The Complete Book of Vitamins

by the Staff of Prevention® Magazine

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Compiled and Prepared by:

Charles Gerras
Executive Editor

Joseph Golant
E. John Hanna
Senior Editors

Rodale Press Emmaus PA

Library of Congress Cataloging in Publication Data

Main entry under title:

The complete book of vitamins.

Includes index.
1. Vitamin therapy. 2. Vitamins. I. Gerras, Charles. II. Golant, Joseph. III. Hanna, E. John. IV. Prevention.
RM259.C65 613.2'8 77-1280
ISBN 0-87857-176-0 hardcover

Printed in the United States of America on recycled paper

20 19 hardcover

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BOOK I

VITAMINS
IN YOUR DAILY LIFE

CHAPTER 1

Vitamins: What They Are and What They Do

Despite all the talk about vitamins today, few people actually know what they are and why they are so important. Vitamin research goes on constantly, new discoveries are reported from time to time, but scientists are all too aware that they don't know all of the facts about all of the vitamins. Today 15 vitamins have been recognized and analyzed. Scientists believe that again as many probably exist and are essential for our health.

Vitamins are organic food substances—that is, substances that occur naturally only in living things, plant or animal. They exist in foods in minute quantities; they are absolutely necessary for proper growth and the maintenance of health. Plants manufacture their own vitamins. Animals obtain theirs from plants or from other animals that eat plants. Some animals manufacture in their own bodies some of the vitamins they need.

It was around the turn of the century that someone first suspected there might be more in foodstuffs than fats, proteins, carbohydrates, and minerals. Laboratory experiments showed that even when all those elements were present in the diet, laboratory animals could still die of malnutrition. Scientists began to search for this important missing link. They discovered vitamins. The name comes from *vita* (life) plus *amine* (the chemical compounds that were originally thought to be vitamins).

Vitamins are not foods in the sense that carbohydrates, fats, and proteins are foods. They are not needed in bulk to build muscle or tissue. Carbohydrates, fats, and proteins are broken down into other substances which the body uses in the process of metabolism. Not so with vitamins. They retain their original form in the body and are built into body structure, where they are important parts of the machinery of all cells. Just by their presence in the cells they bring about certain changes and processes. For example, the B vitamins do not cause an increase in weight, as large amounts of certain foods might do. But a very thin individual suffering from some digestive complaint might bring about an increase in weight by taking B vitamins because the presence of the B complex in the digestive tract helps to digest and utilize food completely. Like hormones, vitamins regulate body processes. As in the case of trace minerals such as iodine, the presence or absence of vitamins in very small amounts means the difference between good and poor health.

The green leaves of plants are the laboratories in which plant vitamins are manufactured. So the green leaves and stalks of plants are full of vitamins. Foods that are seeds (beans, peas, kernels of wheat and corn, etc.) also contain vitamins which the plant has provided to nourish the next generation of plants. The lean meat of animals contains vitamins; the organs (heart, liver, etc.) contain even more, which the animal's digestive system has stored there. The yolks of eggs contain vitamins which the mother animal provides for the use of her young. Fish store vitamins chiefly in their livers.

Basically there are two classifications of vitamins—fat-soluble vitamins and water-soluble vitamins. These terms refer to a basic structural difference within the two kinds of vitamins which determines some of their properties. Fat-soluble vitamins are soluble in a solution of alcohol and are more easily stored within the body; water-soluble vitamins will dissolve in water, and are lost much more easily by the body through normal elimination.

The fat-soluble vitamins are vitamins A, D, E, and K. The

water-soluble vitamins include all the B vitamins, vitamin C, and the bioflavonoids (also known as vitamin P).

Researchers have established approximate estimates of the daily requirements of most of the vitamins for perfect health. These amounts are usually spoken of in terms of milligrams (A milligram is 1/1000 of a gram. A gram is 1/28 of an ounce.) You may also find daily requirements of vitamin A expressed in terms of International Units, which are a measure of activity, not just quantity (see Chapter 6).

CHAPTER 2

Why We Need Vitamin Supplements

In the abundance of misinformation on the subject of food and nutrition, there is one steady theme: Modern American food is the best there is. It's nutritious, it's health-giving. No one needs food supplements (vitamins or minerals) as long as he eats a "good diet."

The "good diet" is not spelled out. We are given a list of general categories of food. "Eat some of these every day and you can't help but be healthy," say the nutrition columnists, the syndicated M.D. columns, the women's magazines, and the TV commercials.

If indeed the American diet is everything we need, how can we account for the astounding incidence of chronic disease?

A solid answer to the claim that we don't need food supplements appeared in the *American Journal of Digestive Diseases* (March 1953), written by Morton S. Biskind, M.D., a careful researcher and a practicing physician. In spite of the passage of time, the statement is just as valid, the arguments just as clear and convincing as when they were first presented.

All Important Food Elements Have Not Been Isolated

"Several misconceptions . . . have become increasingly prevalent," wrote Dr. Biskind. "One common misconception is

that all the important nutritional elements have already been isolated and indeed, that a number of those currently available are not significant in human nutrition. The extremely conservative attitude of the Federal Food and Drug Administration which requires disclaimers on labels of vitamin preparations for the vitamins they consider not adequately studied in human nutrition has further fostered the assumption that administration only of the pure factors thus far considered 'important' is sufficient for satisfactory nutritional therapy." Consumers want to know why, beside many of the vitamins and minerals listed on their food supplements, this statement appears: "Need for in human nutrition is not established." This is what Dr. Biskind meant. Any substance not studied for years and not officially accepted as being necessary to life in certain minimum amounts must be listed on labels as being "not established" as a necessary part of human nutrition.

A Single Deficiency Is Impossible

Furthermore, said Dr. Biskind, experts talking about nutrition are inclined to speak of deficiencies of one or another vitamin—"thiamine deficiency," "riboflavin deficiency," etc. This is entirely incorrect, he said, for such a thing simply never happens. In a laboratory an animal may be put on a diet completely free of vitamins. Then all known vitamins except thiamine are added. Whatever symptoms are produced in the animal are then said to be due to deficiency of thiamine. But, of course, they are due to lack of thiamine, and all the other *unknown* vitamins as well.

Once thiamine is lacking, other food elements are lost from the body stores, so the condition finally produced involves the loss of all these known and unknown substances.

"In the human being, how much more unlikely that deficiency of single factors should occur," said Dr. Biskind. "Not only are deficiencies multiple but the administration of single nutritional factors or even of a combination of a few of them may actually lead to serious disturbance of a tenuous nutritional equilibrium

and precipitation of new avitaminotic lesions''—that is, new symptoms of deficiency.

For many years, he went on, investigators have stressed the need for complete therapy—which includes, of course, giving the deficient patient a source of all those as yet unidentified essential food factors. Dr. Tom Spies, a famous worker in nutritional fields, suggested many years ago that a ''basic formula'' be worked out which would include all those B vitamins discovered up to that time, which could be given to patients, along with a natural source of the unknown vitamins. But somehow, according to Dr. Biskind, people began to think of this as a ''complete formula'' and soon it was given to patients as the only source of nutritional elements aside from their meals. The impression rapidly spread that this basic formula contained *all* the important vitamins. He wrote that, time and again, conditions which do not respond at all to the taking of such a preparation improve overnight when a food source of the other, as yet undiscovered vitamins, is given.

''Simply adding desiccated liver or suitable liver fraction to the regime invariably has resulted in a dramatic and lasting improvement often evident within a few days,'' he said.

A final misconception occurs, he continued—that the average American diet contains all the necessary nutritional elements; that nutritional deficiency, when it does occur, results only from deficiency in the diet and that all that is necessary to cure such a deficiency is a ''good diet.''

We Are Not Getting Full Nourishment From Our Food

Dr. Biskind's answer to the misconception that our diets supply all nutritional needs includes these six points:

1. Depletion of much of the soil on which food is grown has produced crops that are nutritionally inferior.

2. The increasing use on crops of toxic insecticides which leave harmful residues in and on food and further harm the soil by killing necessary microorganisms and earthworms.