

## THE GRAIN THAT GROWS ON A TREE

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Low In Fat, Cholesterol, And Sodium, The Chestnut Contains An Ideal Amount Of High Quality Protein.

For ages, the chestnut forest had dropped up to a ton of good tasting, highly nutritious nuts on each acre of its extensive range. The nuts were the primary food source of the deer, turkey, squirrel, and other game that fed both Indians and settlers during Colonial times. Settlers gathered the nuts extensively for home consumption and to exchange with city folks for hard-to-earn cash. During the Depression, mountain people of the Southern Appalachians depended on the chestnut stands as an important food source: the loss of the chestnut from the blight was especially hard on the poor of this region.

The chestnut is remarkable among nuts in that it can be a dietary staple. In almost any recipe, it can be substituted for a grain. Its flour can be used in place of whole wheat flour, but it is richer and sweeter. It can replace rice in Oriental cooking. A rich chestnut stew was a common meal in homes throughout Europe for centuries. There is no better stuffing for the Thanksgiving turkey than chestnuts.

The chestnut is an outstanding source of food. It is distinguished from other nuts by its low fat content. It contains no cholesterol and is low in sodium. Its protein content matches that recommended by nutritionists for a healthy diet. What's more, its protein is among the highest quality on any food product, ranking with eggs. This nearly ideal food is packaged in a fine tasting nut that is the sweetest nut that can be grown in the temperate zone. This article

investigates the nutritional components of this gem of a nut.

### LOW IN FAT, NO CHOLESTEROL

Chestnuts are quite distinct from other nuts in nutritional makeup. The basic food components of each are quite different.

An almond is typical of other nuts. It is over one half fat, with approximately equal parts of carbohydrate, protein, and water. A chestnut, in contrast, is one half carbohydrate, with five to ten percent protein and the remainder water. A chestnut has almost no fat. Figure 1 contrasts the nutritional makeup of the two nuts. The dominance of fat in the almond is clearly evident, as is the relative absence of fat in the chestnut.

Nutritionists recommend a diet high in carbohydrate, moderate in protein, and low in fat. A chestnut is ideal in this regard. Compare the protein-to-fat ratios shown in Table 1. A chestnut has three times as much protein as fat, while an almond has three times as much fat as protein. A chestnut has twelve times as much protein per unit of fat as does an almond. Many doctors now prescribe diets low in fat to decrease the chance of heart disease. Chestnut fits well into low fat diets.

Excessive intake of cholesterol is the major cause of the high levels of heart disease in our country's population. Heart attacks are now our biggest cause of death. The chestnut has no cholesterol, and is a well rounded foodstuff for



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Table 1  
Protein to Fat Ratio

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Chestnut	3.80
Almond	0.33

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including as a staple in a low cholesterol diet.

**SUPERIOR TO BROWN RICE**

Brown rice is a nutritious grain famed for its health benefits. It is the staple of many people in the world. A chestnut is quite similar to brown rice in nutritional makeup. Table 2 shows the similarity of dried chestnut to brown rice.

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Table 2  
Basic Nutritional Components (%)

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	Carbo	Protein	Fat
Dried Chestnut	72.3	6.2	1.6
Uncooked Brown Rice	75.7	7.6	2.3

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A fresh chestnut, however, is superior to brown rice. See Table 3. The chestnut has twice the protein and carbohydrate, with water making up the difference.

Chestnuts have another major advantage over brown rice, one that is especially important for those concerned with the health of their heart and cardiovascular

system. A chestnut has almost no sodium. Doctors recommend low sodium diets to their high blood pressure heart patients. Table 4 compares the sodium content of chestnuts and brown rice. Rice has over 100 times as much sodium as does a chestnut.

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Table 3  
Major Nutritional Components

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	Water	Fat	Carbo	Protein
Fresh Chestnut	1/2	Little	1/2	5.0%
Cooked Brown Rice	2/3	Little	1/4	2.5%

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Table 4  
Sodium Content (mg per 100 gm)

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Fresh Chestnut	3
Cooked Brown Rice	323

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**HIGH QUALITY PROTEIN**

The human body needs a moderate amount of protein on a daily basis to maintain its health. Around 5% of your daily food intake should be in the form of protein. This is exactly the proportion of protein contained in a chestnut.

A chestnut not only has the proper amount of protein, it has an exceptionally high quality protein. The body breaks protein down into its building blocks

called amino acids. Humans can synthesize all but nine of these building blocks. These are called essential amino acids, and they must be obtained from dietary sources. All must be present at the same time and in the proper proportions for protein to be used by the body. All but three of the nine essential amino acids are abundant in common foodstuffs. These three, tryptophan, lysine, and sulfurcontaining (methionine and cystine), are called the limiting amino acids. A fourth amino acid, isoleucine, is sometimes considered as limiting, but its deficiency can be compensated for if the other three are adequately available. For a protein to be useful, it must contain all four in a specific pattern. If your protein intake is unbalanced in its limiting amino acid makeup, much of the protein will be unused. A shortage of one amino acid will limit the benefits of eating protein.

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Table 5  
Essential Amino Acid Content  
(mg of Amino Acid per gm  
of Protein)

Amino Acid	Chestnut	Ideal	%
Tryptophan	11.67	11	106
Lysine	54.29	51	106
Sulfur-Containing	50.24	26	193
Isoleucine	37.38	42	89

Table 5 shows the limiting amino acid content of a chestnut compared with the ideal. The chestnut has over 100% of the ideal amounts of the three

essential amino acids that are likely to be limiting. It is also quite high in isoleucine. For comparison's sake, other nuts are deficient in lysine and leucine. Chestnuts are an excellent complement to the protein in legumes, which is low in tryptophan and sulfur-containing amino acids, both of which are abundant in chestnuts.

An egg is often thought of as an excellent source of protein. In fact, nutritionists once considered it to be the ideal as far as amino acid makeup is concerned. Frances Moore Lappe, in her classic Diet for a Small Planet, characterized the amino acid content of various foods into categories ranging from A to E, depending on how close each limiting amino acid is to the ideal makeup. As in your high school, an A is excellent and an E is utter failure. Table 6 shows her rating for an egg compared to that for a chestnut. The chestnut compares quite favorably with the egg.

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Table 6  
Rating of Amino Acid Content

	Chestnut	Egg
Tryptophan	A+	A
Isoleucine	A	A
Lysine	A+	A+
Sulfur-Containing	A+	A



SUMMARY

The chestnut is the ideal health nut. It is low in fat and contains no cholesterol, while other nuts are over one half fat. It is much more like a grain than a nut, comparing favorably with brown rice, but containing almost no sodium. It is high in carbohydrate and contains protein in the proper amounts for a balanced diet. What's more, its protein is of outstanding quality, comparable to that of an egg. Nutritionally speaking, the chestnut is superior to grains, and what is truly unique is that this grain grows on a tree.

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MAJOR NUTRITIONAL COMPONENTS

CHESTNUT AND ALMOND

