

Balancing Proteins, Fats, and Carbohydrates

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Carbohydrates, proteins, and fats are called the “macronutrients.” We need carbohydrates to fuel our bodies, we need protein to keep all our muscles and glands healthy, and we need fats for hormone production and for a healthy nervous system.

Carbohydrates include sugars like table sugar or fruit sugar, starches like potatoes or bread, and also something called fiber. Fiber is the indigestible part of fruits and vegetables. We need fiber for a healthy digestive system, to help slow down blood sugar metabolism, and to keep our cholesterol levels normal.

Proteins come primarily from meats, legumes, nuts, seeds, and fish, but even other vegetables have some protein. Animal proteins may also be important because they may help to increase bone mass,² which would prevent osteoporosis.

Fats come from the oils in vegetables, nuts, seeds, and from the fat in animals. Fats are needed in our diet because they help to slow the release of sugar into the blood and they help signal our brain that we are full.³ Most animal fat isn't so good for us, except for fish, so nuts, seeds, and vegetables are usually the best sources of healthy fats.

Insulin

Insulin is a hormone produced by the pancreas in response to the ingestion of carbohydrates. Insulin is important because it allows glucose (blood sugar) to pass into cells, where it is used for energy. People who have diabetes mellitus don't make enough insulin or can't respond to the insulin they make, so they can't get the glucose from their blood into the cells of the rest of the body.

Insulin likes to keep us chubby. If we have more glucose than we need because we ate too much food and are now sitting on the couch watching TV, the insulin in our bodies stimulates storage of the extra glucose as fat. Insulin also stimulates the body to take more fat into the adipose cells (fat cells). Insulin also suppresses breakdown of fat for energy, so it is difficult to lose weight when your insulin levels are too high. Elevated insulin also increases hunger, fatigue, and mental confusion. Insulin stimulates fat formation from excess blood sugar, blocks the release of fat from your body, and increases any tendencies for inflammation.¹

How a Balanced Diet Keeps Insulin Levels Low

Eating carbohydrates triggers insulin release, so we need to counter-balance our carbs with protein and fats. An adequate intake of quality proteins and healthy fats will balance out the carbohydrates in our diets and keep the need for insulin low. The types of carbohydrates we eat also have an effect on insulin. Generally, fruits and vegetables with lots of sugar and starch trigger insulin quickly, while fruits and vegetables with less

starch and more fiber like green beans and legumes don't have such a strong effect on insulin.

Carbohydrate, Protein, and Fat Ratios

According to the Zone Diet the ideal ratio of carbohydrates, proteins, and fats is 40-30-30 respectively.³ Other nutrition specialists use a ratio of 50-35-15, carbohydrates, proteins, and fats.¹ The USDA suggests a ratio of 50-35-15 too, but with more fats than proteins. There are arguments for all of these ratios, especially with the recent popularity of lower carb diets.

Making Healthy Choices

With a balanced diet, many authorities think it is best to eat at least five smaller meals per day, and optimally, each meal should consist of the ratios given above. These ratios should keep your insulin at a healthy level. In order for your diet to be balanced, you need to know how to measure the right size of a protein portion, your carbohydrate portion, and how much oil to use.

Eyeball Method

You can determine the Zone ratio by using your hands. For each meal, your protein source should be about the size and thickness of the palm of your hand. For example, this would be approximately 2 to 4 ounces of chicken breast, fish or another lean meat. The amount of carbohydrate that should be included with your meal depends upon the type of carbohydrate. A serving of a starchy carbs like pasta should be equal to the size of one tight fist.

A serving of lower starch vegetables, i.e. the green ones, can be equal to two loosely held fists. Fat should be added with 3 - 4 olives, or 10 to 12 nuts like almonds, walnuts, or hazelnuts. You can also use a couple of teaspoons of oils from flax seeds, pumpkin seeds or walnuts. If your protein source is high in fat, or you prefer a lower-fat ratio, skip the extra oils for that meal.

Measuring Grams

You can also measure your ratios by serving size if you prefer to be more exact. For example, if you use one of the 50-35-15 ratio, each meal can be the same size and a larger or more active person would eat 6 or 7 small meals per day and a smaller or less active person might eat 5 small meals per day. The protein serving should consist of 2 ounces of meat, fish, poultry, or 6 ounces of tofu or beans, which equals about 15 grams of protein. The fats are similar to the Zone diet, just add a tablespoon of nuts, seeds or oils, for about 6 grams of fat. The carbohydrate serving should equal about 20 grams per meal. This translates to 1/2 cup of whole grain pasta, 1/2 cup of higher carb fruits, 1 cup of lower carb fruits, 1 cup of starchy vegetables, or 2 cups of high fiber, low starch vegetables. Some foods end up in two categories. One egg would be equal to one unit of protein and 2 units of fat. Legumes would be complete, equaling one unit of carbohydrate, protein, and fat.¹

Healthy Choices

While protein sources and fat sources are pretty straight forward, it is a bit more difficult to know how to choose carbohydrates. No matter which of these ratios you choose, most of your foods will come from the carbohydrate group. You will be able to eat more volume if you choose the low-starch vegetables and the low-sugar fruits. Junk foods like soft drinks, candy, cookies, and other sweets should be enjoyed only as occasional treats.

Here is a list of fruits and vegetables grouped into high starch and low starch. You can use this list to balance your menus. Remember that pastas, breads, and grains have a higher starch content than the green and colored vegetables. A serving of pasta or potatoes should only be about one-half cup, while a serving of low starch vegetables is equal to about 2 full cups.

Low Starch Vegetables

Asparagus, Bean Sprouts, Leafy Greens, Broccoli, Cabbage, Cauliflower, Celery, Swiss Chard, Cucumber, Endive, Lettuce, Radishes, Spinach, Watercress, String Beans, Beets, Brussels Sprouts, Chives, Eggplant, Kale, Kohlrabi, Leeks, Okra, Onions, Parsley, Peppers, Pumpkin, Rutabagas, Turnips

High Starch Vegetables

Artichokes, Parsnips, Peas, Squash, Carrots, Dried Beans, Lima Beans, corn, Potatoes, Sweet Potatoes, Yams

Low Carb Fruit

Cantaloupe, Rhubarb, Berries, Watermelon, Melons, Tomatoes, Apricots, Grapefruit, Guava, Lemons, Limes, Oranges, Papayas, Peaches, Plums, Raspberries, Tangerines, Kiwis

High Carb Fruit

Apples, Cherries, Grapes, Loganberries, Kumquats, Mangoes, Pears, Pineapple, Pomegranates, Bananas, Figs, Prunes, Dried Fruits

References:

¹ Percival, M., "Choosing Health, The Food Equivalent System," IPS/Health Coach; 1996

² Promislow, J.H., Goodman-Gruen, D., Slymen, D.J., et al., "Protein Consumption and Bone Mineral Density in the Elderly : The Rancho Bernardo Study," American Journal of Epidemiology, 155(7), 2002, pages 636-644.

³ Sears, B., "Mastering The Zone," HarperCollins Publishers; 2001