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The protein-sparing modified fast for obesity-related medical problems

This diet should be undertaken only under close medical supervision

Morbidly obese persons who have tried unsuccessfully to lose weight by other means can lose weight rapidly by undertaking a protein-sparing modified fast—a form of controlled starvation that provides just enough protein to keep the body from catabolizing its own muscle cells. This diet induces ketosis and should be undertaken only under close medical supervision.

Most candidates for this diet at the Cleveland Clinic are experiencing the metabolic or orthopedic consequences of obesity. All must weigh at least 130% of their ideal body weight (or have significant health risks due to obesity) and be sufficiently motivated and capable of complying with the program. Nutritionists and physicians experienced in monitoring and managing metabolic problems associated with ketogenic diets decide if the diet is appropriate for individual patients, and supervise their progress. Persons with less-severe weight problems should follow a conventional, nutritionally complete, low-calorie diet.

PRINCIPLES OF THE PROTEIN-SPARING MODIFIED FAST

At the outset, a physician performs a history and physical examination and evaluates the results of blood tests and an electrocardiogram (or evaluates the information the patient brings from the referring physician). The patient then meets with a dietitian.

The diet provides approximately 800 calories per day, depending on the patient's desirable body weight. Of this, most is supplied as protein foods such as fish or lean meat—1.5 g/kg ideal body weight, amounting to 12 to 17 ounces of high biological value protein per day. This composition spares lean tissue losses, most importantly from the heart and skeletal muscles. Only a small amount of carbohydrate is allowed, less than 30 g/day, all from vegetables such as carrots or broccoli. Starches (potatoes, rice, pasta, bread), fruits, milk, sweets, fats, and alcohol are not allowed.

Liquid protein diets that use the same ketogenic principles are commercially available. However, most patients eat "real" food instead, for several reasons. Eating real food helps change behavior. With real food, dieting resembles normal eating: patients prepare the food, learn low-fat cooking techniques, and have the satisfaction of seeing, smelling, and chewing. In contrast, drinking diet supplements does not teach the patient anything about eating differently. In addition, liquid supplements cost approximately $75 per week. The few patients who take a liquid supple-

ment are those who insist on it or who cannot tolerate meat for some reason (eg, poor dentition, allergies).

The diet is not nutritionally complete. To make up for deficiencies, patients also take supplements of vitamins, potassium, calcium, and magnesium. The ketosis that develops causes diuresis; therefore, patients must drink more noncaloric fluids and increase their consumption of salt.

Patients return every 2 weeks for a visit with a nutritionist. At these visits a blood sample for a biochemical profile is drawn to check for electrolyte abnormalities, elevated levels of uric acid and aminotransferases, and evidence of dehydration or protein malnutrition. They also see a physician every 4 to 6 weeks, or more frequently if they encounter a problem.

ADVANTAGES

This diet has several advantages over conventional weight-loss diets. Patients lose weight rapidly—from 3 to 5 pounds per week. This rapid success helps motivate patients to stay with the program. Because patients are in ketosis, they do not feel hungry, and therefore find it easier to comply with the diet than with a conventional weight-loss diet. Some patients report feeling more energy. Levels of blood pressure, blood glucose, and lipids decline.

The weight loss may also allow the individual to embark on an exercise program to further preserve muscle mass and to facilitate loss of fat.

DISADVANTAGES

The protein-sparing modified fast may cause some side effects, such as bad breath, hair thinning, cold intolerance, muscle cramping, constipation, and decreased energy in some patients.

More serious are the potential medical risks: gallstones, gout (due to increased uric acid levels), and electrolyte imbalances (particularly low potassium and magnesium levels).

Cost is a potential disadvantage (approximately $2000 or more, depending on how long the patient must stay in the program). Many insurance companies do not reimburse the costs of frequent laboratory tests and visits with nutritionists and physicians. Frequent visits may be inconvenient for some patients. The program strives to make permanent changes in eating habits; therefore, patients must be highly motivated.

ESTABLISHING HEALTHY HABITS FOR THE LONG TERM

Once patients achieve their goal weight, they can begin "refeeding," the most important part of the program. If patients abruptly return to their former eating habits, they rapidly regain weight, especially in the form of fluid. Therefore, calories in the form of complex carbohydrates, fruits, and vegetables are gradually reintroduced. The goal is to establish healthy long-term eating habits. Continued follow-up visits with a dietitian or physician help to reinforce the new habits. Individuals who need additional counseling are referred to an interested psychologist or to the sports medicine department, or both.

Throughout the program, patients are encouraged to exercise, an important component of long-term weight control.

LONG-TERM RESULTS

Most weight-loss clinics report short-term success and long-term failure: as few as 5% of patients maintain their weight loss.

In contrast, a preliminary self-report survey of former patients who undertook a protein-sparing modified fast showed that from 15% to 30% maintained their weight loss for 5 years (personal communication, S. Patel, S.S.K. Reddy). There is still room for improvement but for some individuals, the protein-sparing modified fast may be a reasonable option to improve one's health and quality of life. ■

Patients lose from 3 to 5 pounds per week

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