

SIMPLY SATISFYING SOY "Tofu"

THE MAJOR NUTRIENTS IN SOY:

Soy foods are rich sources of protein, fiber, calcium, B-vitamins, and iron. They also contain some other substances which may all have potential cancer-protective effects. These substances are: phytochemicals, isoflavones (also called phytoestrogens - specifically, genistein and daidzein), protease inhibitors (substances that act to stop the action of enzymes), phytate (acts like an antioxidant), phytosterols (plant substances related to fats - i.e., cholesterol), saponins (antioxidants), phenolic acid (antioxidant), and lecithin (a fat).

HOW SOY FOODS PROTECT OUR HEALTH:

Heart Disease: Eating soy foods may reduce blood cholesterol levels, which may reduce the risk of heart disease. Some preliminary research shows that it is the isoflavones or phytoestrogen called *genistein* in soy foods that may directly lower blood cholesterol levels.

Osteoporosis: Eating soybeans, which are good sources of calcium and protein, may be an easy way to help build strong bones and maybe even reduce the risk of osteoporosis. Research shows that it is the isoflavones, *genistein* and *daidzein*, in soybeans, that prevent bone loss or the breakdown of bones. Also, the protein in soybeans helps to conserve calcium in our bodies.

Cancer: The American Cancer Society's dietary guidelines for reducing the risk of cancer include choosing plant source foods and limiting the intake of high fat foods. These two guidelines make soyfoods the perfect solution to potentially reducing the risk of cancer through diet.

LABORATORY RESEARCH SHOWS THAT:

1. *Protease inhibitors* in soyfoods appear to reduce the risk of colon, lung, pancreas, esophagus, and breast cancers.
2. *Phytate* in soyfoods acts like an antioxidant, potentially reducing the risk of both breast and colon cancers.
3. *Phytosterols* in soyfoods protect the colon from harmful bile acids, potentially reducing colon tumors; they also have been potentially effective in reducing skin cancer.
4. *Saponins* in soyfoods are antioxidants that have potentially cancer-protective effects; they also have potential to prevent mutations in cells that lead to cancer.

5. *Phenolic acid* in soyfoods is another antioxidant that appears to have cancer-protective effects also – against mutations in cells as well.
6. *Lecithin*, a fat in soyfoods, appears to reduce lung tumors in mice.
7. *Plant estrogens*, also known as *isoflavones* or *phytoestrogens* in soyfoods have been identified as having cancer-protective effects by potentially stopping the growth of cancer cells.

Excerpted from "Estrogen the Natural Way", Nina Shandler

Menopause: Isoflavones in soybeans have the potential of reducing symptoms associated with menopause such as: hot flashes and sleep disturbances. The weak estrogen-like activity in soyfoods may help to reduce these symptoms.

ONE SERVING OF SOYFOOD EQUALS:

- ½ cup cooked mature soybeans
- ½ cup green soybeans
- ½ cup tempeh
- ½ cup textured soy protein (TVP)
- ¼ cup soynuts
- ½ cup tofu
- ¼ cup soy flour; defatted
- 1 cup soy milk
- 2 Tablespoons Miso

SOME EASY SUBSTITUTIONS USING SOY PRODCUTS:

- | | | |
|--|---|---|
| 1 cup milk | = | 1 cup fortified soy milk |
| 1 cup fruit yogurt | = | 1 cup silken tofu + fruit of your choice, blended |
| 1 egg | = | 1 Tbsp. Soy flour + 1 Tbsp. Water |
| 1 egg | = | 1 - 2" square of tofu |
| Soy milk | = | 1 cup full-fat soy flour + 3 cups water |
| 1 cup ricotta cheese | = | 1 cup firm tofu, mashed |
| 2 Tbsp. Flour | = | 1 Tbsp. Soy flour |
| <i>*replace ¼ of the flour in self-rising (yeast) baked goods with soy flour</i> | | <i>*replace 1/3 of the flour in quick breads with soy flour</i> |
| 3 ounces of ground beef (85% lean) | = | ½ cup TVP, reconstituted (plain or beef flavored) |
| 1 ounce cheddar cheese | = | 1 ounce soy-based cheddar cheese |
| 3 ounces chicken breast chunks | = | ½ cup TVP, small chunks - rehydrated (chicken flavored) |
| 1 Tbsp. Sour cream | = | 1 Tbsp. Tofu sour cream |

ALL THE DIFFERENT KINDS OF SOYFOODS:

Soyfoods are easily incorporated into the daily diet because they are so versatile and can be fit into any meal like: a night of “grilling”, breakfast smoothies, snacks, or even wonderful rich desserts.

SOYMILK FACTS: Soymilk is rich, creamy and made from soybeans. It has a nutty flavor, is very nutritious, and can be used in a variety of ways.

Buying and Storing Soymilk:

- is sold in supermarkets, health food stores, and specialty food shops.
- is commonly found in aseptic (non-refrigerated) quart and 8 oz. containers; also sold in plastic refrigerated quarts and half gallons.
- unopened - aseptic milk can be stored at room temperature for several months; once opened - must be refrigerated and will stay fresh for about 5-7 days.
- also sold in powder form, which must be mixed with water; powder should be stored in the refrigerator or freezer.

Types of Soymilk:

- plain (unflavored)
- chocolate
- vanilla
- carob
- almond
- “lite” (reduced fat)

Nutritional Value of Soymilk:

- plain, unfortified soymilk - excellent source of high quality protein, B-vitamins, and iron
- fortified soymilk - good sources of calcium, vitamin D, vitamin B-12
- free of the milk sugar, lactose - excellent for lactose intolerance
- good for people with cow’s milk allergies
- soymilk acceptable for children after age 1

Nutrients in 8 ounces of Plain Soymilk:

| NUTRIENT | REGULAR SOYMILK | LITE SOYMILK |
|--------------|-----------------|--------------|
| Calories | 140 | 100 |
| Protein | 10 | 4 |
| Fat | 4 | 2 |
| Carbohydrate | 14 | 16 |
| Sodium | 120 | 100 |

| | | |
|------------|-----|-----|
| Iron | 1.8 | 0.6 |
| Riboflavin | 0.1 | 11 |
| Calcium | 80 | 80 |

Source: Product analysis

Tips For Using Soymilk:

- plain or unflavored as a refreshing drink
- over hot or cold cereal
- make cream sauces (cholesterol free and low in saturated fat)
- make rich pancake/waffle mixes
- delicious shakes (with soymilk, ice-cream or tofu, and fruit)
- make cream soups
- use instead of evaporated milk in custards and pies (lower in fat)

SOYBEAN FACTS: Soybeans are legumes with a nutty, pleasant flavor that must be soaked for 6-8 hours prior to cooking which takes about 2 hours.

Dry Soybeans:

- available in black or light tan in color

Buying Soybeans:

- available in natural food stores and supermarkets in bags or bulk bins

Storing Soybeans:

- kept in an airtight container for a long period of time

Preparing Soybeans:

- dry soybeans expand a lot when cooked
- one cup dry beans (about a ½ pound) yield 2-3 cups cooked beans
- discard debris or shriveled beans
- wash and drain

Soaking Soybeans:

- soaking dry soybeans shortens cooking time and improves flavor, texture, and appearance
- in large pot, add 6 cups water for each one pound (2 cups) of dry beans
- let soybeans stand at room temperature for about 6-8 hours or overnight (it is unnecessary to refrigerate the beans during this process)
- drain, rinse, and cook the beans
- “quick” soaking method – add same amount of water as above, heat the water to boil and cook the beans for 5 minutes, cover the pot and let beans stand for one hour, drain, rinse, and cook

Cooking Soybeans:

- put soaked beans in large pot
- add 6 cups fresh water for each pound of beans
- do not add salt at this point (it will delay the softening of the beans)
- bring pot to a boil, allowing the steam to escape
- reduce heat, simmer, and cook beans for about 3 hours until tender

Seasoning Soybeans:

- onion
- garlic
- bay leaf

Nutrients in a ½ cup of Cooked Soybeans:

| NUTRIENT | HOW MUCH |
|-----------------|----------|
| Calories | 149 |
| Protein | 14.3 gm |
| Total Fat | 7.7 gm |
| Saturated Fat | 1.1 gm |
| Unsaturated Fat | 6.6 gm |
| Carbohydrates | 8.5 gm |
| Crude Fiber | 1.8 gm |
| Calcium | 88.0 gm |
| Iron | 4.4 mg |
| Zinc | 1.0 mg |
| Thiamin | 0.1 mg |
| Riboflavin | 0.3 mg |
| Niacin | 0.3 mg |
| Vitamin B6 | 0.2 mg |
| Folacin | 46.2 mg |

Source: Product Analysis

Green Soybeans:

- are harvested just prior to maturity.
- similar in size and color to green peas; slightly smooth to the touch
- pods should be well filled with mature beans
- are versatile; may be eaten as a side dish, snack, or used in salads or soups

Buying:

- most often found in the frozen food section of natural food stores

Storing:

- may be refrigerated and used within 2 days; or frozen for several months

Preparing:

- press bean pods between thumb and forefinger to open
- push beans out with thumb
- pods may be discarded

Cooking:

- place one pound green soybeans in saucepan of boiling, slightly salted water
- reheat to a boil
- reduce heat to low
- cover and simmer 10-12 minutes until tender
- serve immediately

As Snacks:

- cook green soybeans in their pods; using the above cooking method
- serve beans in their pods at room temperature; or slightly chilled as finger food
- open pods with fingers; pop soybeans right into mouth (FUN FOR KIDS!!)

Seasoning:

- cloves
- marjoram
- nutmeg
- onion
- savory
- rosemary
- tarragon
- thyme

Nutrients in a ½ cup of Green Soybeans without pods:

| NUTRIENT | HOW MUCH |
|-----------------|----------|
| Calories | 60 |
| Total Fat | 2 gm |
| Saturated Fat | 1 gm |
| Unsaturated Fat | 1 gm |
| Carbohydrates | 3 gm |
| Dietary Fiber | 8 gm |
| Sugars | 3 gm |
| Protein | 6 gm |

Source: Product Analysis

SOY FLOUR FACTS: It is made from roasted soybeans and has been ground to a fine powder. It is rich in high quality protein and other nutrients and it adds a pleasant texture and flavor to a variety of products.

Two Kinds Of Soy Flour:

- Natural (full fat) - contains natural oils found in soybeans
- Defatted - oils are removed during processing

****Both kinds give a protein boost to recipes; however, the defatted version is more concentrated in protein. Like the whole grain flours, both kinds should be stored in the refrigerator or freezer.**

Tips For Using Soy Flour:

- Always stir soy flour before measuring - it can become packed in its container.
- Use soy flour as it is or lightly "toast" it first to enhance its nutty flavor - put the flour in a dry skillet, cook it, stirring occasionally, over moderate heat; when you smell the nutty flavor - it's toasted.
- Baked products containing soy flour tend to brown more quickly - you may need to shorten baking times or lower oven temperatures slightly.

Using Soy Flour:

- Soy flour is used extensively by the food industry - in fudge and other candies, pies, doughnuts, cakes, rolls, pasta, pancake mixes, and frozen desserts.
- In your own kitchen - use it to thicken gravies and cream sauces, to make homemade soymilk, or to add it to a variety of baked goods.
- In baked goods - soy flour keeps them from becoming stale, adds a rich color, fine texture, tenderness, and moisture.
- In fried foods (like doughnuts) - soy flour reduces the amount of fat absorbed by the dough.
- Since soy flour is free of gluten, which gives structure to yeast raised products, soy flour can not replace all of the wheat or rye flour in a recipe - a trick is to add 2 Tablespoons of soy flour to a one cup measure before filling the cup with all purpose or other flour called for in the yeast raised recipe.
- In non yeast raises recipes - up to a ¼ of the total amount of flour called for in the recipe can be replaced with soy flour.
- Soy flour can also be used as an inexpensive and cholesterol free egg substitute - replace 1 egg with 1 Tablespoon of soy flour and 1 Tablespoon of water.

Nutrients in 3-1/2 ounces of Soy Flour:

| | FULL FAT, ROASTED | DEFATTED |
|----------|-------------------|----------|
| Calories | 441 | 329 |

| | | |
|---------------|--------|---------|
| Protein | 35 gm | 47 gm |
| Total Fat | 22 gm | 1.2 gm |
| Carbohydrate | 34 gm | 38.4 gm |
| Dietary Fiber | 2.2 gm | 4.3 gm |
| Calcium | 188 gm | 241 gm |
| Iron | 6 mg | 9 mg |
| Zinc | 3.5 mg | 2.4 mg |
| Thiamin (B1) | .41 mg | .7 mg |
| Riboflavin | .94 mg | .25 mg |
| Niacin | 3.3 mg | 2.6 mg |

Source: Product Analysis

THE REST OF THE SOYBEAN FAMILY:

Soynuts:

- crunchy snack food made by roasting soybeans until browned; eat as is or mixed with dried fruit

Textured Soy Protein:

- usually sold as TVP (textured vegetable protein)
- dried granules of compressed soy flour that must be rehydrated with boiling water (7/8 cup boiling water over 1 cup TVP) before using
- similar texture to ground beef - excellent in tomato based products like chili, sloppy joes, tacos, or spaghetti sauce

Tofu:

- delicate curd made by adding a mineral salt to soymilk; then pressing the curds together into a solid block
- bland flavor alone - takes on flavor of whatever it is cooked with
- useful in any type dish - from the spiciest entree to the richest, sweetest dessert
- Firm, soft, and silken (more custard-like) tofu is available in most supermarkets and natural food stores

Tempeh:

- the whole soybean is fermented to produce a soft block of beans; sometimes blended with one or more types of grains
- has a rich, smoky flavor; can be barbecued or used as a meat replacement in stews and casseroles

Miso:

- a salty paste made from soybeans and grains

- used to flavor broths and in place of soy sauce
- comes in many varieties

Meat and Dairy Look-alikes:

- variety of foods made from tofu and other soy products resemble foods like cheese, yogurt, burgers, hot dogs, and luncheon or breakfast meats.
- can be used in the same ways as the foods they mimic
- because of the wide variety of these products and their versatility it is easy to incorporate soyfoods into any meal

SOME IDEAS FOR INCORPORATING SOY INTO YOUR EVERYDAY MEALS:

BREAKFAST:

- soy based sausage patties or links (in the frozen food section of your grocery store)
- bacon-like strips made from tempeh and other soy products (in many natural foods stores)
- for a cholesterol-free meal - scramble tofu instead of eggs: coarsely mash firm tofu and sauté in oil or margarine; season with onions, salt, pepper, and spices
- for a breakfast-on-the-run: blend soy milk, a banana, and other juices to make a nutritious, delicious shake
- substitute soy milk for your regular milk over ready-to-eat or cooked cereal

LUNCH:

- “missing egg salad” - toss cubes of firm tofu with low-fat mayonnaise, a bit of prepared mustard, chopped celery and onions (don’t forget to serve on your favorite whole grain bread or rolls)
- soybased luncheon slices that mimic cold cuts, soy cheese and your favorite vegetables make a wonderful sandwich
- Miso soup - blend a few Tablespoons of Miso into water to make a savory broth; add chunks of tofu and/or your favorite vegetables
- soy yogurt mixed with fresh fruit makes a refreshing summer or anytime lunch

DINNER:

- substitute TVP to reduce the fat in your favorite ground beef recipes - substitute TVP for part or all of the beef; works really well in tomato-based sauces
- substitute firm tofu for the ricotta cheese in lasagna or stuffed shells - blend tofu with salt, garlic, and your favorite fresh herbs until completely smooth
- hearty dish of barbecued soybeans - soak and cook dried soybeans until tender; mix in your favorite barbecue sauce and bake for 2 hours

- marinated thick slices of firm tofu or tempeh in barbecue sauce or any favorite marinade can be grilled or broiled until browned - for an extra firm texture try freezing the tofu first, defrosting, and then marinating (the tofu takes on a firm, spongy texture that holds up well on the grill)
- use soy milk blended with cooked vegetables (carrots, broccoli, spinach, or potatoes) to make a delicious creamed soup - or blend soft tofu with the cooked vegetables and thin slightly with soy milk; season with salt and pepper and any of your favorite seasonings
- veggie burgers made from soybeans - available in the freezer section of most grocery stores
- tacos with pre-browned, flavored tofu - using your favorite taco seasonings

SNACKS & DESSERTS:

- roasted soynuts are a fast and crunchy snack
- luscious easy chocolate cream pie - blend together soft or silken tofu and melted chocolate; pour into a pre-cooked or prepared pie crust; and refrigerate for several hours before serving
- homemade yeast-risen breads - replace up to $\frac{1}{4}$ of the amount of flour called for in the recipe with soy flour (if you use too much soy flour in the recipe, your bread may not rise)
- substitute soy milk for the milk in any of your favorite baked good recipe
- replace up to $\frac{1}{3}$ of the flour in muffins or quick breads with soy flour

This information was excerpted from, "The Simple soybean and Your Health" by Mark Messina, Ph.D. and Virginia Messina, MPH, RD