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LIFE AND HEALTH

NATIONAL HEALTH JOURNAL

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DAVID VAUGHAN BLACK

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your health questions answered

Here are plain answers to some of your health questions.

Life and Health **is happy to provide up-to-date information about specific diseases, instruction in reliable measures you can safely do at home, where to go to find the kind of medical help you may need, and what therapies that are usually used or may be helpful in the problems you are interested in. However, we cannot diagnose or treat by correspondence, provide information on an emergency basis, nor furnish copies of reference material mentioned in the journal.**

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Spleenectomy

Q. How does a spleenectomy affect a 14-year-old boy's health? How often should a blood count be taken in the above case? How often should a physician examine him? V. B., Indiana.

A. This depends mostly on the reason why the spleen was removed. If the spleen was injured in some major accident, then there is very little reason for concern, once the immediate effects of the surgery have been overcome. In such a case, the spleen was probably normal at the time of the accident, and the human body adjusts quite completely to its absence, other factors being normal.

If, however, the spleen was removed because there was some abnormality of the blood, it would be important to recheck every few weeks for a while, to determine whether the removing of the spleen corrected the original condition.

Sources of chromium

Q. In a recent issue of LIFE AND HEALTH there appeared under "News Notes" an article entitled, "People Need Chromium Too." While I know that chromium is one of the trace metals, I do not know what foods provide this metal. Would you be so kind as to give me a list of such foods. A. H., North Carolina.

A. Yours is one of a number of letters requesting more information about sources of chromium.

The richest food sources are nuts and unrefined cereals and grains. Next are oils and fats (unsaturated), dairy products, sea foods, and meats. Next are legumes and roots, and then, leaves and fruits.

Lupus erythematosis?

Q. Will you please give me some information about lupus erythematosis? What causes it? What can be done for it, or is it incurable? J. S., Pennsylvania.

A. Although the cause of lupus erythematosis is unknown, some scientists suspect that a virus or other infective agent is involved. The patient may have fever, a sense of feeling ill, weakness, loss of appetite, or weight loss when the disease is active. The body's defense system is abnormally active, but whether this is a cause or a result of the disease is not known. Any organ or system or combination of these may be involved. Frequently, episodes of active illness are interspersed with remissions or some degree of apparent recovery. In this disease the body forms peculiar proteins that act like antibodies and fight against other tissues of the patient's own body such as red blood cells, white blood cells, and other elements of the blood, as well as body organs such as the kidneys, the heart, the liver, the thyroid. The most common antibody is one called the "LE," or lupus erythematosis factor, which actually seems to cause some cells of the body to destroy the nuclei, or headquarters, of other cells. Some connective tissue is affected, especially that of small blood vessels, the skin, and some of the internal organs and membrane.

Six to eight times as many women as men have lupus erythematosis. Whether it can be inherited is not known. However, there does seem to be a familial tendency. Sometimes relatives of a patient have other *similar* diseases. A person can be free of symptoms of lupus erythematosis and at the same time have the characteristic antibodies in his blood. In such cases some stress such as exposure to sunlight, drugs, pregnancy, emotional reactions, and surgery may bring on the disease.

It is very difficult to diagnose, and unfortunately there is no known cure. In general, an individual should avoid elective surgery, possible trauma, emotional stress, drugs that are not absolutely essential, and any blood serum product such as a transfusion or any antitoxin which is in serum. This is especially true during disease activity. Specific treatments that have been used include adequate rest, treatment of any skin involvement, and cortisone or one of the salicylate drugs such as aspirin, if prescribed by one's physician.

The patient's future depends quite a bit upon his kidneys; if they are severely involved, life expectancy is definitely limited. But if the symptoms are mild and there are periodic remissions, the prospects for an additional 15 or 20 years are fairly good.

Liver spots

Q. What are liver spots? M. S., California.

A. Liver spots develop in a condition called chloasma or melasma. They are medium-sized, yellowish-brown areas of skin in which the normal pigment is considerably increased. These

areas are usually rounded and have well-defined margins, but they may become numerous enough and close enough together to merge and produce irregular spots. They do not indicate any specific disease nor cause discomfort. The common name, liver spots, is not accurate—there are no skin pigmentations directly caused by either the normal or the abnormal action of the liver, except for the yellowing caused by jaundice. Factors known to be associated with liver spots include sun exposure; pregnancy; and the use of birth-control tablets, certain perfumes, skin oils, and some medicines.

Usually, there is no specific cure for this pigmentation of the skin. It might be well, however, to avoid excessive exposure to sunlight.

Talc-coated rice

Q. I enjoyed Dr. R. R. Merliss' most informative article in the March, 1973, issue of LIFE AND HEALTH entitled "Talc-coated Rice." I wish he had told us why the Japanese coat their rice with talc. Is there any danger of our getting this coated rice in our supermarkets? I hope not. Rice is one of my favorite foods and has been since childhood. G. P., Oregon.

A. Japanese rice was classically cooked with talc to keep each grain distinct in the cooking. Sometime after World War II Japanese regulations banning this additive were enacted. But a can of 1972 rice, purchased in Los Angeles but cooked in Japan, still had asbestos fibers, although at the same time several store-bought raw rice specimens from Japan no longer contained asbestos.

Prior to the publication of my article, rice produced in the United States for Japanese consumers, and bearing Japanese characters on the package, had both talc and asbestos. Based on my article and research of its own, the FDA has ruled that all American-consumed rice must be free of asbestos. I do not know how well the FDA rule is being observed.

Ordinary rice, not intended for sale to the Japanese customer, has not been treated with talc in this country. This includes all popularly consumed brands. R. R. Merliss, M.D.

Painful bone spur

Q. For several years I have suffered with a spur under my left heel. One doctor told me to get it cut out, while the next said, "Don't; you'll have trouble."

What is your opinion on this? It is so painful I can hardly stand on my foot to do my work. B. H., Canada.

A. There is more than one cause for a spur that makes weight-bearing painful. The treatment must be adapted, somewhat, to the type of spur that is present. Conservative methods of treatment are now preferred to the surgical treatment. In some cases, faulty foot posture must be corrected in order to relieve the strain that has caused the spur. In other cases, the fitting of a small circular pad around the painful area may ease the pressure sufficiently to bring about relief from the pain.

I do not know how far you live from a large city in which there may be an orthopedic specialist (bone surgeon). I would advise you to arrange an appointment with an orthopedic specialist and then follow his advice.

Harmful substances in coffee

Q. Can you tell me if there has been any research done to determine harmful effects, if any, of other substances in coffee besides caffeine? H. R., Michigan.

A. It is true that much of the caffeine is removed from the decaffeinated coffees. The coffee oils, however, called caffeols, are still present, and these are irritating to the stomach, particularly, as well as to the digestive tract. These may have a tendency to stimulate more acid production, and are not recommended for persons who have peptic ulcers. Studies on young rats reveal that caffeine-free coffees given to the animals significantly retarded the rate of growth. This would suggest the presence of a harmful substance/s other than caffeine.

health high lights

News items from the fascinating world of health.

Change your diet and change your arteries

In 1971 more than a million Americans died of heart disease associated with hardening of the arteries. High levels of cholesterol in the blood, cigarette smoking, and high blood pressure are three major causes of this problem.

Medical findings recommend changes in diet to help lower the cholesterol and the high blood pressure. Maintain lean body weight —keep the calories down. Stay off foods high in cholesterol. Use more unsaturated fats than saturated fats. Use less salt and be careful of excesses of vitamin D.

Victor F. Froelicher. Dietary prevention of atherosclerosis. *Amer. Fam. Physician* 7:79-85, March, 1973.

Will Achilles heel heal?

With the increase of participation in sports, especially those of sprinting or jumping, has come an increase in incidence of rupture of the Achilles or heel tendon.

The trouble often occurs in the middle-aged. The badminton player, runner, or dancer of energetic folk dances may feel a sudden pain "like a kick" in the calf, while he is sporting, and afterward develops a limp and finds it hard to step with the affected foot.

Because Achilles tendon rupture is easily overlooked or misdiagnosed, permanent weakness may develop in the affected area due to lack of proper treatment. Also, the initial pain is sometimes so mild that the individual frequently does not seek medical care until some time has elapsed. It is best to treat this problem early in the game.

If you are playing sports and experience a sudden pain in the foot with possibly an audible snap and a feeling that something has burst, you may have ruptured your Achilles tendon. Even if the pain seems to go away, see your physician immediately.

Achilles tendon rupture. *Lancet,* Jan. 27, 1973, pp. 189, 190. Geoffrey Sadow and R. H. V. Hafner (under Letters to the Editor). Achilles tendon rupture. *Lancet,* Feb. 10, 1973, p. 313.

T. M. Mitchell-Fox (under Letters to the Editor). Achilles tendon rupture. *Lancet,* March 10, 1973, p. 554.

J. Kvist Kristensen and P. Thestrup Andersen. Rupture of the Achilles tendon: a series and a review of literature. *J. Trauma* 12: 794-798, 1972.

The Achilles tendon still vulnerable to arrows of misfortune. *Mod. Med.* 89:Feb. 19, 1973.

A mitey, dusty problem aired

When was the last time you aired out your bedroom and vacuumed it clean of every mite of dust? If that was a long time ago, you may be sneezing still. Many other people are—so here are the facts!

The tiny mite with the big genus name of *Dermatophagoides* is the cause of much allergic reaction to house dust, in which the mites abound. When the mite content in house dust rises from September to November so does asthma.

The grown-up mites are semi-transparent and almost impossible to see with the naked eye. Mite debris easily gets into the air and is inhaled in dust.

Since no satisfactory mite pesticide has yet been produced, you will do well to follow these simple suggestions—especially if you are allergic to house dust. Get rid of your feather and kapok pillows and eiderdowns. When possible, air your bedclothes in the sunshine

—sun kills mites. Vacuum-clean your house at least once a week and your bedroom more often. Give special attention to those cracks and crevices—you never know what mitey foe is hiding there!

A. W. Frankland. House dust mites and allergy. *Arch. Dis. Childhood* 47:327-329, 1972.

No educational wealth in TV health

The programs of a commercial TV station in Detroit were scrutinized for one week for their content of health information. Of total TV time, about 7 per cent dealt with health-related subjects. Of this only 30 per cent comprised useful information. And of the health information provided, 70 per cent was inaccurate or misleading!

The TV programs contained ten times more suggestions for the use of remedies than warnings against drug use or drug abuse. And the major health problems such as heart disease, cancer, stroke, accidents, hepatitis, maternal death, hunger, venereal disease, mental health, sex education, child care, lead poisoning, and family planning went virtually ignored during the "educational" TV week!

Frank A. Smith, et al. Health information during a week of television. *New Engl. J. Med.* 286:516-520, March 9, 1972.

Skim milk and baby

When skim milk serves as a major source of calories during infancy, total caloric and fat intakes are likely to be undesirably low and intakes of protein and sugar undesirably high.

Samuel J Fomon. Skim milk in infant feeding. *J. Am. Dietet. A.* 63:156, August, 1973.

The purpose of the Food and Drug Administration

If you believe a food, drug, device, cosmetic, or hazardous substance is mislabeled, insanitary, or otherwise harmful, you may report a legitimate grievance of what you think is a violation of the Federal Food, Drug, and Cosmetic Act or the Hazardous Substance Act to the Food and Drug Administration office nearest you or to the U.S. Department of Health, Education, and Welfare, 5600 Fishers Lane, Rockville, Maryland 20852.

It is important to (1) Make your report promptly, giving your name, address, telephone number, and directions to residence or place of business. (2) State clearly what appears to be the problem. (3) Describe the label of the product and give any code marks that appear on the container. (4) Give the name and address of the store where the article was bought and the date of the purchase. (5) Save whatever remains of the suspect product or the empty container for possible examination by the FDA. (6) Hold any unopened container of the product bought at the same time. (7) If any injury is involved, see a doctor at once. (8) Also report the suspect product to the manufacturer, packer, or distributor shown on the label of the product and to the store where you bought it.

If you experience an unusual symptom with a medicine, you should report this to your physician immediately. This reaction may be a "side effect" and may not need to be reported to the FDA. Let your physician be the judge of this.

How the consumer can report to the FDA. *Fact Sheet*, U.S. Department of Health, Education, and Welfare, Public Health Service, Food and Drug Administration, revised March 7, 1972.

editorial viewpoint

assumptions

Vitamin C prevents colds: fact or fiction?

■ All of us constantly make assumptions. In fact, when we analyze what we do and why, we find that most of our life's activities are based on assumptions.

There was a day when the world was believed to be flat and to be the center of the universe.[1] This was an assumption held by generations of ancients before the days of Copernicus and Galileo. In 1609, Galileo (1564-1642) fashioned a crude telescope which gave convincing evidence to him that the earth was not flat and not the center of the universe, but only a planet moving around the sun. His teachings were so bitterly opposed and prohibited that he recanted to save his life!

When trains began to span this continent, newspapers and other publications had dire warnings emphatically stating that anything that exceeded the speed of travel on a galloping horse was dangerous to life. Travel at 15, 20, or 25 miles an hour was totally absurd. People assumed that because nobody had traveled that fast before that it couldn't be done.[2]

The introduction of the bathtub was bitterly opposed as dangerous to health and even to life itself. When it was announced in the 1850's that one was being installed in the White House, the Cincinnati Academy of Medicine is said to have sent a resolution to the President to warn him that it was not safe to remove all of one's clothes at once, as would be necessary for a tub bath.[3] Learned men assumed that because adult bathing had not been practiced in the past, it must be dangerous to do so.

The idea that one could converse with someone a hundred, a thousand, or five thousand miles away, was considered ridiculous, until Alexander Graham Bell invented the telephone. He filed his first patent in 1876.[4] To convey understandable sounds without wires, especially sounds and pictures, was sure madness it was assumed, until radio and later television were developed.

Imagine the beautiful, appetizing tomato having to struggle for hundreds of years to gain acceptance as being safe to eat! It is said to have been introduced into Europe from Mexico in the early 1500's, but the people were afraid of it.[5] It was named Lycopersicon, "Wolf of the peach." The people called it "Poisonous love apple" and warned their children not to eat it. Americans grew it as an ornamental before it finally made its way past assumptions, to an honored place on the dining table as a tasty and highly nutritious food.

In April, 1974, the Federation of American Societies for Experimental Biology met for their annual meeting

in Atlantic City. Some 20,000 scientists were present and heard thousands of papers presented on various subjects. One paper dealt with a recent study on the effect of large doses of vitamin C on the common cold. Dr. T. Chalmers from Mt. Sinai School of Medicine, New York, presented the paper.[6] He said that since 1935 some ten or twelve scientific reports had appeared in the literature, some of which indicated that generous supplementation with vitamin C prevented, or at least decreased the incidence or number of colds. Some of the studies had been poorly controlled, while others had no controls. Two or three suggested that although the number of colds was not reduced, the severity was. Because of this lack of sound evidence another study was undertaken, which was being reported at this meeting.

All the participants in the study were given 3,000 milligrams of vitamin C, or an inert substance (placebo) that had the appearance of the vitamin so that neither the ones who administered the supplement nor the ones who received it knew who was getting the vitamin and who was getting the placebo.

The study lasted about nine months. At the end, each subject was asked whether he thought he was getting vitamin C or the placebo. Some of the group who had received vitamin C believed they had received it, while some did not. The same was true of the group who had received the placebo; some believed it was the inert substance while others believed it was the vitamin.

When the results were evaluated, no difference in the number of colds was observed, but there was a significant difference in the number of individuals whose colds were less severe than the colds of the others. More critical examination of the findings revealed that all those subjects who believed they were getting vitamin C had less severe colds, whether they had actually received the true vitamin or not. Their well-being was affected by their assumptions.

Many years ago, so the story goes, a large dinner party was held at which mushroom soup was served. After the guests had finished the soup with enjoyment, and were awaiting the next course, the cook burst into the room in tears exclaiming that the dog had been given some of the soup and had just died. Immediately a number of the guests began to feel sick, some vomited, and some were rushed to the hospital. Later it was discovered that the dog had not even tasted the soup!

It has long been known that if we believe a certain thing will help or hurt us, it tends to do just that. Our physiological functions are influenced by what we believe, whether it be true or false. It behooves us, then, to keep our calm and not believe all we hear, unless we can check it out and know whether it is fact or assumption. □

M.G.H.

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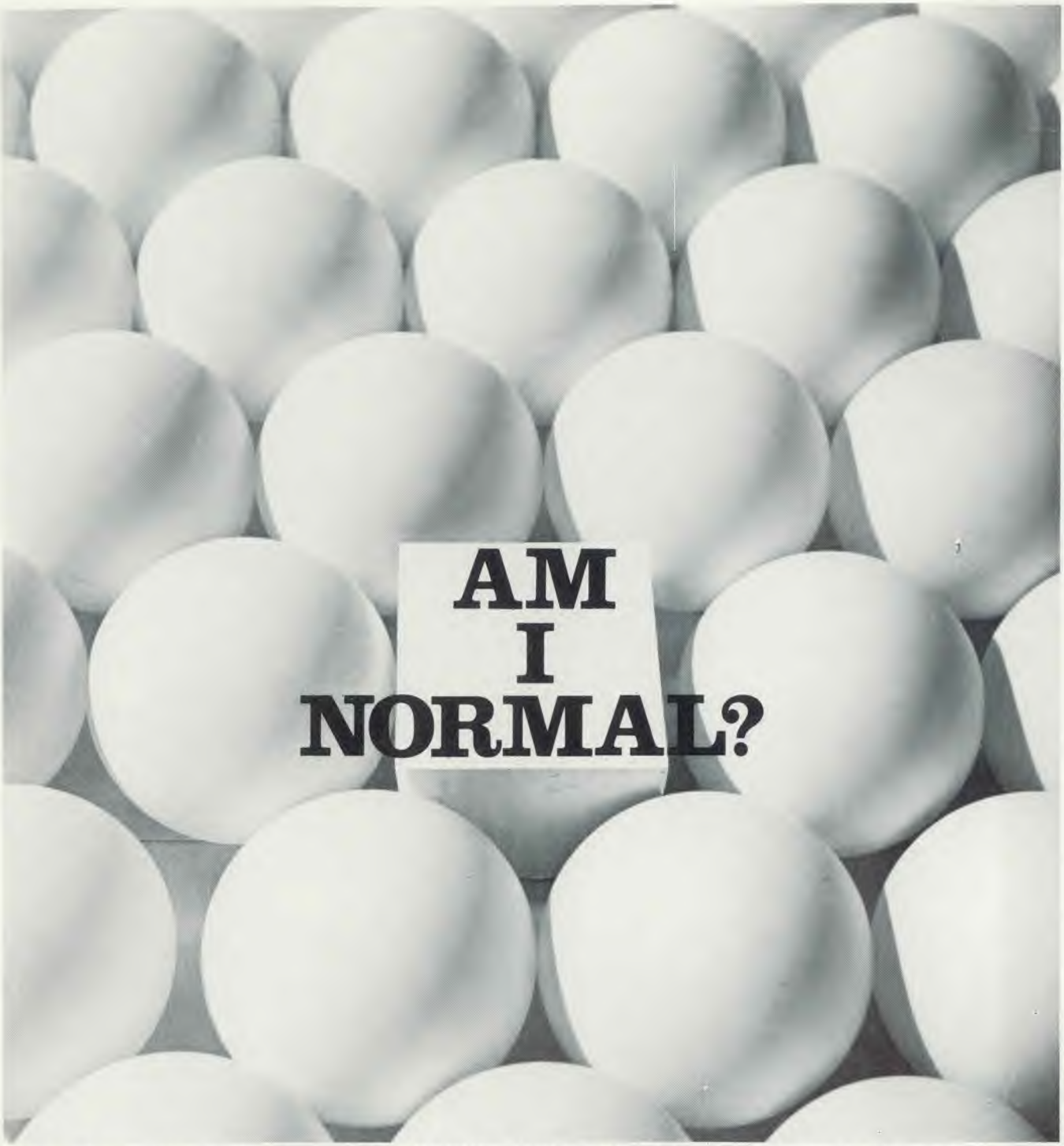
[2] A. G. Laut. *The Romance of the Rails,* vol. 1. New York, Robert M. McBride & Co., 1929, pp. 12, 13.

[3] Editorial. A court decision on bathtubs in dwellings. *Am. J. Pub. Health,* 45:374, 375. 1955.

[4] O. J. Stevenson. *The Talking Wire.* New York, Julian Messner Inc., 1949.

[5] H. F. Kilander. *Nutrition for Health.* New York, McGraw-Hill Co., Inc., 1951, p. 299.

[6] T. Chalmers. Paper presented at the Fifty-eighth Annual Convention of the Federation of American Societies for Experimental Biology, Atlantic City, April 8, 1974.



AM I NORMAL?

J. BYRON LOGAN

■ "Am I normal?" the shy, slender adolescent asks as she inspects her image in the mirror. "Is my baby normal?" the new mother queries her pediatrician. The middle-aged businessman demands of his physician, "Are my lab tests still all normal?" as he nears the end of another annual checkup. "Is Johnny normal?" the junior high school teacher wonders as she ponders his reading proficiency. Each is asking a question that suggests a comparison with a standard. Yet to

By RODNEY WILLARD, M.D.

each, "normal" has a slightly different meaning.

To physicians the word *normal* most frequently has the same meaning as in the teen-ager's question. She wants to know whether she resembles other people. Let me further illustrate the question by restricting it to a single characteristic—her height. Her friends and classmates constitute "the standard." We carefully measure each of them and tabulate the results in a bar graph (Figure 1). We can determine the number of people having a particular height by noting the length of the bar for that height. The teen-ager can tell how closely she resembles her friends by finding her height on the graph. If it coincides with the longest bar, she is "normal"; she resembles the majority of her friends.

Physicians wish to express such a

comparison more specifically, using a number if possible. Another look at the graph reveals its resemblance to a bell. Now let us imagine what it would look like if it included the measurement of everyone in the world. And instead of measuring each person to the nearest inch, we measured him to the nearest 1/16 of an inch (Figure 2). The tips of the bars now describe a bell-shaped curve even better. This is the same curve many students encounter in school when the teacher grades "on the curve." The middle 95 per cent of the curve is regarded as the "normal range." The further the teen-ager's height lies from this range, the less she resembles her friends.

"Normality" and disease

Notice that this use of *normal* says nothing about the presence or absence of disease. We are tempted to regard those out at the ends of the curve as abnormal or ill. Frequently such is the case. But recall the news story about the community whose wells and water reservoirs harbored typhoid fever bacteria. In such a situation it is little comfort to know that you are "normal," that is, you resemble your neighbors by being infected by the same germ they all have!

The middle-aged businessman was worrying about his blood cholesterol. He and most of his peers eat too much. Their choice of menu supplies their bodies with too much cholesterol and cholesterol-producing materials. Their blood cholesterol levels fall in the high-risk category. Most of them will die from heart attacks or strokes. For him to have a "normal" blood cholesterol—that is, to have a cholesterol level resembling theirs—is decidedly undesirable. He should not wish to resemble his neighbors unless they are healthy.

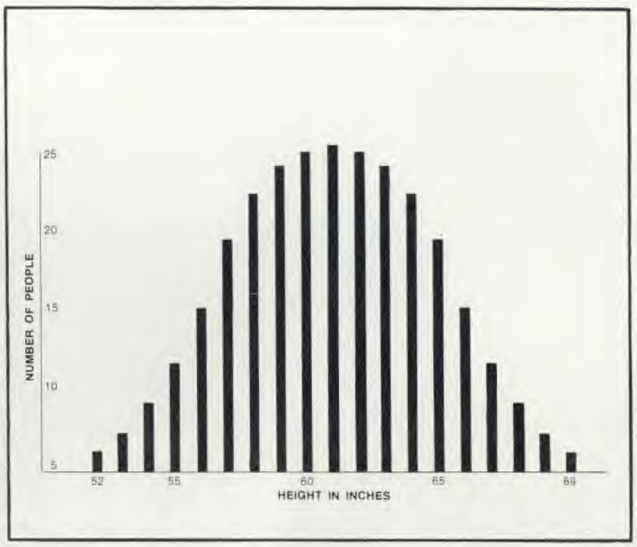


Fig. 1. Each bar represents the number of girls having the same height.

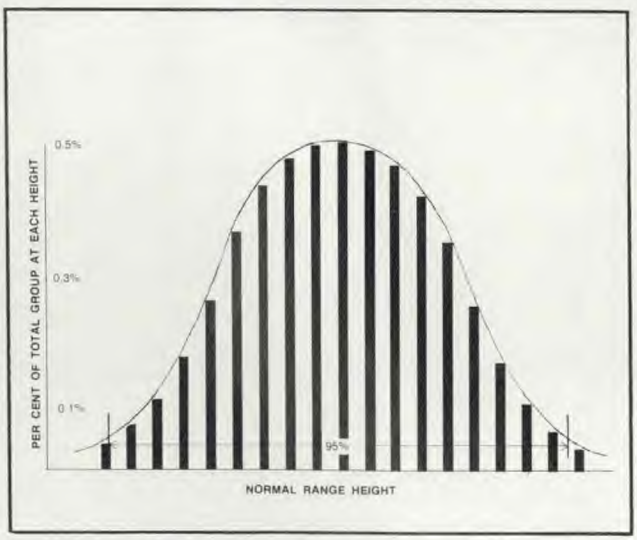


Fig. 2. Normal distribution curve showing, for a very large group of people, the percentage of the group at each height. The normal range is the middle 95 per cent of the curve.

Additional information helpful

The physician may need more information than the "normal range" to clarify his patient's condition. When he evaluates the concentration of sugar in your blood, he has available the "laboratory normals"—the range of values for blood sugar from the middle 95 per cent of healthy people. He knows from his clinical experience the range of values from patients in diabetic coma (Figure 3). When he learns your blood sugar level, he has no difficulty deciding which group you resemble. But life is rarely this clear. Let us include all patients with diabetes mellitus instead of just those in a coma. If a diabetic patient takes too much insulin, his blood sugar will fall to a level way below that of a healthy person. Blood sugar measurements made before the lowest level is reached or after the patient is recovering may be in the "normal" range. Thus, as blood sugar is measured at various times and in patients with varying severity of disease, we find a range of values that overlap those of the healthy people (Figure 4). No longer is it so clear to which group you belong. Therefore your physician seeks additional information. He may deliberately force your blood sugar outside the normal range by having you drink a large quantity of flavored sugar water. If your body's control

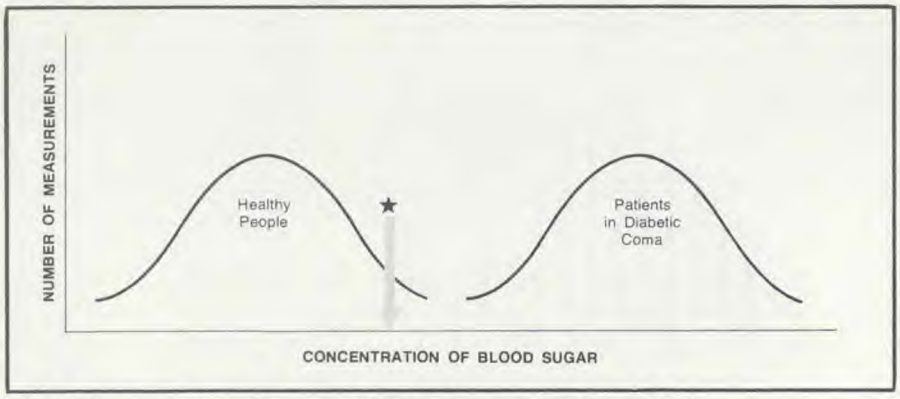


Fig. 3. The curves show the range of blood-glucose values found in the two classes of people. To which group do you belong? The starred arrow represents one possibility.

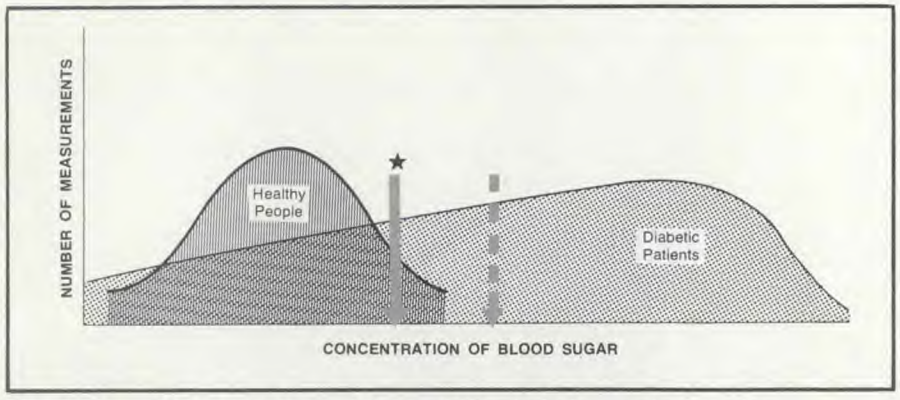


Fig. 4. Now which group do you belong to? The dashed arrow is the value forced by a large dose of sugar. You are clearly "abnormal" if this forced value does not return promptly to the healthy-people range of values.

mechanisms fail to restore your blood sugar concentration quickly to the normal range, something is wrong. Whether diabetic or not, you do not belong to the healthy group. The uncertainty from the overlapping ranges has been clarified.

Changes within the "normal range"

The normal range for all healthy people can be very broad. Yet in a single individual the values remain in a very narrow range. Thus the patient can be used as his own standard of what is normal. Of course, it is necessary to obtain his range of values while he is in good health. This information is determined from his routine periodic medical checkups. A change from this range, even if still in the range of values for other healthy people, may be crucial in alerting his physician to the early stages of disease. A prime example is body weight where even a few pounds unexpected loss may be significant. Another example is a lowered level of hemoglobin which might indicate that a person has a small, painless bowel tumor that is not bleeding enough to discolor the stools. There may be no other indication until much later if the person's private normal range has never been established.

The new mother wants to know more than merely whether her baby resembles the other infants in the newborn nursery. She wants reassurance that her baby is going to grow and develop into a healthy adult. She is eager to provide the best environment for her little one and wants to know whether any special precautions are needed. Its chemical machinery may not have matured sufficiently to handle certain foodstuffs. If the baby is unwittingly exposed to them, they may produce damage to its nervous system. To lack such maturity does not mean that the baby is abnormal, but certainly it needs care that is different from that given its cribmates who can handle those foodstuffs.

Overcoming abnormalities

There are many types of hereditary weaknesses that technically might prevent one from being classified as perfectly normal. Yet, if a person having such a problem makes a minor change in his life-style, he may be able to do virtually everything his peers do. Johnny may have inherited eyeballs that are a little longer than usual. The image of the letters on the page come to focus in front of, instead of on, the light-sensitive surface of his eye, the retina. As a result, he is nearsighted. A slight concession in his life-style —glasses to change the focus of his eye —will allow him to see and read as well as anyone else.

What is normal? Sometimes it means resembling our neighbors. Sometimes it means differing from them. It should imply an absence of illness or disease —that all our body systems are operating correctly the way God made them. It suggests that our patterns of eating, exercising, resting, working, and thinking—our ways of living—are not destructive. In the highest sense, to be normal means that we are capable of living a full span of rewarding and satisfying years in health. □

Watch Those "Organic" Foods!

By STAFF

■ Today's homemakers are reading more labels, asking more questions about nutrition, and showing more concern about food quality and safety than ever before. Only a few short years ago, the mention of Sylvester Graham and his nutritious graham crackers and bread brought forth polite snickers. But not any more.

Even students of nutrition were once taught that there are only insignificant differences between stone-ground whole-wheat bread and that made from modern milled, processed, and enriched flour. But not today! Many young people and oldsters alike are questioning the value and safety of our new convenience foods and their chemical additives.

This is all well and good, but believe it or not, it is still possible to be fooled and needlessly follow where the wise will not be led.

For example: there are in the food business profiteers who are for the almighty dollar and couldn't care less whether or not the vegetables and fruit you are buying at exorbitant prices are truly "organic"! To be forewarned, to be watchful in this area can save your food budget from being boosted into orbit unnecessarily.

Just what is meant by organic is best defined in *The Organic Directory*, compiled by the editors of *Organic Gardening and Farming* and *Prevention:*

"Organic" defined

" 'Organically-grown,' when accurately applied in description of foods and crops, means specifically that these have been raised on soil fertilized by organic methods only. It particularly indicates that no chemical fertilizers, conditioners, insecticides or any such type of spray, pesticide or preservative has been used at any time in the growing or preparation of these products." [1]

The Organic Directory emphasizes that the organic method of farming does not merely imply avoidance of so-called "toxic" chemicals, but requires "maintaining a naturally rich, productive soil by making sure it receives the desirable organic and rock-mineral materials." [2]

With more and more health food stores and organic food suppliers opening up throughout the country (even some supermarkets have introduced special sections for the sale of such foods) the demand is at times greater than the supply. It is obviously a profitable business.

Some organic food stores post notices that the suppliers of their products have *guaranteed* the organic nature of the foods they grow. Many of these merchants are themselves real devotees and sincere in their efforts to provide their customers with the real thing. It is difficult to determine, however, whether this is true of all sellers.

On what basis could the Government regulate or control the marketing of such foods? But how can you be sure the food claimed to be organically grown was really grown that way? Once harvested, organic foods cannot be distinguished from nonorganic foods. Even the most explicit laboratory analysis cannot tell one from the other—in nutrient content. This is a fact we should remember. Actually, it is practically *impossible* to establish which food is organically grown.

J. BYRON LOGAN

Some of the claims made for organic foods are certainly subject to question and criticism. However, there is no valid reason for condemning their use, despite the fact that the user may be misled if he believes that such foods have any special virtue for maintaining health or providing better nutrition.

We have no quarrel with the way organic foods are grown, but we do have a very real one with those who try to tell us the fruits and vegetables they sell are truly organically grown. How can this be *proved?* The unscrupulous cannot be trusted even if they take an oath on a stack of Bibles!

Fact versus fallacy

The simplest solution will not be acceptable by the faddist, but the fact remains that no true difference can be demonstrated between organic and inorganic products.

As Dr. Allan Magie of Loma Linda University so well stated: "Need for nutritious, unrefined foodstuffs for the world's hungry is of far more importance than how a given crop is raised." [3]

With rising food costs it is essential to make every food dollar count. The real cause for concern is for people of limited means who are influenced by such beliefs and who buy "organic" food which often costs two or three times as much as its "nonorganic" counterpart. All who rely on the value of organic foods should work for the introduction of "organic bills" that will *try* to regulate the production of organic foods. This means that Federal standards must be set and that organic farmers must be registered and be subject to inspection. Such a bill would automatically ban the use of such terms as "organic," "organically grown and processed" by nonregistered farms and businesses. □

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OH, MY ACHING BACK!

If everyone who has ever had a backache reads this article —everyone will read this article.

By CHARLES M. SMITH, M.D.

Dr. Smith has a general orthopedic practice in Provo, Utah, with emphasis on reconstructive surgery. His primary interest is in "patient education with the development of planned changes in lifestyle for health improvement." He, along with his RN wife and six children, lives in an outdoor health resort area. Here he hopes to establish a special health-conditioning lodge for patients in the not-too-distant future.

■ "My back is killing me, Dr. Charles, and your secretary says it will be two weeks before she can give me an appointment. Isn't there anything I can do? I can't work for more than a few minutes at a time, and my boss says I can't come back to the office until I get this thing fixed." The attitude of wavering hope and pain were apparent in both tone and word as her voice came over the telephone, and my desire to help was aroused. "I'm comfortable only when I'm lying down on my side with my knees up," she continued.

"Just where is your pain?" I asked.

"It's about three or four inches below the small of my back and off to one side near my hip," she replied. "I know I should have called before. I've been having trouble ever since vacation when we drove about 2,500 miles. I got a little stiff, but I thought it would go away in a short time, and when it didn't—well, I had my back adjusted several times. It seemed to help for a while, but the past few days my back has gotten worse, and I even have a dumb, numb feeling in my left leg."

"Do you have pain down your leg?" I interrupted.

"Yes!"

"How far down does it go?"

"Well, I don't know," she paused in reflection, "but now that I think of it, I'm sure it goes clear down to my ankle. But the worst spot seems to be outside the calf of my leg. It's terrible when I try to get out of an easy chair; I have to use my hands to let myself down or lift myself up. Isn't there anything you can do?" The plaintive search for relief came through strongly.

"Do you have pain when you cough or sneeze or strain?" I asked.

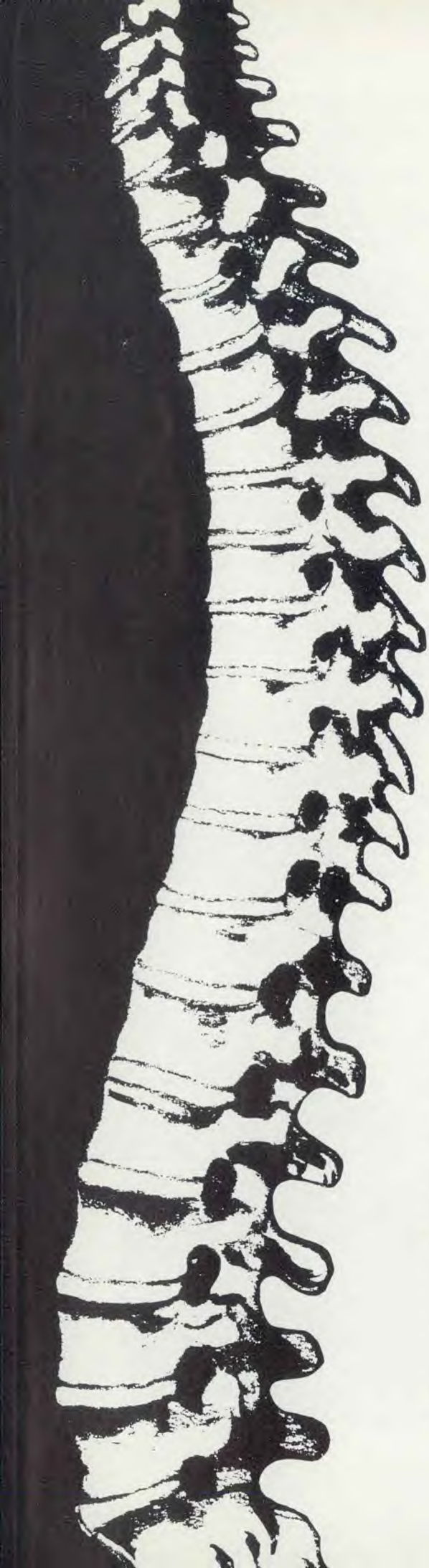
"I never sneeze, but it sure hurts to cough. And it seems I've been more constipated lately, and my back hurts worse when I have a bowel movement and have to strain."

Apparently my continued questioning had given the impression that I was reluctant to see her immediately. "Karen, I'm sorry I can't see you right away; I have an office full of patients and surgery in an hour. But I will give you some suggestions. If you do not improve I may have to hospitalize you."

"But I don't want to go to the hospital," she interrupted. "Can't you just give me a pill or something so I can go back to work?"

Yes, I thought. We all seek the easy way out, but I an-

H. ARMSTRONG ROBERTS



swered aloud, "I'm sorry there is no magic potion to cure a bad back; it will take time and patience, and perhaps even hospitalization with the eventual need of surgery if you continue to be so disabled that you can't work."

"I'll do anything—even go to the hospital, if it will make me better. But not surgery! I've heard that surgery doesn't always help, and some people are even made worse. Anything but surgery! I'm scared of that."

"Now, Karen," I reassured her, "we'll cross the surgery bridge when we get there. For now, do you have anyone at home to care for you? Our beds at the hospital are at a premium, and I can't get you in there for several days."

"Well, yes-s-s. My sister-in-law and her kids are here from Virginia, and I'm sure she'd be happy to help me out."

"Fine. First of all, I want you to come by my office and get some X-rays of your back. After I've checked them I'll be in a better position to determine what is wrong and to outline an appropriate program for you."

Next morning her X-rays were lying on my desk. As I looked them over some possible causes for her pain were evident. When Karen telephoned to get her report I said, "There are several things I want you to do. So please get a piece of paper and write them down.

"First. Come by my office, and my nurse will give you a little booklet of back exercises and show you how to do the ones I have marked. Do *only* the marked ones. If any exercise hurts, hold off until I get a chance to examine you. I'll work you into my appointment schedule as soon as possible.

"Second. If your bed is soft or has a tendency to sag at all, have your husband place a sheet of 5/8-inch plywood between the mattress and springs; your bed needs to be quite firm.

"Third. Because your physical activity will be decreased, cut the amount of food you're eating by at least one third, and you'll do better if you eat a light diet. Emphasize fruits and vegetables.

"Fourth. Increase your fluid intake by taking a couple of glasses of water regularly, one-half to one hour before each meal. This habit, along with the change in diet, will probably eliminate your problem with constipation.

"Fifth. Initially I want you to go to bed with a doubled-up pillow behind your knees. You may walk to the bathroom and I want you to take a short walk once daily outdoors. This will help to prevent the profound weakness that some people experience when at complete bed rest. If your pain is intolerable you may have to postpone walking.

"Sixth. Take a good alternating hot and cold shower, with five to eight minutes hot and fifteen to twenty seconds full cold, repeating five or six times. For some an ice pack to the low back will many times relieve pain.

"I'd like to see you in four days. If you do not feel better within a day or so, please call me, and I'll either change your program or see you sooner if your symptoms suggest I should."

Four days later, after her examination was completed, I sat down with her to discuss the problem. All three lines of evidence, her history, her X-rays, and her physical condition, supported the diagnosis of a "slipped disc," or "ruptured disc," as it has become known to the nonmedical world. It is one of the commonest causes of back trouble in twenty-five- to fifty-year-olds.

This problem usually begins with an intermittent low backache of some years' duration, which is aggravated by heavy work, lifting, or prolonged, unusual posture, such as bending

over for long periods of time. The pain does not at first involve the leg and is usually relieved by rest. This suggests an incompetent disc. Microscopic study and biochemical analysis reveal abnormalities that cause some loss of normal elasticity and shock-absorbing qualities, so that the joints between vertebrae begin to act as weight bearers instead of simple glide restrictors to prevent excess motion. As abuse continues, changes increase, the joint membranes and lining thicken, and the surface of the joint cartilage becomes softer and erodes. Finally bony spurs may appear on the vertebrae, and spaces between the vertebrae narrow, putting pressure on the nerves which leave the spinal cord at that point. This accounts for the later appearance of pain in the leg. These problems develop over a number of years, rather than weeks or even months.

Diseased discs sometimes result from the strains of certain occupations or sports. Overhead-crane operators have more frequent trouble with the discs between the lower vertebrae of their necks than do men of the same age engaged in other occupations. Disc disease in the neck in teen-agers and youth is commonly seen among wrestlers, due incidentally, I believe, to "bridging" to avoid being pinned. Fifty per cent of a wrestling team I examined, including the coach, had symptoms of premature disc protrusion and aging, and some of these men had X-ray evidence of breakdown of their lowest three discs, similar to those seen in the lower neck.

Regular exercise is important in both preventing disc disease and treating it after the first acute stage is over, because it can tremendously increase the blood supply to the muscles, ligaments, and joint structures.

Here are a few of the many causes of low back pain that are *not* a result of ruptured disc.

Chronic back strain. It is sometimes difficult for a physician to differentiate chronic back strain from early degeneration of the disc. The pain is from strained ligaments, weak muscles, and stiffness of the joint capsule. Hoeing, weeding, and many other activities which are done only occasionally and which keep the body in unaccustomed positions for long periods of time cause this type of backache. Treatment includes actively moving the back as far as possible in every direction and eliminating stressful positions, such as standing at the sink for hours or, as typists and students know, sitting at a desk for hours with neck bent over copy material. Frequently standing up and deliberately moving the back, neck, and arms into positions opposite to those in which they have been held will bring relief.

Spondylolysis and spondylolisthesis. These are two similar bony defects in which a part of a vertebra begins to erode or where one vertebra slips forward over the one below it. Some suffer no pain, while others do. Eskimos paddling their kyaks or sitting on the floor with their legs straight out in front of them frequently develop this problem. The combination of heredity and improper posture starts the low back pain. Later the pain may extend down the legs. The treatment is the same as outlined for Karen. Occasionally surgery is necessary.

Transitional vertebra. This is a birth defect in which a vertebra is doing double duty by acting as a portion of the pelvis in its lower half and as part of the spine in its upper half. Treatment is again much the same except that surgery is usually highly successful. I really believe that it is the best in the long run.

Tension low back syndrome. Several weeks ago I saw Erma, who was suffering from low back pain. Her symptoms improved with improving relationships both at home and at work, so you would not have recognized her as the same woman. When she lost her job her old symptoms of pain sprang into full bloom. Both light touch and deep pressure provoked intense pain. But when she secured new employment her financial probblems improved, as did her back.

Constitutional problems. Various kinds may cause low back pain as a major symptom. Here are a few of these.

Constipation can mimic a ruptured disc. The cure is rather simple.

Pregnant women more than six months along may frequently show signs of a pseudo-ruptured disc. Delivery cures their back pain. Meanwhile, a back support, such as a surgical corset, appropriate exercises, weight control, and elastic hose are all she needs.

Some women suffer low back pain similar to that of a ruptured disc before their monthly periods. With menstruation comes complete relief.

Endometriosis also affects only women. It is an overgrowth of certain cells lining the womb and may cause symptoms like that of a ruptured disc. Pain comes and goes in cycles, depending on their ovarian hormones. Treatment consists of hormone therapy or, if necessary, removal of the womb. A corset or other back support is usually not helpful.

Pelvic tumors, including cancers, may imitate a ruptured disc. One patient came to me with a strange gait and a nontypical disclike pain running down his hip and leg. Examination showed cancer of the prostate gland, which had spread to his pelvic bones. He improved with hormone treatment and surgery.

If you sometimes have back pain a prompt change in your health habits may improve your back. If your aching back continues see your doctor for an evaluation of your problem. □

Some commonsense knowledge about a common phenomenon —fever.

Nature's Healing Heat

By IRWIN ROSS, PH.D.

■ Not too long ago, in an emergency hospital tent, doctors and nurses hovered anxiously over the cot of a wounded infantryman. His wound seemed slight—a small gash just above his right ear. But when the soldier's blankets were removed his temperature plunged well below normal. When he was covered again his temperature soared.

The body's thermostat

The doctors were baffled by these reactions—and were even more puzzled when the soldier died a few hours later from his apparently minor wound. Then a post-mortem solved the mystery. A minute splinter of shrapnel had penetrated to the man's brain thermostat in the hypothalamus—a peanut-sized area of nerve tissue located behind and above the bridge of the nose.

Fever is a very common, yet poorly understood, symptom. It has long been considered a reliable sign of illness. But today it is known that fever can also indicate that the body is inherently healthy. To understand why, it is first necessary to have a look at how the brain's amazing thermostat works under normal conditions.

When your skin is swept by cold air, cold signals travel from nerves in your skin up to this thermostat, which sends off jarring commands to your muscles to make them contract more vigorously—thus generating needed warmth through the muscle work. This burns more fuel than normal to provide energy for the work. In extreme cases shivering occurs.

In a room with temperatures below 70°, this watchful thermostat reduces the activity in your sweat glands. Less sweat means less heat will be drawn from your body to evaporate it from your skin, and you will stay warm. When it's cold outdoors, insistent cold sensations, traveling up from skin to brain, press the thermostat to rouse the thought-control mechanisms of your mind, keeping you alert and busy to heat yourself with activity and exercise. It notifies your brain's appetite control—automatically inviting you to warm your body with the fuel of food.

In hot weather, on the other hand, when heat sensations in your skin telegraph your brain, appetite drops, *sweat pours out as much as a quart per hour*, and muscles relax and lose tone, as the thermostat signals other mechanisms which reduce your activity and thus keep your temperature down.

Different parts of the human body have slightly differing normal temperatures. The mouth or oral reading of 98.6°, taken under the tongue, is about one degree lower than normal rectal temperature, 99.6°—and about 1/2° higher than groin or armpit temperatures, which run around 98°. Skin temperatures are not usually important in health and are rarely measured. They are relatively low, and the ear lobe, instep, and nose tip score the very lowest in or on the body, often far under the 90° mark.

Normally, oral temperature drops to its coolest point, about 97° or a bit lower, between 4:00 and 6:00 A.M. Toward midafternoon the day's height is reached, around 98.6° in most people. One's activity is also involved. A temperature of 99.6° at 6 A.M. would probably indicate fever, but in the *afternoon* a temperature over 100° would be considered fever in most people.

Fever may be a *good* sign

Fever's heat may be a *good* sign that your body is healthy enough to fight it out when threatened by an infection. It may mean poor health and low resistance when, attacked by most major infections or infectious diseases, a patient fails to respond with a rise in temperature. For this reason, artificial fever has been used in patients who suffer from certain chronic stubborn sicknesses.

You have probably noticed—if some part of your body has ever become infected and inflamed—that it not only hurts but it is also warmer right at the place of infection. This might be considered a kind of miniature "fever." What happens is that more blood is called to this area, and the temperature there more nearly reaches that of the "core temperature," or that deep inside the body. And the local inflammation, or some poisons set loose by harmful viruses or bacteria, causes the body to produce chemicals called *endogenous pyrogens* (E.P. for short) that, traveling via the blood, report the information to the thermostat. Aroused by these chemical signals, the thermostat sends emergency messages to the body to conserve heat. The thermostat is set higher now than it was. If the "local fever" is small, and hence only a small amount of E.P. is released, you may not even notice the slight rise in body temperature. But if this amount is inadequate, more are formed. The skin becomes dry and blood vessels are contracted, making you ghastly pale, and preventing fever-heated blood from cooling off at the body surface. To generate more heat, shivering often occurs. You feel cold and say, "I have a chill." That is, your body is colder than the new thermostat setting.

With every degree of rise in temperature, the alerted thermostat's brain cells intensify their emergency command signals to all vital organs, quickening life inside the body—accelerating the beat of the heart, the rate of breathing, and the flow of blood through arteries and veins.

Although not conclusively proved by research, it appears possible that germ-damaged body cells are rapidly flushed out to make room for healthy new cell replacements, and many cell enzymes, now heat-activated, hasten the turnover of body chemicals in the struggle.

It is also possible that fever's natural defending warmth may overcome germs simply by burning them out,

BURTNETT STUDIOS

J. BYRON LOGAN

since some germs cannot live above normal body temperature. Weakened by fever, these disease germs become easier targets for the body's defenses.

Even healthy people may react to stresses with some temperature change. Once every month during the middle of the menstrual period, a woman's temperature rises a half degree after ovulation, the setting free of an ovum or egg by the ovary. This may be caused by the female hormone, progesterone, released in large amounts after ovulation. Exercise, digestion, excitement, and emotional tension also produce more heat in your body.

Fever and final exams

Recently a group of college students taking final examinations had their oral temperatures measured before, during, and after two-hour tests. Under the pressure and excitement, many ran elevations of two degrees, but when the crisis had passed all the students had normal temperatures again. So you see that some fevers are not related to germs.

The body's temperature-control system may be strained in summer months. Most of the discomfort, as everyone knows, comes not from the heat alone but also from the humidity. In very moist, hot weather with no breeze, sweat will not evaporate as well, and warmth may store up in the body to a feverish degree.

In winter other factors play a role. The viruses which cause flu, as well as those of the common cold, have been cultured in laboratories and found to grow better when the temperature is maintained at 91.4° than at a body temperature of 98.6°. The temperature in a person's breathing passages is lower than elsewhere in the body. You may prevent some illnesses by avoiding extremely cold air when you are threatened by these germs.

Fever is not all blessing. Long-continued fever causes weight loss because of the increased speed of metabolic processes. Prolonged increases of heart work can further damage an already sick heart. Excessive loss of body water and essential chemicals in sweat may seriously interfere with kidney function and even be life-threatening. As the temperature rises, many cell enzymes become less effective at doing their work. And other unwelcome discomforts, headache, abnormal sensitivity to light, and general feeling of illness with muscle aches and pains, often accompany fevers. These serve the useful purpose of temporarily "grounding" one and hastening recovery.

Temperature control may be lost and temperatures soar when the delicate nerve tissue of the thermostat is damaged by brain disease or head injury. Loss of temperature control also occurs in heat stroke, and the ability to sweat is lost. Temperature may rise to 106° or even higher. In poisoning with some mushrooms, the sweating mechanism is damaged, and the patient's temperature may rise out of control. In infants and young children the brain thermostat is not perfectly developed, and often in young bodies high temperatures are triggered by only slight infections. On the other hand, persons of advanced age may have only slight fever.

Dangerously high fevers

The human body can tolerate temperatures up to 105° or 106°; any above that are extremely dangerous. No one has been known to live with a temperature over 114°. While running a fever above 105°, a person may suddenly begin to thrash about in his bed and delirium may set in. Changes of brain cell chemistry may cause confusion and uncontrollable fear, followed finally by nervous exhaustion and unconsciousness.

Sometimes people seek relief from moderate fever by using nonprescription drugs like aspirin and phenacetin. But this may be unwise, for the fever may aid the body in overcoming the very cause of the trouble. Better, bundling with extra covers at night with associated sweating may also hasten recovery.

When should you call a physician for fever? Any time that the temperature goes as high as 105° in a child, 104° in an adult, or 102° in an elderly person, or if it does not respond to simple measures, or is accompanied by other symptoms of more serious nature such as protracted vomiting, diarrhea, or convulsions.

The next time you have a fever, it should be of some cooling comfort to know that your body is automatically on the job, hotly contending with whatever is ailing it. The best way to cooperate with nature and your physician's treatment is to "play it cool," avoid fatigue, relax, and don't worry. You'll mend quicker that way.

Life and Health suggests the following measures you can take at home in treating a fever:

Take a hot bath, while keeping your head* and neck cool by applications of a washcloth wrung partially dry from ice water. When you have reached a peak of heat, a good splash of cold or ice water should conclude your treatment. You may prefer alternating hot and cold showers. You begin by showering in water as hot as you can comfortably tolerate for two to three minutes, then quickly change to cold for fifteen to twenty seconds, and repeat these changes two or three times. Always finish with cold. Both the bath and the shower should be followed by rest or sleep in bed, well covered. On awakening you may find your fever has vanished.

A word of caution. Persons with circulatory problems involving their feet or hands, such as hardening of the arteries of the extremities, or diabetes complicated by impaired circulation in the feet, must be careful not to use water that is much hotter than their body temperature. These people should discontinue their treatment if their pulse goes as high as 120 to 130, although in most cases the treatment may be continued if an ice bag is placed directly over the heart—over the lower half of the sternum or breastbone and slightly to the left. Some people become lightheaded and may faint easily when they take a prolonged hot bath or shower and should have someone with them to prevent falling or drowning.

When it is urgent that body temperature be lowered immediately, the physician may advise sponging the body surface with cool or tepid water if the patient is warm and the skin is pink. Either plain or salt water (1 tsp. salt in each pint of water) can be used. Or cool compresses such as turkish towels or washcloths wrung partly dry from the cool water, can be placed on the skin and forehead. The entire body should be exposed and sponged, and then patted dry and the patient left uncovered. If the skin is cool and not pink, the blood vessels are constricted, and hot water, over 100°, should be used to induce blood to the surface to cool the body. Then the patient may be left without clothing but covered with a sheet.

Water is much preferred to alcohol as a sponging agent; alcohol can be absorbed into the body and do harm. Children sometimes are best treated by placing them in a tepid bath if their skin is pink and warm, or in a moderately hot bath if it is cool and pale, patting them dry, and putting them to bed uncovered if they are warm or covered only by a sheet if they are cool. The room should be well ventilated, but free of drafts.

Heat stroke is extremely serious and should be cared for by a physician. But if one is not available, immediately placing the patient in a bath of *ice water* may be lifesaving.

A fever patient needs fluids above all to compensate for water lost from the blood by extra sweating, and if the fever is of more than a day or two's duration, he needs enough food to replace energy loss. Simple vegetable broths or juices will help replace essential body salts lost in sweating. Long-sustained fever can be weakening, and easily digested foods, such as fruit and juices, bread or cereal, and milk, are nourishing without using too much precious body energy to digest them. Fatigue must be avoided. □

H. M. LAMBERT

* If the sinuses of the face are infected, avoid applying cold over them.

Are you making "dental cripples" out of your own children?

WHO LOST THOSE TEETH?

■ "Teeth don't die, you kill them." So went an advertisement in recent national journals. No truer words were ever spoken and we are becoming, it seems, more determined than ever to kill them.

These mouths belong to children 4 1/2 and 5 1/2 years of age (pictures 1 and 2) who are dental cripples for life. Good dental treatment can provide a crutch to help them chew their food, but without teeth, the bones which support them and form the face cannot develop normally. Although the appearance of the children can be improved somewhat, they will be old-looking before their time.

Why dental cripples?

In his keynote address at the American Dental Association National Dental Health Conference in Chicago, March, 1973, Robert B. Choate said, "After World War II, food technology turned away from nutrition toward coloring, perfuming, crisping, and twisting and sweetening products to be sold on the supermarket shelf in a gay and attractive bag or package." He noted that more than 50 per cent of the foods, confections, and beverages now in our markets were not known ten years ago.[1] According to a news item in January, 1973, two billion dollars' worth of snacks and confections were sold in the United States in 1972, and the average person drank twenty gallons of sodas and fruit-flavored sweetened beverages.[2]

Nationally known Harvard nutritionist Dr. Jean Mayer declares that "the promotion of high-sugar cereals, snacks, and soft drinks to children is a dental disaster and may be a factor in increasing the likelihood of diabetes" in those individuals whose families show a history of that disease. Dr. Abraham E. Nizel, also of Harvard, indi-

By HUGO M. KULSTAD, D.D.S.

Born and reared in Wisconsin, Dr. Kulstad graduated from Marquette University, and did graduate study at the University of Southern California. He is a past president of the Los Angeles Dental Society, the Southern California Dental Association, the American Society of Dentistry for Children, and the International College of Dentists. He has also served as first vice-president of the American Dental Association. His wife, Mildred, has served as president of the Women's Auxiliary to the American Dental Association.

Dr. Kulstad is professor of pedodontics at the School of Dentistry, and associate professor of public health at the School of Health, Loma Linda University.

KURT REICHENBACH

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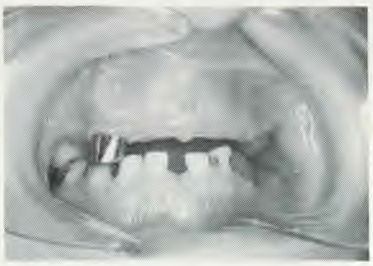

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1. This four-year-old lost four upper front teeth. 2. Dentures for a four-and-one-half-year-old with only three teeth left in upper arch. 3. Thumb-sucking has disfigured this youngster's mouth. 4. A five-year-old with only two teeth in upper arch . . . 5. . . . and with dentures in place.

cates that "dental caries, just like obesity and arteriosclerosis, is a manifestation of malnutrition associated with affluence and a 'civilized' society." [3]

Is prevention or control possible?

There is abundant evidence that most dental disease can be prevented or controlled. There is also ample evidence that children can be taught food habits, good or bad—the Eskimo child, who, before the introduction of sugar into his culture, would enjoy a piece of seal blubber, now sucks on candy. During the second world war, when sugar was scarce and hence rationed in the Scandinavian countries, the decay rate was reduced 50 per cent, but it has since climbed back to and surpassed prewar levels.

Action for Children's Television (ACT), a parents' group, has filed complaints against seven cereal and candy makers and told the Senate Select Committee on Nutrition and Human Needs that television advertising for children is dominated by sugar products. Mr. Choate indicts television for brainwashing children to want more and more sugar and helping make sugar "a national indulgence." What can you expect when the average child spends 1,000 hours a year watching television, more time than he spends in school, and sees about 25,000 commercials (an average of 22 per hour), 85 per cent of which are for food products sold with "sugar appeal"? [1]

In spite of all the efforts of the dental profession, the schools, and the minimal public service time now available on TV, dental disease is increasing. Water fluoridation programs, although controversial, appear to have helped wherever they are in use. Toothpastes with fluoride also have been of some benefit, but with the average child eating five to seven times a day, there is no way teeth can be kept clean.

Use of a good toothbrush is important. It should have a small head so the tight, hard-to-get-to places can be reached. The bristles should be soft and the ends rounded. If your toothbrush looks like the one pictured, please throw it away.

Accurate nutrition information, please

Health instruction in schools must be increased and made interesting and meaningful. Young adults must be given accurate nutrition information, for they are the parents of the children we are seeing whose teeth are being destroyed faster than repair can be provided. Babies sixteen months to two years old with rampant decay are common. Nursing bottles are used to pacify, and carbonated beverages and fruit juices, as well as milk and sweetened formulas, are bathing the teeth during almost all waking hours, and at bedtime. Their mouths are seldom clean. No feasible increase in dental personnel can possibly repair the dental damage as fast as it is now occurring.

No substitutes for the originals

Children from three years to school age who have lost all or nearly all of their teeth are not uncommon. As stated before, nothing can save these youngsters from being dental cripples the rest of their lives. No amount of space maintenance, no artificial dentures can assure adequate patterns of facial growth with this loss of teeth. Not to mention the lack of chewing ability to eat the kinds of food necessary for adequate nutrition for the whole body!

During this time the human body makes its most important growth. Because teeth are necessary for the support of the muscles and bones that make up the face and one's appearance, this is the age when the teeth must be protected and saved.

The basic requirements to build and preserve a good set of teeth are:

1. A nutritious diet, including foods that require chewing, such as apples, celery, carrot sticks.
2. Teeth free of food, plaque (calculus), and tartar.
3. Fluoride appropriately available.
4. Regular visits to the dentist to assure care before it is too late.

Only *you* can save your teeth! □

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[3] Abraham E. Nizel. Nutrition teaching in preventive dentistry. *J. Am. Coll. of Dent.* 39(4): 211, October, 1972.

By MARY ANN BLACK

SICK? TRY A GOOD TV STATION!

So impressive the hospitals
I saw on TV.
Now came the time
For them to serve me.

I looked forward to quiet,
Relief from my pain,
And handsome young doctors
To hear me complain.

Well, now that I'm here,
My hair is a mess!
And all kinds of strangers
Have seen me undressed!

The bed sheets are scratchy.
The needle's too old.
The room is too hot.
The bedpan's too cold.

The food that they serve
Is really quite prime,
But they bring it around
At the funniest time.

Like when I feel sick,
Or am taking a rest,
Or gone for my three-hundred-
Sixtieth test.

In the hall there's a sign.
It says, "Shhhh, please be quiet."
They've posted it right
In the midst of a riot.

The aides dress in yellow,
The nurses in white.
Both groups zip around
All day and all night.

Ladies in blue
Come to bump with a mop,
While the intercom blasts
Out its calls for the doc.

He comes with his chart;
He frowns and he thinks.
Ten dollars' worth
Each time that he blinks.

"Keep up the good work!"
Is all he can say.
Ha! I do the work,
And he gets the pay.

Thirty-five visitors
Wish I'd recover,
Then sit on my bed
And talk to each other.

The telephone rings
As I'm handed a letter.
I read and I listen:
"Do rest and get better."

The doctor comes in
While I'm weak from the twitches,
And cheerfully rips
Out some 3,000 stitches.

"This won't hurt at all,"
His grin is quite dental.
If that isn't pain,
Then I must have gone mental!

At home on TV,
Compassion and glamour
Bring handsome young doctors
With warm bedside manner.

The next time I'm needing
A big operation,
I think I will go
To a good TV station!

your wonderful body Fascinating facts about that most wonderful creation—you.

The Adrenal Glands

By MILTON G. CRANE, M.D., and MARJORIE BALDWIN, M.D.

■ Neither his parents nor the doctors could figure him out. Even as a tiny baby he was restless and agitated while eating! And then, a little later, his favorite foods were bacon and soda crackers! Well, not really. It seemed it was the salt he was after, for he would lick it off. When his baby hands finally discovered the salt shaker, he would eat a teaspoonful a day of just plain salt, in addition to the excessive amount on his food. When it was hidden in the cupboard, he would point to that cupboard and scream. Among his very first words was SALT! After being allowed to fill up on salt to his heart's content, he would ignore it for a very few days, then repeat the cycle—again and again. Water was his next favorite—he craved salt and water.

And then, too late, his diagnosis. Autopsy revealed an uncommon defect of the adrenal glands, now known as the adreno-genital syndrome. Because of an inherited enzyme defect, he could not make adequate amounts of two key hormones, hydrocortisone and aldosterone, that help the body conserve salt and water. But he did make abnormal hormones in excess. Full discovery and identification of these two hormones would have to wait for another five or so years.

Dr. Crane is a research professor in medicine at the Loma Linda School of Medicine, where he does both research and teaching. His major research interest since 1954 has been aldosterone and high blood pressure. This interest in adrenal physiology dates back to 1953 when he first identified a case of primary aldosteronism in a patient.

A member of the department of internal medicine since 1949, Dr. Crane has his board specialty in internal medicine. He completed a one-year fellowship at Ann Arbor. He is also a specialist in endocrinology.

Dr. Baldwin is an associate professor of physiology, School of Medicine, Loma Linda University. Her research specialty is the physiology of the digestive tract.

What are the adrenal glands?

The adrenal glands are two yellowish-brown lumps of tissue which sit on top of the kidneys. Both together weigh about 10 grams, or as much as two teaspoons of water. The inner portion of each gland, called the medulla, develops from nerve tissue and is surrounded by a cortex or rind (Figure 1). You could almost think of the cortex and medulla as two separate glands—their chemicals and functions are so different. In fact, it is only during the past twenty-five years that much of our understanding, particularly of the cortex, has been gained.

What do they do?

The *adrenal cortex*, using acetate or cholesterol as raw material, manufactures three kinds of steroid hormones. Hydrocortisone and cortisone, which influence the way the body handles protein, sugar or glucose, and fat; aldosterone and a weaker hormone called corticosterone, which play a major role in the regulation of minerals, such as sodium, potassium, magnesium, calcium, and hydrogen; and anabolic-androgenic hormones. This third group cause the body to build up protein stores in the skin, increase the weight of muscles, and strengthen bony structures (anabolic), and promote the development of masculine characteristics (androgenic).

If baby girls have excess androgens before birth their sex organs do not develop properly. Masculine characteristics such as too much hair on the face and limited breast development appear later. Similar changes may also take place in women who have an androgen-producing tumor in later life.

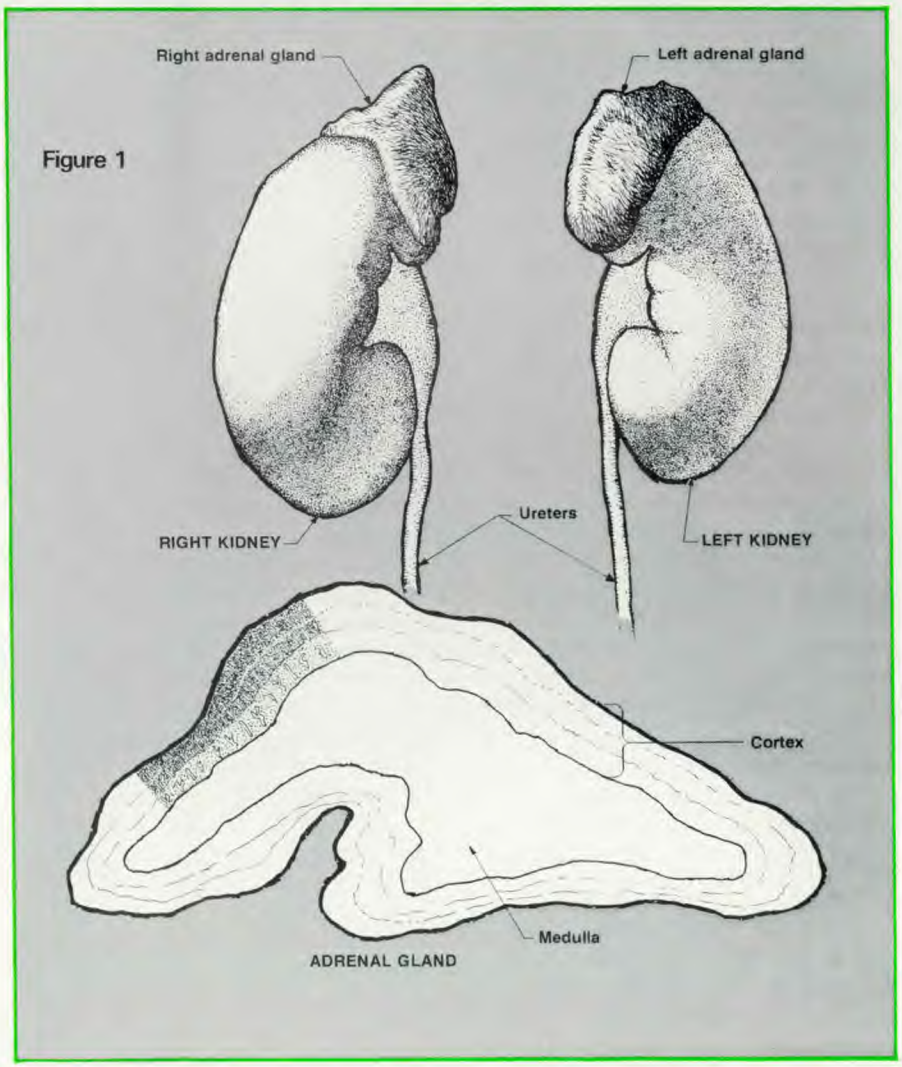
Hydrocortisone and aldosterone are absolutely essential for life, but a person can get along without the adrenal anabolic steroids.

Adrenal medulla. Remember the scary feeling you had, with your heart pounding, a heavy feeling in your chest, and a tingling in your whole body when you almost had a serious accident! You were experiencing the effects of the adrenalin and noradrenalin (scientifically called epinephrine and norepinephrine), made by your adrenal medullas. These twin hormones cause your heart to beat harder and faster, and put more sugar into your blood to give you that extra energy to deal with an emergency. But because these hormones are also manufactured by the tip ends of some nerves and by some other specialized tissues elsewhere in the body, you can get by if your adrenal medulla has to be removed.

What controls them?

The two parts of your adrenals have different bosses—the adrenal medulla takes orders from nerves, whereas the cortex is controlled by hormones produced by other glands. For example, ACTH (adrenocorticotropin), from your pituitary gland, tells your adrenal cortex to convert cholesterol into hydrocortisone and cortisone and also increases the production of aldosterone and the anabolic hormones. However, emotional stress will regulate the formation of adrenalin.

Let's take a closer look at how this works. So important to life and healthy function is the regulation of minerals and water, and of the protein, sugar, and fat of the blood and tissues, that there are at least three agencies that constantly work together to keep these adrenal cortex hormones coming in just the right amounts.



First, the *kidney*. When its intelligence squad reveals that blood pressure inside its small arteries is dropping or that sodium inside its tiny urine tubes is in short supply, it quickly responds by making a chemical called *renin*. The *liver* faithfully has been keeping a steady level of a chemical called *angiotensinogen*. The marriage of renin and angiotensinogen creates a spitfire offspring called angiotensin II, which constricts the arteries and helps raise the blood pressure and prods the adrenal to make aldosterone and thus save sodium and water, which also raises the blood pressure. Just as you see in Figure 2.

Through its ACTH, the *pituitary* regulates the anabolic-androgen hormones that are always at work storing protein.

The adrenal medulla plays its part. Its adrenalin acts on the pituitary to put out more ACTH and on the kidney to make more renin.

What about too much of a good thing?

Cortex hormones. Usually all these hormones work together most effectively, like a well-practiced symphony. But let one section default, and there's serious trouble ahead. Too much or too little of any of them will cause bizarre effects.

Hydrocortisone-cortisone. Too much hydrocortisone-cortisone, whether coming from a tumor or when taken as a medicine, causes the condition physicians call Cushing's syndrome. Perhaps you have seen someone who has taken large amounts of these or similar hormones to control arthritis or for some other serious ailment. You may notice a round face, a "buffalo hump" fat pad on the upper back, a protruding abdomen, many bruise marks, reddish-colored cheeks, pimply facial skin, and lots of fine

hair on the face. Loss of protein may cause fractures of the vertebrae with back pain and weak muscles. Excessive conversion of proteins and fats to sugar may raise the blood sugar too high.

Aldosterone. Too much of this hormone may result from a number of causes and makes the blood pressure soar. If a tumor is the cause, surgery, X-ray therapy, or a combination of these can result in a permanent cure, if done early enough.

Or not enough?

It's also a disaster if the cortex lies down on the job. Various infections, including tuberculosis and some kinds of meningitis, can damage or completely destroy the adrenal glands. People with inadequate adrenal cortex hormones usually are weak, drowsy, mentally confused, or even psychotic. They suffer from poor appetite, abdominal cramps, and low blood pressure. If their pituitary gland overworks to make more ACTH in an attempt to push the adrenal cortex harder, the excess of ACTH may darken the skin so they appear sun tanned. Fortunately, administration of these or similar hormones is effective in giving relief.

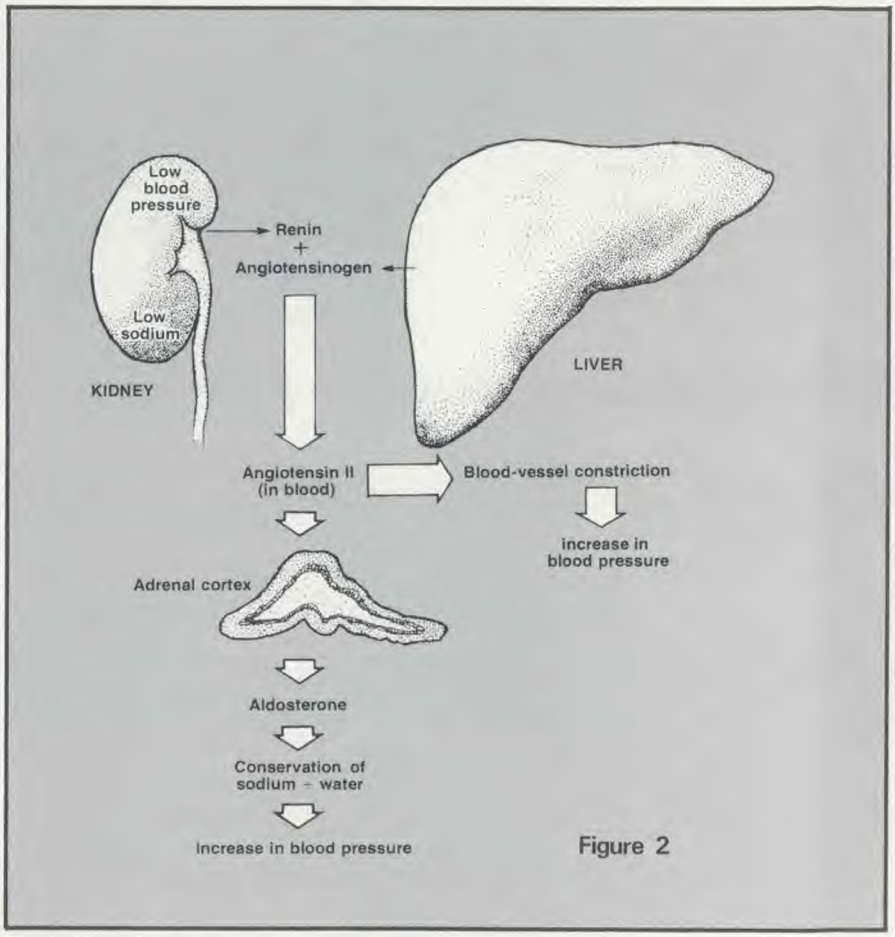


Figure 2

Enzyme defects

Defects in certain adrenal cortex enzymes cause a number of rare problems, including defective development of female sex organs, inability to manufacture female hormones in the ovaries, or loss of too much salt through the kidneys. Some types cause too much salt retention and the development of high blood pressure. The treatment for all of these problems is to replace the key hormones that are lacking, hydrocortisone alone for those with high blood pressure, or hydrocortisone and an aldosterone-like hormone for those who lose salt.

Too much adrenalin or noradrenalin may result from a lack of an enzyme that normally destroys these substances, but more often from an overproduction of the hormone by a tumor of medulla cells called a pheochromocytoma. These tumors may be hidden away in the chest, abdomen, or even in the wall of the urinary bladder! Sometimes a physician has to out-Sherlock Sherlock Holmes to find them. Excess of hormones may be intermittent or steady. When suddenly secreted into the blood stream, severe pounding of the heart occurs, with headaches, sweating, apprehension, and paleness or flushing of the face. The blood pressure skyrockets and may occasionally cause death from a stroke. These conditions are fairly rare and can be treated very effectively by medication or surgery.

Remarkable adrenal glands—tiny but mighty! Absolutely essential to life, hampered at times by various problems, but usually serving us so faithfully and efficiently that we wouldn't know they existed, integrating in complicated inter-cycles with many other organs and systems—a most fascinating part of our wonderful body. □

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today's food

Foods that are not only good but good for you.

SKIP BAKER

meal skippers

By LYDIA SONNENBERG, M.A.

■ Teen-agers have been singled out as the family's chief meal skippers. But how about their parents? A national survey[1] a few years ago reported that 16 per cent of adults habitually skipped breakfast and 20 per cent did not eat lunch. "Too busy" or "not hungry" were their reasons.

Now that it is September and most Americans are settling down into the routine of another school year, perhaps it is a good time to check on the family's eating habits.

In a family where breakfast is an essential meal of the day, children and adults have an advantage in study and work all day long. Lunch, too, is an important meal and should not be considered just a snack—something to tide the child or adult over until dinner.

Much of the loss in nutrient variety from skipping one meal is not likely to be made up fully by the other meals. It's hard to make up for slighted breakfast or lunch by snacks and one big meal at the end of the day—unless the food is carefully selected, which isn't generally done.

Skipped meals and learning ability

Let's begin with children and the effect of meal skipping upon their learning performance. Scarcely anyone believes any longer that there is such a thing as a special "brain food." But food and nutrition do make a difference in learning ability.

Research[2,3] with experimental animals shows that drastic shortages of nutrients at certain critical periods can affect brain development. Pedia-

tricians and scientists have also been studying extremely malnourished children in developing countries. They have found that children are not only stunted physically but also appear to be damaged intellectually.

Both animals and humans lack their normal number of brain cells if they have been severely malnourished before birth or in early life. This decrease of cells has been noticed particularly in the "thinking part" of the brain, the cerebrum. Nutritionists in developing countries are concerned whether much can be done to help a child overcome some of the handicaps of such severe early malnutrition.

Here in America we have an entirely different kind of problem. Most families do not suffer from either extreme poverty or extreme poor nutrition. But there is a subtle nutritional influence on learning ability that is very pertinent to many American children. This influence has to do with the connection between learning and hunger.

Hunger and poor nutrition are not necessarily the same thing. For example, Jimmie may get a good meal at night but start off for school in the morning without eating breakfast, or at least not an adequate one. Then at noon he skips or fails to eat a decent lunch. What about him?

Observant teachers know that hungry children are likely to be listless, inattentive, and hard to "turn on." Or they may be just the opposite—restless, hyperirritable, and hyperactive. It depends on the temperament of the child and the extent of his hunger. Either way, children have trouble paying attention and they learn little.

Learning is progressive and each step provides the foundation for the next. If a child learns poorly because he is hungry, and therefore doesn't get a good foundation, he may continue to do poorly later. Not because of a shortage of brain cells but because he has not learned the first steps well enough to take the next ones.

Getting the day started right

The Government has been trying to come to grips with this problem, using free school lunch and sometimes free school breakfast programs. However, parents must assume their responsibilities to see that, as far as possible, their youngsters start the school day with a good breakfast. In a home where parents consider breakfast to be an important meal of the day, children usually eat and enjoy their breakfasts. But even with a good breakfast an adequate lunch is necessary and must be planned for. If a school lunch is not available, or for other reasons a child does not eat it, provisions must be made to bring one from home.

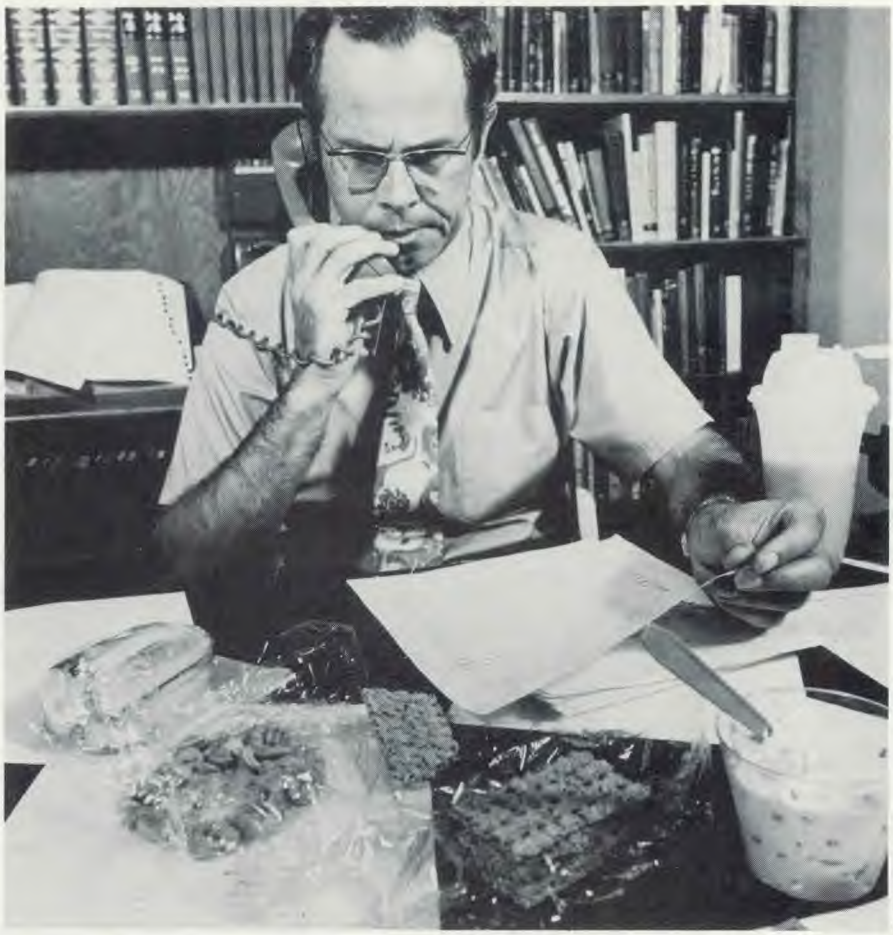
Now what about parents? Adults who skip meals also handicap themselves throughout their working day. Physical and mental performance are affected, as well as attitudes and morale.

Besides, if meals are missed during the day, an oversized evening meal is usually the rule. But people are generally much less active at the end of the day, and the body does not require lots of calories. Adequate meals earlier in the day are better.

High cholesterol and triglyceride (fat) levels in the blood are thought to cause atherosclerosis. Some studies have shown that the distribution of meals influences the blood levels of these fats. Changing from the customary pattern of little or no breakfast, a relatively small lunch, and a large evening meal to three equal meals brought about lower levels of cholesterol and other fats in the blood.[4]

So for fitness all day long, children and adults should begin with a good breakfast, refresh with an adequate lunch, and enjoy a light evening meal!

Do you "run out of steam" before the workday is over?



SKIP BAKER

Nutritional balance

The nutritionally balanced breakfast or lunch will—

1. Be nourishing. It should provide approximately one third of the day's nutritional needs. This means that all of the major foodstuffs should be represented: whole grain cereals, fruits and/or vegetables, with milk or a milk alternate, if desired. Foods should be chosen that will carry their share of nutrients—avoid the "empty calorie" ones. They should be suited to the nutritional needs of the person.

2. Be attractive and appetizing. Everyone enjoys food that *looks and tastes* good.

3. Be varied from day to day. Often breakfast and lunch are stereotyped. Children, especially, like surprises, and the rest of the family will enjoy them too.

Since lunches still need to be packed and carried to school or work by sizable numbers, homemakers often get into a rut and the lunch is not enjoyed. It must be planned for as carefully as other meals.

In order to pack a satisfactory lunch you must have a good lunch box. It should be one that is easily washed and scalded. Be sure it is adequate in size. The lunch box should contain a thermos for either hot or cold liquids. Small containers that can be covered for cottage cheese, salads, fresh vegetable relishes, cut-up fresh fruits, and fruit sauces are needed.

Lunch suggestions

Here are suggestions for lunch menus for persons doing different kinds of work. The number and size of serving will vary, depending on nutritional needs.

For a school child:

- Banana- and peanut-butter sandwich
- Potato salad
- Carrot and celery strips
- Stuffed dates or prunes
- Milk

For an office worker:

- Cottage cheese with chives
- Assorted whole-wheat crax and/or Ry-Krisp
- Cucumber sticks
- Tomato juice
- Lightly toasted cashews or almonds

For the moderately active worker:

- Whole-wheat garbanzo sandwich
- Sliced tomatoes for sandwich
- Fresh fruit cup
- Low-fat milk
- Oatmeal cookies

For the very active:

- Vegetable soup
- Whole-wheat bun with Vegemeat patty
- Potato salad
- Low-fat milk (or nonfat)
- Fresh fruit
- Mixed nuts

Some of these lunch suggestions can be used as a guide for every member of the family, whether he carries his lunch or eats it at home.

After preparing an adequate lunch for the family, the homemaker often neglects to take time for one herself. With the family away at school or work she raids the refrigerator for a few leftovers or she skips the meal entirely. From time to time she picks up a few snacks—a couple of cookies, some candy, a glass of juice, or a soft drink. Some of these rather common habits of homemakers explain in part why women, next to their teen-age daughters, are usually the most poorly fed members of the family.

Ideally, dinner should come at midday, thus replenishing energy stores for the remainder of the workday. In many families this is difficult because of the work and school schedules. It becomes, therefore, doubly important that you begin each day with a nourishing breakfast and get an adequate lunch.

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recipes

Oatmeal Cookies

1/2 cup oil
3/4 cup brown sugar
4 tablespoons molasses
1 egg
1/2 teaspoon salt
1 teaspoon vanilla
1 cup raisins
1/2 cup candied cherries (optional)
1 cup chopped nuts
2 cups rolled oats
1 1/2 cups pastry whole-wheat flour

1. Beat together the first 6 ingredients.

2. Blend in remaining ingredients, adding flour last.

3. Drop onto oiled cooky sheet. Bake in moderate oven 375° F. until delicately browned.

Yield: 3 dozen (approximately)

Savory Garbanzo Sandwich

2 tablespoons oil
1/4 teaspoon Savorex
2 eggs
2 cups garbanzos, cooked
3 tablespoons minced onion
2-3 tablespoons mayonnaise
salt to taste

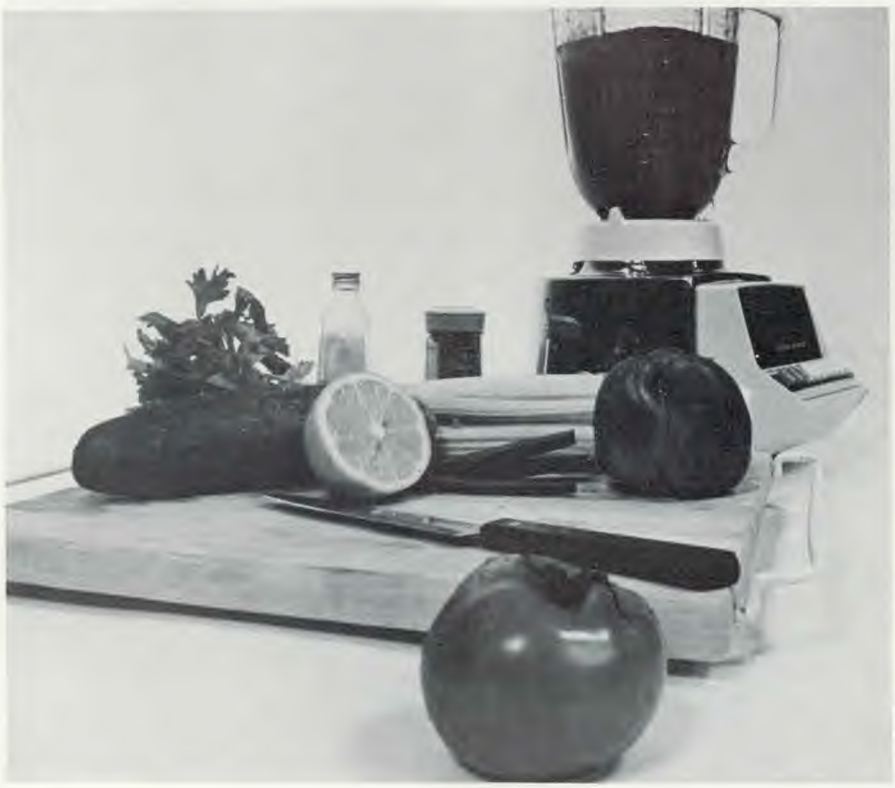
1. Blend Savorex in oil in small frying pan; lightly braise onion.

2. Add eggs and scramble until light golden-brown.

3. Grind garbanzos; combine with onion-egg mixture; add mayonnaise and salt.

4. Spread between buttered slices of whole-grain bread.

Yield: 1 3/4 cups filling (approximately)



SKIP BAKER

Cream of Almond Soup

4 medium potatoes, cooked in jackets
1 quart whole milk
1 teaspoon salt
1/2 teaspoon Ac'cent
onion powder (to taste)
1/2 cup chopped toasted almonds

1. Remove skins from hot potatoes, put through sieve or mash well.

2. Add seasonings and milk. Just before serving, heat and add the lightly toasted chopped almonds.

Gazpacho

1 No. 2 1/2 can tomatoes
1/4 cup olive oil
1/2 teaspoon dry basil
1 pinch marjoram
1 1/2 teaspoons herb salt
1/2 teaspoon lemon or lime juice
1/2 teaspoon coriander seeds (optional)
1/3 cucumber, peeled
1 small tomato, cubed
1/2 green pepper, chopped fine
2 tablespoons celery
2 tablespoons sliced olives (optional)
2 tablespoons chopped green onion (optional)

1. Place first 7 ingredients in blender; whiz for about 1 minute. Strain.

2. Add remaining ingredients.

3. Chill. Flavor improves upon holding for at least 24 hours in refrigerator.

4. Serve cold. Garnish with finely chopped chives.

Yield: 4 cups (approximately) □

accent on youth

Health topics with a special appeal to young people.

HAPPINESS IS-

Something Green on My Plate!

By MARGARET R. THIELE

■ A green salad, some spears of asparagus, some stalks of broccoli, a cluster of peas. Or something red or yellow! Slices of tomatoes, bright-red beets, golden carrots, crisp red radishes. An all-white meal leaves me cold. Once I was served such—mashed potatoes, white cauliflower, and plain macaroni. I could hardly believe my eyes! It was as uninteresting as an all-white room.

What a delight to look down at my plate and see a combination of bright colors or discover on the table before me at least one platter that looks like a picture out of *Better Homes and Gardens.*

Strange to say, not everyone shares this enthusiasm for the foods with color. Like my young friend Jim who voices a common masculine viewpoint, "Sure, they're pretty, but when I'm hungry I want potatoes and meat, or beans, or something I can sink my teeth into—not a lot of C and C." ("C and C" is a term Jim uses to refer to carrots and celery and generally includes other fresh vegetables which he classes as "rabbit foods.") And Jim in his hunger is inclined to attack the hearty fare and leave some of the "trimmings" on his plate. "What good are they?" he asks.

This is something that people through the years have learned the hard way, not knowing that some mysterious ailments were caused by the lack of certain vital elements found in fresh fruits and vegetables. What made their gums sore when they seemed to have plenty to eat? Or their teeth fall out? Why did sailors on ships spending months at sea get scurvy or beriberi? Didn't they have plenty to eat, such as it was—sea biscuits and salt pork? Sometimes when a ship finally arrived at its destination there were no able-bodied seamen strong enough to launch the long boats to take them to shore. What was wrong? Dedicated scientists have spent thousands of hours in laboratories to find the answers to such questions, and the stories of their searches make highly adventurous reading.

You are mighty lucky if you find something green on your plate, or red or yellow. Millions of people all over the world are not so fortunate, for if food is scarce, the colorful foods are the most likely to be missing, because they are the most perishable, the most difficult to store, and the most costly to move from one area to another. Although important to life and health, they are the most likely to be omitted if food budgets are small.

Do city dwellers have peas from their gardens or fresh red cherries? What do they buy at the end of the month with their last quarters? Asparagus and lettuce? No—spaghetti or white bread, potatoes, a box of crackers, maybe. Do peasants in Siberia have tomatoes in winter? Do Eskimos find greens on the frozen tundra?

But hopefully *you* do not limit your diet to potatoes, white bread, or spaghetti. In this land of abundance with modern means of moving foods from where they are grown by air freight, fruit express, and refrigerated trucks, people in Chicago and New York can enjoy grapes and lettuce from California; Californians can have pineapple from Hawaii and tomatoes from Mexico, in season and out of season. Speed is important with many of the colorful foods, for they begin to lose nutritive values as soon as they are picked. Unlike the grains and nuts that Nature packages for storage, green vegetables and many fresh fruits have the best flavor and are most wholesome when first picked. They must be handled with care to preserve their vitamins.

Color is often an indication of freshness. Have you ever seen gray spinach? I have; it was old and overcooked. Or brownish carrots? Or blackish beets? Most of the flavor they had before cooking had long since departed. The more delicate and colorful the food, the greater the importance of getting it from the garden to the plate without delay. The ideal way, of course, is to get it from your garden, pick it from your trees, or obtain it from the place where it is raised. For the majority of people this is impossible, and they must settle for the best they can find in the markets or use frozen foods, with canned and dried foods a second best. But it is wise to try to obtain food that has been changed the least from the way Nature produced it.

Carole Scherrer, 25, a petite young anthropologist working toward a Ph.D. from the University of Virginia, has begun an eighteen-month stay among the Elmoles, the tiniest tribe in East Africa. In order to study the habits of these lake fishermen, Carole has adopted their primitive life-style, living in a tiny palm-leaf hut, dressing in the native bush skirt, and eating the same food that makes up their diet, which is almost entirely fish. Carole fishes with the Elmolo women and has learned to skin her catch with a sharp rock and salt it.

As she talked one day with a visiting reporter, they watched the tribesmen hauling in the day's catch of fish.

"How are you making out here?" the man asked.

"I like fish, I really do," Carole said. "But do you know what *happiness is*?—Some fresh lettuce, fresh water, and fresh vegetables!" *

If you find something green on your plate, smile! It is bringing you gifts from the good earth. Don't leave it there! □

* From an article in the Chicago *Tribune,* Sept. 25, 1973.

GOOD HEALTH IS MORE THAN MEDICAL BILLS

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