

PHYSIOLOGY AND MEDICINE.

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BY

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DIETETICS.

THIS subject deals with those considerations which guide us in the choice and modes of preparation and administration of various articles of diet both in health and disease. Even in health, most people eat and drink too much and sooner or later suffer in consequence. The amount of necessary food, also, varies with the amount of work and other requirements of the individual; a man requires more food when at hard work than when at rest or at light work.

Milk is the only article of diet which contains all the food constituents, (proteids, etc.) in the proportions sufficient to sustain life; and as it is so largely used in disease, a few words about its composition may not be out of place. Milk is a natural emulsion—minute fat globules suspended in a watery fluid. Besides the fat, this emulsion contains proteids, sugar and salts. Human milk contains more water and sugar than does that of the cow, but contains about the same amount of fat. This is the reason why, when preparing cow's milk for babies, it is usual to add water and sugar, as also a little fat in the form of cream.

In disease, diet has generally to be carefully regulated; and in some diseases, regulation of diet constitutes the chief part of treatment. In cases of weak digestion, articles which are difficult to digest, e.g., pork, fats, pastry, etc., must be avoided. The digestion of febrile patients is generally so weak that as a rule no solid articles of food are given and diet is restricted to milk, which is administered in smaller quantities but more frequently than in health. During convalescence a return to ordinary diet is gradually made in the following order:—milk puddings (custard, etc.), fish and eggs lightly boiled, chicken and lastly mutton and other meats.

AIDS TO DIGESTION AND PREDIGESTED FOODS.

The chief constituents of gastric juice are pepsin and hydrochloric acid. Consequently, it is sometimes advisable in cases of deficient gastric juice secretion to supplement the digestive power of patients by administering pepsin or hydrochloric acid or both about half an hour after food. Pepsin is prepared from the stomach of the pig, sheep or calf and is found particularly useful in cases, where, owing to atrophy of the gastric glands or to the debilitated condition of the patient, gastric juice is not secreted in sufficient amount. It should be remembered, however, that pepsin should never be used as a routine remedy for derangements of the stomach; for such conditions, modifications in diet constitute the best treatment. *Glycerinum Pepsini* contains both pepsin and hydrochloric acid; it is a stable solution and convenient preparation for oral administration.

Pepsin is sometimes used to predigest food, but much less frequently than preparations of the pancreas. Pancreatic preparations contain the digestive principles of the pancreas of the pig, sheep or calf: the best known are *Liquor Pancreatis* of the B.P., Bengel's *Liquor Pancreaticus* and Fairchild's "*Zymine*"—a powder put up in small tubes. Under ordinary conditions trypsin if administered by the mouth is destroyed in the stomach, so pancreatic preparations are used solely for predigesting food.

To peptonize milk:—To one pint of milk add about 20 grains of sodium bicarbonate dissolved in a little water, and divide the mixture into two equal parts. Heat one part to boiling point and add it to the other. To the mixture add two tablespoonfuls of liquor pancreatis and keep the vessel warm for a half to one hour. Before peptonization is complete, the milk acquires a bitter taste which is objectionable to most people. It is therefore advisable to stop digestion by boiling the milk before the bitterness is distinctly evident.

Gruel and other substances may be similarly peptonized.

Such peptonized foods are of great service whenever the stomach cannot bear ordinary foods: they are generally well borne, easily absorbed and assimilated, and are best administered in small amounts at frequent intervals.

NUTRIENT ENEMATA.

When the stomach is intolerant of food of any kind or it is desirable to give it a rest and under other conditions, *e. g.*, in cases of corrosive poisoning, where the condition of the patient's throat makes feeding by the mouth impossible, peptonized foods may be given as enemata. Under the most favourable circumstances, absorption from the rectum is poor, especially as regards proteids: also, enemata can only be given in small quantities at comparatively long intervals (5 to 6 hours). Nutrition can therefore only be maintained for a few weeks in this way.

The bulk of the injection must be small, as otherwise the bowel will not retain it. The desirable amount, however, is not definitely settled. Some maintain it should never exceed four ounces: others hold that large injections, eight to ten ounces, should always be tried, because if retained they carry the following advantages:—

(1) Less irritation of the rectum, because less frequently administered and (2) the injection reaches further up the bowel and is therefore better absorbed. If the rectum is irritable, it is advisable to add a few drops of laudanum to the enema before administration. Lastly, a syringe should not be used; the enema should be introduced by means of a funnel and soft rubber catheter, for too much force—like too great a bulk—does not favour retention.

Salt aids the absorption of proteids; sugar, especially dextrose, is well absorbed; fats are sometimes useful ingredients. The following is an excellent nutrient enema:—

Yolk of two eggs,

Salt 7 grains,

Dextrose (pure) 1 ounce,

Pancreatized milk 8-10 ounces.

(To be continued.)