

begin to suffer the disabilities of old age.

There are certain diseases which may occur in the earlier stages of a man's life, but are chiefly considered the doubtful privilege of the aged. They are arteriosclerosis or hardening of the arteries; heart disease; malignant growths, such as cancer; fracture of the hip; senility; mental debility. Older people are also subject to strokes, prostate trouble and degenerative skin and bone diseases.

Even when we do not suffer from any of these ailments, there are certain changes which take place in the normal aging process of the body.

According to Dr. A. J. Carlson, these physiological changes take one or more of the following forms: The hair begins to turn grey. The lymphoid tissues atrophy. The lungs become distended, thereby decreasing their vital capacity. There is an increase in the size of the flat bones. The cartilage between the vertebrae atrophies, decreasing the person's height. The papillary beds of the skin decrease, causing pallor which may be mistaken for anemia. There is a general decrease or absence of the deep tendon reflexes, and an atrophy of all the other organs except the heart.

The main characteristics of degeneration or decline are that every thing which expresses the life of the cell actually disintegrates. Cell division is slowed down and the dying out process takes place. The elastic tissue loses its snap and most of the tissue of higher function is gradually replaced and patched up with less valuable, mostly fatty material.

One of the outstanding symptoms of old age -- the sclerosis of the blood vessels -- seems also to be clearly related to a primary

deposit of fat in the blood vessels. This is the first step of degeneration.

The digestion of fat is prevented by impaired liver function.

The liver has a very important biological role. It digests the important foods, such as sugar, fat and protein. That is, it splits them into the smallest chemical units, then rebuilds them with the help of hormones, enzymes and vitamins into body tissue. This tissue is different for each person in each little cell and therefore has to be built up individually. But it must be kept in mind that the liver represents a storage place for fats, proteins, vitamins and glycogenes.

Any impairment of the liver function will necessarily have two bad results. It will interfere with the rebuilding function of the liver, and deprive the body of a vital storage place for essential body elements.

A fatty liver is a badly functioning liver. That is why, generally speaking, food should be rich in protein and carbohydrates. It is dangerous to overburden the liver with too much fat, as it is deposited between the liver cells, and impairs their future functioning.

Diet is literally a matter of life and death. Man does not die, the old French proverb warns us, he kills himself. The commonest instruments of this suicide are the knife and fork. It is at the table, every day of your life, taking breakfast, lunch and dinner, that ^{you} can cut your existence short or prolong it to a ripe and useful age.

Many people think diet is a matter of taste. Actually it is much

safer to rely on what the doctor tells you. Your taste may be your worst enemy. It may be impaired by the state of your teeth, the condition of your stomach, by bad habits which you have followed for so many years that your palate has forgotten what is good for you.

There is the excellent basic diet recommended by Edward J. Stieglitz in his book Geriatric Matters:

One pint of milk or its equivalent. Much of this may be utilized in creamed soups, puddings, milk toast and as cheese, etc.

One serving of orange, grapefruit, tomatoes, or their juices. Raw cabbage or salad greens may be substituted if desired and no alimentary contraindications exist;

One serving of green or yellow vegetables, some raw;

One serving of potatoes or other vegetables or fruits;

One serving of whole grain cereal - oatmeal or wheat;

One egg daily, or at least three or four a week;

One serving of meat, poultry, or sea food, or other high protein food;

All bread and flour should be enriched, or whole grain;

Butter, oleomargarine with vitamin A, peanut butter, or other vitamin-rich fats as indicated;

Above all, go easy on fats. This means not only gravy, dressings, bacon and the like. There are other foods out of which the body makes fat if you eat too much of them. This includes sweet, rich desserts, ice cream and pastry. In such cases the body is unable to eliminate the surplus. That surplus will pad your waistline and, what is even worse, clog your liver.

Liver as a food or in concentrated form as medication is of great help here. It contains important factors which support the digestion of fat.

The body can make fat out of sugar and sugar out of protein. It cannot make protein out of anything but protein.

There are, however, certain elements which will help the liver digest fat. These are the lipotropic or fat-digesting amino acids. They are the building stones of the protein molecule. The most important of them is methionine.

Animal experiments have shown that, despite factors which would otherwise have caused a fatty degeneration of the liver cells, normal function was maintained through the administration of methionine.

In this connection, the research group at the New York Memorial Hospital, especially Dr. C. T. Rhoades, came to some very surprising conclusions in the course of their investigations. They caused destructive changes in the liver tissue of test animals and were able to produce cancer. They discovered that this liver damage could have been prevented if hydrolyzed casein with riboflavin had been added to the food of the test animals. Hydrolyzed casein is casein already split into amino acids.

Further investigation revealed that out of the 22-24 known amino acids of nutritional importance and the many factors of the B-complex family, only a few are actually needed to play the protective role.

Even more impressive were the successful experiments treating cirrhosis of the liver in human beings. Until recently this illness was fought by giving the patient injections of liver extract, B-complex

vitamins and a diet which was high in protein and carbohydrates and low in fats. To these factors, the research group at the Memorial Hospital added the newly discovered factors of the amino acid methionine, and two rare members of the B-complex group. Under this treatment, the affected livers became normal.

This treatment is identical with the treatment required for old age.

Anyone can take advantage of these newly found aids to health and a longer life by following a proper diet. The amino acids can be obtained best from dairy products like cottage cheese, cream cheese, milk and eggs; from meat, poultry, fish, fowl, sea food; from cereals of wheat germ; and from nuts.

The dramatic achievements at Memorial Hospital were partly obtained by an intelligent use of vitamins. The vitamin-B-complex factors are tremendously important for maintaining the vital functions. They are important links in the chain of chemical reactions which take place in the digestion of carbohydrates. They also play a leading role in the metabolism of the nerve cell itself, including the function of the sex glands.

Lack of these vitamins in our food accounts for many disturbances. Vitamin deficiency precipitates or accelerates premature aging. At one time it was assumed that these disturbances were organic diseases. Now we know -- and this discovery is a recent one -- that they are nutritional deficiencies, mostly due to lack of B-complex vitamins.

In the sclerosis of the brain, which is very often accompanied by depression and confusion, nicotinic acid, one of the B-complex factors, has been found to be the only real help which doctors can furnish.

To a lesser degree, vitamins A, B and C also have to be present in food itself or in added vitamin medication. Fortunately, in this country, these vitamins are contained in the average nutrition of the people. They are found in the same foods as the amino acids and, in addition, in leafy green and yellow vegetables and tomatoes. Vitamin D is generally taken care of by the influence of sunshine on our bodies and therefore has to be watched in the wintertime.

In advanced stages of nutritional deficiencies, especially in aged people, it may often be necessary to make up for years of neglect by adding these factors, as well as the amino acids, in concentrated form, given either in oral medication or by injection.

Here are three case histories showing what can be done to retard old age if vitamins and amino acids are properly applied:

1) Mr. Grey was seventy, his wife sixty-seven. All through the war they ran their farm successfully, despite lack of help. Suddenly both began to feel weak. They could no longer stand the strain of farming. They thought of retiring from active life. They came to me complaining of general fatigue. I put them on an adequate diet and gave them a medication combining vitamins with amino acids. Within two weeks I began to get the most gratifying reports from the Greys. First the wife, then the husband, felt a gradual marked improvement. They had their energy back. They decided to continue working the farm, which was something they had enjoyed doing for many years.

2) Mr. Jones was sixty-five. After working strenuously for

many years, he came to me with an acute breakdown. He was tired; he could not go on; he had quit all active occupation. In addition to acute fatigue he suffered from a severe circulatory disturbance. I gave him the combined treatment mentioned before. Results: He regained his former working capacity; many of the minor disturbances disappeared. Mr. Jones was impressed both by his own recovery and by the fact that many of his friends under the same strain were falling by the wayside. I observed this patient for many years and found that the effect of the treatment was lasting.

8) At sixty-four Mrs. Brown lost all self-confidence following an automobile accident. She suddenly became conscious of her age. She attributed the aut. accident to the slowness of her reflexes. In retrospect she found that in the past three years she had felt an increasing fatigue. She was depressed, did not want to go on with her profession, had a poor appetite and suffered from insomnia. Several weeks after I started the combined treatment, she resumed her work. She followed instructions, continued with the medication and has been well for the past year and a half.

Tissue breakdown may be caused not only by nutritional mistakes, but by psychological factors as well, or by a combination of the two. If you are upset and feeling low, everything is depressed along with the mental state. The saying "I can't stomach that" shows how aware human beings are of the fact that detrimental thoughts are indigestible. Such damaging influences can be tenseness or haste, caused by acute competition and fear of economic insecurity.

To illustrate the importance of the

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psychological factor, an interesting experiment was made at the famous Pavlov Institute in Leningrad; Dogs with normal family life were separated by glass windows from other dogs in solitary confinement. The results were surprising. The isolated dogs not only showed definite signs of maladjustment and unhappiness but died prematurely of changes in their blood vessels closely resembling arteriosclerosis.

It is an accepted medical fact that mind and body have to be treated as a unit, regardless of the patient's age.

Moreover, the experiments confirmed what has long been known to students of the destruction caused in the body by the transfer of emotional tensions or shocks from the nerves to the organs. We know that the sympathetic nervous system, for instance, almost branches out into the tissues which form the structure of all important organs, as well as part of the body surface itself.

A destructive nervous impulse may be carried along those tissues and by its impact interfere with the normal function of the organ.

The real importance of this connective tissue has not been known for a long time. Only recently, it has played a central role in the highly publicized ACS serum developed by Prof. Alexander A. Bogomolets, of Kiev.

Prof. Bogomolets, himself a man of sixty, had been interested for a long time in problems of increasing the human life span. He knew that the life span of animals is five or six times longer than the period of their maturation, and wondered why our span should not have the same ratio to the time it takes us to reach maturity. On this basis, he thought, people ought to live to be 125 to 150 years

old. The Russian physician was no doubt influenced in his research by the results of the experiments of such pioneers of science as Metchnikoff and Bordet.

These men had shown that when human tissue extract, for example of the bone marrow, is injected into the circulation of animals, these develop antibodies in their serum. If this serum is injected into the human organism in very small quantity, it will stimulate and accelerate the particular organ from which it was derived, in this case the bone marrow.

Prof. Bogomolets studied a group of people 100 years and over to see what kept them so young, brisk and lively. He was most impressed by the excellent preservation and smooth appearance of their skin. This led him to the discovery that the connective tissue cells below the skin of these centenarians were responsible. The connective tissue forms the inner and outer lining of our organs. It binds together and supports various structures of the body. Prof. Bogomolets assumes that this tissue is the area in which the great battle goes on between disease germs and those body cells which try to destroy the invading germs. The home army of defending cells are to a great part recruited from the reticulo-endothelial system of the body.

Prof. Bogomolets altered our conception of the connective tissues in general, and especially of the connective tissue cells in the spleen, the bone marrow and other organs included in the reticulo-endothelial system. He found that these cells are responsible for the removal of waste products from the body, and the sensible replacement of daily wear and tear. As long as the normal function of these cells is maintained and not interfered with, the body can

successfully resist degeneration and old age.

On the basis of this remarkable discovery, Prof. Bogomolets developed his anti-reticular cytotoxic serum or ACS.

So much legend has developed around this discovery that it is important to keep the facts straight. Prof. Bogomolets did not say that ACS cured cancer or lengthened life. He said that in small doses it stimulated the cell system which helps the body fight off invading germs or other agents which cause disease. In large doses ACS had cytotoxic or cell-poisoning effects on the system. On the basis of his experience in giving this serum to various people, Prof. Bogomolets thought that ACS "could" prolong life, prevent cancer and perhaps give many other benefits; but that was a hypothesis to be tested in the future.

At present there is no need to attribute any untested properties to ACS to accept its importance as a step in the conquest of disease and old age. The serum proved to be responsible for the rapid healing of war injuries, and may hold the secret of the prevention of malignant growths.

I have recently received ACS serum from Russia and have been giving it to some of my patients but am not yet ready to report definite conclusions. So far ACS has been given to 3,500 patients in the United States and possibly more. At the same time, Dr. Harry Goldblatt, of Western Reserve University School of Medicine, has prepared a variant of the serum which he has given to physicians in clinics, hospitals and private practice. These are now sending their reports to Dr. Goldblatt, who will publish the results in a scientific journal. American groups have been working along these lines for the past ten years.

Prof. Bogomolets made his serum by inoculating horses with an extract of the spleen and bone marrow of human bodies. Dr. Goldblatt uses rabbits instead of horses.

Another medical means in the fight against old age is the therapy with glandular extract. These treatments are designed to preserve or extend the normal function of the tissue of the male sex glands. They have been successfully used by a great number of doctors. Extracts of the female gland are currently being used in disturbances which occur through the lack of hormones when they cease to be produced by the ovaries.

However, these treatments are not yet as well defined in their final results. Many issues are still under discussion, such as the connection of these glands with the question of malignant growths. At any rate, these treatments are the exclusive domain of physicians with a long-standing knowledge of the particular needs of their patients.

The use of hormones is closely connected chemically and functionally with the use of vitamins. In modern science, these treatments are now combined, giving the patient the full benefit of both.

Until you are about forty-five, nature gives you a great deal of leeway. After that you must be on guard. You can increase your life span by living sensibly from the day you are born, but it is especially between forty-five and sixty that you can contribute to your longevity by taking care of your diet and doing whatever else may be necessary to protect your body against the ravages of time and degeneration.

Geriatrics have a definite set of problems to investigate in order to find out what will be needed to extend our life. In studying

the biological needs of advanced age, it already has made big strides in establishing the nutritional requirements. From there on, therapy will be directed toward the preservation or stimulation of the organic functions, in giving particular support to liver and glands.

Even if the claims of Prof. Bogomolets should prove the crucial importance of the connective tissue system, therapy with his serum alone will not be the final device for the stimulation and preservation of this system. For those who want to add not only days to their life but also life to their days, the gospel of sane and balanced living will be more important than ever. And for those who have reached the stage where medication is necessary, it seems best to combine the various devices which are proving successful. A future of incalculable advance lies in combining the clinical benefits of biochemistry with the stimulating effects of serum therapy.