Diet Therapy

Planning the Low Calorie Diet

CHARLOTTE M. YOUNG, PH.D*

HERE IN the United States many people are looking for painless reducing diets. Unfortunately there are none; in general the only persons who think there are are those who have never had to consume a calorically restricted diet. For all the hundreds of words devoted to the subject, there is no magic formula to be offered.

Before becoming concerned with details of a diet, consideration should be given to whether or not the overweight patient should be subjected to a reducing regimen. Not every obese patient is a candidate for weight reduction by dietery means. Evidence for such a conclusion may be found in the high rate of failure reported by various clinics for weight reduction,[1-5] the high recurrence of obesity uncovered in follow-up studies,[6-11] and the emotional symptoms and even mental breakdowns reported during the period of weight reduction.[3,12,13] No one questions the desirability of having an obese person lose weight if it can be done without causing him any emotional trauma. However, in most cases in which emotional factors are a part of the etiology of the obesity, there seems to be little hope for successful weight reduction over any period of time, unless some psychiatric help is first given, otherwise the experience may be a frustrating and guilt-producing one for the patient. In addition, countless hours may be saved both by the therapist and patient if an attempt is made to evaluate the suitability of the patient for weight reduction before it is undertaken. How the physician makes this evaluation is not easy to say.

The physician needs to consider the personality of the patient and his environmental and emotional circumstances at the moment. For what purpose does the patient appear to be using food? Is it more than physical nourishment to him? What does the patient hope to gain from weight reduction? Just weight loss (a realistic goal) or does he see it as some magic tool to make possible unrealistic aspirations? Are his life circumstances at the moment ones which make it likely for him to be able to accept changes in his eating and activity behavior? All these factors need to be considered. A thoughtful evaluation of each patient in terms of weight reduction is needed rather than automatic referral to a calorically restricted diet.

In our experience the patient for whom weight reduction by dietary means is most likely to be successful is one who meets the following criteria: (1) has a good emotional adjustment; (2) is in the early stages of obesity; (3) obesity developed in adult life rather than in childhood; (4) has no previous history of attempts at weight reduction with failure or with regaining of the weight lost; (5) has a reason meaningful to him for losing weight; and weight reduction is a realistic goal to the patient.

Given, then, an obese patient who is relatively stable emotionally, weight will be lost only when his caloric expenditure becomes greater than his caloric intake so that body fat may be burned. This caloric status can be achieved either by increased energy expenditure in the form of additional physical activity or by

From the Graduate School of Nutrition, Cornell University, Ithaca, New York.

* Professor of Medical Nutrition.

reduced caloric intake in the form of food and drink, or a combination of both. In the obese patient without apparent emotional problems, lack of any sustained physical activity may be a prime factor in positive energy balance with its attendant fat accumulation. Even for weight maintenance, unless one wishes to keep a tight rein on food intake, too much stress cannot be placed on the need for more physical activity of the type which becomes a part of the daily pattern of living.

From a practical viewpoint much of the correction of caloric excesses in the already obese person must be brought about by means of a diet restricted in calories. As already stated, there is no magic formula for a painless low calorie diet. The only person for whom a low calorie diet is truly painless is the person who is already following such a diet; not the person who is gaining satisfaction from the consumption of a relative excess of calories.

So far, for practical purposes, we do not understand the mechanism or mechanisms for the control of appetite and hence cannot involve these in our diet planning. One of the prime requisites of a reducing diet should be its adequacy with regard to all nutritional needs except calories. It is obvious that there may be many kinds of nutritionally adequate low calorie diets. The one chosen will depend on the tastes and usual patterns of the person who is to consume it. With the exception of a limited number of people who must be ritualistic and dramatize their efforts at weight reduction (a group in my experience for whom one can predict very little long-time success) the less the character of the diet usually eaten is changed the better. All good diet therapy calls for adjusting the diet to the patient's usual patterns of eating in so far as may be consistent with therapeutic purposes. Such a procedure is the surest way of making a distasteful procedure more acceptable. Kurt Lewin, the famous German social psychologist has said that people like what they eat, rather than eat what they like.[14]

Therefore it can be said that any low caloric diet may be a good one for reducing purposes if it meets the following critieria: (1) The diet should satisfy all nutritional needs of the patient except calories. (2) It should be adapted as closely as possible to the dietary habits and tastes of the patient for whom it is intended. (3) It should protect the patient as much as possible from between-meal hunger and leave him with a sense of well-being and a minimum of fatigue. (4) The diet should be easy for the patient to obtain, whether at home or away, without making him feel "different." (5) It should be one which followed over a period of time retrains eating habits so that with suitable caloric additions, it may become a pattern for life-time eating.

The basis of a low calorie diet is the same as that of any well balanced normal diet (Table 1). In general, nutritional adequacy for the adult will be assured if the diet includes each day: one pint of milk; one egg; two servings of meat, fish, poultry or substitute; four or five servings of fruits and vegetables, one of which is a green leafy or yellow vegetable and one of which is rich in ascorbic acid, such as citrus fruits or tomatoes; one or more servings of whole grain or enriched bread or cereal (the amount dependent on the caloric allowance and the previous dietary pattern of the patient); one or more teaspoons of table fat or oil as allowed by caloric level.

In my experience most patients who really adhere to a reducing diet prefer a simplified pattern which they can follow easily with a few simple directions rather than an elaborate prescription which calls for special foods and special preparations. Variety can be achieved by changes in the types of meats, fruits and vegetables used and in the combinations which can be made from the various foods allowed. The amount of calories may be varied by the amount of each food allowed.

The caloric level will vary with the rate at which the physician wants the patient to lose weight. Since the caloric equivalent of a pound of fatty tissue seems to be about 3,500 calories, a daily caloric deficit of 500 will be necessary for each pound of weight the patient is to lose per week. Except for special purposes the loss should not average more than 1 to 2 pounds per week. The actual caloric need of the patient varies according to his size, age and activity. Despite the enthusiasm of both

TABLE I

Sample High Protein Calorically Restricted Diets Based on "Normal" Diet Pattern

Food or Food Group*	Basic "Normal" Diet	Calorically Restricted Diets†			
		A	B	C	D
Milk exchanges	2	1 pint milk (skim)	1 pint milk (skim)	1 pint milk (whole)	1 pint milk (skim)
Eggs	1	2	2	2	1
Meat exchanges	2	6 oz. meat	8 oz. meat	8 oz. meat	8 oz. meat
Fruit and vegetable exchanges—at least one should be an ascorbic acid rich fruit; and one a carotene rich green leafy or yellow vegetable	4 to 5				
Citrus fruit		1/2 cup juice X‡	1/2 cup juice X‡	1/2 cup juice X‡	1/2 cup juice X‡
Vegetable group A (up to 1 cup)					
Vegetable group B (1/2 cup = 1 serving)		2 servings	1 serving	1 serving	3 servings
Other fruit (fresh or unsweetened canned or frozen)		1 serving	2 1/2 servings	2 1/2 servings	2 1/2 servings
Enriched or whole grain breadstuff or cereal (bread exchanges)	1 or more servings	1 serving	1 serving	1 serving	5 servings (one as potato)
Table fat or oils (fat exchanges)	1 or more teaspoons	...	1 1/2 servings	2 servings	...
	Plus other calories sufficient to maintain desirable body weight	...	...	...	...

* For definition of exchange see reference 20 or 21.

† Composition (approximate):

	Calories	Protein	Fat
Diet A	1000	80	45
Diet B	1200	90	60
Diet C	1400	90	80
Diet D	1400	95	45

‡ One serving of vegetable group A or B to be a green leafy or yellow vegetable.

patient and physician for removing excess weight quickly, our experience has shown that too low a caloric level is not desirable because the patient will supplement his intake as he chooses. We have obtained better results when the diet given was adequate to keep the patient reasonably comfortable. In such cases, if the patient is stable emotionally and personally motivated to lose weight, he is more apt to adhere to the prescribed regimen and lose weight. For women, the calorie prescription usually varies from 1,000 to 1,400, with the younger, more active women at the latter level. For men, 1,500 to 2,000 calories are frequently used, with 1,800 a common figure for men who have any physical activity. I prefer to start a patient at a fairly high caloric intake, try to get good cooperation and then adjust the caloric intake according to the weight loss of the patient.

There seems to be general agreement that a fairly high protein diet is more acceptable to the patient than one lower in protein.[15–19] The level usually suggested is 1 to 1.5 gm. per kg. of body weight. The high protein type of low caloric diet usually results in greater sense of well-being on the part of the patient, greater satisfaction, less between-meal hunger, less fatigue and a greater willingness to continue the diet. The reason for this is not clear al-

though many explanations have been offered.

Variation in the proportion of calories coming from fat and carbohydrate sources is one way in which a diet of a given caloric and protein level may be adjusted to the habits of the patient and also to the therapeutic plan of the physician. Using the basic normal diet pattern outlined earlier, the fat level may be varied by the use of whole or skim milk, fat or lean meat, or the amount of table spreads or oils given. The carbohydrate level can be varied easily by the amount of cereal and breadstuffs, and the type and quantity of fruits and vegetables prescribed (Table I).

An example of how a basic "normal" diet pattern may be modified to various levels of calorically restricted diets for women is given in Table I. Since the food exchange method for simplified diet calculations has been widely accepted, the quantities and classification of foods in the table are given in terms of the various food exchanges, namely: milk, meat, fruit, vegetable (group A and group B), bread and fat. For exchange possibilities within a food group and the quantities of each the reader is referred to either the original report[20] or Turner[21] for details. Diets A, B and C are illustrative of the changes incurred in a high protein diet by increasing calories from 1,000 to 1,400. The protein content at the 1,000 calorie level is approximately 80 gm.; at the 1,200 and 1,400 levels, 90 gm. It is difficult to obtain 90 gm. of protein from the usual food sources in this type of diet and keep the caloric level as low as 1,000 calories. The increase from 1,200 to 1,400 calories was accomplished by an increase in fat intake through the use of whole milk instead of skim milk, and slightly more table fat and oil. Diet C is essentially the moderate fat, high protein diet which we have used in much of our work and is based on the formula developed by Ohlson.[22] Diet D represents what can be accomplished with more or less the same caloric and protein levels but a lower fat diet. Here the calories from fat are reduced by the use of skim milk, only one egg and the elimination of table fats or oils. The calories are

* Approximately: 1400 calories; protein, 90 gm.; fat, 80 gm.; carbohydrate, 80 gm.

TABLE II
A Suggested Meal Pattern of High Protein, Moderate Fat Type*

Breakfast
- Citrus fruit juice: 1/2 cup; or 1 small orange, or 1/2 small grapefruit
- Eggs: two
- Bread (enriched or whole wheat): 1 thin slice
- Butter or fortified margarine: 1 level teaspoon
- Black coffee or tea: as desired

Lunch
- Meat (or exchange): 4 oz.
- Vegetable group A: up to 1 cup
- Butter, margarine or oil: 1 teaspoon
- Whole milk: 1 cup
- Fruit, fresh or unsweetened: 1/2 cup
- Black tea or coffee: as desired

Dinner
- Meat (or exchange): 4 oz.
- Vegetable group B: 1/2 cup
- Fruit, fresh or unsweetened: 1/2 cup
- Whole milk: 1 cup
- Black tea or coffee: as desired

Suggestions
- Many kinds of meats, fruits and vegetables may be used to give variety
- The foods listed may be used in various combinations to give variety

Meats
- Weights do not include bone
- Meats may be roasted, broiled, simmered, stewed, steamed or pan-broiled
- No fat or flour should be used in preparation unless taken from the meal pattern

Vegetables
- May be used cooked or raw
- Use green leafy or yellow vegetables at least once a day if possible
- Group A includes

Asparagus	Eggplant	Lettuce
String beans	Greens:	Mushrooms
Broccoli	Beet	Okra
Brussels sprouts	Swiss chard	Pepper
Cabbage	Collard	Radish
Cauliflower	Dandelion	Sauerkraut
Celery	Kale	Summer squash
Chicory	Mustard	Tomatoes
Cucumbers	Spinach	Water cress
Escarole	Turnip	

- Group B includes

Beets	Peas, green	Squash, winter
Carrots	Pumpkin	Turnip
Onions	Rutabaga	

Fruit
- Use only fresh fruit or unsweetened canned or frozen fruit
- One citrus fruit or its equivalent in ascorbic acid content should be used each day

Use only foods listed in pattern

Avoid any additional butter, margarine, fats, grains, salad dressing, flour or sugar other than that indicated in pattern

Seasonings, spices, black coffee, black tea, fat-free bouillon and lemon may be used as wished unless physician advises otherwise

replaced from sources of carbohydrate by a marked increase in the use of bread exchanges (including cereals, crackers, grains and the higher carbohydrate vegetables such as potatoes) and in the number of servings of B group vegetables (beets, carrots, onions, peas, rutabaga, winter squash and turnips). Obviously the use of the lower fat level will give a bulkier but to some a less palatable diet.

We have worked with many diets, each of which has proved satisfactory for at least some patients. In our experience the diet which has come close to fulfilling the criteria listed for the greatest number of patients has been the high protein, moderate fat, low carbohydrate diet developed by Ohlson[22] and similar to diet C in Table I. Table II gives a suggested meal pattern of the high protein, moderate fat type (diet C) along with suggestions to the patient for the use of this pattern.

In my experience, if the person did not have at least a reasonable degree of emotional stability and some motivation meaningful to him to make weight reduction worth the struggle, no diet no matter how carefully concocted was successful in bringing about weight loss. But given the stability and motivation, the diet plan which took reasonable account of his usual food habits had a better chance of success. The "reasonable account" factor includes not only the kind of food, but also its use and distribution over the twenty-four-hour period. In most cases there are certain periods during the day or evening when a person seems to find it necessary to eat. It is wise to take these into account in planning the distribution of his low calorie diet.

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