

SKIN CANCER

The skin is one of the largest organs of the body. It accounts for about one-twelfth of the body's weight and acts as a protective shield to a wide range of potentially harmful environmental agents. In this role, the skin itself presents the foremost target for damage from external sources. Thus, it should not be surprising that skin cancer is the most frequently occurring cancer in the United States. In fact, there were approximately one and a half million new skin cancer cases in 1997. This makes the incidence of skin cancer about equal to the incidence of all other types of cancer combined! Although there are over 200 different types of skin cancers, basal and squamous cell carcinomas (referring to the skin layer of origin) account for nearly all of the one and a half million new cases of non-melanoma skin cancer reported annually. Melanoma accounts for an additional 40,000 cases. Alarming, population-based studies indicate that there has been a steady increase in incidence of skin cancer over the past two decades and this increase appears to affect all age groups.



Of all the potentially harmful agents that affect skin, ultraviolet (UV) radiation is one of such general nature that exposure to the sun's UV rays is the single most important cause of skin cancer, accounting for about 90% of its occurrence. It is estimated that over 50% of the total lifetime dose from the sun's UV is received in childhood and adolescence. Based upon this, the regular use of a sunscreen with SPF 15 during the first 18 years of life would probably reduce the lifetime incidence of skin cancer substantially. However, it is obvious from the current estimates of skin cancer incidence that public education efforts regarding the avoidance of excessive sun exposure have been only moderately successful. This points to the need for additional measures to aid in the fight to prevent this common skin disease.



WHY DIET?

The first indication that dietary fat could influence the development of UV-induced skin cancer came in 1939. The researchers reported that when experimental animals were fed a diet that contained a high fat level, the time for cancer development after exposure to UV rays was significantly shortened. Although there was some interest in this area of investigation in the early 1940's, this research lead was not actively pursued for another 45 years. In the 1980's American and Australian researchers confirmed, in closely-controlled nutritional studies, that the level and nature of dietary fat could exert profound influence on the course of experimental UV-induced skin cancer. Subsequently, this influence of dietary fat was shown to occur principally after a cancer causing dose of UV had already been administered. Further, by switching from a high-fat to a low-fat diet shortly after administration of the cancer causing dose of UV, the influence of high-fat intake in provoking the appearance of skin cancers could be significantly diminished. It is known that among persons who have had at least one skin cancer, 28% are at risk to have another within the following two years. Thus, the experimental findings suggested that by adopting a low-fat diet, skin cancer patients might reduce their risk for developing new skin cancers and provided the basis for undertaking a clinical trial to test this hypothesis.

Skin cancer patients were assigned to one of two groups in the study. In the first group no changes in eating habits were introduced, allowing patients to continue to consume about 36-40% of their total calorie intake as fat. Patients in the other group were instructed in adopting low-fat eating habits with the goal of reducing the percent of calories from fat

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Sample Food Diary

Time	Meal or Snack Place	Amount	Food – Method of preparation and amount of fat added	Calories	Fat, grams
7:00 AM	Breakfast, Home	1 cup	Orange juice	112	0
		1 cup	Bran flakes with raisins	156	1
		1 cup	½% milk	92	1
		2 slices	Wheat toast	139	2
		1 tea-spoon	Margarine	34	4
		1 table-spoon	Jam	48	0
12:00 Noon	Lunch, Deli	1 sandwich	Grilled chicken breast on Kaiser roll with mayonnaise (2 teaspoons), lettuce, tomato	427	14
		1	Dill pickle spear	5	0
		½ cup	Baked beans	124	1
		1 ½ cup	Watermelon cubes	77	1
6:00 PM	Dinner, Home	4 ounces	Grilled salmon	179	7
		¾ cup	Rice pilaf	215	4
		3 spears	Steamed broccoli	29	0
		1 cup	Fresh fruit salad	92	1
		1 medium	Wheat roll	86	2
		1 tea-spoon	Margarine	34	4
		¾ cup	Low-fat frozen yogurt	147	2
8:30 PM	Snack, Home	8 cups	Light microwave popcorn	206	7
		1 cup	Apple cider	117	0
		TOTAL		2321	51

STEP ONE
ESTIMATING YOUR CALORIE
REQUIREMENT

The first step in developing a low-fat diet to fit your specific needs with respect to management and prevention of skin cancer is to estimate how many total calories you require.

You can estimate this value from the tables provided in **Appendix I**. To use the tables you will have to know your height (without shoes), frame size, and level of physical activity.

A simple method to estimate frame size is to determine the relation of your wrist circumference (the measurement in centimeters around your wrist) to your height. A cloth tape measure is placed around your right wrist at the smallest part (closest to your hand). The circumference is measured in centimeters (cm) and divided into your height (cm). One inch equals 2.54 cm. That is, if you are 5'9" in height, **Appendix I** provides the conversion (175 cm). The relation (R) to wrist circumference is obtained by dividing 175 cm by wrist measurement. Say you measure 17 cm, then:

$$R = 175 \text{ cm} \div 17 \text{ cm}, \text{ or } 10.29$$

By referring to **Appendix II**, you can see that this value falls within the range for a medium frame.

With respect to physical activity, daily standing and seated activities, such as typing, sewing, ironing, and driving represent **very light physical activity**; carpentry, housecleaning, golf, sailing, and restaurant work represent **light activity**; while gardening, cycling, tennis, and dancing are considered **moderate activity**.

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Food Nutrient Data

FAST FOOD	Calories	Fat, grams
Grilled chicken sandwich, with – out dressing	403	8
Hamburger, quarter pound meat patty, with dressing, lettuce, pickle, onion, mustard	538	31
With cheese	643	40
With cheese and bacon	716	46
French fries		
Small	202	10
Large	437	22
Super	523	26
Onion rings (1 order - 22 mini-rings)	313	14
Chocolate shake		
Small (16 fluid ounces)	351	5
Large (21 fluid ounces)	461	7

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DESSERTS AND SWEETS	Calories	Fat, grams
Frozen desserts (1/2 cup)		
Frozen yogurt, fat-free	100	0
Ice cream, regular (11% fat)	133	7
Ice cream, rich (16% fat)	178	12
Cookies		
Fig bar (1)	59	1
Gingersnap (1)	27	1
Vanilla wafer (1)	18	1
Sandwich, chocolate cookie with filling (1 medium)	47	2
Oatmeal, commercial package (3" diameter)	78	3
Chocolate chip, commercial package (2 1/4" diameter)	46	2
Chocolate chip, prepared from recipe (4" diameter)	304	18
Cakes		
Angel food, not frosted (1/12 of 10" cake)	140	0
Chocolate, with chocolate frosting (3" x 3" x 1 1/2")	413	21
Pies		
Pumpkin (1/8 of 9" pie)	257	10
Apple, double crust (1/8 of 9" pie)	307	11
Candy		
Hard candy (1 ounce)	106	0
Milk chocolate bar (1.5 ounces)	221	13

Now you can estimate your calorie requirement. For example, the calorie requirement for a man, 5'9" tall, of medium frame size, and experiencing only light physical activity, is **2300 calories** per day (**Appendix I**).



STEP TWO
DETERMINING THE GRAMS OF FAT
YOU SHOULD CONSUME

Once you have estimated your daily calorie requirement, you can easily calculate the daily number of grams of fat that you may consume to reach the goal of 20% of your total calorie intake from fat. Using our example of a 5'9" man of medium build requiring 2300 calories per day, we simply use the following formula:

$$2300 \text{ calories/day} \times 20\% = 460 \text{ calories from fat/day}$$

$$460 \text{ calories from fat/day} \div 9 \text{ calories/gram of fat} = 51 \text{ grams of fat/day}$$

* Fat is a very dense metabolic fuel and provides over twice the number of calories per gram than either carbohydrate or protein.

Thus, the man in our example should consume no more than 51 grams of fat per day if he is to achieve his goal of 20% of his total calorie intake from fat. *Alternatively, you may refer to **Appendix III** where we have provided the calculated values in tabular form for you.*



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FRUIT	Calories	Fat, grams
Fresh		
Apple (1 medium)	81	<1
Banana (1 medium)	105	<1
Cantaloupe (1/4 medium)	81	<1
Grapes (1 cup)	114	1
Grapefruit (1/2 medium)	41	0
Nectarine (1 medium)	67	<1
Peach (1 medium)	37	0
Pear (1 medium)	98	<1
Orange (1 medium)	62	0
Strawberries (1 cup sliced)	50	<1
Watermelon (1 cup cubes)	51	<1
Canned		
Applesauce, sweetened (1/2 cup)	97	0
Peach slices, light syrup (1/2 cup)	71	0
Pineapple chunks, in juice (1/2 cup)	75	0
Juices		
Apple (3/4 cup)	87	0
Cranberry (3/4 cup)	108	0
Orange (3/4 cup)	84	0

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VEGETABLES	Calories	Fat, grams
Asparagus (1/2 cup, ckd)	25	0
Broccoli (1/2 cup, ckd)	26	0
Cabbage (1/2 cup, ckd)	16	0
Carrots (1/2 cup, ckd)	35	0
Cauliflower (1/2 cup, ckd)	17	0
Corn (1/2 cup, ckd)	66	0
Green beans (1/2 cup, ckd)	19	0
Green peas (1/2 cup, ckd)	62	0
Lettuce, iceberg (1 1/2 cup)	11	0
Potato, baked (1 medium)	133	0
Potato, French fries (20 medium)	257	14
Spinach (1/2 cup, ckd)	25	0
Tomato (1 medium, raw)	26	0
Yams (1/2 cup, ckd)	138	0
Zucchini (1/2 cup, ckd)	14	0

STEP THREE
HOW TO SELECT AND PREPARE FOODS
THAT ARE LOW IN FAT
- SHOPPING OR EATING OUT-

The following guidelines provide the basis of a low-fat eating plan:

- Emphasize foods such as grains, fruits, and vegetables. These foods contain little or no fat unless fat is added during processing, preparation, or at the table.
- Choose the leanest cuts of red meat, poultry without skin, and seafood.
- Select non-fat or low-fat dairy products.
- Use modest amounts of oils, salad dressings, mayonnaise, and margarine.
- Select moderate amounts of fat-free or low-fat desserts and snacks.

Let's look at some specifics with regard to food selection.

Meat, Fish, and Poultry

- A reasonable guideline is to limit lean meat, poultry, and fish to 5 to 6 ounces (cooked) per day. A 3-ounce serving is about the size of a deck of cards. Choose "Choice" or "Select" grade beef. Cuts with "round" or "loin" in the name are leaner cuts. Select cuts with little marbling and trim visible fat before cooking. Select the leanest ground meat. Select processed meats with no more than 3 grams of fat per ounce. Examples include turkey breast, lean ham, and low-fat hot dogs.
- Remove skin from poultry before cooking. Look for turkeys that are not self basting.
- Use fat-free ingredients like wine, tomato

juice, lemon juice, or defatted beef or chicken broth to baste meats and poultry.

- Bake, broil, poach, or roast instead of frying. However, if you pan fry, use a non-stick pan and nonstick cooking spray.

Dairy Products

- Buy skim, ½ % or 1% milk rather than 2% or whole milk.
- Select low-fat (no more than 3 grams of fat per ounce) or fat-free cheeses.
- Select cottage cheese with no more than 2% fat.

Eggs

- Egg white contains no fat.
- Most egg substitutes are mainly egg whites; select egg substitutes with no more than 3 grams of fat per serving.

Fats and Oils

- Use cooking oils sparingly.
- Select fat-free and low-fat salad dressings, mayonnaise, and margarine.
- Nuts, peanut butter, olives, and avocado are high in fat.

Breads, Cereal, Pasta, Rice, and Other Grains, Dry Beans and Peas

- Most breads and rolls are low in fat. These include English muffins, bagels, sandwich buns, and pita bread. Exceptions are egg and cheese breads.
- Cornbread, biscuits, croissants, muffins, fruit or nut breads, waffles, and pancakes contain more fat.
- Select crackers with no more than 3 grams of fat per serving.

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OILS, BUTTER, MARGARINE, NUTS, AVOCADO, AND OLIVES	Calories	Fat, grams
Oils (1 tablespoon)	120	14
Butter (1 tablespoon)	102	12
Margarine (1 tablespoon)		
Fat-free, tub	5	0
Diet, tub	50	6
Regular, tub	102	11
Peanuts		
Oil roasted (1 ounce or 32 nuts)	163	14
Peanut butter (1 tablespoon)	95	8
Avocado		
Black skin (1/4 whole)	70	7
Green skin (1/4 whole)	122	12
Guacamole (1/2 cup)	164	14
Olives (5 extra large)		
Black	32	3
Green	45	5

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SALAD DRESSINGS AND MAYONNAISE	Calories	Fat, grams
Salad dressing (1 tablespoon)		
Fat-free		
Thousand Island	22	0
Caesar	6	0
French	20	0
Italian	5	0
Honey mustard	22	0
Ranch	19	0
Low-calorie		
Thousand Island	25	2
Caesar	27	2
French	24	1
Italian	33	3
Honey mustard	23	1
Ranch	35	3
Regular		
Thousand Island	48	5
Caesar	61	6
French	58	6
Italian	61	6
Oil and vinegar	61	6
Honey mustard	74	7
Ranch	70	7
Mayonnaise (1 tablespoon)		
Fat-free	10	0
Light	50	5
Regular	100	11

- Most ready-to-eat and cooked cereals are low in fat. Granola, unless labeled low-fat, contains more fat.
- Dry pasta, except for egg noodles, contains very little fat other than that added in preparation. Fresh pasta made with egg yolk is higher in fat.
- Plain rice contains negligible fat.
- Dry beans and peas, such as kidney, pinto, lima, black beans, split peas, and lentils are low in fat.

Vegetables

- Vegetables contain negligible fat unless fried or fat is added.

Fruits

- Fruits and fruit juices contain negligible fat unless fat is added.

Reading Food Labels

Selecting foods for a low-fat eating plan can be made much easier by taking a few moments to read the information on food labels. The grams of fat per serving are included in the list of nutrients in the “nutrition facts”. An example from a low-fat ice cream follows:

Nutrition Facts	
Serving Size	½ cup (71 g)
Servings Per Container	4
<hr/>	
<i>Amount Per Serving</i>	
Calories	110
Calories from Fat	20
<hr/>	
	% Daily Values
Total Fat 2 g	3%
Saturated Fat 1 g	5%
Cholesterol 5 mg	2%
Sodium 55 mg	2%
Total Carbohydrate 19 g	6%
Dietary Fiber less than 1 g	2%
Sugars 19 g	
Protein 3 g	

The **Nutrition Facts Table** provides further information, such as the percent of the Daily Values for minerals and vitamins that may be present. The % Daily Values are based on a 2000 calorie diet with less than 65 grams of fat (30% of calories from fat). **Requirements for your low-fat diet will be different!** Thus, the information that is important to you will be the **Total Fat** value, i.e., 2 grams in the example. This value would be applied to your **Fat Gram Goal**. For example, in our 5'9" man requiring 2300 calories per day and with a fat gram goal of 51g of fat per day, one serving would have contributed 2 of those 51 grams. One word of advice when reading a **Nutrition Facts Table** is that you should be careful to distinguish between the total fat per container and the fat per serving.

Nutrient content claims indicate foods that are fat-free, low-fat, or reduced in fat. Foods labeled fat-free or low-fat must contain no more than a specified amount of fat per serving or, in some instances, per 100 grams. Reduced fat simply means that a particular food is lower in fat than a reference food. Check the label for grams of fat per serving in foods labeled "reduced fat". Some foods labeled "reduced fat" may be relatively high in fat although lower than comparable products. Nutrient content claims for fat in food products are provided in **Appendix IV**.

Eating Out

Recent studies indicate that Americans are eating more healthful meals at home, but nearly one-half of all Americans eat out at least once a week. In fact, nearly 30% of all meals are eaten away from home. Food prepared outside the home usually contains more fat. Currently, fat makes up nearly 38% of the calories of food eaten away from home, although an increasing number of restaurants have low-fat selections on their menus.

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BREADS, CEREALS, PASTA, RICE, BEANS AND PEAS - con't	Calories	Fat, grams
Cereals, ready-to-eat		
Bran flakes (1 cup)	141	1
Cornflakes (1 cup)	110	<1
Cornflakes, presweetened (1 cup)	147	<1
Raisin bran (1 cup)	156	1
Shredded wheat (1 large biscuit)	85	1
Granola, commercial, made without oil (1/2 cup)	150	3
Granola, commercial, made with oil (1/2 cup)	244	11
Cereals, cooked, prepared with water		
Farina (creamed wheat) (1 cup)	121	<1
Grits, instant (1 cup)	147	<1
Oatmeal, instant (1 cup)	138	2
Oatmeal, instant, flavored (1 packet)	150	3
Pasta, cooked		
Spaghetti noodles (1 cup)	197	1
Linguini noodles (1 cup)	183	1
Egg noodles (1 cup)	213	2
Rice, cooked		
White, converted (1 cup)	227	<1
Brown (1 cup)	216	2
Rice, commercial seasoned mix, prepared without fat (1 cup)	224	1
Rice, commercial seasoned mix, prepared with fat (1 cup)	275	7
Beans and peas, cooked		
Black beans (1/2 cup)	129	1
Garbanzo beans (1/2 cup)	134	2
Kidney beans (1/2 cup)	114	<1
Pinto beans (1/2 cup)	118	<1
Baked beans, with pork, tomato sauce, canned (1/2 cup)	124	1
Peas, black-eyed (1/2 cup)	104	<1
Lentils (1/2 cup)	115	<1
Split peas (1/2 cup)	116	<1

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BREADS, CEREALS, PASTA, RICE, BEANS AND PEAS	Calories	Fat, grams
Breads and baked items		
Bread (1 slice)		
Raisin	71	1
Rye	83	1
Sourdough	68	1
White	67	1
Whole wheat	70	1
Bagel, white (3 1/2" diameter)	195	1
English muffin, white (3 1/2" diameter)	134	1
Pita, white (6 1/2" diameter)	165	1
Breadstick, cracker-type (7 3/4" long x 3/4")	41	1
Hamburger bun (3 1/2" diameter)	123	2
Hot dog bun (6" long)	123	2
Roll, hard (3 1/2" diameter x 2 1/4")	146	2
Roll, white (2 1/2" x 2 1/2" x 1 1/2")	108	3
Kaiser roll (4" diameter x 2 1/2")	205	3
Melba toast (4 rectangles)	79	<1
Saltine crackers (4)	53	2
Graham crackers (4 squares)	110	3
Tortilla, corn (6 1/2" diame- ter)	55	1
Tortilla, flour (8" diameter)	138	3
Biscuit, prepared from refriger- ated dough (2 1/2" diameter)	93	4
Biscuit, prepared from recipe (2 1/2" diameter)	194	11
Cornbread, prepared from commercial mix (3" x 3" x 1")	220	8
Pancake, prepared from recipe (4" diameter)	92	4
Waffle, prepared from recipe or commercial mix (7" diame- ter)	260	15
Muffin, banana, with nuts (2 5/8" x 1 1/2")	219	10
Nut bread (4 1/2" x 2 1/2" x 1/2")	158	6
Cinnamon roll, with frosting or glaze (3" diameter x 1 1/2")	299	11
Croissant (5-6" long)	342	19

Thus, it is helpful to inquire about menu selections when making plans to eat out. Many of the previous tips for food selection apply when selecting from the menu, but may be simply rephrased. For example:

- Which items can be prepared without fat?
- Are low-fat salad dressings available?
- Is skin removed from poultry when cooked?
- Is fat trimmed from beef, pork or lamb before cooking?
- Can the beef or poultry selection be grilled or broiled without fat?
- Can the sauce or gravy be served on the side rather than on the entrée?

These common sense suggestions for low-fat dining out can be applied to specific types of foods. For example:

American Cuisine

Breakfast

Order toast, English muffins, or bagels "dry" with butter, margarine or cream cheese left off or served on the side. Use jam or jelly instead of butter or margarine.

Request that butter or margarine not be added to cooked cereals. Select ready-to-eat cereal other than granola, which is often high in fat. Request skim or low-fat milk.

Order pancakes and waffles with butter or margarine left off or served on the side.

Request that egg dishes be prepared with egg whites or egg substitutes and without cheese, bacon, or sausage.

Select lean ham or Canadian bacon instead of bacon or sausage.

Lunch

Order sandwiches made with sliced turkey, grilled chicken breast, or lean ham or roast beef instead of higher-fat fillings such as chicken, tuna, ham, or egg salad.

Request that vegetarian sandwiches be made without high-fat ingredients such as cheese, avocado, and mayonnaise.

Dinner

Entrees:

Select lean meats.

Beef - sirloin, tenderloin, and filet mignon (cooked without bacon).

Pork - tenderloin, loin pork chops, center-cut baked ham, and ham steak.

Lamb - leg of lamb with fat trimmed off.

High-fat cuts include rib-eye and T-bone steaks, all prime cuts of meat, ribs, and brisket.

Request that skin be removed from chicken before cooking.

Select meat, fish, or poultry that is roasted, baked, broiled, or grilled without basting with fat.

Request that little or no oil be used in preparing entrees that are sautéed or stir-fried.

Trim visible fat from meat.

Ask that gravies and rich sauces be served on the side or left off.

Casseroles are usually high in fat.

Salads:

Ask if fat-free or low-fat dressings are available. Request that dressing be served on the side.

Request that cheese, bacon, and avocado be left off.

Vegetables and Starches:

Select plain or grilled vegetables that are not seasoned with butter, margarine, or olive oil, in a cream sauce, or fried.

Choose low-fat toppings for baked potatoes, such as salsa, chives, green onions, or fat-free or low-fat salad dressings or use small amounts of cheese, sour cream, butter, or margarine. Potatoes that are creamed, scalloped, au gratin, stuffed, or twice-baked are generally high in fat.

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DAIRY PRODUCTS	Calories	Fat, grams
Milk (1 cup)		
Skim	86	0
1/2 %	92	1
1%	102	3
2%	121	5
Whole	150	8
Cheese (1 ounce)		
American, fat-free	47	0
Mozzarella, part-skim	72	5
Feta	75	6
Mozzarella, whole-milk	90	7
Provolone	100	8
Swiss	107	8
Monterey Jack	104	9
American	106	9
Cheddar	114	9
Parmesan, grated (1 table-spoon)	23	2
Yogurt, not frozen (1 cup)		
Non-fat, fruit-flavored, with aspartame	108	0
Non-fat, plain	137	0
Low-fat, fruit-flavored	250	3
Low-fat, plain	155	4
Cottage cheese (1/2 cup)		
1% fat	82	1
2% fat	101	2
Creamed	109	5
Cream cheese (2 table-spoons)		
Fat-free	24	0
Low-fat	64	5
Regular	99	10
Sour cream (2 table-spoons)		
Fat-free	21	0
Low-fat	40	2
Regular	52	5
Cream (1 tablespoon)		
Half and half	20	2
Whipping, nonwhipped	44	5

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SEAFOOD	Calories	Fat, grams
Finfish, prepared without added fat (3 ounces, cooked)		
Orange roughy	59	1
Haddock	95	1
Flounder	99	1
Snapper	109	1
Yellowfin tuna	118	1
Halibut	119	2
Catfish, wild	89	2
Catfish, farm-raised	129	7
Swordfish	132	4
Salmon, Coho	134	5
Salmon, Atlantic	155	7
Finfish, breaded and fried (3 ounces, cooked)		
Catfish, prepared with cornmeal	194	11
Haddock	303	14
Shellfish		
Shrimp, boiled (16 large)	84	1
Oysters, cooked (6 medium)	60	2
Seafood, canned in water (3 ounces)		
Tuna, light	99	1
Salmon, sockeye, with bone	130	6

Rules of Thumb:

- **Broiling, grilling, baking, or pan-frying with added fat (without flour, cornmeal, or breading) adds approximately 20 calories and 2 grams of fat per 3 ounces of cooked meat, poultry or seafood.**
- **Breading and frying adds approximately 115 calories and 13 grams of fat per 3 ounces.**
- **The amount of added fat varies considerably and can be significantly higher, especially in restaurants.**

Breads:

Choose low-fat breads, such as hard rolls, hard breadsticks, or sliced bread. Some soft rolls are higher in fat and may be brushed with fat. Use butter, margarine, or olive oil sparingly, if at all.

Desserts:

Select sorbet, sherbet, low-fat or fat-free frozen yogurt, fresh fruit, or angel food cake. Eat only the filling in fruit pie (most of the fat is in the crust).

Asian - Chinese, Thai, Vietnamese

Select steamed dumplings as a low-fat appetizer instead of fried egg rolls.

Order fresh (soft) spring rolls as an appetizer rather than fried spring rolls.

Request that very little oil be used to stir-fry entrees or select steamed entrees.

Breaded and fried entrees, such as sweet and sour dishes and lemon chicken, are high in fat.

Curry dishes, made with coconut milk or cream, are high in fat.

Dishes prepared with peanut sauce or with nuts are high in fat.

Choose steamed rice instead of fried rice.

Fortune cookies are low in fat.

Italian

Look for dishes that are not prepared ahead of time such as pasta with vegetables, seafood, poultry, or meat and ask that they be prepared with little or no fat.

Select red sauces, such as marinara and pomodoro, rather than cream sauces such as Alfredo sauce. Ask that red sauce be substituted for cream sauce when pasta is served as a side dish.

Lasagna, ravioli, manicotti, and other foods that are prepared ahead of time usually contain high-fat ingredients such as butter, cheese, cream, ground meat, and/or sausage.

Pizza

Begin with a large salad to take the edge off your appetite.

Choose a thin-crust pizza with vegetable toppings. Canadian bacon is a lean alternative to pepperoni, sausage, and ground meat.

Request that less cheese be added.

Mexican

Request steamed or baked corn tortillas (with salsa) as an alternative to chips.

Order chicken fajitas and request that little or no fat be used in cooking; substitute corn tortillas for flour tortillas.

Use salsa as a dressing on a chicken fajita salad. Request that cheese and sour cream be left off. View the taco shell as merely a bowl for the salad.

Guacamole is high in fat.

Pinto beans or black beans prepared with less fat than refried beans are available in some Mexican restaurants.



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POULTRY	Calories	Fat, grams
Chicken, white meat (3 ounces, cooked)		
Without skin, prepared without fat	141	4
With skin, prepared without fat	171	8
Chicken, dark meat (3 ounces, cooked)		
Without skin, prepared without fat	181	9
With skin, prepared without fat	215	13
Chicken breast (1 medium, split)		
Without skin, prepared without fat	149	4
Without skin, broiled or grilled with added fat	167	6
With skin, breaded and fried	414	22
Chicken drumstick (1 medium)		
Without skin, prepared without fat	71	2
With skin, broiled or grilled with added fat	122	7
With skin, breaded and fried	235	13
Chicken thigh (1 medium)		
Without skin, prepared without fat	111	5
With skin, broiled or grilled with added fat	170	11
With skin, breaded and fried	305	19
Turkey breast (3 ounces)		
Processed	93	3
Roasted, without skin	133	3

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BEEF, PORK, AND LAMB	Calories	Fat, grams
Beef, Choice, lean only (3 ounces, cooked)		
Eye of round, roasted	149	5
Top round, braised	176	5
Top sirloin, broiled	170	7
Bottom round, braised	181	7
Top loin, broiled	177	8
Flank, broiled	176	9
Tenderloin, broiled	180	9
Ground beef (3 ounces, cooked)		
Extra-lean, broiled	217	14
Lean, broiled	231	16
Regular, broiled	246	18
Pork, lean only (3 ounces, cooked)		
Tenderloin, roasted	139	4
Ham, extra lean	123	5
Ham, lean	151	8
Loin chops, broiled	171	7
Sirloin, broiled	181	9
Lamb, lean only (3 ounces, cooked)		
Leg, shank half, roasted	153	6
Shoulder, arm, roasted	163	8
Loin, roasted	171	8
Rack, rib, roasted	197	11

STEP FOUR
REACHING YOUR GOAL AND STAY-
ING THERE WITH THE HELP OF A
FOOD
DIARY

Thus far we have presented the same steps and advice that the dietitians used with the skin cancer patients in the low-fat dietary intervention study described on pages 2 and 3. You have been able to *assess* your general calorie needs based on information obtained from **Appendix I** and **II**. From this information the number of grams of fat you need to reach your *goal* of 20% of calories from fat is provided in **Appendix III**. Tips regarding selection and preparation of low-fat foods have been provided with fat content and food nutrient data in **Appendix IV** and **V**. Now all that remains is for you to begin and maintain your low-fat diet. An important tool that you will find an invaluable aid in doing so is the **Food Diary**. You may wish to pattern your food diary after the blank example in **Appendix VI**. The low-fat diet that you will adopt for management and prevention of skin cancer requires that you count only the grams of fat, based upon the foods and amounts, eaten each day. As it is an easy task, you may find it informative to count calories as well, although it is not necessary when adopting the low-fat diet.

Let's take a look at how you go about selecting foods to meet your fat gram goal. Again, we will use the 5'9" man of medium frame and light physical activity as an example. From **Appendix I** and **III** we have determined his need of 2300 calories and a fat gram goal of 51. Using the fat gram values from **Appendix V** and food labels, our 5'9" man consumed a breakfast of orange juice, bran flakes, milk, wheat toast, margarine and jam which provided 8 grams of fat toward his goal. Lunch consisted of a grilled chicken breast sandwich on Kaiser roll with mayonnaise, lettuce, and tomato,

dill pickle spear, baked beans, and watermelon cubes. This provided 16 grams of fat. Dinner consisted of grilled salmon, rice pilaf, steamed broccoli, fresh fruit salad, wheat roll with margarine, and low-fat frozen yogurt. This meal provided 20 grams of fat. Our 5'9" male example then consumed an evening snack of light microwave popcorn and apple cider. The snack provided 7 grams of fat. Over the course of the day he consumed 2321 calories and 51 grams of fat, the latter meeting his fat gram goal.

One should notice that the low-fat diet given in the example (**Appendix VI**) is not “*all grass and twigs*”, but rather represents a well-balanced and appealing menu. The information provided in this booklet allows you to learn fat reduction strategies to complement your individual food preferences and lifestyle. If followed, this practical dietary advice with respect to reduction in percentage of calories from fat could make an important contribution to the management and prevention of skin cancer, as well as conveying additional health benefits.



Appendix IV

Nutrient Content Claims for Fat in Food Products Other than Meat, Poultry, Fish, and Game

Nutrient Content Claim	Individual Food Products	Main Dishes & Meals
Fat Free	Less than 0.5 gram of fat per serving.	Less than 0.5 gram of fat per serving.
Low Fat	3 grams or less of fat per serving.	3 grams or less of fat per 100 grams; must provide 30% or less of calories from fat.
Reduced Fat	At least 25% less fat per serving compared with reference food.	At least 25% less fat per 100 grams compared with reference food.

Appendix IV

Nutrient Content Claims for Meat, Poultry,
Fish, and Game

Nutrient Content Claim	Definition
Lean	Less than 10 grams of fat, 4.5 grams or less of saturated fat, and less than 95 mg of cholesterol per 100 grams and per serving.
Extra Lean	Less than 5 grams of fat, less than 2 grams of saturated fat, and less than 95 mg of cholesterol per 100 grams and per serving.

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Appendix I adapted from Metropolitan Life Insurance tables, 1959. Appendix IV adapted from FDA and USDA regulations. Appendix V adapted from USDA, *Agricultural Handbook series no. 8* and *Nutrition Data System*, Univ. of Minnesota.



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Appendix III

Fat Gram Goal Equal to 20% of Total Calories

Calorie Level (Intake)	Grams of Fat Equal to 20% of Calories
1200	27
1300	29
1400	31
1500	33
1600	36
1700	38
1800	40
1900	42
2000	44
2100	47
2200	49
2300	51
2400	53
2500	56
2600	58
2700	60
2800	62
2900	64
3000	67
3200	71
3500	78

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Appendix II

Frame Size

Relation (R) of height to wrist circumference*

Gender	Large	Medium	Small
Male	less than 9.6	9.6 – 10.4	greater than 10.4
Female	less than 9.9	9.9 – 10.9	greater than 10.9

APPENDIX

* R = height (cm)/wrist circumference (cm)

Height obtained from Appendix I; R values above denote frame size.

This table adapted from Grant et al. *The Surg Clin of North America* 61, 437-463, 1981.

Appendix I

Desirable Calorie Levels for Women

Physical Activity

Height	Frame Size	Very Light	Light	Moderate
5'0" 152 cm	Small	1400	1600	1800
	Medium	1450	1700	1900
	Large	1600	1850	2100
5'1" 155 cm	Small	1400	1650	1850
	Medium	1500	1750	1950
	Large	1650	1900	2150
5'2" 157 cm	Small	1450	1700	1900
	Medium	1550	1800	2000
	Large	1700	1950	2200
5'3" 160 cm	Small	1500	1750	1950
	Medium	1600	1850	2100
	Large	1750	2000	2250
5'4" 163 cm	Small	1550	1750	2000
	Medium	1650	1900	2150
	Large	1800	2050	2350
5'5" 165 cm	Small	1600	1850	2050
	Medium	1700	1950	2250
	Large	1850	2100	2400
5'6" 168 cm	Small	1650	1900	2150
	Medium	1750	2050	2300
	Large	1900	2200	2450
5'7" 170 cm	Small	1700	1950	2200
	Medium	1800	2100	2350
	Large	1950	2250	2550
5'8" 173 cm	Small	1750	2050	2300
	Medium	1850	2150	2450
	Large	2000	2300	2600
5'9" 175 cm	Small	1800	2100	2350
	Medium	1900	2200	2500
	Large	2050	2350	2700
5'10" 178 cm	Small	1850	2150	2450
	Medium	1950	2250	2550
	Large	2100	2450	2750

Appendix I

Desirable Calorie Levels for Men

Physical Activity

Height	Frame Size	Very Light	Light	Moderate
5'5" 165 cm	Small	1700	1950	2200
	Medium	1800	2050	2350
	Large	1900	2200	2500
5'6" 168 cm	Small	1750	2000	2250
	Medium	1850	2100	2400
	Large	2000	2300	2600
5'7" 170 cm	Small	1800	2050	2350
	Medium	1900	2200	2450
	Large	2050	2350	2650
5'8" 173 cm	Small	1850	2100	2400
	Medium	1950	2250	2550
	Large	2100	2400	2750
5'9" 175 cm	Small	1900	2200	2450
	Medium	2000	2300	2600
	Large	2150	2500	2800
5'10" 178 cm	Small	1950	2250	2550
	Medium	2050	2350	2700
	Large	2200	2550	2850
5'11" 180 cm	Small	2000	2300	2600
	Medium	2100	2450	2750
	Large	2250	2600	2950
6'0" 183 cm	Small	2050	2350	2650
	Medium	2150	2500	2850
	Large	2350	2700	3050
6'1" 185 cm	Small	2100	2450	2750
	Medium	2200	2550	2900
	Large	2400	2750	3150
6'2" 188 cm	Small	2150	2500	2800
	Medium	2300	2650	3000
	Large	2450	2850	3200
6'3" 190 cm	Small	2200	2550	2900
	Medium	2350	2700	3100
	Large	2500	2900	3300