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Food and Calories

WE NEED ENERGY for everything we do, but only three kinds of substances in food can supply us with it. Their chemical names are *proteins*, *carbohydrates* (commonly known as starches and sugars), and *fats*. Each one has a different and complex chemical nature and they all contain the elements carbon, hydrogen, and oxygen. Proteins contain nitrogen, too, which gives them special importance in the body.



The energy values — the number of calories — these substances will give when oxidized in the body are:

Proteins: 115 Calories per ounce or 4 Calories per gram

Carbohydrates: 115 Calories per ounce or 4 Calories per gram

Fats: 255 Calories per ounce or 9 Calories per gram

This is $2\frac{1}{4}$ times more than the calories from the same amount of proteins or carbohydrates.

The number of calories in a food depends on how much protein, fat, and carbohydrate it contains. If large amounts of these energy-giving substances are present, the food is *high* in calories; if only small amounts are present it is *low* in calories.

Some low calorie foods—such as most fruits and the bulky vegetables—have a large amount of water and fiber; these substances are valuable to the body but do not supply energy. Other low calorie foods such as skim milk have lots of water and little or no fat. High calorie foods contain a large proportion of the energy-givers and relatively little water and fiber. Compare a piece of frosted cake with a bowl of tossed vegetable salad. The cake contains protein, fat, and carbohydrate from the combination of eggs, milk, sugar, shortening, and flour. These may add up to as much as 300 or 400 Calories. The salad, on the other hand, contains foods high in water and fiber with only a small amount of carbohydrate. It supplies about 25 Calories. If you add oil or mayonnaise to the salad you can add calories rapidly (each tablespoonful will add 100 Calories) because fats are concentrated sources of energy.

HOW MANY CALORIES?

The most practical thing for us to know about calories is how many there are in the servings of food we usually eat. Most of us know pretty well what quantities to visualize when we think of servings of common foods. Some foods, such as apples and many other fruits, have a natural serving size— one is a serving. Some servings can be described in kitchen measures, such as teaspoons,

tablespoons, cups, and fractions of a recipe. Other servings can be described in units such as slices of bread (if you buy it sliced), fractions of a head of lettuce, and the number of servings in a pound of meat.

The calorie value of servings of our most common foods are given in the Table of Food Values beginning on page 171. Foods similar in composition are grouped together. We always associate foods such as meat, fish, and poultry with each other whether we are planning a meal, hunting them in the food market, or learning their nutritive values. The same is true of fruits and vegetables, dairy products, breads and cereals, fats and sugars.

A QUICKIE

Sometimes a general guide to calorie values is helpful if we want to know whether a food is high or low in calories rather than exactly how many calories it has. We can get a hint of calorie value from the characteristics of flavor and texture that sugar, fat, fiber or roughage, and water give to foods. Try this as a guide:

If a food is:

- Thin, watery, or dilute
 - Bulky or has lots of fiber or coarseness
 - Watery-crisp instead of greasy-crisp
- Then it is relatively low in calories.*

If a food is:

- Thick, oily, or greasy-crisp
 - Slick, smooth, or gooey
 - Sweet or sticky
 - Compact or concentrated
 - Alcoholic
- Then it is relatively high in calories.*

Now you can compare a chocolate malt with a glass of skim milk or orange juice, or an avocado salad with a tossed green salad.





LONE-WOLF CALORIES

Calories are often referred to as “keeping company” with the other nutrients present in foods. “Choose your calories by the company they keep,” is good advice. The calories in milk, for example, keep company with protein, calcium, and riboflavin plus other minerals and vitamins. The calories in meat keep company with protein, important B vitamins, and minerals. On the other hand, calories in sugar, some cooking fats, and some unenriched refined cereals do not keep company with other nutrients. We call these “lone-wolf” calories to describe their lack of nutritive companions. Alcohol, too, has lone-wolf calories.

Eating too many foods with lone-wolf calories is a poor food habit. Either it crowds out the calories which keep company with essential nutrients or it increases our calorie supply above our requirement and leads to overweight.

Even though they are flavorful and enjoyable, lone-wolf calories must not dominate what we eat. We can

welcome such calories into our diet after we have supplied our other nutritive needs and *until*, but not after, we have supplied our calorie requirement.

