

MEDICINE

Male Hormone For Starch

► **DISCOVERED:** The male hormone puts starch into the muscles of teen-age boys.

This muscle starching effect of the male hormone, testosterone, was discovered in experiments on rats, reported by Dr. Samuel L. Leonard of Cornell University, Ithaca, N. Y., to the American Association for the Advancement of Science. The starch is glycogen and is formed in the liver from the sugars and starches eaten in food.

The sudden spurt of growth boys make when they reach their teens apparently comes in part because the male hormone is putting starch into their muscles. This increases the size of the young male's body. The increase is in addition to that which comes through the action of another hormone, the growth hormone from the pituitary gland in the head.

Testosterone, the male hormone, has previously been found to have another growth-promoting effect. This comes because it influences the body to retain more nitrogen to build new body tissue.

In the experiments Dr. Leonard reported, he castrated male rats to deprive them of their own male hormone. During the first seven days after this the glycogen, or starch, in certain of the muscles decreased 15% to 32%. From 15 to 96 days after castration, however, the glycogen in the muscles was the same as that of non-castrated rats.

But, Dr. Leonard reported, when male hormone was injected into castrated male rats, regardless of how long they had been without their own hormone supply, the glycogen, or starch, in their muscles increased "dramatically," even to the extent of 100% above that of non-castrated animals. The hormone acts quickly, causing this effect within 24 hours after injection.

Starch, or glycogen, in the muscles of normal male rats can be increased even more by injections of male hormone for three days.

The muscle starching effect of the male hormone is independent of the action of

the growth hormone from the pituitary gland. Dr. Leonard found this when he injected male hormone into rats deprived of both pituitary and sex glands.

Science News Letter, January 12, 1952

MEDICINE

Confusion Over "Shock"

► **"SHOCK"** DOES not mean the same to everyone, not even doctors. Two British physicians, Drs. R. T. Grant and E. B. Reeve, criticize the common and loose employment of the word shock to describe the condition of disaster casualties. This may even cost human life.

The so-called condition of shock, they say, is "ill-defined." There is no assurance "that cases grouped by one man as shock or no shock or in a particular degree of shock will correspond at all closely in underlying causative factors, or even in symptoms or signs, with those so grouped by another."

As commonly used, shock may at one time apply to a person who is suffering from great loss of blood and at another to one who is suffering from pain, fright, cold or infection. The result may be a disastrous delay in starting proper treatment.

Based on a study made by teams of British doctors on over 300 severely injured people, most of them air raid and war casualties, the report concludes that in most cases of abdominal injury or of severe injury of the limbs the chief, and often unrecognized, condition requiring urgent treatment is a drastic loss of blood. The high death rate among patients with very large limb injuries was mainly due "to failure to recognize the grossness of the hemorrhage and to give sufficient blood by vein sufficiently early and quickly."

"In such cases the hemorrhage is of the order of 50% or more of the total blood; these patients urgently require very large transfusions and respond well to them."

Any patient with a very large wound usually requires a very large transfusion, "much more than even a bold transfusion officer is inclined to give till he has learned for himself."

In their experience the doctors found that it was "bad practice to delay transfusion." If life is to be saved, then transfusion must begin at once in any casualty showing "a marked degree of circulatory failure." Signs of these are: blood pressure below 70, rapid heart rate, marked pallor, cold extremities, and often restlessness and difficult breathing.

On the basis of their very careful and extensive observations the doctors have been able to reclassify the post-injury conditions formerly loosely lumped together under the

● RADIO

Saturday, Jan. 19, 1952, 3:15-3:30 p.m. EST

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Dr. Edward R. Sharp, director, Lewis Flight Propulsion Laboratory, National Advisory Committee for Aeronautics, discusses "Airplane Development."

term shock and arrange them in a series of recognizable patterns which make diagnosis more precise and guide treatment better than using the prevailing idea of shock.

Working from the normal circulatory pattern of "normal blood pressure, a normal pulse rate, warm extremities and a good face color," the doctors have defined a half dozen disturbed variations of this normal pattern, giving each a characteristic name and describing the type and degree of injury with which each is usually associated.

The report is called "Observations on the General Effects of Injury in Man."

Science News Letter, January 12, 1952

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