

MEDICINE

To Reduce, Fast 10 Days

► TO REDUCE—you can go hungry and like it.

Total fast periods of up to 10 days work better than low calorie diets. The secret is that when no food at all is eaten, the fat person loses his appetite, whereas he becomes intolerably hungry on a diet of 900 to 1,100 calories a day.

Dr. Garfield G. Duncan of the University of Pennsylvania told the American Medical Association meeting in Chicago that more than 40 patients, from juveniles to adults, had fully enjoyed their fast and shown no ill effects.

"Several pleaded at the end of the 10-day fast period to be permitted to continue longer without food," Dr. Duncan said.

More than two pounds a day can be lost by an obese person on a total fast. When patients begin to eat again, they find even 900-calorie diets too much at first. After the initial period of fasting, one or two days' fast can be spaced appropriately to prevent a gain in weight and to carry the reduction further.

Candidates for total fasting must be carefully selected and hospitalization is desirable for the first extended period. Pregnancy, peptic ulcer, liver abnormality, infection and certain types of diabetes are conditions unsuitable for total fasting.

Water, weak tea or coffee, artificial sweeteners and beverages without nutritional content are freely allowed, and poly-

vitamins are given orally twice a day. The readiness with which individuals repeatedly go on "hunger strikes" to achieve their objectives by dramatic means, Dr. Duncan said, is a good indication that they found them to be no great ordeal.

Co-authors of the report presented by Dr. Duncan are Drs. William K. Jensen, Robert I. Fraser and Fred C. Cristofori.

• Science News Letter, 82:4 July 7, 1962

Mental Acuity Link

The level of cholesterol in the blood has a "significant relationship" to mental sharpness in men more than 45 years old, an exhibit at the AMA annual meeting in Chicago showed.

Mental acuity was measured by 11 psychological tests covering a wide range of abilities, such as reasoning, problem-solving and reaction time. Those whose cholesterol levels were lowered by 10% or more for a 12-month period were compared with those whose cholesterol levels were not lowered.

Persons under 45 years of age performed equally well on the test. A "clear difference" was found, however, for those above 45. The group in whom cholesterol levels were not lowered performed significantly more poorly than did the other group upon retesting at the end of the year.

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Try Human Transplants

► A MAJOR attempt is being made to discover how to transplant skin, kidneys, and other tissues and organs from human beings to other persons who need such vital replacements—and make them grow.

This cannot be done now, except in a few cases of transplant between identical twins.

The research financed by \$139,000 U.S. Public Health Service grant stems from the fact that organs of inbred rats and mice can be transferred successfully from one to another.

This makes Dr. Dennis B. Amos, who will head the studies at Duke University School of Medicine, Durham, N. C., hopeful that successful transplantation for humans can be achieved.

His first step will be to find a method of typing the antigens in human tissues so as to be able to predict what grafts will take. Antigens are materials that stimulate what is called an immune response. One result of antigen action is that transplants of body organs, except in the rare cases of identical twins, are rejected by the recipient.

Some success is possible now with grafts surviving for short times by using drugs that reduce the body's response to antigens. The long-range aim of Dr. Amos and his co-workers is to get permanent survival of grafts.

If a test can be developed to identify different antigens as blood groups have been identified, that would give a kind of genetic uniformity, as if donor and recipient were partial "identical twins." This, when combined with the use of drugs, could yield the hoped-for successful permanent survival of transplants.

The antigen test should be, Dr. Amos said, not painful, nor scarring, and produce only a short-time immunity in the volunteers on whom it is used.

Dr. Amos, now at Roswell Park Memorial Institute, Buffalo, N. Y., will move to Duke to carry on the new program in especially equipped laboratories.

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The *backbone* of the average 75-year-old person contains only one-third the bone tissue present in 20-year-old individuals.

Chemical *element 104* is expected to resemble hafnium and zirconium with properties unlike any other of the man-made elements.

Skid-resistant *pavement*, a grit-containing plastic coating sprayed over concrete or asphalt, will stop a car in 50% to 75% of the distance required on more conventional surfacing.

Do You Know?

By using a new method of analysis, *fluoride* in teeth can now be measured in amounts less than one ten-billionth of an ounce.

Chemists have succeeded in making the *silicon atom* at the center of a polymer ring form six bonds, although it ordinarily forms only four bonds within a molecule.

Most of the useful *polymers* so far have been made up from either carbon and hydrogen or in combination with other non-metallic elements.

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