the environment instead of synthesizing it itself. For these reasons the deletion of the vitamin C gene could be advantageous. On the basis of known cases of molecular genetic disease and the hypothesis of increased permeability of the blood brain barrier, Pauling shows how increased nutrient dependencies relative to the rest of the population could arise.

Besides genetic theories, there are a whole group of substance theories. The substance theories can be divided into two groups-one which holds that the central problem for schizophrenics is the production of abnormal substances, and two, the central problem is an imbalance of normal substances. It is often difficult to distinguish whether substances are normally present in the human body or unique to schizophrenia. Equally problematic is whether the substances are genetically pre-programmed or environmentally induced. Some of the substances implicated in schizophrenia are Osmond and Hoffer's substance M, Heath's taraxein (isolated from the ceruloplasm fraction of blood), Friedhoffs dopamine, Pfeiffer's histamine and kryptopyrrole, to name just a few. Elimination of possibly hallucinogenic substances is the basis of the renal dialysis technique as a treatment of schizophrenia. Such a treatment may provide temporary relief, and resembles the bleeding treatments of the 17th century!

Few of the biochemical substance theories have broken out of their narrow confines to be clinically useful and aesthetically logical. Pfeiffer's model centers around the measuring of histamine, but has continued to expand and includes many types of bio-

chemical tests to characterize the abnormal or imbalanced aspects of the patient's metabolism. For convenience, schizophrenia patients are grouped into three broadly based types, determined by specific biochemical abnormalities and clinical symptoms. There are specific nutrient regimes appropriate to each group which vary according to biochemical individuality. Only certain mega-nutrients are appropriate for any given individual's biochemical type, while others can actually be harmful.

Pfeiffer's great contribution to medical science is in the breakdown of schizophrenia (wastebasket diagnosis). Pfeiffer's three biochemical classifications of schizophrenia are tendencies which guide the examining physician to clues about treatment. The tripartite model has continually expanded its clinical base, and now includes diagnostic analysis of food allergies and heavy metal poisonings. Food allergies frequently occur because of added chemicals and diversity of foods ingested with every meal, while our environment has been increasingly contaminated with copper, lead, aluminum, cadmium and mercury. These problems are contributing to the sources of schizophrenia. The model's flexibility recognizes there are infinite variations and parameters of illness; and each man's schizophrenia is truly unique and treatment will improve proportionally with the specificity of diagnosis and further classification of mental disease. Correcting abnormal metabolism as determined by biochemical and allergy tests, (Cott), by special diets, digestive enzymes (Philpott), mega-nutrients, fitness regimens may be the dominant medical model of the future.

Critics and Their Illogical Attacks Against Orthomolecular Medicine

Critics often regard Orthomolecular medicine as both useless and harmless. There are numerous double blind studies which have proven the efficacy of Orthomolecular therapy, but critics continue to subject the field to ridiculous demands of proof when they know that little in medicine is proven to that extent. Almost nowhere in

medicine are doctors on as shaky scientific grounds as in psychiatry and psychotherapy, where there is little hard evidence of effectiveness. Only recently have physicians learned of how some powerful drugs work and even their effectiveness is in some ways less proven than Orthomolecular therapy. Drugs are believed to work by altering the neurotransmitter balances, but the relationship between biochemical theory and human behavior is still unclear. Decreasing enrollment of patients in mental hospitals is often given as an example indicating the value of drug therapy. This reduction may be due only to subduing the patient, and it is unknown how many patients leaving mental institutions, resume normal roles in the community as a result of drug therapy.

As for being totally harmless, even the water soluble vitamins have an upward toxicity limit, though it is almost impossible to reach. More important is the fact that mega-nutrients correct and shift metabolism. Different vitamins have different effects on different types of metabolism. You can actually aggravate a condition by randomly ingesting mega-nutrients unsuited to your metabolism. Niacin will aggravate depression; methionine will increase mania; the treatment of patients with mega-nutrients is a complex science and is often done carelessly because of the erroneous belief that if a substance is water soluble, it cannot do harm. Don't believe it; anything that demonstrates therapeutic value can have harmful effects when used carelessly and ignorantly. The self-medicator is foolish; he is a threat to his own well being.

Critics also attack megavitamin therapy on a theoretical basis, arguing that vitamins are only necessary when specific deficiency diseases occur or when there are specific metabolic defects. This argument is easily refuted since few of the essential nutrients are marked by specific deficiency diseases. In addition, when there is a "specific deficiency disease", such as pellagra, normal function will not be entirely restored by one vitamin (E\$3), but the whole group of nutrients, particularly other B vitamins, is necessary before the victim returns to normal functioning.

Each vitamin has diverse target and functions; to expect one single manifestation of a deficiency is foolish. Experimental research documents that a deficiency of a vitamin will in general not manifest itself in any one symptom, but in a variety of symptoms, depending on the general health state of the individual. Many researchers react to this confusion by concluding a deficiency state is one that responds to treatment by administering the vitamin. They reason that if a patient responds to vitamin E, he must have been deficient. In most cases, there is not clear definition of a specific deficiency disease, and the precursor deficiency symptoms are also ambiguous. It is uncertain whether or not a person has to manifest deficiency symptoms to respond to vitamin supplements. There may be an important distinction between a deficiency and the optimum intake of any given nutrient. Ordinary diets are good enough for ordinary good health, but extra vitamin supplements may lead to optimum health by building resistance and defending the body against toxic chemicals.

Pauling, understanding the difficulty of determining optimum nutrient requirements, suggested that the FDA rename the recommended dietary allowance as a minimal dietary allowance, and a second range of vitamin intake be created called the recommended daily intake (RDI). The purpose of these guidelines would be to help individuals distinguish between what levels will result in optimum function. The RDI would be a range because Pauling recognized the biochemical individuality of each person and that different amounts of nutrients will produce optimum function in different beings.

Antagonists of Orthomolecular medicine often try the common sense attack, reciting that a balanced meal will give sufficient amounts of vitamins. This rationale which translates into "nature knows best", is foolish and shortsighted because it does not recognize that most of our improvements in human life have come by outsmarting and overcoming nature. For example, sub-optimal nutrition prevails in nature-animals are constantly limited in their growth and

development by inadequate nutrition. Imbalanced diets are sometimes more advantageous to health than equal proportions of protein, fat and carbohydrate (if this is what the enigmatic balanced diet means). "Balanced diet" and "everything in moderation" are catch-all phrases we develop to avoid thinking, and they often blind us from seeing truths. Certain parts of most diets need to be accentuated, and in others, foods should be eliminated. Rarely is a diet balanced. The imbalanced intake of food and nutrients is often what is best for a balanced biochemistry and optimum health.

Critics and Their Illogical Fears of Orthomolecular Medicine.

While critics are exceptionally vocal when downgrading Orthomolecular medicine, they rarely express their real fears and reasons for opposition. Orthomolecular medicine has two threatening implications-one philosophical, and the other medical. Behind the attacks, critics fear that ortho-molecular medicine contributes to a deterministic view of man and that the therapy will replace psychotherapy and render it obsolete.

Determinism

Orthomolecular therapy achieves behavioral modification by correcting man's biochemical imbalances. Superficially, behavioral modification is viewed by many as contributing to a deterministic concept of man.

Determinism, simply stated, argues that human acts of will result from causes which determine them. Therefore, all things are the result of necessity and there are no alternative modes of action. The modern deterministic view owes much of its origin to Newton's laws and the modern recognition that life and the inorganic are on a continuum. For centuries philosophers and social scientists tried to copy Newton and studied history to write the laws of man's behavior. Modern philosophy and history tend to look at man in more humanistic and freer terms, while they view any science as deterministic, with the result of what Snow labels as the "two-culture split". While

orthomolecular medicine may contribute to a philosophy of materialism (man has no intangible soul or everything is biochemical), it is not in accordance with a deterministic clock-like universe. Nor is science strictly deterministic.

The deterministic viewpoint, while not discarded, has undergone modification with man's understanding of quantum mechanics. Students of quantum mechanics have tried to predict sub-atomic particle behavior. Scientists have found that the interactions and behavior of these particles cannot be predicted but merely approximated by probability. Even the smallest particle in the universe has a peculiar autonomy (randomness or entropy) which, when extrapolated to the human scale, endorses man as both free and determined.

There are alternative modes of action for sub-atomic particles and man. Materialist science recognizes the existence of both dissipative structures (order and causation) and entropy (randomness and freedom). Science views man's behavior as probable, but not predictable.

Orthomolecular medicine, as a science, does not validate a rigid deterministic view of man his world. Orthomolecular medicine contributes to man's awareness of factors which inhibit freedom and offers liberating tools such as mega-nutrients and individualized diets which increase health. By emphasizing healthy living habits and exercise, man increases his self-control and becomes freer.

The issue of science and human freedom has not been adequately discussed in the public forum. Illogical fears that science and Orthomolecular medicine as forms of behavioral modification endorse the degrading of the individual's value have led to public dissatisfaction with science, fewer research funds, and paranoid opposition to the liberating techniques of Orthomolecular medicine.

Future of Psychotherapy

Proponents of the psychiatric approach to schizophrenia suggest that the disease is psychological in nature and primarily due to parental pressure or environmental stress. Henry Stack Sullivan, who was a leading

contributor to psychoanalytical thought, postulated that schizophrenia was the product of massive anxiety over the breakdown of communication between the infant and his mother. Freud, in contrast, believed the illness would eventually be found to have a biochemical origin.

Orthomolecular medicine does not mean the death of psychotherapy, though its role in a changing medical model will be different. Psychotherapy represents man's desire for greater insight and self awareness. Historically, we could say that Socrates was the first psychotherapist, because he preached that self-knowledge was the highest of virtues. The need and the pleasures of self-knowledge will always be there for those who can benefit. It is now being recognized that psychotherapy may have no value for the critically ill, particularly schizophrenics. To truly benefit from any kind of knowledge and awareness, they need to be restored to some physical well-being and mental health. Orthomolecular medicine restores clear thinking in many thought disorders and when necessary may work in a complementary fashion with psychotherapy.

Orthomolecular therapy and psychological counseling are not mutually exclusive. As a psychotic patient improves, the psychological and the biochemical approaches can become more intertwined. An awareness of one's feelings and how they are related to both psychological and dietary catalysts is necessary if one is to continually improve the adjustment between individual needs and optimum nutrient intake. The importance of awareness in the developing of an optimum health regime cannot be overestimated. In addition, awareness through psychotherapy for the functional individual is probably another way to reduce stress and improve over-all health. Yet some people resist learning about themselves, never will or can confront many of their self-deceptions.

The psychological and biochemical viewpoints are parallel to the philosophical mind-body dichotomy or the battle between thought (mind) and feeling (body). The seeming antagonism is resolved when a

flexible definition of man is embraced, which views him as both a whole being and a plurality of beings and desires. There are few thoughts without feelings, though some rationalists try to separate feeling from thought.

There is a reciprocal interaction between the behavioral and the biochemical. Psychological stress alters individual biochemistry and biochemical stress alters an individual's psychological state. This is because the behavioral is the sum of thousands of biochemical reactions; the biochemical is behavioral because cells and cell organelles of all kinds are communicating, moving, reacting, working, etc. The dynamic relationship between biochemical and psychiatric imbalances suggests that both points of view are necessary for optimum health. The choice of treatment is determined by how the patient best responds. The recognition of important psychological factors in the etiology of schizophrenia does not change the fact that these patients seldom respond to psychotherapy.

Conclusion and a glance at the future.

I have tried to give a summary of orthomolecular medicine's future impact on the medical field, and at the same time raise philosophical questions. While it seems to me that the Orthomolecular approach will dominate health care in the decades to come, it does not eradicate the value of psychotherapy and greater self-awareness. There are many valid approaches to human problems.

I have tried to recognize and reconcile psychological man with biochemical man in an attempt to elucidate the bridge between mind and body, thought and feeling determinism and free will. These dualisms are all very similar and can be grouped in the conflict between feeling, body and determinism versus thought, mind and freedom. The same dualism is represented in scientific terms as the central tendencies of entropy and dissipative structures (energy and order). Dualism is a convenient way for man to discuss inner conflicts. The distinction between the biochemical and

psychological has no separate reality because man as a whole is both biochemical and psychological. The distinction only simplifies our research and treatment, and has proven useful in discussing the contributions of Orthomolecular medicine in improving human health.

Orthomolecular medicine may well be one of the dominant therapeutic tools of future physicians. Research in all aspects of nutrition is increasing. Mega-nutrient therapy has been shown to be very effective and relatively harmless. Few drugs are being introduced into the American market because new FDA regulations require drugs to be proven effective and safe. The awareness of drug side effects, and the ever growing movement toward natural treatments may reduce the role of drugs in medicine and result in increasing the emphasis on nutrition as an important factor in optimal health. Since 55 percent of all hospital beds are filled with mental patients, Orthomolecular medicine could make a significant impact in the psychiatric field.

While the biochemical approach to disease dominates Orthomolecular medicine, holistic physicians recognize that disease has both psychological and biochemical components which dynamically interact. Arthritis, for example, which owes part of its etiology to copper accumulation within the joints, is aggravated biochemically by copper-poisoned water. In addition, "psychological" stress such as a death in the family, probably increases excretion of zinc and predisposes the individual to retain more of the copper in his diet. Copper overload results in depression and aggravates the arthritic condition. When attempting to treat a patient within a complete framework, the entire lifestyle, a physician must be aware of all environmental interactions, as well as each individual's perception of his life and role in the world. A combination of Orthomolecular medicine with psychotherapy will be less threatening to the medical establishment, and thus this type of treatment will pave the way for the acceptance of many other Orthomolecular therapies.

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