

SPECIAL REPORT

Principles of Nutrition for the Patient with Diabetes Mellitus

The *basic* nutritional requirements for the person with diabetes are in general the same as those for persons without diabetes, namely:

1. Adequate quantity and quality of protein to provide for normal growth and/or repair of tissue. There should be a minimum of 0.5 gm. of dietary protein per kilogram of ideal bodyweight for the adult and 2 gm. per kilogram for the growing child.

2. Adequate quantities of other essential nutrients (minerals, vitamins and essential fatty acids). The minimal figures made available by the National Research Council provide some guidelines, although the amounts are by no means complete or universally accepted. In practice, these requirements can be met by provision of a diet which contains a goodly variety of vegetables, fruits, whole grain cereal products, nonfat dairy products and other vitamin-and-mineral-rich protein foods.

3. Sufficient calories to achieve and maintain "normal lean body weight." Avoidance or elimination of obesity is important in the population as a whole and of paramount importance in the diabetic patient.

Special nutritional requirements for the diabetic patient include:

1. Spacing of food intake in a fashion which will "balance" administered insulin and physical activity, the objective being avoidance of hypo- and excessive hyperglycemia.

2. Appropriate combination of protein-fat-carbohydrate intake at each meal or "snack" to achieve stability of blood sugar levels. In some patients greater fat and protein and consequently lesser carbohydrate intake may be required for stability.

3. Alteration of Fat Content. Although proof of cause and effect is not at hand, there is much epidemiological evidence of an increased prevalence of atherosclerosis in populations with high plasma lipid concentrations. Accordingly, physicians should be aware of dietary approaches which may be helpful in decreasing plasma cholesterol and triglyceride levels in the diabetic patient. Two such dietary patterns will be predictably associated with relatively or absolutely low levels of plasma cholesterol in most individuals:

- (a) A diet high in carbohydrate and quite low in total fat and hence low in cholesterol. Opinions differ as to the desirability of such a diet because of the difficulties in control of diabetes and tendency to elevation of plasma triglyceride.

- (b) A diet relatively high in fat and consequently relatively low in carbohydrate in which the greater portion of the dietary fatty acids are poly- and monounsaturated and less than 20 per cent are totally saturated. Since much of the fat in such a diet will be of vegetable origin, the dietary cholesterol content will be low, although not as low as that of a very high carbohydrate, very low fat diet. In most diabetic patients a high polyunsaturated diet will bring about low rather than high levels of fasting plasma triglycerides.

At present it remains for the individual physician to decide whether or not control of plasma lipids as well as plasma glucose is of sufficient importance to warrant special dietary instruction. Although a causal relation between high saturated fat intake and the development of atherosclerosis in man has not been finally established, many authorities believe that a low intake is justified in view of the known propensity of the diabetic to develop large vessel disease.

Whatever the physician's views are with regard to diet, the necessary items in implementation are knowledge, time, and motivation. No patient with diabetes can be expected to understand and apply any of the foregoing principles and practices unless a well organized physician-dietitian team provides the proper foundation.

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