

DIET & NURSING CARE IN DIABETES.*

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In order to understand the dietetic treatment of diabetes, it is necessary to have some knowledge of the constituents of food and of the way in which they are used by the body. The three main food principles are, as you know, protein, fat and carbohydrate.

Protein is the chief constituent of living cells, so the protein absorbed from the food is used to replace the body tissues as they are broken down in the process of metabolism. The main sources of protein are meat, egg, albumen and milk. Carbohydrates—starches and sugars—are converted into glucose, which is the chief fuel of the body, producing heat and energy. Carbohydrate exists in cane sugar, cereal grains, fruit, and, in varying percentage, in vegetables. Fat also produces energy. It can be efficiently utilised by the body only when carbohydrate is present, as it needs the fire of the burning sugar to consume it. Fat is found in butter, cream, fat meat and vegetable oils.

In diabetes, owing to absence or deficiency of an internal secretion of the pancreas, the tissues are unable to burn sugar, and, as fat is burned only in the flame of carbohydrate, it also is incompletely consumed. The unburned carbohydrate is excreted in the urine as sugar, the unburned fat as acetone bodies.

The aim of the diet in diabetes is to prevent not only glycosuria, but also acidosis. Formerly it was believed that the addition of fat to a diabetic's diet might result in acidosis and coma, and until quite recently the plan usually followed was to reduce the patient's diet, cutting out fats first, until he became sugar free. Then gradually increasing amounts of carbohydrate and protein were given, and, if the patient had no acetone bodies, some fat was also allowed. Now, however, it is known that, if the fat in the diet bears a definite ratio to the carbohydrate, large quantities may safely be given. The addition of fat to the diet has made it possible to give the diabetic much more interesting and satisfying meals.

At present the plan usually followed is to put the patient on a basal diet—that is, a diet of a sufficiently high caloric value to provide the body with the energy it requires at rest. It is calculated from the surface area of the patient, which is obtained from his age, height and

weight; e.g., we have a man fifty years of age, 5 ft. 8½ in. in height, and weighing 123 lb. His surface area, obtained by means of the Du Bois height and weight chart, is 1.6 square metres. His basal caloric requirement is 1,524 calories. The fat and carbohydrate are worked out according to standard formulæ, so that the fat bears a definite ratio to the carbohydrate, allowing, of course, for the fact that 58 per cent. of protein and 10 per cent. of fat are utilised by the body as carbohydrate. The amount of protein the body requires is $\frac{3}{8}$ gram per kilogram body weight—in this case, $\frac{3}{8}$ of 56.37 grams. This man's diet, then, would be: Protein, 37 gm.; fat, 134 gm.; carbohydrate, 38 gm.

The following are two examples of menus that might be used:—

No. 1.

Breakfast.—½ grapefruit, 30 gm. bacon, 1 egg, 1 oz. cream, 30 gm. butter, coffee, bran cakes.

Dinner.—Broth, 75 gm. steak, 100 gm. onions, 200 gm. cauliflower with cream sauce, coffee jelly with whipped cream, 15 gm. butter, ½ oz. cream, tea, bran cakes.

Supper.—1 chicken jelly; 1 tomato on lettuce, with stuffing, nuts, celery and salad dressing; 100 gm. rhubarb, 30 gm. butter, ½ oz. cream, tea, bran cakes.

No. 2.

Breakfast.—½ grapefruit, 1 omelette (2 eggs), 30 gm. butter, 1 oz. cream, coffee, bran cakes.

Dinner.—Broth, 100 gm. mutton chops, 200 gm. string beans, 100 gm. cabbage, 1 tomato jelly, Bavarian cream, 30 gm. butter, ½ oz. cream, tea, bran cakes.

Supper.—Cream of celery soup, lobster salad on lettuce, 100 gm. asparagus, 100 gm. cranberries, 15 gm. butter, 1 oz. cream, tea, bran cakes.

In both these diets the carbohydrate is given entirely in the form of 5 per cent. and 10 per cent. vegetables. This is usually done until the patient's tolerance is discovered, as the carbohydrate is much more slowly absorbed in this diluted form. If the patient's tolerance permits, or in some cases when he is put on insulin, the carbohydrate may be given in more concentrated form, e.g., 15 per cent. and 20 per cent. vegetables, oatmeal, and sometimes bread. One disadvantage of giving the carbohydrate in this way is that it decreases the bulk, and so does not satisfy the patient's hunger.

There are several ways in which the diet may be increased and improved without adding food value. The bran cakes used are made with

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