

# Aspartame Metabolism, Part 1

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When aspartame is digested in the body, it is converted to three components: **aspartic acid**, **phenylalanine**, and **methanol**.

**Aspartic acid** (also called aspartate) is an amino acid that is present in every protein we consume, and in every protein in the human body. It is also an intermediate in metabolizing carbohydrates and other amino acids. The human body can make it from other substances if it needs to, and it can burn it for energy or convert it to fat if there is more than enough.

**Phenylalanine** is another amino acid that is present in all proteins. In contrast to aspartic acid, humans cannot produce it from other materials—we must get a certain amount of it every day in our diet, so it is classified as an essential amino acid. If we consume more than we need, we can burn the excess for energy, or store the extra calories as fat. Phenylalanine is only a concern for people with the rare genetic disorder phenylketonuria (PKU). People with PKU lack the enzyme to break down excess phenylalanine, so they must carefully monitor their intake. They still need a certain amount of it to make proteins, but they must be careful not to consume more than this amount.

Aspartic acid and phenylalanine do provide calories. In general, amino acids provide about 4 calories per gram, just like carbohydrates. Aspartame contributes calories to the diet, but it is about 180 times as sweet as sugar, so the amount needed for sweetening doesn't provide very many calories. For example, a 12 ounce diet soft drink might contain about 125 mg (0.125 gram) of aspartame, which would have less than 1 calorie. In contrast, a 12 ounce sugar-sweetened soft drink would have about 25 grams of sugar and about 100 calories.

*Coming in Part 2: What about the methanol?*