

Medi-Cal Nutritional Supplement TM

Weight Loss Manual

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CHAPTER ONE HOW TO USE THE MEDI-CAL NUTRITIONAL SUPPLEMENT

The Medi-Cal Nutritional Supplement is a very high quality protein supplement that contains all of the essential amino acids, vitamins, and minerals to maintain good health. You cannot find a better protein supplement anywhere. The value of high protein diets in aiding weight reduction has been well established. High protein diets result in a more rapid and greater weight loss, and high protein diets result in less hunger as well.

There are many different ways that the Medi-Cal supplement can be used. For example, under the supervision of a trained health care provider, the supplement can be used in a **Protein-Sparing Modified Fast** or as part of a **Very Low Calorie Diet (VLCD)**. In a protein-sparing modified fast, five servings of the Medi-Cal supplement are consumed daily along with substantial amounts of non-caloric liquids to maintain hydration. In this type of use only about 450 calories are consumed daily, but because of the high quality protein being consumed, muscle mass is maintained. Under supervision this type of use results in rapid loss of large amounts of weight.

The VLCD is a daily diet of 800 calories or less, and also results in a rapid weight loss. The VLCD diet could be accomplished by consuming the Medi-Cal supplement 3 times daily, and adding a 500 to 600 calorie meal once daily. Although a VLCD diet is quite safe, you should consult your health care provider to make certain there are no reasons you could not start a VLCD. The advantage of using the Medi-Cal supplement three to four times daily under such a scenario is again a more rapid weight loss because of the high quality, high protein content of the diet and the lack of hunger that is usually experienced when consuming a high protein diet.

There has been recent interest in using a high quality protein supplement exclusively for two days weekly, and on the other days consuming a normal (although healthy) diet. For example, on Mondays and Thursdays, an individual might consume only the Medi-Cal Nutritional Supplement five times daily, and on the other five days consume a normal healthy diet. Most individuals using this method will lose a reasonable amount of weight on a weekly basis, assuming the "normal" days are healthy reasonable diets.

Many individuals find that using the Medi-Cal Nutritional Supplement as part of a weight maintenance program is very beneficial and improves the success rate of maintaining the weight loss that had been previously accomplished. For example, using the Medi-Cal supplement as part of a 1200 calorie maintenance diet twice daily would allow for one or two good meals daily.

In summary, the Medi-Cal Nutritional supplement can be used very successfully as part of a weight reduction as well as a weight maintenance program. The benefits of this supplement are more rapid weight loss and decreased hunger. It should be stressed

that if you are consuming less than 800 calories on a daily basis, you should consult a health care provider who has knowledge of these low calorie diets, and the Medi-Cal Nutritional supplement ***should not be used as a sole source of nutrition without being followed by a health care provider trained in a protein-sparing modified fast.***

The remainder of this manual will educate you regarding the problems of obesity as well as show you how to construct a good diet plan to aid you in achieving and maintaining an ideal weight for the rest of your life. Read it, learn it! You will increase your chances of success immeasurably.

CHAPTER TWO OBESITY AND ITS COMPLICATIONS

Obesity is the most common metabolic disorder in humans. Obesity by itself reduces the quality of life by causing many serious medical problems, including coronary heart disease, high cholesterol and triglyceride levels, gallstones, diabetes mellitus, hypertension, degenerative arthritis, and a number of less serious medical problems. Furthermore, the obese individual with cardiovascular disease, diabetes, gallstones and other surgical diseases is more likely to die from these illnesses than the lean individual with the same problem.

It is clear that a wide variety of social and cultural factors contribute to the high caloric consumption of Americans. For example it is well-documented that television advertising has had a striking impact on the eating behavior of Americans, particularly children. During weekdays 70% of television food ads are devoted to high-fat, high caloric foods. In addition there are tremendous forces in our culture that influence us to expend fewer calories. For example, walking is rarely a means of transportation; if the destination is only a few blocks away, most Americans travel those few blocks by automobile.

Because obesity results directly in so many prevalent medical conditions, the elimination of obesity would have a tremendous impact on the American economy. For example, 75 percent of the 20 plus million diabetic individuals in this country are obese. Of these obese diabetic individuals, three quarters would be cured if they were able to achieve an ideal body weight. This would save the American economy over seven billion dollars annually in medical bills alone!

The insurance industry has also shown that obesity is a cause for premature death. Obese young men have 12 times the risk of dying compared to lean young men. This risk declined with age, but even the obese 70-year-old individual has twice the chance of dying sooner than the lean 70 year old individual.

It has long been demonstrated that obesity tends to be inherited and obese parents have obese children. However, the relative contributions of genetic factors versus environmental factors have been an issue of considerable debate.

We do know that there are several rare disorders in humans that are strictly inherited and which result in obesity. But for the vast majority of obese humans, the genetic factors are complex and poorly understood. Numerous population studies have shown that about two thirds of obese individuals have at least one obese parent, and that one quarter of obese individuals have two obese parents. Conversely, when both parents are thin, less than 10% of children are overweight. When one parent is obese, half of the children are obese, and when both parents are obese, 80% of their offspring will be obese! Studies of twins also demonstrate the importance of genetic factors. For

example, identical twins are both much more likely to become obese than nonidentical twins. Finally, several adoption studies have demonstrated the importance of genetic determinants for obesity. For example, an adopted child is much more likely to be obese if his natural parents are obese, even if the adoptive parents are thin. Thus, genetic factors are important. But having obese parents does not mean that you are predestined to be obese. You can be thin by adhering to the principles outlined in this manual.

It has been suggested and there is evidence that the number of fat cells is determined and fixed in early life. Studies have shown that there are two periods of fat cell formation, the first during the first two years of life, and a second just before puberty. It has been shown in animals that overfeeding in early life results in increased numbers of fat cells which are permanent and cannot be eliminated even with strict dieting.

Obesity that occurs later in life results because from an increase in the size of the fat cells that are present, while the numbers of fat cells remain the same. It has been thought that this is the reason that adult onset obesity can be reversed, while childhood-onset obesity is very difficult to reverse.

The set-point hypothesis states that like other body functions such as temperature, animals and humans attempt to maintain body weight at a constant level. There is considerable evidence in laboratory animals that supports this hypothesis. For example, rats that are made obese by force-feeding will quickly return to their original weight when placed on a free diet. When human volunteers are force-fed to increase their body weight, many are unable to gain weight despite ingestion a very large numbers of calories. Those who do gain weight quickly return to their baseline weights when placed on a free diet.

The converse has also been demonstrated. Obese animals and humans placed on a restricted diet with resultant weight-loss will quickly return to their original weight when placed on a free diet. It should be emphasized, however, that weight gain is not inevitable if new eating behaviors are continued.

The mechanisms whereby body weight is maintained at a "set-point " are poorly understood, but probably involve alterations in energy expenditure and behaviors that increase calorie intake. For example, it is typical for dieting individuals to demonstrate behavioral changes that affect food intake, including anxiety, depression, and preoccupation with food. In addition, it has been clearly shown that when individuals begin to consume excessive numbers of calories, there is an increase in energy expenditure, exclusive of physical activity. However, when obese individuals consume low-calorie diets, there is a decreasing energy expenditure, again exclusive of physical activity, making it more difficult to achieve and sustain weight loss.

It is clear that obesity occurs not just because of poor eating habits but also because there is a defect in calorie expenditure. That is, many obese individuals have a low metabolism that predisposes them to obesity making it difficult to lose weight even on

low-calorie diets. In fact, although it is clear that obesity arises from a situation where energy intake exceeds energy output over a long period of time, it is actually difficult to demonstrate in humans that this imbalance results from excessive caloric intake. Most dietary surveys in humans have failed to demonstrate an abnormal food intake in obese individuals. One reason for the failure to demonstrate overeating as a cause of obesity may be that the energy imbalance required to cause obesity is extremely small. For example, by increasing calorie intake by only 5%, an average 160 pound man would be expected to gain 15 pounds over a one year period. So that very small increases in consumption which is difficult to measure and estimate from a diary can, over time, result in obesity.

CHAPTER THREE WHAT IS OBESITY

There is no problem in recognizing that the 300 pound individual is obese. The definition of lesser degrees of obesity is more difficult. What is the dividing line between being overweight and being obese. Obesity is defined as an overweight condition that is associated with many of the illness and increased death rates previously described. This usually occurs when an individual is over 20 percent above ideal body weight. The following table demonstrates how ideal body weight is simply calculated:

MEN	WOMEN
106 pounds for the first 60 inches	100 pounds for the first 60 inches
6 pounds for each inch over 60 inches	5 pounds for each inch over 60 inches

If the individual is of a large build, 10 percent is added to the ideal weight. If the individual is of small build, 10 percent is subtracted. For example, a 5 foot, 7 inch woman of average build should have an ideal body weight of about 135 pounds. If she were 162 pounds (20 percent over 135 pounds) or over, she would be classified as obese. A 5 foot 10 inch man of large build would have an ideal body weight of 183 pounds (106 pounds for the first 60 inches and 60 pounds for the additional 10 inches, plus 17 pounds allowed for the large build). This same man would be classified obese if he weighed 220 pounds or more.

The following tables, adapted from Metropolitan Life Insurance Company, give the ranges for acceptable weights relative to heights. These tables are for adults aged 25 to 60 years and heights are measured while wearing one inch heel shoes.

Height & Weight Table For Women¹

Height Feet Inches	Small Frame	Medium Frame	Large Frame
4' 10"	102-111	109-121	118-131
4' 11"	103-113	111-123	120-134
5' 0"	104-115	113-126	122-137
5' 1"	106-118	115-129	125-140
5' 2"	108-121	118-132	128-143
5' 3"	111-124	121-135	131-147
5' 4"	114-127	124-138	134-151
5' 5"	117-130	127-141	137-155
5' 6"	120-133	130-144	140-159
5' 7"	123-136	133-147	143-163
5' 8"	126-139	136-150	146-167
5' 9"	129-142	139-153	149-170
5' 10"	132-145	142-156	152-173
5' 11"	135-148	145-159	155-176
6' 0"	138-151	148-162	158-179

Weights at ages 25-59 based on lowest mortality. Weight in pounds according to frame (in indoor clothing weighing 3 lbs.; shoes with 1" heels)

Height & Weight Table For Men2

Height Feet Inches	Small Frame	Medium Frame	Large Frame
5' 2"	128-134	131-141	138-150
5' 3"	130-136	133-143	140-153
5' 4"	132-138	135-145	142-156
5' 5"	134-140	137-148	144-160
5' 6"	136-142	139-151	146-164
5' 7"	138-145	142-154	149-168
5' 8"	140-148	145-157	152-172
5' 9"	142-151	148-160	155-176
5' 10"	144-154	151-163	158-180
5' 11"	146-157	154-166	161-184
6' 0"	149-160	157-170	164-188
6' 1"	152-164	160-174	168-192
6' 2"	155-168	164-178	172-197
6' 3"	158-172	167-182	176-202
6' 4"	162-176	171-187	181-207
Weights at ages 25-59 based on lowest mortality. Weight in pounds according to frame (in indoor clothing weighing 5 lbs.; shoes with 1" heels)			

Body Mass Index (BMI) is another measure of body fat and is used by many professionals to define various weight categories. The formula for BMI is:

Measurement Units	Formula and Calculation
Kilograms and meters (or centimeters)	<p>Formula: $\text{weight (kg)} / [\text{height (m)}]^2$</p> <p>With the metric system, the formula for BMI is weight in kilograms divided by height in meters squared. Since height is commonly measured in centimeters, divide height in centimeters by 100 to obtain height in meters.</p> <p>Example: Weight = 68 kg, Height = 165 cm (1.65 m)</p> <p>Calculation: $68 \div (1.65)^2 = 24.98$</p>
Pounds and inches	<p>Formula: $\text{weight (lb)} / [\text{height (in)}]^2 \times 703$</p> <p>Calculate BMI by dividing weight in pounds (lbs) by height in inches (in) squared and multiplying by a conversion factor of 703.</p> <p>Example: Weight = 150 lbs, Height = 5'5" (65")</p> <p>Calculation: $[150 \div (65)^2] \times 703 = 24.96$</p>

The weight status categories associated with BMI ranges for adults are shown in this next table:

BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0 and Above	Obese

The following link allows you to easily calculate your BMI: bmi-facts.org/bmi_calculator

CHAPTER FOUR PRINCIPLES OF WEIGHT CONTROL

Obesity has become a medical problem of growing concern in the United States for reasons discussed in the previous section. Major changes in the food consumption and physical activity of Americans over the past century have helped contribute to the increasing prevalence of obesity. We currently have more leisure time, do less physical work, eat more meals away from home, particularly high-fat content fast foods, and eat more convenience foods at home. This combination of excessive sugar, fat and calories along with decreased physical activity frequently leads to obesity, particularly if there is a genetic predisposition for obesity.

The hazards of being obese are numerous, including diabetes mellitus, heart disease, and high blood pressure. Seventy percent of newly diagnosed diabetic individuals are overweight. In addition, obesity results in stress on large joints such as the knees, ankles, hips, and obese individuals suffer more traumatic injuries because they are less agile. Thankfully these complications could be substantially reduced with weight-loss. Food habits are all important in achieving weight control. Foods that are high in fat and therefore high caloric are responsible for most obesity in this country.

The Three Requirements for Long-Term Weight Reduction

- ..Decreased Calories**
- ..Increased Physical Activity**
- ..Modification of Eating Behavior**

Activity patterns can also influence the development of obesity and your ability to lose weight and maintain weight loss. As people age, calorie requirements lessen because of the decreased activity levels and lowered metabolism. Eating habits, however, frequently do not change with age, and therefore high calorie intake with decreasing calorie expenditure from decreased activity and lower metabolism results in substantial weight gain. Eating habits developed when young may, therefore, need to be adjusted in order to compensate for the decreased activity patterns and lowered metabolism if weight gain is to be avoided.

Another influence on weight is psychological factors. Many people seek comfort from food. It is common to eat out of boredom or when depressed, sad, or lonely.

The important constituents of any weight reduction program include restriction of calories, increased exercise, and behavior modification to maintain achieved weight-loss.

Calorie control or restriction is necessary for weight loss, and it is important that you understand how to count calories. To lose 1 pound of fat requires burning off 3,500 calories more than consumed. To lose 1 pound per week requires burning off 500 cal more than are consumed on a daily basis. If you eat only a 100 extra calories daily, a 10 pound weight gain will occur over the next year.

A calorie is a unit of measure that is used to describe the energy value available from food. The energy or calorie requirement of a person depends upon basal metabolism and physical activity.

Basal metabolism is a minimum amount of energy in calories needed by the body at total rest. Even at total rest, we need calories to keep our organs working -- to keep our heart beating, our brain thinking, and our intestines contracting. Physical activity increases the number of calories needed. The calories used by physical activity depend upon body size and the type and amount of physical activity performed.

Three Ways to Lose Weight

- .Decrease Calorie Intake**
- .Increase Physical Activity**
- .Both Decrease Calorie Intake and Increase Physical Activity**

To maintain weight at a constant level, the calories consumed must equal the calories burned. If we eat more calories than we burn, then there is weight gain. To lose weight we must eat fewer were calories than we burn. Obviously this can be accomplished in three ways: one, decrease calorie intake; second, increase calorie expenditure or exercise; or three preferably a combination of decreased calorie intake and increased calorie expenditure.

You can determine the approximate number of calories that you will need to maintain your weight at an ideal body weight by multiplying your ideal body weight (which you can determine from the formula provided in the previous section) by the calories needed per pound (which depends upon the level of your general physical activity and is outlined in the following table):

	Calories Needed per pound for less than 55 years of age	Calories need per pound for greater than 55 years of age
Sedentary Individual Light housework, sitting watching TV or movies, reading or office work	12	11
Moderately Active (at least two hours daily) Walking, scrubbing, sweeping, light gardening, lawn mowing, golf, softball, volleyball	15	14
Strenuously Active (at least two hours daily) running, bicycling, fast dancing, cross country skiing, ditch digging, chopping wood, shoveling, heavy labor	18-20	17-19

To lose 1 pound weekly, you should subtract 500 calories daily from the figure you obtained. To lose 2 pounds weekly you should subtract 1000 cal from your daily calorie allowance.

Let's go through an example so that you were clear about calorie requirements. Let's say that you are a 40 year old, 5'5" woman who weighs 175 pounds and that you are sedentary -- that is you do housework but no regular physical activity. Let's also assume that you have a medium build. Therefore, your ideal body weight is approximately 125 pounds. The number of calories you will need to maintain a weight of 125 pounds once you reach that weight is approximately 1500 cal. This was calculated by multiplying 125 pounds by 12 which is the factor found in the table above. If you happen to have a very low metabolism, you may have to consume as few as 1000 or 1200 cal to maintain your ideal body weight of 125 pounds. Of course, increasing your physical activity will result in an increase in the number of calories you can consume in order to maintain your ideal body weight.

CALORIE COUNTING

Exchange lists are a widely used guide for meal planning that help to promote a well-balanced diet. This system allows individuals who need to control calories to choose from a wide variety of foods each day without having to actually count calories. The following tables show various food groups and examples of foods/calories in each food group:

Starch list

One starch equals 15 grams carbohydrate, 3 grams protein, 0 to 1 gram fat, and 80 calories.

Breads

- **Bagel**, 4 oz - 1/4 (1 oz)
- **Bread**, reduced-calorie - 2 slices (1.5 oz)
- **Bread**, white, whole-wheat, pumpernickel, rye - 1 slice (1 oz)
- **Bread sticks**, crisp, 4 in. x 1/2 in. - 4 (2/3 oz)
- **English muffin** - 1/2
- **Hot dog or hamburger bun** - 1/2 (1 oz)
- **Naan**, 8 in. x 2 in. - 1/4
- **Pancake**, 4 in. across, 1/4 in. thick - 1
- **Pita**, 6 in. across - 1/2
- **Roll**, plain, small - 1 (1 oz)
- **Raisin bread**, unfrosted - 1 slice (1 oz)
- **Tortilla**, corn, 6 in. across - 1
- **Tortilla**, flour, 6 in. across - 1
- **Tortilla**, flour, 10 in. across - 1/3
- **Waffle**, 4 in. square or across, reduced-fat - 1

Cereals and grains

- **Bran cereals** - 1/2 cup
- **Bulgur** - 1/2 cup
- **Cereals**, cooked - 1/2 cup
- **Cereals**, unsweetened, ready-to-eat - 3/4 cup
- **Cornmeal** (dry) - 3 Tbsp
- **Couscous** - 1/3 cup
- **Flour** (dry) - 3 Tbsp
- **Granola**, low-fat - 1/4 cup
- **Grape-Nuts®** - 1/4 cup
- **Grits** - 1/2 cup
- **Kasha** - 1/2 cup
- **Millet** - 1/3 cup
- **Muesli** - 1/4 cup
- **Oats** - 1/2 cup
- **Pasta** - 1/3 cup
- **Puffed cereal** - 1 1/2 cups
- **Rice**, white or brown - 1/3 cup
- **Shredded Wheat®** - 1/2 cup
- **Sugar-frosted cereal** - 1/2 cup
- **Wheat germ** - 3 Tbsp

Starchy vegetables

- **Baked beans** - 1/3 cup
- **Corn** - 1/2 cup
- **Corn on cob**, large - 1/2 cob (5 oz)
- **Mixed vegetables** with corn, peas, or pasta - 1 cup
- **Peas**, green - 1/2 cup
- **Plantain** - 1/2 cup
- **Potato**, boiled - 1/2 cup or 1/2 med (3 oz)
- **Potato**, baked with skin - 1/4 large (3 oz)
- **Potato**, mashed - 1/2 cup
- **Squash**, winter (acorn, butternut, pumpkin) - 1 cup
- **Yam, sweet potato**, plain - 1/2 cup

Crackers and snacks

- **Animal crackers** - 8
- **Graham crackers**, 2 1/2 in. square - 3
- **Matzoh** - 3/4 oz
- **Melba toast** - 4 slices
- **Oyster crackers** - 24
- **Popcorn** (popped, no fat added or low-fat microwave) - 3 cups
- **Pretzels** - 3/4 oz
- **Rice cakes**, 4 in. across - 2
- **Saltine-type crackers** - 6
- **Snack chips**, fat-free or baked (tortilla, potato) - 15-20 (3/4 oz)
- **Whole-wheat crackers**, no fat added - 2-5 (3/4 oz)

Beans, peas, and lentils

(Count as 1 starch exchange, plus 1 very lean meat exchange.)

- **Beans and peas** (garbanzo, pinto, kidney, white, split, black-eyed) - 1/2 cup
- **Lima beans** - 2/3 cup
- **Lentils** - 1/2 cup
- **Miso**** - 3 Tbsp

** 400 mg or more of sodium per exchange.

Starchy foods prepared with fat

(Count as 1 starch exchange, plus 1 fat exchange.)

- **Biscuit**, 2 1/2 in. across - 1
- **Chow mein noodles** - 1/2 cup
- **Corn bread**, 2 in. cube - 1 (2 oz)
- **Crackers**, round butter type - 6
- **Croutons** - 1 cup
- **French-fried potatoes** (oven baked)* - 1 cup (2 oz)
- **Granola** - 1/4 cup
- **Hummus** - 1/3 cup
- **Muffin**, 5 oz - 1/5 (1 oz)
- **Popcorn**, microwaved - 3 cups
- **Sandwich crackers**, cheese or peanut butter filling - 3
- **Snack chips** (potato, tortilla) - 9-13 (3/4 oz)
- **Stuffing**, bread (prepared) - 1/3 cup
- **Taco shell**, 6 in. across - 2
- **Waffle**, 4 in. square or across - 1
- **Whole-wheat crackers**, fat added - 4-6 (1 oz)

Fruit List

One fruit exchange equals 15 grams carbohydrate and 60 calories.

Fruit

- **Apple**, unpeeled, small - 1 (4 oz)
- **Applesauce**, unsweetened - 1/2 cup
- **Apples**, dried - 4 rings
- **Apricots:**
 - 1 - **fresh** - 4 whole (5.5 oz)
 - 2 - **dried** - 8 halves
 - 3 - **canned** - 1/2 cup
- **Banana**, small - 1 (4 oz)
- **Blackberries** - 3/4 cup
- **Blueberries** - 3/4 cup
- **Cantaloupe**, small - 1/3 melon (11 oz) or 1 cup cubes
- **Cherries:**
 - 1 - **sweet**, fresh - 12 (3 oz)
 - 2 - **sweet**, canned - 1/2 cup
- **Dates** - 3

- **Figs:**
 - 1 - **fresh** - 1 1/2 large or 2 medium (3.5 oz)
 - 2 - **dried** - 1 1/2
- **Fruit cocktail** - 1/2 cup
- **Grapefruit**, large - 1/2 (11 oz)
- **Grapefruit sections**, canned - 3/4 cup
- **Grapes**, small - 17 (3 oz)
- **Honeydew melon** - 1 slice (10 oz) or 1 cup cubes
- **Kiwi** - 1 (3.5 oz)
- **Mandarin oranges**, canned - 3/4 cup
- **Mango**, small - 1/2 fruit (5.5 oz) or 1/2 cup
- **Nectarine**, small - 1 (5 oz)
- **Orange**, small - 1 (6.5 oz)
- **Papaya** - 1/2 fruit (8 oz) or 1 cup cubes
- **Peach**, medium, fresh - 1 (6 oz)
- **Peaches**, canned - 1/2 cup
- **Pear**, large, fresh - 1/2 (4 oz)
- **Pears**, canned - 1/2 cup
- **Pineapple:**
 - 1 - **fresh** - 3/4 cup
 - 2 - **canned** - 1/2 cup
- **Plums:**
 - 1 - **small** - 2 (5 oz)
 - 2 - **canned** - 1/2 cup
 - 3 - **dried** (prunes) - 3
- **Raisins** - 2 Tbsp
- **Raspberries** - 1 cup
- **Strawberries** - 1 1/4 cup whole berries
- **Tangerines**, small - 2 (8 oz)
- **Watermelon** - 1 slice (13.5 oz) or 1 1/4 cup cubes

Fruit juice

- **Apple juice/cider** - 1/2 cup
- **Cranberry juice cocktail** - 1/3 cup
- **Cranberry juice cocktail**, reduced-calorie - 1 cup
- **Fruit juice blends**, 100% juice - 1/3 cup
- **Grape juice** - 1/3 cup
- **Grapefruit juice** - 1/2 cup
- **Orange juice** - 1/2 cup
- **Pineapple juice** - 1/2 cup
- **Prune juice** - 1/3 cup

Milk List

One milk exchange equals 12 grams carbohydrate and 8 grams protein.

Fat-free and low-fat milk

(0 to 3 grams fat per serving, 90 calories)

- **Fat-free milk** - 1 cup
- **1/2% milk** - 1 cup
- **1% milk** - 1 cup
- **Buttermilk**, low-fat or fat-free - 1 cup
- **Evaporated fat-free milk** - 1/2 cup
- **Dry milk**, fat-free - 1/3 cup dry
- **Soy milk**, low-fat or fat-free - 1 cup
- **Yogurt**, plain, fat-free - 2/3 cup (6 oz)
- **Yogurt**, flavored, fat-free sweetened with non-nutritive sweetener and fructose - 2/3 cup (6 oz)

Reduced-fat milk

(5 grams fat per serving, 120 calories)

- **2% milk** - 1 cup
- **Soy milk** - 1 cup
- **Plain low-fat yogurt** - 3/4 cup
- **Sweet acidophilus milk** - 1 cup

(8 grams fat per serving, 150 calories)

- **Whole milk** - 1 cup
- **Evaporated whole milk** - 1/2 cup
- **Goat's milk** - 1 cup
- **Kefir** - 1 cup
- **Yogurt**, plain (made from whole milk) - 3/4 cup

Sweets, desserts, and other carbohydrates

One exchange equals 15 grams carbohydrate and is equivalent to 1 starch, or 1 fruit, or 1 milk.

Food item

- Serving size
- Exchange per serving
-

Angel food cake, unfrosted

- 1/12th cake
- 2 carb

Brownie, small, unfrosted

- 2 in. square
- 1 carb, 1 fat

Cake, unfrosted

- 2 in. square
- 1 carb, 1 fat

Cake, frosted

- 2 in. square
- 2 carb, 1 fat

Cookies, sugar-free (1 oz)

- 3 sm or 1 lg
- 1 carb, 1-2 fat

Cookie or sandwich cookie, with creme filling

- 2 small (2/3 oz)
- 1 carb, 1 fat

Cranberry sauce, jellied

- 1/4 cup
- 1.5 carb

Cupcake, frosted

- 1 small (2 oz)
- 2 carb, 1 fat

Doughnut, plain cake, medium

- 1 (1.5 oz)
- 1.5 carb, 2 fat

Doughnut, glazed, 3 3/4 in. across

- 1 (2 oz)
- 2 carb, 2 fat

Energy, sport, or breakfast bar

- 1 bar (1 1/3 oz)
- 1.5 carb, 0-1 fat

Energy, sport, or breakfast bar

- 1 bar (2 oz)
- 2 carb, 1 fat

Fruit cobbler

- 1/2 cup (3.5 oz)
- 3 carb, 1 fat

Fruit juice bars, frozen, 100% juice

- 1 bar (3 oz)
- 1 carb

Fruit snacks, chewy (pureed fruit concentrate)

- 1 roll (3/4 oz)
- 1 carb

Fruit spreads, 100% fruit

- 1.5 Tbsp
- 1 carb

Gelatin, regular

- 1/2 cup
- 1 carb

Gingersnaps

- 3
- 1 carb

Granola or snack bar, regular or low-fat

- 1 bar (1 oz)
- 1.5 carb

Honey

- 1 Tbsp
- 1 carb

Ice cream

- 1/2 cup
- 1 carb, 2 fat

Ice cream, light

- 1/2 cup
- 1 carb, 1 fat

Ice cream, low-fat

- 1/2 cup
- 1.5 carb

Ice cream, fat-free, no sugar added

- 1/2 cup
- 1 carb

Jam or jelly, regular

- 1 Tbsp
- 1 carb

Milk, chocolate, whole

- 1 cup
- 2 carb, 1 fat

Pie, fruit, 2 crusts, commercially prepared pie

- 1/6 of 8 in. pie
- 3 carb, 2 fat

Pie, pumpkin or custard, commercially prepared pie

- 1/8 of 8 in. pie
- 2 carb, 2 fat

Pudding, regular (made with low-fat milk)

- 1/2 cup
- 2 carb

Pudding, sugar-free or sugar-free & fat-free (made with fat-free milk)

- 1/2 cup
- 1 carb

Reduced-calorie meal replacement (shake)

- 1 can (10-11 oz)
- 1.5 carb, 0-1 fat

Rice milk, low-fat or fat-free, plain

- 1 cup
- 1 carb

Rice milk, low-fat, flavored

- 1 cup
- 1.5 carb

Salad dressing, fat-free**

- 1/4 cup
- 1 carb

Sherbet, sorbet

- 1/2 cup
- 2 carb

Spaghetti or pasta sauce, canned**

- 1/2 cup
- 1 carb, 1 fat

Sports drinks

- 8 oz (1 cup)
- 1 carb

Sugar

- 1 Tbsp
- 1 carb

Sweet roll or Danish

- 1 (2.5 oz)
- 2.5 carb, 2 fat

Syrup, light

- 2 Tbsp
- 1 carb

Syrup, regular

- 1 Tbsp
- 1 carb

Syrup, regular

- 1/4 cup
- 4 carb

Vanilla wafers

- 5
- 1 carb, 1 fat

Yogurt, frozen

- 1/2 cup
- 1 carb, 0-1 fat

Yogurt, frozen, fat-free

- 1/3 cup
- 1 carb

Yogurt, low-fat with fruit

- 1 cup
- 3 carb, 0-1 fat

** 400 mg or more of sodium per exchange.

Vegetables

One vegetable exchange equals 5 grams carbohydrate, 2 grams protein, 0 grams fat, and 25 calories.

In general, one vegetable exchange is 1/2 cup cooked vegetables or vegetable juice or 1 cup raw vegetables.

- **Artichoke**
- **Artichoke hearts**
- **Asparagus**
- **Beans** (green, wax, Italian)
- **Bean sprouts**
- **Beets**
- **Broccoli**
- **Brussels sprouts**
- **Cabbage**
- **Carrots**
- **Cauliflower**
- **Celery**
- **Cucumber**
- **Eggplant**
- **Green onions or scallions**
- **Greens** (collard, kale, mustard, turnip)
- **Kohlrabi**
- **Leeks**
- **Mixed vegetables** (without corn, peas, or pasta)
- **Mushrooms**
- **Okra**
- **Onions**
- **Pea pods**
- **Peppers** (all varieties)
- **Radishes**
- **Salad greens** (endive, escarole, lettuce, romaine, spinach)
- **Sauerkraut****
- **Spinach**
- **Summer squash**
- **Tomato**
- **Tomatoes**, canned
- **Tomato sauce****
- **Tomato/vegetable juice****
- **Turnips**
- **Water chestnuts**
- **Watercress**
- **Zucchini**

** 400 mg or more of sodium per exchange.

Meat and meat substitutes

Very lean meat and substitutes

One exchange equals 0 grams carbohydrate, 7 grams protein, 0 to 1 gram fat, and 35 calories.

One very lean meat exchange is equal to any one of the following items:

- **Poultry:** Chicken or turkey (white meat, no skin), Cornish hen (no skin) - 1 oz
- **Fish:** Fresh or frozen cod, flounder, haddock, lox (smoked salmon),** halibut, trout; tuna fresh or canned in water - 1 oz
- **Shellfish:** Clams, crab, lobster, scallops, shrimp, imitation shellfish - 1 oz
- **Game:** Duck or pheasant (no skin), venison, buffalo, ostrich - 1 oz
- **Cheese with 1 gram or less fat per ounce:**
Fat-free or low-fat cottage cheese - 1/4 cup
Fat-free cheese - 1 oz
- **Other**
Processed sandwich meats with 1 gram or less fat per ounce, such as deli thin, shaved meats, chipped beef,** turkey, ham - 1 oz
Egg whites - 2
Egg substitutes, plain - 1/4 cup
Hot dogs with 1 gram or less of fat per ounce** - 1 oz
Kidney (high in cholesterol) - 1 oz
Sausage with 1 gram or less of fat per ounce - 1 oz
(Count as one very lean meat and one starch exchange.)
Beans, peas, lentils (cooked) - 1/2 cup

** 400 mg or more of sodium per exchange.

Lean meat and substitutes

One exchange equals 0 grams carbohydrate, 7 grams protein, 3 grams fat, and 55 calories.

One lean meat exchange is equal to any one of the following items:

- **Beef:** USDA Select or Choice grades of lean beef trimmed of fat, such as round, sirloin, and flank steak; tenderloin; roast (rib, chuck, rump); steak (T-bone, porterhouse, cubed), ground round - 1 oz
- **Pork:** Lean pork, such as fresh ham; canned, cured, or boiled ham; Canadian bacon;** tenderloin, center loin chop - 1 oz
- **Lamb:** Roast, chop, leg - 1 oz
- **Veal:** Lean chop, roast - 1 oz
- **Poultry:** Chicken, turkey (dark meat, no skin), chicken (white meat with skin), domestic duck or goose (well-drained of fat, no skin) - 1 oz
- **Fish:**
Herring (uncreamed or smoked) - 1 oz
Oysters - 6 medium
Salmon (fresh or canned), catfish - 1 oz
Sardines (canned) - 2 medium
Tuna (canned in oil, drained) - 1 oz
- **Game:** Goose (no skin), rabbit - 1 oz

- **Cheese:**
4.5%-fat cottage cheese - 1/4 cup
Grated Parmesan - 2 Tbsp
Cheeses with 3 grams or less fat per ounce - 1 oz
- **Other:**
Hot dogs with 3 grams or less fat per ounce** - 1.5 oz
Processed sandwich meat with 3 grams or less fat per ounce, (eg. turkey pastrami or kielbasa) - 1 oz
Liver, heart (high in cholesterol) - 1 oz

** 400 mg or more of sodium per exchange.

Medium-fat meat and substitutes

One exchange equals 0 grams carbohydrate, 7 grams protein, 5 grams fat, and 75 calories.

One medium-fat meat exchange is equal to any one of the following items:

- **Beef:** Most beef products fall into this category (ground beef, meatloaf, corned beef, short ribs, Prime grades of meat trimmed of fat, such as prime rib) - 1 oz
- **Pork:** Top loin, chop, Boston butt, cutlet - 1 oz
- **Lamb:** Rib roast, ground - 1 oz
- **Veal:** Cutlet (ground or cubed, unbreaded) - 1 oz
- **Poultry:** Chicken (dark meat, with skin), ground turkey or ground chicken, fried chicken (with skin) - 1 oz
- **Fish:** Any fried fish product - 1 oz
- **Cheese:** With 5 grams or less fat per ounce:
Feta - 1 oz
Mozzarella - 1 oz
Ricotta - 2 oz 1/4 cup
- **Other:**
Egg (high in cholesterol, limit to 3 per week) - 1
Sausage with 5 grams or less of fat per ounce - 1 oz
Tempeh - 1/4 cup
Tofu - 4 oz 1/2 cup

High-fat meat and substitutes

One exchange equals 0 grams carbohydrate, 7 grams protein, 8 grams fat, and 100 calories.

Remember these items are high in saturated fat, cholesterol, and calories and may raise blood cholesterol levels if eaten on a regular basis.

One high-fat meat exchange is equal to any one of the following items:

- **Pork:** Spare ribs, ground pork, pork sausage - 1 oz
- **Cheese:** All regular cheeses, such as American**, cheddar, Monterey Jack, Swiss - 1 oz
- **Other:**
Processed sandwich meats with 8 grams or less fat per ounce, such as bologna, pimento loaf, salami - 1 oz
Sausage, such as bratwurst, Italian, knockwurst, Polish, smoked - 1 oz
Hot dog (turkey or chicken)** - 1 (10/lb)

- Bacon** - 3 slices (20 slices/lb)
 - Peanut butter** (contains unsaturated fat) - 1 Tbsp
 - *Count as one high-fat meat plus one fat exchange:*
 - **Hot dog** (beef, pork, or combination)** - 1 (10/lb)
- ** 400 mg or more of sodium per exchange.

Fat

Monounsaturated fats

One fat exchange equals 5 grams of fat and 45 calories.

- **Avocado**, medium - 2 Tbsp (1 oz)
 - **Oil** (canola, olive, peanut) - 1 tsp
 - **Olives:**
 - **Ripe** (black) - 8 large
 - **Green** stuffed** - 10 large
 - **Nuts:**
 - **Almonds, cashews** - 6 nuts
 - **Mixed (50% peanuts)** - 6 nuts
 - **Peanuts** - 10 nuts
 - **Pecans** - 4 halves
 - **Peanut butter**, smooth or crunchy - 1/2 Tbsp
 - **Sesame seeds** - 1 Tbsp
 - **Tahini or sesame paste** - 2 tsp
- ** 400 mg or more of sodium per exchange.

Polyunsaturated fats

One fat exchange equals 5 grams fat and 45 calories.

- **Margarine:**
 - Stick, tub, or squeeze - 1 tsp
 - Lower-fat (30% to 50% vegetable oil) - 1 Tbsp
 - **Mayonnaise:**
 - Regular - 1 tsp
 - Reduced-fat - 1 Tbsp
 - **Nuts:** walnuts, English - 4 halves
 - **Oil** (corn, safflower, soybean) - 1 tsp
 - **Salad dressing:**
 - Regular** - 1 Tbsp
 - Reduced-fat - 2 Tbsp
 - Miracle Whip® salad dressing:
 - Regular - 2 tsp
 - Reduced-fat - 1 Tbsp
 - **Seeds:** pumpkin, sunflower - 1 Tbsp
- ** 400 mg or more of sodium per exchange.

Saturated fats

One fat exchange equals 5 grams of fat and 45 calories.

- **Bacon**, cooked - 1 slice (20 slices/lb)
- **Bacon**, grease - 1 tsp
- **Butter:**
 - Stick - 1 tsp
 - Whipped - 2 tsp
 - Reduced-fat - 1 Tbsp
- **Chitterlings**, boiled - 2 Tbsp (0.5 oz)
- **Coconut**, sweetened, shredded - 2 Tbsp
- **Coconut milk** - 1 Tbsp
- **Cream**, half and half - 2 Tbsp
- **Cream cheese:**
 - Regular - 1 Tbsp (0.5 oz)
 - Reduced-fat - 1 1/2 Tbsp (3/4 oz)
- **Fatback or salt pork**, see below**
- **Shortening or lard** - 1 tsp
- **Sour cream:**
 - Regular - 2 Tbsp
 - Reduced-fat - 3 Tbsp
-

Note: Saturated fats can raise blood cholesterol levels if eaten on a regular basis.

** 400 mg or more of sodium per exchange. Use a piece 1 in. x 1 in. x 1/4 in. if you plan to eat the fatback cooked with vegetables. Use a piece 2 in. x 1 in. x 1/2 in. when eating only the vegetables with the fatback removed.

Free foods

A *free food* is any food or drink that contains less than 20 calories or less than or equal to 5 grams of carbohydrate per serving. Foods with a serving size listed should be limited to 3 servings per day. Be sure to spread them out throughout the day. If you eat all 3 servings at one time, it could raise your blood glucose level. Foods listed without a serving size can be eaten whenever you like.

Fat-free or reduced-fat foods

- **Creamers**, nondairy, liquid - 1 Tbsp
- **Creamers**, nondairy, powdered - 2 tsp
- **Mayonnaise**, fat-free - 1 Tbsp
- **Mayonnaise**, reduced-fat - 1 tsp
- **Margarine spread**, fat-free - 4 Tbsp
- **Margarine spread**, reduced-fat - 1 tsp
- **Miracle Whip®**, nonfat - 1 Tbsp
- **Miracle Whip®**, reduced-fat - 1 tsp

- **Nonstick cooking spray**
- **Salad dressing**, fat-free – 1 Tbsp
- **Salad dressing**, fat-free, Italian – 2 Tbsp
- **Sour cream**, fat-free, reduced-fat – 1 Tbsp
- **Whipped topping**, regular – 1 Tbsp
- **Whipped topping**, light or fat-free – 2 Tbsp

Sugar-free or low-sugar foods

- **Candy**, hard, sugar-free – 1 candy
- **Gelatin dessert**, sugar-free
- **Gelatin**, unflavored
- **Gum**, sugar-free
- **Jam or jelly**, low-sugar or light – 2 tsp
- **Sugar substitutes***
- **Syrup**, sugar-free – 2 Tbsp
-

* Sugar substitutes, alternatives, or replacements that are approved by the Food and Drug Administration (FDA) are safe to use. Common brand names include: Equal® (aspartame), Sprinkle Sweet® (saccharin), Sweet One® (acesulfame K), Sweet-10® (saccharin), Sugar Twin® (saccharin), Sweet 'n Low® (saccharin), Splenda® (sucralose)

Condiments

- **Catsup** – 1 Tbsp
- **Horseradish**
- **Lemon juice**
- **Lime juice**
- **Mustard**
- **Pickle relish** – 1 Tbsp
- **Pickles**, dill – 1.5 medium**
- **Pickles**, sweet (bread and butter) – 2 slices
- **Pickles**, sweet (gherkin) – 3/4 oz
- **Soy sauce**, regular or light – 1 Tbsp**
- **Salsa** – 1/4 cup
- **Taco sauce** – 1 Tbsp
- **Vinegar**
- **Yogurt** – 2 Tbsp

** 400 mg or more of sodium per exchange.

Drinks

- **Bouillon, broth, consomme****
- **Bouillon or broth**, low-sodium
- **Carbonated or mineral water**
- **Club soda**
- **Cocoa powder**, unsweetened – 1 Tbsp
- **Coffee**
- **Diet soft drinks**, sugar-free

- **Drink mixes**, sugar-free
- **Tea**
- **Tonic water**, sugar-free

** 400 mg or more of sodium per exchange.

Seasonings

Be careful with seasonings that contain sodium or are salts, such as garlic or celery salt, and lemon pepper.

- **Flavoring extracts**
- **Garlic**
- **Herbs**, fresh or dried
- **Pimento**
- **Spices**
- **Tabasco® or hot pepper sauce**
- **Wine**, used in cooking
- **Worcestershire sauce**

Combination foods

Many of the foods we eat are mixed together in various combinations. These combination foods do not fit into any one exchange list. Often it is hard to tell what is in a casserole dish or prepared food item. This is a list of exchanges for some typical combination foods. This list will help you fit these foods into your meal plan.

Ask your dietitian for information about any other combination foods you would like to eat.

Soups

- **Food item**
Serving Size
Exchange Per Serving
- **Bean****
1 cup
1 carb, 1 very lean meat
- **Cream**, made with water**
1 cup (8 oz)
1 carb, 1 fat
- **Instant****
6 oz
1 carb
- **Instant**, with beans/lentils**
8 oz
2.5 carbs, 1 very lean meat

- **Split pea**, made with water**
1/2 cup (4 oz)
1 carb
- **Tomato**, made with water**
1 cup (8 oz)
1 carb
- **Vegetable beef, chicken noodle, or other broth-type****
1 cup (8 oz)
1 carb

** 400 mg or more of sodium per exchange.

Entrees

- **Chow mein**, without noodles or rice**
2 cups (16 oz)
1 carb, 2 lean meats
- **Tuna or chicken salad**
1/2 cup (3.5 oz)
0.5 carb, 2 lean meats 1 fat
- **Tuna noodle casserole, lasagna, spaghetti with meatballs, chili with beans, macaroni and cheese****
1 cup (8 oz), 2 carbs
2 medium-fat meats

** 400 mg or more of sodium per exchange.

Frozen entrees & meals

- **Dinner-type meal****
14 to 17 oz
3 carbs, 3 medium-fat meats, 3 fats
- **Meatless burger**, soy base
3 oz
0.5 carb, 2 lean meats
- **Meatless burger**, vegetable and starch base
3 oz
1 carb, 1 lean meat
- **Pizza**, cheese, thin crust**
1/4 of 12 inch pie (6 oz)
2 carbs, 2 medium-fat meats, 1 fat
- **Pizza**, meat topping, thin crust**
1/4 of 12 inch pie (6 oz)
2 carbs, 2 medium-fat meats, 2 fats
- **Pot pie****
1 (7 oz)
2.5 carbs 1 medium-fat meat, 3 fats
- **Entree or meal**, with less than 340 calories**
about 8 to 11 oz
2 to 3 carbs, 1 to 2 meats

** 400 mg or more of sodium per exchange.

Fast foods

- **Food item**
Serving size
Exchange per serving
- **Burrito with beef****
1 (5 to 7 oz)
3 carbs, 1 medium-fat meat, 1 fat
- **Chicken nuggets****
6
1 carb, 2 medium-fat meats, 1 fat
- **Chicken breast and wing, breaded and fried ****
1 each
1 carb, 4 medium-fat meats, 2 fat
- **Chicken sandwich, grilled****
1
2 carbs, 3 very lean meats
- **Chicken wings, hot****
6 (5 oz)
1 carb, 3 medium-fat meats, 4 fats
- **Fish sandwich, with tartar sauce****
1
3 carbs 1 medium-fat meat, 3 fats
- **French fries****
1 medium serving (5 oz)
4 carbs, 4 fats
- **Hamburger, regular**
1
2 carbs, 2 medium-fat meats
- **Hamburger, large****
1
2 carbs, 3 medium-fat meats, 1 fat
- **Hot dog, with bun****
1
1 carb, 1 high-fat meat, 1 fat
- **Individual pan pizza****
1
5 carbs, 3 medium-fat meats, 3 fats
- **Pizza, cheese, thin crust****
1/4 of 12 inch pie (6 oz)
2.5 carbs, 2 medium-fat meats
- **Pizza, meat, thin crust****
1/4 of 12 inch pie (6 oz)
2.5 carbs, 2 medium-fat meats, 1 fat

- **Soft-serve cone**
1 small (5 oz)
2.5 carbs, 1 fat
- **Submarine sandwich****
1 sub (6 in)
3 carbs, 1 vegetable, 2 medium-fat meats, 1 fat
- **Submarine sandwich, less than 6 grams of fat****
1 sub (6 in)
2.5 carbs, 2 lean meats
- **Taco, hard or soft shell****
1(3 to 3.5 oz)
1 carb, 1 medium-fat meat, 1 fat
-

Note: Ask at your fast-food restaurant for nutrition information about your favorite fast foods or check websites.

** 400 mg or more of sodium per exchange.

SAMPLE DIETS

1200 and 1500 Calorie Diets

BREAKFAST

2 cranberry cornmeal pancakes
2 tsp. almond butter
1 tbsp. maple syrup
1/2 fresh fruit salad

LUNCH

1/3 cup hummus
1/2 cup three bean salad
1 whole wheat roll

SNACK

1 oz. cashews

DINNER

3 oz. broiled scallops
1/2 cup broccoli
1/2 cup carrots
1/2 cup yellow peppers
2 tsp. peanut oil
1/2 cup Chinese noodles

Calories - 1220

Fat - 48gms/34% of calories

Sat - 8.1gms/5.8%

Mono - 23.2gms/16.6%

Poly - 14.7gms/10.5%

Cholesterol - 45mg

Sodium - 1319mg

Fiber - 17.3gms

BREAKFAST

1/2 cup cantaloupe
1 slice whole wheat toast
1 tsp. almond butter
1 cup lemon nonfat yogurt

LUNCH

1 cup minestrone soup
1 oz. lowfat mozzarella cheese
1 fresh tomato slices
1 slice whole wheat bread
1 tsp. prepared mustard

SNACK

1 oz. oil roasted peanuts

DINNER

3 oz. broiled swordfish
1/2 cup sweet potato
5 mushrooms
1/2 cup asparagus
1 cup tossed green salad
1 tbsp. olive oil
1 tbsp. vinegar
1/2 cup strawberries

Calories - 1216

Fat - 47.9gms/34% of calories

Sat - 10gms/7.2%

Mono - 24.1gms/17.2%

Poly - 10.4gms/7.4%

Cholesterol - 216mg

Sodium - 1864mg

Fiber - 15.9gms

BREAKFAST

1 poached egg
2 cranberry cornmeal pancakes
2 tsp. almond butter
2 tsp. maple syrup

LUNCH

1/2 cup hummus
1/4 cup three bean salad
1 whole wheat roll
1/2 cup skim milk

SNACK

1 oz. cashews

DINNER

4 oz. broiled salmon
1 cup couscous
1/2 cup broccoli
1/2 cup carrots
3/4 cup cucumber salad
1 tsp. olive oil
1 tbsp. vinegar

SNACK

1 cup coffee nonfat yogurt

Calories - 1545

Fat - 66.7gms/35% of calories

Sat - 11.2gms/6.4%

Mono - 31.8gms/18.1%

Poly - 14.1gms/8%

Cholesterol - 313mg

Sodium - 1600mg

Fiber - 17gms

BREAKFAST

1/2 cup cantaloupe
1 slice whole wheat toast
2 tsp. almond butter
1 cup coffee nonfat yogurt

LUNCH

1 cup minestrone soup
1 oz. lowfat mozzarella cheese
2 pieces tomato slices
2 slices whole wheat bread
1 tsp. prepared mustard

SNACK

1 oz. peanuts

DINNER

4 oz. broiled swordfish
1 sweet potato
5 mushrooms
1/2 cup asparagus
1 cup tossed mixed greens
1 tbsp. olive oil
1 tbsp. vinegar
1/2 cup strawberries

SNACK

2 whole grain crackers
2 tsp. peanut butter
1/2 cup skim milk

Calories - 1536

Fat - 59.5gms/34% of calories

Sat - 11.9gms/6.7%

Mono - 30.4gms/17.2%

Poly - 13.0gms/7.3%

Cholesterol - 80mg

CHAPTER FIVE FATS: FOODS TO AVOID

You need to know about fats. They are the substances in food that probably caused your overweight condition, and if you can avoid them in the future, you will find it much easier to maintain your ideal weight. Fats are the most concentrated source of calories in the diet. Fats include oils or any fat like substance that has a greasy feeling and does not dissolve in water. Unfortunately, fat also adds flavor to foods, and because fats are so fattening (that is where the word comes from) obesity almost always results when an individual consumes large amounts of fats.

There are three kinds of fats:

Saturated Fats
Polyunsaturated Fats
Monounsaturated Fats

Saturated fats are derived from animals and are found in meat, butter, cheese, and lard. These fats are usually hard at room temperature. The saturated fats tend to raise the cholesterol level found in your blood.

Polyunsaturated fats are oils that are derived from plant and vegetable sources such as safflower and corn oil. Many nuts are also high in polyunsaturated fats. These fats are liquid at room temperature. They generally do not alter blood cholesterol, but they are very fattening.

Monounsaturated fats are found in avocados, olives, peanuts, and some nuts. They do not alter blood cholesterol, but again have large amounts of calories in a small serving.

It is well-known that consumption of cholesterol and fat are linked to arteriosclerosis or hardening of the arteries, which results in heart attack and stroke. Cholesterol is a major component of the plaques that build up on the arterial walls, causing an occlusion or blockage of the artery. When the blockage becomes critical in an artery that supplies the heart muscle, heart attack results. Likewise when an artery which supplies a part of the brain becomes blocked from cholesterol plaques, a stroke may result.

Not only has fat consumption, particularly consumption of saturated fats, been associated with heart attack and stroke, consumption of fat has also been associated with the development of cancer, particularly cancer of the colon and breast. Of course, what we are particularly interested in is the association of fat with the development of obesity. Fat is certainly the main culprit.

Cholesterol is a waxy material used in the production of many important hormones. However, the excessive consumption of cholesterol is harmful. Cholesterol is derived from two sources. First produced by the liver and second absorbed from food sources in the diet. The major food sources for cholesterol include meat and meat products, whole milk, whole milk products such as cheddar cheese. Egg yolks and organ meats are very high in cholesterol and should be eliminated from your diet. Egg yolk has approximately 375 mg of cholesterol, which is about all the cholesterol anyone should consume in one day. Three ounces of beef liver also has approximately 375 mg of cholesterol. Foods of plant origin, including fruits, vegetables, and grains do not contain cholesterol.

How do we decrease the consumption of fat so that ideal weight can be maintained? Remember, if you are unsuccessful at reducing fat intake you will be unsuccessful in maintaining your weight loss!

First, you should essentially eliminate your intake of saturated fats. Most saturated fats are solid at room temperature and come from animal sources. Saturated fats tend to raise blood cholesterol. Saturated fats are found in butter, cheese, chocolate, whole milk and whole milk products, meat and meat fat, and egg yolk. Other non animal products that contain saturated fats include coconut, coconut oil, palm oil, cocoa butter, and vegetable shortening.

Second, you need to decrease your intake of polyunsaturated fats. Polyunsaturated fats are usually liquid at room temperature. These fats are found in products of vegetable origin and include oil such as sunflower, safflower, soybean, corn, cottonseed, sesame seeds.

Although monounsaturated fats may lower cholesterol level slightly, they are fattening and should also be avoided. These fats are found in olive oil, olives, peanut oil, avocados, and most nuts except cashews, macadamia and coconut.

An important point to be aware of is that the food industry can make polyunsaturated fats into saturated fats through a process called hydrogenation. During this chemical process, a liquid fat is made into a solid fat. This is done when making shortening, margarine, and peanut butter. When you choose these items – and you should choose them rarely – read the label and choose the product that has the highest amount polyunsaturated fat and the lowest amount of saturated fat. The amount of polyunsaturated fat in the product you choose should be at least two times higher than the amount of saturated fat in that product.

Another important fact to remember is that fat may not be visible in the foods we eat. Indeed, fat is present in many prepared, processed, and fried foods. Take a look at the following chart:

FOOD	CALORIES	% FAT
Croissant	210	60
Potato Chips	110	62
1 oz cheddar cheese	110	75
1 tbsp blue cheese dressing	70	95
3 oz cooked hamburger	225	60

Try the following fat substitutes:

FOOD	CALORIES	% FAT
1/2 plain bagel	105	6
4 three ring pretzels	55	10
1 oz/part skim mozzarella	80	31
2 tsp French dressing	50	44
3 oz ground round	185	39

By making such substitutions in your diet, you can lower your fat intake which in turn will lower both your cholesterol and calorie intake. This will assure that you maintain the weight loss that you achieve using the Medi-Cal

Nutritional Supplement. Remember, fat has more than two times the calories than protein and carbohydrate. One gram of fat has 9 calories, whereas one gram of protein carbohydrate contains only 4 calories.

For example, consider the following preparations:

FOOD	CALORIES	% FAT
Baked potato	145	0
Bake potato with 1 tbsp of margarine	245	12
Baked chicken 3 oz, no skin	165	9
Fried Chicken, 3 oz with skin	260	18
Milk, skim, one cup	80	0
Milk, 2%, one cup	120	5
Milk, whole, one cup	150	10

Even if being overweight were not a problem for you, it would still be important to lower your fat intake, hopefully to a 20% or less of your total caloric intake. Obviously, the way to avoid fat and to maintain your weight is to choose more of your foods from fruits, breads, cereals, and vegetables. The following are general guidelines to help you begin reducing your fat intake.

Meats, Poultry and Seafood

As a general rule, limit yourself to 6 ounces of cooked meat per day. Meat is a major source of saturated fat and cholesterol in the diet. Of the animal products, seafood and poultry are better choices than red meats because they have less total fat and cholesterol. When choosing and preparing your meat, consider the following:

1. Choose lean cuts of meat (those with little visible fat).
2. Trim any visible fat from the meat.
3. Remove poultry skin before cooking, since most of the fat is under the skin.

4. Use shrimp less frequently than other seafoods because it is high in cholesterol.
5. Broil, bake or roast. Never fry foods!
6. Do not use meat drippings.
7. Increase use of poultry or seafood in place of red meat.
8. Avoid fatty meats such as bacon, sausage, luncheon, goose, duck, hot dogs, and fast food meat products.
9. Avoid organ meats such as liver, tongue, kidneys, sweetbreads, heart, brain, and chitterlings.

Eggs

Limit the amount of eggs you consume to a total of two per week. The egg yolk is high in cholesterol. Egg whites can be used as desired, and egg substitutes are also acceptable.

Vegetables and Fruits

Vegetables and fruits can be used as desired, except for coconut. Do not use butter, cream sauces or cheese sauces which are high in fat and calories.

Bread, Cereals and Starchy Foods

All plain breads, cereals, rolls, rice, noodles, and low-fat crackers are fine to use, including white, wheat, or rye bread, pumpernickel bread, cooked or cold cereal, pretzels, potatoes, rice, noodles, graham crackers, and saltines. Specialty breads such as banana bread or blueberry muffins may be used if made from scratch with low-fat ingredients such as skin milk, egg substitutes, and reduced amounts of vegetable oils. Avoid cheese, eggs, and butter when making breads. Avoid commercial croissants, donuts, pastries, muffins, and other commercially baked products. Avoid granolas that contain coconut or coconut oil. Avoid chow mein noodles, cheese and butter crackers, and all foods made with palm or coconut oil.

Milk and Cheese

You should use skim milk with 1% butterfat or less, skim or low-fat yogurt, cheese that contains 2 grams of fat or less per serving, low-fat cottage cheese, and custards and puddings made from low-fat milk. Avoid whole milk, whole milk products, including most cheeses, chocolate milk, condensed whole milk, creamed cottage cheese, cream cheese, half-and-half, ice cream, sour cream, and whipping cream. Avoid nondairy creamers if they contain coconut oil or palm oil.

For example, use the following substitutions in your cooking:

Original Recipe	Substitute Recipe
1 cup butter	1 cup polyunsaturated margarine
1 oz unsweetened chocolate	3 tbsp unsweetened cocoa plus 1 tbsp polyunsaturated oil
1 cup cream cheese	1/4 cup polyunsaturated margarine plus 1 cup low fat cottage cheese
1 egg	1 eggwhite plus 2 tbsp polyunsaturated oil
1 cup whole milk	1 cup skim milk
1 cup sour cream	1 cup plain skim yogurt
1 cup heavy cream	1 cup evaporated skim milk

By making these substitutions, the number of calories is decreased, as is the amount of cholesterol and saturated fat intake. Remember it is better to avoid all fats – even the good fats. The good fats (polyunsaturated and monounsaturated) have just as many calories as a saturated fats!

CHAPTER 6: FIBER: FOODS FOR GOOD HEALTH

Over the past century, the amount of fat intake has increased dramatically and the amount of fiber intake has decreased markedly. This change has been associated with the increased prevalence of many diseases, including heart attack, stroke, diverticulosis, colon cancer, hemorrhoids, and diabetes mellitus. Low fiber diets in particular have been associated with obesity, diabetes, cancer, hemorrhoids, and diverticulosis.

Eating a diet high in fiber results in weight loss, prevention or reversal of diabetes, and prevention of colon cancer, spastic colon, chronic constipation, hemorrhoids, and diverticulosis. If you begin now increasing the amount of fiber in your diet, you will have much greater success in maintaining your weight loss.

What is fiber? Fiber is that portion of plants that the intestinal tract cannot digest. Fiber is divided into two different types. The two major types are water soluble (those that dissolve in water) and water insoluble (those that cannot dissolve in water). Water insoluble fiber makes up the walls of plants and help the plant hold a firm shape. These fibers cannot be digested by the bacteria in the digestive tract and pass into the large intestine almost whole. Water insoluble fibers include cellulose, lignins, and hemicellulose. Cellulose makes up about 25% of plant fibers, hemicellulose makes up about 50%, and lignins make up about 10% of plant fibers. The three types of water insoluble fibers are found most frequently in brans and whole grains.

The second type of fiber is water soluble fiber. These fibers repair any injury to plants. In the digestive tract, these fibers do not retain their shape but they become gummy. Water-soluble fibers include pectins, gums, and mucilages. The main sources of these fibers are fruits and legumes (dried beans and peas).

Some Benefits of Eating Fiber

...Lowers blood sugar

...Prevents constipation,
diverticulosis, hemorrhoids, and
elevated cholesterol

...Prevents obesity

The benefits of increasing fiber in your diet are numerous. One of the important benefits is the effect fiber can have on blood sugar control. Certain fibers can help prevent blood glucose from increasing after meals. By delaying the release of food from the stomach into the intestine and by slowing digestion of starches and sugars in the intestinal tract, these fibers slow the rate that glucose is absorbed into the bloodstream. By slowing this rate of glucose absorption, the blood sugar rise is not as high and not as fast as it might have been after eating a low fiber diet. The fibers that seemed to help keep blood sugar in line are the water-soluble fibers found in fruits and lagoons. All-Bran, dried beans, and lentils are foods very rich in water-soluble fiber.

Relieving constipation is a second benefit of fiber. Fiber absorbs water and helps make the stool soft and easier to pass. By softening stools, less pressure is placed on the intestinal wall and blood vessels, and thus the development of diverticulosis and hemorrhoids is prevented. The water insoluble fibers are most effective for this purpose and are found primarily in whole-grain breads, cereals, and foods containing bran. Finally and most importantly, fiber can help with weight loss. Replacing high-fat or high sugar foods would high-fiber foods lowers caloric intake and decreases appetite. For example, eating a 3 ounce serving of french fries provides approximately 140 cal. However you can eat 7 ounces of baked potato, over twice as much, and still get only 140 cal. Your eating will also be slowed down with high-fiber foods because they take longer to chew. The added bulkiness of high-fiber foods helps you to feel more full and satisfied on a lower calorie diet.

Learn which foods are higher in fiber and substitute them for the low fiber foods in your diet. A common rule of thumb is to work up to 30 to 40 grams of fiber per day, or 20 to 25 g of fiber for everyone thousand calories eaten. Remember to start gradually, since fiber may cause bloating and increased gas.

Beginning to use food that have natural fiber coatings is one way to increase your fiber intake. For example, use whole-grain bread instead of white bread. Some other sources of fiber include whole-grain cereals, dried beans and peas, fruits, and vegetables with their peelings. The following is an example of a 1200 calorie diet containing 11 grams of fiber, and what can be done to increase the fiber content to 29 grams without increasing the calorie content.

Low Fiber Diet - 1200 Calories

Breakfast	Calories	Fiber (grams)
1/2 cup orange juice	40	0.1
1/2 cup cream of wheat	70	2.0
1 slice white toast	70	0.7
1 cup 2% milk	120	0
1 tsp margarine	45	0
Total	345	2.8
Lunch		
1 cup consomme	0	0
3 oz chicken	165	0
1/2 cup boiled potato (peeled)	70	1.0
1/2 grapefruit	40	0.8
small tomato (sliced)	25	1.5
Total	300	3.3
Supper		
1 cup cream of tomato sup	90	1.0
3 oz broiled fish	165	0
1/2 cup mashed potato	70	2.0
small white roll	70	0.7
small slice angelfood cake	70	0
1 cup 2% milk	120	0
Total	585	3.7
Grand Total	1230	9.8

Now compare this to the same calorie diet with over three times the fiber in it. Remember, even though this diet has the same number of calories, it will be much more filling and thus you will be less likely to cheat. And it has all of the benefits previously discussed!

High Fiber Diet - 1200 Calories

Breakfast	Calories	Fiber
1 small orange, sliced	40	1.6
1/2 cup oatmeal	70	3.0
1 slice whole grain toast	70	2.0
1 cup 2% milk	120	0
1 tsp margarine	45	0
Total	345	6.6

Lunch		
1 cup lettuce	0	1.0
3 oz chicken	165	0
small baked potato with skin	70	3.0
1/2 cup broccoli	25	3.6
small apple with peel	40	2.0
Total	300	9.6

Supper		
1.2 cup pea soup	85	3.0
3 oz broiled fish	165	0
1/3 cup corn	70	2.6
1/2 cup peas	70	6.7
1 slice whole grain bread	70	2.0
1 cup 2% milk	120	0
Total	580	14.3

Grand Total	1225	30.5
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You may have never used many of the foods that will increase your fiber intake. It is not difficult to incorporate these foods into your diet, and there are many cookbooks and internet sources that will aid you in preparing these healthy foods.

CHAPTER SEVEN: MODIFYING YOUR BEHAVIOR FOR WEIGHT MAINTENANCE

There are really only two behaviors that have been clearly shown to help individuals succeed in losing weight and maintaining their weight loss. The first on the surface seems almost simple-minded but is extraordinarily important: **maintaining a record of food intake**. The second behavior that is equally important is daily exercise.

Maintaining a record of food intake has been shown in many studies to help control the dietary habits of individuals with weight problems. The most simple method is to simply carry a small log book with you, and each time you put something into your mouth, write it down. If you write it down prior to eating it, this method can be even more effective. For example, if you are getting ready to eat a chocolate chip cookie and write it down prior to putting it into your mouth, a second thought might enter your mind that you really do not need that tasty morsel, giving you time to scratch it off your list. In any case, at the end of the day, you can review your food intake and see mistakes that were made. This sort of feedback is crucial for weight maintenance. Most individuals with weight problems grossly underestimate their food consumption.

For those individuals with smart phones, ipads or other tablets, there are literally hundreds of free applications that can be downloaded to your device and which allow you to enter foods consumed, automatically calculating the calories consumed in a meal. These applications are extraordinarily useful in helping you keep track of your calories consumed. In addition most allow you to enter exercise activities, calculating for you the calories expended for each activity. You should take advantage of these remarkable applications to aid you in your efforts to lose and maintain weight loss.

Regular exercise is the second behavior that has been clearly shown to aid in weight loss and maintenance, and is crucial if you are to be successful in weight reduction and maintenance. Physical activity at work and routine house work does not count. You need to set aside at least one half hour, four times weekly, for the sole purpose of exercise.

The benefits of exercise are numerous and include:

- Increased energy
- Improved self-image
- less depression
- good muscle tone
- decreased stress
- less anxiety
- improved sleep
- decreased appetite

In addition, regular exercise can help you lose weight in two ways. First, calories are burned off with exercise. Some examples are given in the table below. Second, there is some evidence that individuals who exercise regularly have an increased metabolism even in the resting state-- that is, burn off more calories just sitting or doing usual chores. In any case, it is very clear that individuals who exercise regularly are able to maintain a desired weight more easily and feel better at the same time!

The following table shows some calorie expenditures for various exercise activities:

Activity	Calories Burned During 30 Minutes for 150 Pound Individual
Walking slowly	100
Walking fast	200
Bicycling	75
Swimming slow	75
Dancing	100
Cross country skiing	150
Calisthenics	150
Jogging	300
Tennis (singles)	200
Jumping rope	375

If you weigh more than 150 pounds, you will burn more calories per half hour, and if you weigh less than 150 pounds, you will burn fewer calories. Exercising harder or faster for any particular activity will increase the number of calories burned only slightly. A better way to burn calories is to exercise longer!

Before you embark on an exercise program, you should talk to your physician for specific guidelines. You should also learn how to take your pulse, since the pulse will tell you whether you were exercising too hard or not hard enough.

The pulse tells you exactly how hard your heart is working and is your best measure for assessing your fitness in an exercise program. The pulse is a wave of blood which results from each contraction of the heart. It can be felt in various places, such as the wrist or neck. A normal pulse is between 70 and 80 per minute at rest. Well trained athletes may have a resting pulse 50 or 60.

Any activity, even eating, will increase the pulse. Measuring the pulse during and after exercise is important because it provides you a direct measure of how hard your heart is working, and whether the exercise you are doing is strenuous enough to improve your conditioning. The following table is taken from guidelines of the American Heart Association, and shows the pulse you should try to obtain during your exercise program. Remember, any exercise program should be approved by your physician.

TARGET PULSE FOR EXERCISE

Age	Target Pulse (per minute)
20	120-150
25	117-146
30	114-142
35	111-138
40	108-135
45	105-131
50	102-127
55	99-123
60	96-120
65	93-116
70	90-113

When you begin your exercise program, you should aim for the lower part of the target zone indicated in the table. As you become better conditioned, you should aim for the higher part of the target zone. You will see that you have to exercise harder to achieve your target pulse as you become better conditioned. That is a good sign and means that you are achieving better conditioning.

How is the pulse taken? First, when you stop exercising quickly place the tip of your index finger over the carotid artery, located to the left or the right of your Adams apple. Alternatively you can place your fingers on your wrist just below the base of your thumb; this is your radial artery. Using a watch with a second hand, count the pulse for 15 seconds and multiply by four. If you're pulse is below your target zone exercise a little harder the next time. If you're pulse is above your target zone exercise a little easier the next time. If it falls within your target zone, you're exercising just right!

You can purchase a pulses counting device very cheaply at many sports stores and stores such as Walmart or Target. These devices are very helpful and show your pulse during exercise.

It is important that you exercise at a comfortable pace. You should not become breathless. For example, if you're walking briskly, you should be able to keep up a conversation easily. If you are experiencing difficulty in breathing or feeling discomfort in your chest, you are exercising too hard and you should consult your physician.

Each exercise. Should be approximately 30 minutes. This should include five minutes of warm-up. During the initial five minutes of warm-up, you should begin exercising slowly and build up slowly over five minutes. Some simple warm-up exercises include the wall push, palm touch, and toe touch.

For the wall push, stand about one or two feet away from the wall, reach forward pushing against the wall while keeping your heels flat. Perform 10 pushes and then rest. Repeat one or two times. The palm touch is performed with your knees slightly bent; bending at the waist touch your palms to floor, repeating several times over five minutes. Do not do this exercise if you have back problems. For the toe touch, place your right leg level on a stair, chair, or other object. Keeping your legs straight, reach forward and slowly try to touch your right toeo with your right hand 10 times and then with your left hand 10 times. Then switch legs and repeat with each hand. Repeat this entire exercise one or two times.

After the warm-up period, you should exercise to maintain your target heart rate for about 15 to 30 minutes. Initially, exercise for only 15 minutes, and as you achieve better fitness, exercise for 25 to 30 minutes.

Following your exercise, you should do a cool down exercise for five minutes. You can do this by simply slowing down, or you can switch to a different, less vigorous exercise such a slow walking. If you have been running, walking briskly or jumping rope, you can repeat the warm-up exercises listed above.

The following is an example of a walking program that you might follow. By the way, walking is a great exercise and you should consider walking as your primary activity. Remember, exercise four times weekly.

WALKING PROGRAM

Week	Warm up	Exercise	Cool down
1	slowly 5 min	briskly 5 min	slowly 5 min
2	slowly 5 min	briskly 7 min	slowly 5 min
3	slowly 5 min	briskly 9 min	slowly 5 min
4	slowly 5 min	briskly 11 min	slowly 5 min
5	slowly 5 min	briskly 13 min	slowly 5 min
6	slowly 5 min	briskly 15 min	slowly 5 min
7	slowly 5 min	briskly 17 min	slowly 5 min
8	slowly 5 min	briskly 19 min	slowly 5 min
9	slowly 5 min	briskly 21 min	slowly 5 min
10	slowly 5 min	briskly 23 min	slowly 5 min
11	slowly 5 min	briskly 25 min	slowly 5 min
12 and on	slowly 5 min	briskly 25 min, setting speed and incline to achieve target heart rate	slowly 5 min

As you continue to exercise, check your pulse. If you do not reach your target pulse, then you should walk more briskly.

There are some medications that slow the pulse and make it difficult or impossible to reach your target pulse. The primary medications are the beta blockers, such as propranolol, naldolol, metoprolol, or atenolol. Talk to your doctor if you are on one of these medications before undertaking an exercise program.

Here are some helpful hints that will make it easier for you to keep on an exercise program:

- 1.** If you have a treadmill machine at home, place it in front of a television and watch a favorite program or DVD. Many treadmill devices have heart rate recorders built in, making it easier for you to count your pulse.
- 2.** Write down your exercise in an exercise log --hopefully in the same log as your food diary. Many of the applications for your smart phone or tablet let you enter your exercise activity as well.
- 3.** Exercise with a good friend.
- 4.** There are many exercise groups that you can join, making the exercise more fun; these programs can be more expensive, but the rewards of group exercise can be well worth the expense.

Remember that there are other ways you can increase the number of calories that you burn up. For example, take the stairs instead of the elevator. Or walk, rather than drive, whenever possible. And park your car two or three blocks from your destination.

The best time to start exercising is now! You will be rewarded many times over.