

Book Reviews

Antioxidant Adaptation. S.A. Levine and P.M. Kidd Biocurrents Division, Allergy Research Group, 400 Preda St., San Leandro, CA 94557.1985.367 pages

The best books are not only good, they are timely. This book written twenty years ago would have been incomprehensible because there were very few physicians aware of and interested in allergies, in chemical sensitivities and in a large number of stressful diseases. Today, most people have heard of these reactions which have been called the "Twentieth Century Disease." In this book Levine and Kidd examine a large number of factors which are involved in these reactions and derive from them a unifying hypothesis they call antioxidant adaptation.

Dr. Levine became interested because he was almost totally incapacitated for over three years. He was forced to live in a wooden shack away from all chemicals for over three months. He began to eat Pacific kelp, rich in selenium, and slowly recovered. Fortunately, doctors are not immune to illness which draws their attention. Many clinical ecologists were seriously ill for years and had to heal themselves when no one else could. In this book Levine and Kidd answer two very important questions: (1) why does one become ill from exposure to a large variety of

chemicals, foods, radiations, etc? (2) why do antioxidants (selenium is only one of a large number of natural [Orthomolecular] antioxidants) help?

This book is not a clinical book but has enormous clinical application. It is their hypothesis that compounds or factors to which we become sensitive, allergic, toxic, increase the formation of free radicals. These are very reactive and rapidly attack other chemicals, cell surfaces and so on, interfering with their normal properties. Life depends upon the combination of oxygen with food to release energy. Ideally, there would be no loss of oxygen, no waste by diversion to useless free radicals. The body protects itself by having available a large number of antioxidants either derived from food (Vitamin E, Vitamin C, selenium), or made in the body (melanin, scavenger molecules, uric acid, glutathione, etc.). Ideally, every extra free radical would be rapidly immobilized by one or another of the antioxidants. When there is excessive oxidation and a deficiency of antioxidants, the excess free radicals are free to create havoc in the body. They are involved in aging, immune diseases, cancer and, of course, in chemical sensitivities and allergies.

Free radicals are described, giving exact

chemical detail. When free radicals are formed they tend to propagate freely. Our bodies defend themselves in a four stage adaptation according to Levine and Kidd.

In stage one we are healthy but are exposed to a barrage of chemicals in air, water, soil and food. Gradually our defences are overwhelmed and we are at stage two — adaptation to oxidative stress. In this stage we find it more difficult to stay well. We are more susceptible to infection and allergies to chemicals. We have less energy and cope less effectively with emotional stress.

In stage three disease is clearly evident and patients are clearly distressed by a variety of allergies and sensitivities. Autoimmune diseases are common. Many of my patients see me at this stage.

In stage four the rate of deterioration exceeds the rate of repair. It becomes more and more difficult to deal with environmental stresses. Exhaustion is very common. Now the stage is set up for progression to a final breakdown which may lead to cancer, rapid aging, serious autoimmune diseases and death.

A complex series of reactions become comprehensible when they are related to a simple, and I suspect accurate, hypothesis. It is no longer necessary to look for a specific treatment for every one of the thousands of chemicals which make us sick. Even reading medical journals makes some ill; my nose begins to drip when I read the current *Journal of the American Medical Association*, even when I find the article interesting. Some chemical diffuses from the printed page and attacks my nose. A few general principles may be followed: first, reduce the oxidative load by removing pollutants from our environment, secondly increase the quantity of antioxidants available to the body by eating foods rich in antioxidants such as B carotene, Vitamin C, Vitamin E, selenium, etc., and when this is not adequate use these nutrients in optimum doses. For some people these doses will have to be very high. Finally, specific measures may be needed such as desensitization, anti candida treatment and so on.

Levine and Kidd have outlined a useful hypothesis and presented it to their peers. Now it is up to us to follow these leads. I suspect the ideas described will be examined seriously by the medical research establishments pretty

soon. I do not expect we will have to wait the usual forty years.

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**198485 Yearbook of
Nutritional Medicine**

**Editor J. Bland, Ph.D., Keats Publishing,
Inc., New Canaan, CT06840. U.S. \$3.95.
328 pages.**

The publication of this first *Yearbook of Nutritional Medicine* is another step toward the establishment of Orthomolecular medicine as a firm branch of medicine. One day it will be as established as surgery, or medicine, or psychiatry.

There have been many establishment nutritional books but they have been written by nutritionists who have remained isolated from patients except as advisors to physicians, or by physicians whose main concern has been with diseases such as diabetes mellitus, or obesity, and have centered around proteins, fats and carbohydrates and a few rare genetic vitamin dependency diseases. They have not been interested in the use of vitamins, minerals, amino acids, lipids and fatty acids in quantities large enough to be effective for chronic physical and psychiatric diseases such as arthritis, cancer, schizophrenia, learning and behavioral disorders and many more. This book is the first in the new type of nutritional book for it deals with the relationship between nutrition and health at a clinical level.

The volume begins with a contribution from Linus Pauling who first defined Orthomolecular psychiatry and medicine, and who became a pioneer proponent for this enlightened medicine. His work in this area began at an age when most scientists and physicians retire. Carl Pfeiffer has been impressed, as I have been, by the number of nutritional pioneers who have long, useful lives. They obviously practice what they preach. If ever a person deserved three Nobel Prizes, Linus Pauling is such a person. According to Linus Pauling, Orthomolecular medicine is in good shape. Critics may impede its progress here and there, but nay sayers are generally tiresome people and others soon stop listening to them, especially when their work is exposed as wrong.

The next three authors introduce us to the exciting findings relating the essential fatty acids to medicine. Dr. D. F. Horrobin and Dr. D. Rudin are both pioneers and experts in this field. There must be a proper balance between Omega-3 and Omega-6 essential fatty acids and the enzymes which direct their metabolism in the body. They are partially converted to prostaglandins and leukotrienes. This is discussed by H. Regtop. Leukotrienes appear to be involved in a variety of allergic and inflammatory reactions.

Poor nutrition is one of the factors in poor (antisocial) behavior. Very few physicians actually using nutritional therapy for behavior disorders doubt this. But over the past twenty-five years physicians have been taught that all clinical research is black and white. If the research is double blind controlled and conducted by an establishment scientist, no matter how small the series or how well done, it may be accepted as valid research (white research). If the clinical research is open, not blind, and conducted by a scientist already known to be a nutritional therapist, no matter how large the series or how well done this is not accepted as valid. The study is denigrated by being called anecdotal. It is black research and critics will continue to say "THERE IS NO EVIDENCE" because only a double blind with a P value less than 0.05 is "EVIDENCE". Nutritional scientists are beginning to try to meet these demands of the establishment. It is odd that similar demands are not being made of most treatments in medicine. This is a demand made only of new ideas, i.e. there is a grandfather clause as if there was no science before double blinds. The year is 1954 when the double blind technique was first described in detail as a method in psychiatry by my research group. All studies BDB (before double blinds) are not evidence, while all ADB (after double blind) studies are evidence. We are thirty-one years into the double blind era of clinical research. Alexander Schauss reviews the studies already completed which establish a relationship between nutrition and behavior.

A chapter by R.H. Garrison discusses the interaction between drugs and nutrients. You will not be surprised to learn many drugs have

an undesirable effect on nutrition. There is no discussion of the role some vitamins play in decreasing the optimum dose of some drugs.

Thus, in the presence of Vitamin B-3 schizophrenic patients needs less tranquilizer medication and this decreases the incidence of a major side effect of tranquilizers — tardive dyskinesia.

A number of chapters review the relationship of nutrients to health. Dr. S. Davies reviews zinc, Dr. J.B. Pangborn reviews the importance of amino acids and Dr. J. Bland the latest views on carbohydrate metabolism. There is a discussion of nutrition and cancer by K.N. Prasad and B.N. Rama. This is becoming a more popular interest in the field of cancer treatment in general. This is an important topic as it represents the treatment of the future. Having seen five five-year cures on vitamin therapy (ascorbic acid in doses of 12 grams per day or more, plus other vitamins) out of eighteen terminal cases, no one will ever be able to persuade me this is not the treatment of choice.

Antioxidants are becoming more relevant in medical treatment (see review of S. Levine and P. Kidd's book, this issue). J. Bland, editor of this first Yearbook, describes the role of peroxidation in causing pathology and the importance of antioxidants in controlling this pathology. Finally, Ben C. Lane reminds us how important nutrition is in maintaining vision.

The first edition of a yearbook is a good start in bringing together and summarizing what is known about a number of important topics in nutritional or othomolecular medicine.

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Correction

In the last Journal, Vol. 14 No. 2 an error occurs on page 133. In Table 2 in the last column of figures, fifth line, instead of $P < 0.100$ it should be $P > 0.100$.