

Diet Therapy



PLANNING A RESTRICTED SODIUM DIET AND BLAND, LOW-FIBER DIET FOR THE DIABETIC PATIENT

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THE PLANNING of diets for diabetic patients was considerably standardized and simplified when in 1950 the report of a joint committee of the American Dietetic Association, the American Diabetes Association, and the Chronic Disease Program of the U. S. Public Health Service was presented.¹ This report was described in an earlier issue of this JOURNAL.² In planning the modern diabetic diet it has now become a widely accepted procedure to use the "Exchange Lists" developed by this committee.³

Using the exchange lists in meal planning for the diabetic patient allows him to have an adequate diet with a wide selection of foods. Six basic groups of foods have been described

which can be used to plan the day's meals.^{3,4} Table I gives the composition of these food exchanges. The foods included within each list are comparable in protein, fat, and carbohydrate values, thus allowing any food in a specific list to be used in the daily diet in the amounts specified in the basic plan. The basic plan for a patient should include at least the minimum amount of each of the groups of foods necessary for an adequate diet.

Nine basic plans of different caloric value (Table II) have been devised to be used in the planning of diets for both children and adults. Three of these plans numbers 7, 8 and 9 are new additions to the previously prepared materials. Outlines of these plans are available.⁵ These materials also appear in the second edition of the *Diabetes Guide Book for the Physician*⁶ published by the American Diabetes Association. It cannot be overemphasized, however, that it is absolutely essential that these plans not be given to a patient without adequate oral explanation. There is evidence to show that the degree to which a patient follows a diet is in proportion to the instruction which he has received. The ideal situation is to have the patient receive instruction from a dietitian or nutritionist until he is thoroughly familiar with all phases of his diet. The great majority of patients are unable to fully understand all the possibilities of their diets from printed instructions alone.

Sample meal plans were devised primarily for physicians who do not have available the services of a dietitian or nutritionist to help in

TABLE I
Composition of Food Exchanges

List	Food	Measures	g	Prot.	Fat	Carb.	Calories
1	Milk exchanges	1/2 pt	240	8	10	12	170
2a	Vegetable exchanges	as desired					
2b	Vegetable exchanges	1/2 cup	100	2		7	36
3	Fruit exchanges	varies				10	40
4	Bread exchanges	varies		2		15	68
5	Meat exchanges	1 oz	30	7	5		73
6	Fat exchanges	1 tsp	5		5		45

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TABLE II
Total Day's Food in Sample Meal Plans

Meal plan no.	Protein, g	Fat, g	Carbohydrate, g	Calories	Milk exchange (list 1)*	Vegetable exchanges		Fruit exchange (list 3)*	Bread exchange (list 4)*	Meat exchange (list 5)*	Fat exchange (list 6)*
						A (list 2)*	B (list 2)*				
1	60	50	125	1,200	1 pt	As desired	1	3	4	5	1
2	70	70	150	1,500	1 pt	As desired	1	3	6	6	4
3	80	80	180	1,800	1 pt	As desired	1	3	8	7	5
4	90	100	220	2,200	1 pt	As desired	1	4	10	8	8
5†	80	80	180	1,800	1 qt	As desired	1	3	6	5	3
6†	100	130	250	2,600	1 qt	As desired	1	4	10	7	11
7†	140	165	370	3,500	1 qt	As desired	1	6	17	10	15
8	115	130	250	2,600	1 pt	As desired	1	4	12	10	12
9	120	145	300	3,000	1 pt	As desired	1	4	15	10	15

* See *Meal Planning with Exchange Lists*.³

† These diets contain more milk and are especially suitable for children.

the basic planning of the day's diet for the patient. Again, it is more ideal, if at all possible, to make a basic plan to fit the needs of each individual patient, taking into consideration his hours of work, nationality, religious customs, and economic situation.

Table III reproduces from the Diabetic Diet Card for Physicians⁴ the rationale for the selection of the dietary prescription for the patient. It is to be noted that the caloric needs, based on actual weight in relationship to desired weight, activity, and body size, is the determining factor in the selection of a diet plan. It is to be further noted that the patient's weight should be followed regularly to determine whether or not the proper caloric level has been selected, and any necessary adjustments should be made accordingly.

Another point which should be emphasized at this time is that it is not necessary to weigh diabetic diets. Measurement by household measures is entirely adequate. The accuracy implied by weighing a diet in grams is not warranted. The composition of a specific food may vary sufficiently from the average figure given in food composition tables as to make such accurate weighing meaningless. Furthermore, the daily bodily requirements and utilization of food also fluctuate considerably depending upon various circumstances, but in particular, the activity and emotional state of the individual.

MODIFIED DIABETIC DIETS

The diabetic patient may have other compli-

cations along with his diabetes which are also amenable to further dietary modifications such as restriction of sodium or a bland, low-fiber diet. In order to simplify the planning of such combination diets, modifications of the exchange lists have been prepared.^{7,8,9} Modifications of the exchange lists for a restricted sodium diet and for a bland, low-fiber diet follow. These new modifications of the exchange lists should help considerably to eliminate confusion for the patient in attempting to make a dual modification of his diet.

MODIFICATIONS OF EXCHANGE LISTS TO PERMIT SODIUM RESTRICTION

Follow your "Meal Planning with Exchange Lists" with the changes listed below. *Add no salt in cooking or at the table.*

List 1—Milk Exchanges

Average sodium: 120 mg per Exchange (1/2 pt).

Up to 1 pt milk is allowed. If your diet calls for more than 1 pt milk, use low-sodium milk (a special commercial product). Avoid any foods prepared with milk unless taken from the amount allowed for the day.

List 2—Vegetable Exchanges

Average sodium: 9 mg per Exchange (1/2 cup).

Use only *fresh* vegetables unless you are certain no sodium has been added to the canned or frozen ones.

(A) Select *only* from the vegetables listed below:

Asparagus	Endive
Broccoli	Green beans
Brussels sprouts	Green peppers
Cabbage	Lettuce
Cauliflower	Mushrooms
Chicory	Okra
Cucumbers	Radishes
Escarole	Summer squash
Eggplant	Tomatoes
	Turnip greens

(B) All vegetables on this list are allowed *except* beets, carrots, and turnips.

List 3—Fruit Exchanges

Average sodium: 2 mg per Exchange.

All fruits are allowed. Raisins and dried figs have a higher sodium content than other fruits. Since the size serving allowed is small, they may be used.

List 4—Bread Exchanges

Average sodium: 5 mg per Exchange.

Use *only* home-made or bakery-made breads and rolls prepared without salt, milk, or salted fat. The following "quick breads" are permitted *provided* they are made with low-sodium baking powder: cornbread, rolls, muffins, and biscuits. Select *only* from the foods listed below:

Beans or peas, dried— $\frac{1}{2}$ cup cooked
 Corn, fresh or frozen (unsalted)— $\frac{1}{3}$ cup
 Grits— $\frac{1}{2}$ cup
 Lima beans, fresh— $\frac{1}{3}$ cup
 Macaroni— $\frac{1}{2}$ cup
 Matzoth, unsalted—1 (6 in. diameter)
 Muffets—1 biscuit
 Noodles— $\frac{1}{2}$ cup
 Oatmeal— $\frac{1}{2}$ cup
 Parsnips— $\frac{2}{3}$ cup
 Popcorn, unsalted— $1\frac{1}{2}$ cup
 Potato—1 (2 in. diameter)
 Puffed Rice— $\frac{3}{4}$ cup
 Puffed Wheat— $\frac{3}{4}$ cup
 Ralston— $\frac{1}{2}$ cup
 Rice— $\frac{1}{2}$ cup
 Shredded Wheat— $\frac{2}{3}$ biscuit
 Spaghetti— $\frac{1}{2}$ cup
 Sweet potato— $\frac{1}{4}$ cup
 Wheatena, regular— $\frac{1}{2}$ cup

List 5—Meat Exchanges

Average sodium: 25 mg per Exchange.

All varieties of meat, fish, or poultry are allowed *except* shellfish (clams, oysters, shrimp, lobster), brains, kidney, and heart. One egg a day is allowed. *Omit* all smoked, salt-cured, dried, canned, and kosher-cured meats or fish, including: cold cuts, frankfurters, sausage, ham, corned beef, and so on. *Omit* all types of cheese except "salt-free" cottage and Cheddar cheese. *Omit* peanut butter, unless it is a special, low-sodium variety. Low-sodium tuna fish and salmon are available in some stores.

List 6—Fat Exchanges

Average sodium: negligible.

All fats must be "salt free." Unsalted butter, margarine, fats, and oils are allowed. *Omit* bacon, salt pork, mayonnaise, salad dressings with added salt, salted nuts, and olives.

Condiments and Flavorings That May Be Used

Allspice	Horseradish	Pimento
Almond extract	root	Poppy seeds
Aniseed	Juniper	Poultry season-
Basil	Lemon juice	ing
Bay leaves	Mace	Purslane
Calcium Sucaryl	Marjoram	Rosemary
Caraway seeds	Mint	Saccharine
Cardamon	Mustard, dry	Saffron
Cinnamon	Onion juice,	Sage
Cocoa (1-2 tsp.)	fresh	Savory
Chili powder	Oregano	Sesame seeds
Chives	Paprika	Sorrel
Curry powder	Parsley	Tarragon
Dill	Pepper (black,	Thyme
Garlic	red, and	Tumeric
Ginger	white)	Vanilla extract
	Peppermint	Vinegar

Do Not Use These Foods

(for other restrictions, see notes above under separate Exchange Lists)

Baking powder	Mustard, prepared
Baking soda	Onion salt
Bouillon cubes	Pickles
Celery salt	Potato chips
Garlic salt	Pretzels
Horseradish, prepared	Relishes (commercial)
Ketchup	Salt (table)
Meat extracts	Self-rising flour
Meat sauces	Soups, canned
Monosodium glutamate	Worcestershire sauce

Also certain "stomach antacids," laxatives, and sedatives contain sodium and are not recommended.

Special Sodium-Restricted Dietetic Foods

Foods specially processed without salt or other sodium products for use with sodium-restricted diets are available. By law, the labels on these foods must state the amount of sodium in 100 g or for an average portion.

MODIFICATION OF EXCHANGE LISTS FOR BLAND, LOW-FIBER DIET

Follow your "Meal Planning with Exchange Lists" with the following changes:

List 1—Milk Exchanges

Allowed in amounts prescribed in diet. Any form of milk is desirable (1 oz Cheddar cheese and 2 soda crackers may be used for 1 cup [8 oz] milk).

List 2—Vegetable Exchanges

Omit raw vegetables. Use *only* vegetables in the following list:



(A) Asparagus tips	(B) Beets
Chard	Carrots
Spinach	Peas
Squash, summer (without seeds)	Pumpkin
String beans, young	Squash, winter
Tomato juice	
Tomato purée, unseasoned	

In special cases, the physician may recommend strained or puréed vegetables.

List 3—Fruit Exchanges

Fruits should be cooked or canned unsweetened. The only fresh fruits allowed are marked with an asterisk. Avoid all skins or seeds. Select *only* the fruits listed below in amounts given in the "Meal Planning" booklet.

Applesauce or baked apple	Grapefruit juice
Apricots, fresh	*Orange juice
Apricots, dried	Peach
*Banana	Pear
Cherries, canned	Pineapple juice
	Plums, canned
	Prunes

In special cases, the physician may recommend strained fruits.

List 4—Bread Exchanges

Only *white*, refined breads, cereals, or crackers are allowed. Potatoes, sponge cake, and ice cream in measured amounts are also allowed. *Omit* corn, parsnips, dried beans, and dried peas.

List 5—Meat Exchanges

Use only tender cuts (whole, ground, or chopped) of beef, veal, lamb, pork, chicken, or liver. The following fish are allowed: cod, haddock, halibut, and similar white fish; salmon; tuna; and shellfish. Eggs, Cheddar and cottage cheese, and creamy peanut butter are allowed. *Omit* cold cuts, frankfurters, and sausages.

List 6—Fat Exchanges

Butter, margarine, cream, cream cheese, and bacon are the only foods allowed on this list.

In special cases, your physician may wish to make recommendations regarding the use of fried foods, tea, coffee, meat broths, and highly seasoned foods.

SODIUM

The average sodium content of the various groups of foods in the exchange lists is indicated above and the average sodium content of the various plans is given in Table IV. Note that the milk and meat exchanges furnish the greatest amount of sodium. The sodium figures given for the various plans are on the

basis of one pint of regular milk. If more milk is allowed in the diet plan, then some

TABLE III
Selection of the Dietary Prescription

A dietary prescription is based on the caloric needs of the patients. Caloric requirements are influenced by present weight in relation to desirable weight, activity, and body size. It is recommended that the desirable weight table be used and that an appraisal be made of the usual amount of activity in which the patient is involved. Then, select the dietary prescription best suited for the patient.

Weight and activity of patient	Adults			
	Height below 5' 6"		Height above 5' 6"	
	Caloric prescription	Corresponding meal plan no.	Caloric prescription	Corresponding meal plan no.
Ideal weight				
Sedentary	1,800	3	2,200	4
Moderately active	2,600	8	3,000	9
Very active	3,000	9	3,500	7
Overweight				
Sedentary	1,200–1,500	1 or 2	1,500–1,800	2 or 3
Moderately active	1,800	3	2,200	4
Very active	2,200	4	2,600	8

Children

The selection of the dietary prescription for children is more difficult than for adults. Sufficient calories must be supplied for proper growth and development and to meet energy needs. Diets for children at different ages and with different caloric requirements can easily be developed by adding additional amounts of the food exchanges, especially the Bread and Meat Exchanges (lists 4 and 5) which provide approximately 70 calories per exchange.

Age of child	Caloric prescription	Corresponding meal plan no.
About 8 yr	1,800	5
10 to 12 yr and girls 13 to 18 yr	2,600	6
Boys 13 to 18 yr	3,500	7

It is most important to realize that a periodic check-up is the only way to determine whether the prescribed diet is meeting or exceeding the caloric needs of the patient. On the basis of this observation, adjustments in the caloric level of the diet may be needed.

TABLE IV
Average Sodium Content of Sample Meal Plans
1 through 9

Meal plan no.	Sodium content mg	Sodium chloride content g
1, 2, 3, and 4	400-500	1
5, 6, and 7	700-850	2
8 and 9	600	1½

form of low-sodium milk must be used. It is also noted that if a diet lower in sodium than that given for the plan is desired, a low-sodium milk may be used in place of regular milk. Since one pint of milk contains about 240 mg of sodium a considerable reduction in sodium is possible by this substitution. It should be pointed out, however, that low-sodium milks generally are quite unpalatable and such restricted diets are not easily followed by the patient. Furthermore, the rationale for such a restricted sodium regimen should be well considered by the physician before the diet is "inflicted" on a patient.

In planning a restricted sodium diet it is essential to avoid all sources of sodium. For example the water used in food preparation and for drinking should be analyzed. Some water supplies are naturally high in sodium while softened waters may be a considerable source of sodium and, if used, can make a well-planned restricted-sodium diet of no value for therapeutic purposes. Medications containing sodium, of course, cannot be used.

It is essential too to use only those foods listed in each of the modified exchange lists in the amounts allowed if the sodium level is to be maintained within the general range given for that diet plan. The lists compiled are based on figures from the National Academy of Sciences-National Research Council publication No. 325¹⁰ which also includes a complete discussion of sodium-restricted diets. This pamphlet is recommended reading for all physicians before prescribing a sodium-restricted regimen.

BLAND, LOW-FIBER DIETS

The modification of the exchange lists so that a bland, low-fiber diet may be planned,

as herein given, allows for a liberal interpretation of this regimen; the trend in the planning of this diet is in this direction. Individualization of this regimen is extremely important since foods found troublesome for one patient are not necessarily so for another. The degree to which the foods must be modified in form, i.e. puréed, strained, or chopped instead of left whole, will depend upon the condition of the patient and the discretion of the physician. The general principles of the bland, low-fiber diet as presently accepted however, should be borne in mind. These are that the bland regimen should be mechanically, chemically, and thermally non-irritating.¹¹ The modifications of the exchange lists are such as to carry out these principles. However, undue restrictions are to be avoided and the diet should be individualized to meet the patient's needs.

It should be kept in mind that either of these modifications of the diabetic diet, sodium restriction or bland, low-fiber, results in a considerable limitation in a patient's selection of foods. The patient needs much help and encouragement to carry out such restricted regimens.

SUMMARY

Additions to previously prepared meal-planning materials for diabetic patients have been made available. These include three sample meal plans at higher caloric values, and outlines for two modifications of the exchange lists so that sodium-restricted or bland, low-fiber regimens may be planned.

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