

Meat and Fish—Their Use and Value as Food in Tuberculosis

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PROPER diet is one of the most important factors in the prevention as well as in the treatment of tuberculosis, and in selecting such a diet many things have of necessity to be taken into consideration. The disease may be one of long duration, with intervals in which there may be comparative health and temporary freedom from dietetic restrictions. But as a rule it is of prime importance that patients suffering from tuberculosis should be provided with food which is ample and suitable for their bodily needs. This is equally true of those who are in poor health from some other cause, because it is well known that malnutrition not only invites an invasion by the disease germ but is most conducive to its activity.

In a diet for patients suffering from tuberculosis meat and fish must always be given an important place. This is not due, as is by many supposed, to the fact that meat especially in the raw state is particularly valuable as a blood former. Nor is it true as has been suggested by some that raw beef possesses a peculiar nutritive and curative value in tuberculosis. Meat and fish are valuable foods because they contain those ingredients which are required by the body, the most important being protein and fat. Protein is used in the construction and maintenance of the tissues of the body, while fat is used as fuel to produce heat and energy.

COMPOSITION OF MEAT.

Refuse—Nearly all kinds of meats as bought contain some portions which cannot be used as food. These comprise the bones, skin, etc., and in general any parts which from their lack of nutrients or from the impossibility of preparing them for food, are considered to be useless, may be classed as refuse or waste. In ordinary meats the chief refuse is bone. The percentage varies, in some cuts as the round of beef, slice of ham, etc., there not being more than two or three per cent. of bone, while in others there may be almost fifty per cent., and in others again none at all.

Water—Meats contain a large and varying amount of water, and it is to be remembered that while this water has its uses it has no greater value as food than other water. So that the greater the amount of water in a given food the less is its relative nutritive value. Fish and oysters have relatively more water than most other meats. And in general it may be said that the greater the amount of fat in a given cut the less is the amount of water.

Fats—All meats contain some fat. In some cases the fat is stored in such quantities as to be readily seen, and in others it may be distributed in such small particles that it is only by the use of intricate chemical processes that the quantity present can be appreciated. In the flesh of some animals, as cod and other white-meated fish, in chicken, and veal there is little visible fat. In a very fat ox, on the other hand, one-fourth of the weight of the meat may be visible fat, and in the case of fat hogs more than half the weight may be fat.

Fat is one of the valuable constituents of food. It is used in the body as fuel to produce heat to maintain the animal temperature, and to yield energy. As a fuel its value is two and one-fourth times that of protein or carbohydrate. In other words one pound of fat yields as much heat when burned as two and a quarter pounds of starch or sugar.

Protein—There are a great many kinds of nitrogenous compounds in flesh, but the whole group may be conveniently designated under the word protein, according to the following table:—

PROTEIN.

1. *Albuminoids*—As albumen (white of egg); casein (curd) of milk; myosin (the basis of lean meat); gluten of wheat, etc. These form the most valuable group, because they are similar in composition to the nitrogenous compounds of the body, and are therefore easily digested and assimilated.

2. *Gelatinoids*—As collagen of tendons and ossein of bone, which yield gelatin or glue, etc. Very different views have been held at different times as to the value of gelatin as food, and it is now generally considered that when combined with albuminoids and extractives it has considerable food value in that it serves to economize the albuminoids.

3. *Nitrogenous Extractives*—These are the chief ingredients of beef tea and meat extracts. They consist largely of substances which somewhat resemble the active principles of tea and coffee. They are of little value as foods, but they give flavor to meats and are therefore of importance.

The lean of meat has about twenty per cent. of protein, or weight for weight about five times as much as milk. The flesh of fowl has on the average more protein than beef, and the flesh of fish has as a rule less. And while protein is the most important and valuable ingredient of food, lean flesh is, nevertheless, a very one-sided diet, and to make a well balanced ration the addition of foods containing carbon, starches, sugar, etc., are necessary.