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Student Information Handout
Lesson 2

BLACKSBURG, VIRGINIA
SIX FOOD GROUPS

Diet plans for DEB are based on six food groups rather than the Four Food Groups system. Foods with similar amounts of carbohydrate, protein, and fat are grouped together. Foods within a group have similar calorie content and can be used interchangeably. There may be substantial differences in vitamin and mineral content of foods within a group, however.

The six food groups are the same as those used in planning diabetic diets. This classification of foods is frequently called an exchange system because foods within a food group can be exchanged or substituted for each other. For example, foods within the Meat Group are referred to as meat exchanges. One exchange of lean meat is 1 ounce of meat which has about 7 grams of protein and 3 grams of fat. If the diet plan calls for 3 meat exchanges for a meal, then the individual may choose 3 ounces of a single item on the Meat Group list or 2 ounces of one item and 1 ounce of another to equal the 3 exchanges. For instance, 3 ounces of beef may be chosen; or 3 ounces of fish; or 1/4 cup of tuna fish and 2 ounces of cheddar-type cheese, etc. Elimination of one or more food groups is not recommended because certain nutrients may be lacking in the diet.

Milk Group. One milk exchange contains about 12 grams of carbohydrate, 8 grams of protein, and a trace of fat. This is equivalent to 8 ounces or 1 cup of milk. In the Milk Group there is an exception to the rule that foods within a group may be exchanged or substituted without changing the calorie content. Eight ounces of whole milk has 10 grams of fat while skim milk has almost no fat. There are about half as many calories in an exchange of skim milk (80 calories) as in an exchange of whole milk (170 calories). Yogurt and milk with 2 percent butterfat have an intermediate number of calories (125 to 145 calories per 8-ounce cup). Two 8-ounce servings of milk will provide about three-fourths of the Recommended Dietary Allowance (RDA) of 800 mg calcium/day for adults. By selecting two servings of skim milk rather than whole milk the number of calories will be cut in half.

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<u>Food</u>	<u>Serving Size</u>
Non-Fat Fortified Milk	
Skim or non-fat milk	1 cup
Powdered (non-fat dry, before adding liquid)	1/3 cup
Canned, evaporated-skim milk	1/2 cup
Buttermilk made from skim milk	1 cup
Yogurt made from skim milk (plain, unflavored)	1 cup
Low-Fat Fortified Milk	
1% fat fortified milk	1 cup
(omit 1/2 Fat Exchange)	
2% fat fortified milk	1 cup
(omit 1 Fat Exchange)	
Yogurt made from 2% fortified milk (plain, unflavored)	1 cup
Whole Milk (Omit 2 Fat Exchanges)	
Whole milk	1 cup
Canned, evaporated whole milk	1/2 cup
Buttermilk made from whole milk	1 cup
Yogurt made from whole milk (plain, unflavored)	1 cup

Suggestions:

1. Reduce the number of calories per serving, use skim milk (less than 1% butterfat) or buttermilk (made with skim milk) rather than whole milk (3 to 4% butterfat).
2. Use reconstituted nonfat dry milk for cooking.

Meat Group. One exchange of lean meat contains about 7 grams of protein, 3 grams of fat, and a negligible amount of carbohydrate. This is equivalent to about 1 ounce of meat and has about 55 calories. Note that foods in the meat group are subdivided based on their fat content and that this affects fat exchanges allowed in the diet.

Cheese is included in the Meat Group rather than the Milk Group because cheese contains no carbohydrate but a similar amount of protein and fat as meat. Cheese does, however, provide calcium to the diet (1 ounce of Cheddar, Swiss, or American has 200 to 260 mg calcium; 1/4 cup cottage cheese has about 55 mg calcium).

	<u>Food</u>	<u>Serving Size</u>
	Lean Meat (1 Exchange has 55 calories)	
Beef:	Baby Beef (very lean), Chipped Beef, Chuck, Flank Steak, Tenderloin, Plate Ribs, Plate Skirt Steak, Round (bottom, top), All cuts Rump, Spare Ribs, Tripe	1 oz.
Lamb:	Leg, Rib, Sirloin, Loin (roast and chops), Shank, Shoulder	1 oz.
Pork:	Leg (Whole Rump, Center Shank), Ham, Smoked (center slices)	1 oz.
Veal:	Leg, Loin, Rib, Shank, Shoulder, Cutlets	1 oz.
Poultry:	Meat without skin of Chicken, Turkey, Cornish Hen, Guinea Hen, Pheasant	1 oz.
Fish:	Any fresh or frozen	1 oz.
	Canned Salmon, Tuna, Mackerel, Crab and Lobster, Clams, Oysters, Scallops, Shrimp, Sardines, drained	1/4 cup 5 or 1 oz. 3
	Cheeses containing less than 5% butterfat	1 oz.
	Cottage Cheese, Dry and 2% butterfat	1/4 cup
	Dried Beans and Peas (omit 1 Bread Exchange)	1/2 cup

<u>Food</u>	<u>Serving Size</u>
Medium Fat-Meat (1 Exchange has approximately 75 calories) For each exchange of medium-fat meat, omit 1/2 fat exchange.	
Beef: Ground (15% fat), Corned Beef (canned, Rib Eye, Round (ground commercial)	1 oz.
Pork: Loin (all cuts Tenderloin), Shoulder Arm (picnic), Shoulder Blade, Boston Butt, Canadian Bacon, Boiled Ham	1 oz.
Liver, Heart, Kidney and Sweetbreads (these are high in cholesterol)	1 oz.
Cottage Cheese, creamed	1/4 cup
Cheese: Mozzarella, Ricotta, Farmer's cheese, Neufchatel, Parmesan	1 oz. 3 Tbsp.
Egg (high in cholesterol)	1
Peanut Butter (omit 2 additional Fat Exchanges)	2 Tbsp.
High-Fat Meat (1 Exchange has approximately 100 calories) For each exchange of high-fat meat, omit 1 fat exchange.	
Beef: Brisket, Corned Beef (Brisket), Ground Beef (more than 20% fat), Hamburger (commercial), Chuck (ground commercial), Roasts (Rib), Steaks (Club and Rib)	1 oz.
Lamb: Breast	1 oz.
Pork: Spare Ribs, Loin (Back Ribs), Pork (ground), Country style Ham, Deviled Ham	1 oz.
Veal: Breast	1 oz.
Poultry: Capon, Duck (domestic), Goose	1 oz.
Cheese: Cheddar Types	1 oz.
Cold Cuts	4½"x 1/8" slice
Frankfurter	1 small

Suggestions:

1. Cook meat, poultry, and fish by roasting, broiling, charcoaling, or stewing. Lemon juice, tomato juice, herbs, and spices add flavor and variety.
2. Cook eggs in shell or by poaching; scramble or fry only if some of planned fat allowance is used.
3. Choose the lean cuts of meat and cut off all visible fat from meat before cooking. Do not cook with added fat unless a planned fat exchange is used.
4. Remove the skin from poultry before eating as the fat is attached to the skin.
5. Buy water-packed canned fish, or rinse oil-packed fish with hot water before using.

Fruit Group. One fruit exchange contains about 10 grams of carbohydrate, negligible amounts of protein and fat and 40 calories. The size of the serving for one fruit exchange varies for different fruits as is shown in the list below.

<u>Food</u>	<u>Serving Size</u>	<u>Food</u>	<u>Serving Size</u>
Apple	1 small	Mango	1/2 small
Apple Juice	1/3 cup	Melon	
Applesauce (unsweetened)	1/2 cup	Cantaloupe**Δ	1/4 small
Apricots, freshΔ	2 medium	Honeydew	1/8 medium
Apricots, driedΔ	4 halves	Watermelon	1 cup
Banana	1/2 small	Nectarine	1 small
Berries		Orange**	1 small
Blackberries	1/2 cup	Orange Juice**	1/2 cup
Blueberries	1/2 cup	Papaya	3/4 cup
Raspberries	1/2 cup	Peach	1 medium
Strawberries**	3/4 cup	Pear	1 small
Cherries	10 large	Persimmon, native	1 medium
Cider	1/3 cup	Pineapple	1/2 cup
Dates	2	Pineapple Juice	1/3 cup
Figs, fresh	1	Plums	2 medium
Figs, dried	1	Prunes	2 medium
Grapefruit**	1/2	Prune Juice	1/4 cup
Grapefruit Juice**	1/2 cup	Raisins	2 tablespoons
Grapes	12	Tangerine**	1 medium
Grape Juice	1/4 cup		

Vegetable Group. One vegetable exchange contains about 5 grams of carbohydrate, 2 grams of protein and 25 calories. One exchange is equivalent to 1/2 cup. This list shows the kinds of vegetables to use for one vegetable exchange.

Asparagus	Greens:
Bean Sprouts	Mustard
Beets	Spinach
Broccoli**Δ	Turnip
Brussels Sprouts**	Mushrooms
Cabbage**	Okra
CarrotsΔ	Onions
Cauliflower**	Rhubarb
Celery	Rutabaga
Cucumbers	Sauerkraut**
Eggplant	String Beans, green or yellow
Green Pepper**	Summer Squash
Greens:**Δ	Tomatoes**Δ
Beet	Tomato Juice
Chards	Turnips
Collards	Vegetable Juice Cocktail
Dandelion	Zucchini
Kale	

The following raw vegetables may be used as desired:

Chicory	Lettuce
Chinese Cabbage	Parsley
EndiveΔ	Radishes
EscaroleΔ	Watercress

Starchy Vegetables are found in the Bread Exchange List.

Suggestions for Fruit and Vegetable Groups:

1. Use only fresh, dried, unsweetened canned (juice or water pack), or unsweetened frozen fruits. Read the label of canned fruits to determine whether a water-pack, juice-pack, or sugar syrup was used. The words dextrose, dextrin, sucrose, maltose, and corn syrup indicate that sugar has been added. A light syrup has less sugar in a given volume than heavy syrup. If a juice pack or water pack is not available or is too costly, then consider buying canned fruits in light syrup and rinsing the syrup from the fruit before use.
2. The starred(**) fruits and vegetables are excellent sources of vitamin C. At least one serving of vitamin C source should be used each day.
3. Fruits marked with a triangular symbol (Δ) are good sources of vitamin A. Include a food rich in vitamin A every day or two.
4. Fruits and vegetables serve as a source of necessary fiber and roughage in the diet.
5. Cook vegetables in water, consomme, bouillon, or clear broth.
6. Use combinations of cooked or raw vegetables and fruits as salads or snacks. Season with herbs, spices, vinegar, lemon juice, low-calorie salad dressings, or your planned fat exchange to add variety and flavor.

Bread Group. (Includes Bread, Cereal, and Starchy Vegetables). One bread exchange contains about 15 grams of carbohydrate, 2 grams of protein, a negligible amount of fat, and 70 calories.

<u>Food</u>	<u>Serving Size</u>	<u>Food</u>	<u>Serving Size</u>
Bread		Dried Beans, Peas, and Lentils	
White (including French and Italian)	1 slice	Beans, Peas, Lentils (dried and cooked)	1/2 cup
Whole Wheat	1 slice	Baked Beans, no pork (canned)	1/4 cup
Rye or Pumpernickel	1 slice		
Raisin	1 slice	Starchy Vegetables	
Bagel, small	1/2	Corn	1/3 cup
English Muffin, small	1/2	Corn on Cob	1 small
Plain Roll, bread	1	Lima Beans	1/2 cup
Frankfurter Roll	1/2	Parsnips	2/3 cup
Hamburger Bun	1/2	Peas, Green (canned or frozen)	1/2 cup
Dried Bread Crumbs	3 Tbsp.	Potato, White	1 small
Tortilla, 6"	1	Potato (mashed)	1/2 cup
		Pumpkin	3/4 cup
Cereal		Winter Squash, Acorn or Butternut	1/2 cup
Bran Flakes	1/2 cup	Yam or Sweet Potato	1/4 cup
Other ready-to-eat unsweetened Cereal	3/4 cup		
Puffed Cereal (unfrosted)	1 cup	Prepared Foods	
Cereal (cooked)	1/2 cup	Biscuit 2" dia. (omit 1 Fat Exchange)	1
Grits (cooked)	1/2 cup	Corn Bread, 2"x2"x1" (omit 1 Fat Exchange)	1
Rice or Barley (cooked)	1/2 cup	Corn Muffin, 2" dia. (omit 1 Fat Exchange)	1
Pasta (cooked)	1/2 cup	Crackers, round butter type (omit 1 Fat Exchange)	5
Spaghetti, Noodles, Macaroni		Muffin, plain small (omit 1 Fat Exchange)	1
Popcorn (popped, no fat added)	3 cups	Potatoes, French Fried, length 2" to 3½"	8
Cornmeal (dry)	2 Tbsp.	(omit 1 Fat Exchange)	
Flour	2½ Tbsp.	Potato or Corn Chips (omit 2 Fat Exchanges)	15
Wheat Germ	1/4 cup	Pancake, 5"x1/2" (omit 1 Fat Exchange)	1
		Waffle, 5"x1/2" (omit 1 Fat Exchange)	1
Crackers			
Arrowroot	3		
Graham, 2½" sq.	2		
Matzoth, 4"x6"	1/2		
Oyster	20		
Pretzels, 3 1/8" long x 1/8" dia.	25		
Rye Wafers, 2"x3½"	3		
Saltines	6		
Soda, 2½" sq.	4		

Suggestions:

1. Vegetables appearing in the bread and cereal group have a greater percentage of carbohydrate than vegetables in the vegetable group.
2. The bread and cereal group should not be avoided. Enriched and whole grain products contribute small but important amounts of iron, B-vitamins, and protein to the diet.
3. Try a variety of breads such as whole wheat, rye, raisin, etc. Cinnamon toast made with cinnamon and a sugar substitute adds flavor and variety.
4. Cook starchy vegetables, rice, noodles, macaroni, and spaghetti with clear broth, consomme, bouillon, or water.
5. Use only planned fat exchanges for seasoning or as a spread.

Fat Group. One fat exchange contains about 5 grams of fat negligible amounts of carbohydrate and protein and 45 calories. One exchange or serving is equivalent to 1 teaspoon of butter or margarine. Note the difference in the serving size for other foods in the fat group.

<u>Food</u>	<u>Serving Size</u>
Margarine, soft, tub or stick	1 teaspoon
Avocado (4" in diameter)	1/8
Oil, Corn, Cottonseed, Safflower, Soy, Sunflower	1 teaspoon
Oil, Olive	1 teaspoon
Oil, Peanut	1 teaspoon
Olives	5 small
Almonds	10 whole
Pecans	2 large whole
Peanuts	
Spanish	20 whole
Virginia	10 whole
Walnuts	6 small
Nuts, other	6 small
Margarine, regular stick	1 teaspoon
Butter	1 teaspoon
Bacon fat	1 teaspoon
Bacon, crisp	1 strip
Cream, light	2 tablespoons
Cream, sour	2 tablespoons
Cream, heavy	1 tablespoon
Cream Cheese	1 tablespoon
French dressing	1 tablespoon
Italian dressing	1 tablespoon
Lard	1 teaspoon
Mayonnaise	1 teaspoon
Salad dressing, mayonnaise type	2 teaspoons
Salt pork	3/4 inch cube

Suggestions:

1. All fatty foods are high in calories. Therefore, fat intake should be reduced but not eliminated on a weight reduction diet. Vegetable fats contain fatty acids which are essential to the body.
2. You may use your planned fat allowances for seasonings, spreads, salads, and cooking. Salad dressing has less fat and fewer calories than mayonnaise. Therefore, 1 fat exchange is 2 teaspoons of salad dressing or 1 teaspoon of mayonnaise. Remember to measure fat exchanges.
3. For food preparation, try spray coatings or non-stick cookware.

Free Foods. The following food items contain negligible amounts of carbohydrate, protein, and fat, and therefore few or no calories. The foods may be used in ordinary amounts as desired.

Food

Coffee	Lemon juice
Tea	Mustard
Clear broth	Pickles, sour or dill
Bouillon	Sugar substitutes
Consomme	Spices and herbs
Gelatin, unsweetened	Vinegar

The following list is a simplified guide for counting calories from the food groups.

<u>FOOD GROUPS</u>	<u>CALORIES/SERVING</u>	<u>APPROXIMATE SERVING SIZE</u>
Group 1 Milk, whole	170	8 oz. or 1 cup
Milk, skim	80	
Group 2 Meat	55-100 depending on fat content	1 oz.
Group 3 Fruit	40	Varies with the fruit
Group 4 Vegetable	25	1/2 cup
Group 5 Bread and Cereal	70	1 slice
Group 6 Fat	45	1 teaspoon

EXTRA CALORIES

<u>Beverages</u>	<u>Serving Size</u>	<u>Calories</u>
Cola type	8 oz.	95
Gingerale	8 oz.	80
Low-calorie, artificially sweetened drinks	8 oz.	4 (check (label)
Lemonade	8 oz.	110

<u>Alcoholic Beverages</u>	<u>Serving Size</u>	<u>Calories</u>
Table wine (champagne, sauterne, etc.)	4 oz.	84
Dessert wine (port, muscatelle, sherry)	4 oz.	170
Beer (3.6% alcohol)	8 oz.	114
Whiskey, gin, rum, vodka (86 Proof)	1½ oz.	105
Whiskey, gin, rum, vodka (100 Proof)	1½ oz.	125
<u>Breads</u>		
Danish pastry	1 small	148
Doughnut (cake type, plain)	1 average	125
Doughnut (raised type, yeast)	1 average	125
Southern cornbread	2" square	95
Pizza (cheese)	5, ½" sector; 1/8 of 14" diameter pie	185
<u>Desserts and Other Sweets</u>		
<u>Cakes</u>		
Anglefood	1/12 of 10" diameter cake	135
Cupcakes (without icing)	1 of 2½" diameter	90
Chocolate cake (with chocolate icing)	1/16 of 2 layer 9" diameter	235
Gingerbread	1/9 of 8" square	175
Boston cream pie	1/12 of 8" diameter	210
Yellow cake (without icing)	1/16 of 2 layer 9"	200
Yellow cake (with icing)	1/16 of 2 layer 9"	275
Pound	1/2" piece of 8½"x3½" loaf	140
Sponge	1/12 of 10" diameter	195
<u>Cookies</u>		
Brownie	2x2x3/4"	146
Chocolate chip	1	50
Fig bars	1	50
Sandwich, chocolate or vanilla	1	50
<u>Pies</u>		
Apple	1/6 of 9" pie	410
Blueberry	1/6 of 9" pie	387
Cherry	1/6 of 9" pie	418
Chocolate meringue	1/6 of 9" pie	378
Custard	1/6 of 9" pie	327
Lemon meringue	1/6 of 9" pie	357
Mince	1/6 of 9" pie	434
Peach	1/6 of 9" pie	421
Pecan	1/6 of 9" pie	668
Pineapple	1/6 of 9" pie	404
Pumpkin	1/6 of 9" pie	317
Raisin	1/6 of 9" pie	325
Rhubarb	1/6 of 9" pie	405
Strawberry (1 crust)	1/6 of 9" pie	228

<u>Other Desserts</u>	<u>Serving Size</u>	<u>Calories</u>
Bread pudding (with raisins)	3/4 cup	314
Vanilla cornstarch pudding	1/2 cup	142
Chocolate cornstarch pudding	1/2 cup	193
Pudding and Pie filling (made with whole milk)	1/2 cup	180
Rice pudding (with raisins)	3/4 cup	212
Sweetened gelatin	1/2 cup	70
Ice cream, plain	1/2 cup	127
Ice milk, hardened	1/2 cup	100
Ice milk, soft serve	1/2 cup	132
Baked custard	1/2 cup	150
Sherbet	1/2 cup	130
<u>Candy</u>		
Caramels	1 oz.	115
Milk chocolate	1 oz.	145
Chocolate-coated peanuts	1 oz.	160
Mints	1 oz.	105
Fudge	1 oz.	115
Gum drops	1 oz.	100
Hard candy	1 oz.	110
Chocolate-flavored syrup:		
(thin type)	1 fl. oz.	90
(fudge type)	1 fl. oz.	125
Honey	1 Tbsp.	65
Jams and preserves	1 Tbsp.	55
Jellies	1 Tbsp.	50
Molasses	1 Tbsp.	50
White granulated sugar	1 Tbsp.	40
<u>Nuts</u>		
Almonds	4 Tbsp.	212
Cashew nuts	4 Tbsp.	196
Coconut, shredded	4 Tbsp.	112
Peanuts	4 Tbsp.	210
Peanut butter	4 Tbsp.	95
Pecans	4 Tbsp.	185
Walnuts	4 Tbsp.	198

Note: Calorie values will vary from one food composition book to another. These values give you the approximate caloric value of a food.