

# Nutritive Value of Goat Meat

## Introduction

Meat is the primary reason to raise goats, which is why meat goats constitute the majority of the world's goat production systems. Goat meat comprises 63 percent of all red meat that is consumed worldwide. Currently, goats are the main source of animal protein in many North African and Middle Eastern nations. Goats are also important in Southeast Asia, the Caribbean, and other tropical regions.

Preferences and consumption patterns for goat meat are dictated by cultural, traditional, and religious backgrounds, and the socioeconomic status of the community. *Cabrito*, a delicacy in Central and South America, is meat from goat kids slaughtered when 1 to 3 months of age and weighing less than 50 pounds. *Chevon* is meat from older goat kids slaughtered when 6 to 9 months of age and weighing from 50 to 75 pounds. These two types of red meat are usually cut in bite-size or larger pieces to be eaten stewed, baked, or grilled. The meat from



mature goats is used primarily in processed foods such as sausage or chili.

With a growing ethnic population that is accustomed to eating goat meat, the future of the U.S. meat goat industry looks promising.

## Nutrient Composition

Goat meat has been established as a lean meat with favorable nutritional qualities, and it's an ideal choice for the health-conscious consumer. Table 1 compares the nutrient values of prepared goat meat, chicken, and other red meats consumed in the United States.

**Table 1. Nutrient Composition of Goat and Other Types of Meat<sup>1, 2</sup>**

| Nutrient          | Goat | Chicken | Beef | Pork | Lamb |
|-------------------|------|---------|------|------|------|
| Calories          | 122  | 162     | 179  | 180  | 175  |
| Fat (g)           | 2.6  | 6.3     | 7.9  | 8.2  | 8.1  |
| Saturated Fat (g) | 0.79 | 1.7     | 3.0  | 2.9  | 2.9  |
| Protein (g)       | 23   | 25      | 25   | 25   | 24   |
| Cholesterol (mg)  | 63.8 | 76.0    | 73.1 | 73.1 | 78.2 |

<sup>1</sup> Per 3 oz. of cooked meat

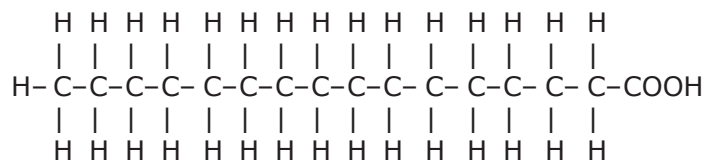
<sup>2</sup> USDA Nutrient Database for Standard Reference, Release 14 (2001)

As shown in table 1, goat meat is lower in calories, total fat, saturated fat, and cholesterol than traditional meats. Less saturated fat and less cholesterol mean healthier red meat for the health-conscious consumer. Additionally, goat meat has higher levels of iron (3.2 mg) when compared to a similar serving size of beef (2.9 mg), pork (2.7 mg), lamb (1.4 mg), and chicken (1.5 mg). Comparatively, goat meat also contains higher potassium content with lower sodium levels. Regarding essential amino acid composition, goat meat closely resembles that of beef and lamb.

Goat meat offers more nutritional value, greater health benefits, and is an ideal choice to be considered as "the other red meat." As the health benefits of goat becomes more widely known among the general population, the demand for alternative low-fat red meat should also continue to increase.

## Health Benefits

The nutritive value of goat meat is becoming increasingly important in the health management of people. Not only is goat meat lower in total fat and cholesterol, but it is also lower in saturated fats than traditional meats. Saturated fats are fats or fatty acids that do not contain double bonds between the carbon atoms of the fatty acid

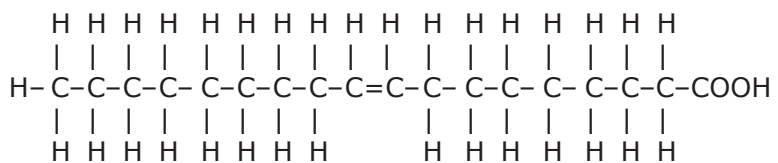


**Figure 1. Palmitic acid, the main saturated fatty acid in red meat**

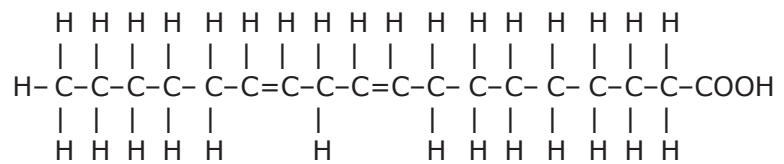
chain (figure 1). Hence, the bonds are fully saturated with hydrogen atoms. Saturated fatty acids, which form solid or semisolid fat at room temperature, cause cholesterol levels to rise. The amount of cholesterol in the food has only a moderate effect on the amount of cholesterol in the bloodstream.

Furthermore, the amount of saturated fat in goat meat is less than the total amount of unsaturated fats, which may be important in human nutrition.

Unsaturated fats are fats or fatty acids that contain one or more double bonds between the carbon atoms of the fatty acid chain. Where double bonds are formed, hydrogen atoms are eliminated. Fatty acids are monounsaturated if they contain one double bond (figure 2), and polyunsaturated if they contain more than one double bond (figure 3). Monounsaturated and polyunsaturated fats, which are in liquid form at room temperature, are known to decrease the risk for heart disease and stroke.



**Figure 2. Oleic acid, the predominant mono-unsaturated fatty acid in goat meat**



**Figure 3. Linoleic acid, by far the most abundant polyunsaturated fatty acid in foods and oils**

Less saturated fats and a relatively high proportion of total unsaturated fats make goat a very healthy meat choice. According to the Harvard School of Public Health, saturated fats (bad fats) increase the risk for cardiovascular disease and other chronic conditions, while unsaturated fats (good fats) improve blood cholesterol levels, ease inflammation, stabilize heart rhythms, and play a number of other beneficial roles.

When discussing the effects of saturated and unsaturated fats on blood cholesterol levels and risk for heart disease, a clear understanding of lipoproteins is required. Lipoproteins are complex particles that consist of a core of hydrophobic lipids surrounded by a layer of phospholipids and apoproteins (lipid-binding proteins), which render the particles soluble in water. Due to the hydrophobic (water repelling) nature of lipids, lipoproteins are the form in which lipids, like cholesterol (figure 4), are transported in the blood. The two major types of lipoprotein particles in

human blood are low-density lipoproteins (LDL) and high-density lipoproteins (HDL). Of these two cholesterol-carrying lipoproteins, HDLs contain a relatively high proportion of protein and low amount of cholesterol. In contrast, LDLs contain a relatively low proportion of protein and large amount of cholesterol as its core lipid.

Generally, LDLs transport cholesterol from the liver to cells throughout the body. The body uses cholesterol to form cell membranes and to synthesize vitamin D, estrogen, testosterone, and other steroid hormones. If it is not used, LDLs continue to carry the cholesterol in the blood. When too much LDL cholesterol circulates in the blood, these particles can attach themselves to artery walls and form plaques that narrow arteries, limit or block blood flow, and consequently cause a heart attack or stroke. Therefore, LDL cholesterol is often referred to as the "bad" cholesterol. Since HDLs transport cholesterol from cells, artery

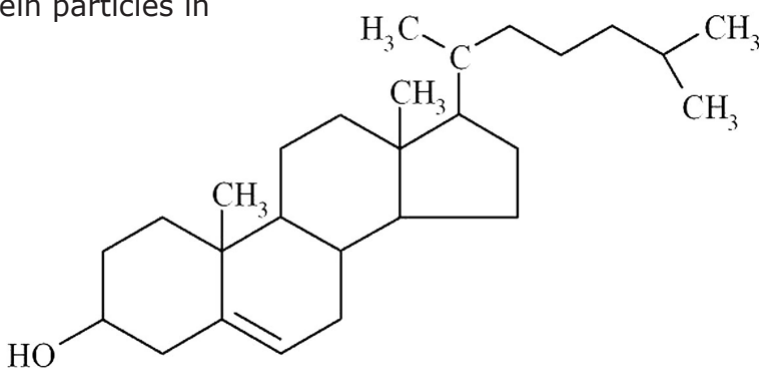
walls, and blood back to the liver for reprocessing, HDL cholesterol is often referred to as the "good" cholesterol.

Clinical trials demonstrate that dietary saturated fats increase LDL cholesterol levels, while monounsaturated and polyunsaturated fats may help decrease LDL cholesterol and increase HDL cholesterol levels in the blood. Based on these findings, a health claim can be made that goat meat helps to lower blood cholesterol and reduces the risk for atherosclerosis and coronary heart disease. Therefore, goat meat can be included in a heart-healthy diet.

**Note:** You are advised to consult a qualified physician for questions regarding your risk of developing heart disease or having a heart attack.

## Cookery

In many countries around the world, goat meat is a dietary staple and a delicacy served in specialty dishes, particularly at celebratory gatherings. As ethnic populations continue to rise, so does the demand for goat meat. Goat is especially popular among Hispanics, Caribbean Islanders, and Muslims. However, each group of individuals has different preferences for the type and weight of the goat they purchase. Hispanics prefer meat from young high-



**Figure 4. Chemical structure of cholesterol**

quality goat kids, while people of Caribbean heritage and the Muslim faith prefer meat from older goats of lesser quality, and frequently intact males.

Although goat meat is processed in USDA-approved facilities, and will have the USDA stamp, ethnic populations do not purchase or consume goat meat according to traditional USDA cuts of

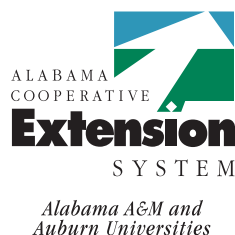
meat. They purchase whole or half carcasses and cut, marinate, cook, and serve goat meat in many different ways with various added ingredients.

If goat meat is to make a transition into mainstream U.S. markets, consumers need to learn a few basic rules regarding cookery. First, cook goat meat at low temperatures. Due to its low-fat content and lack of

marbling (small streaks of fat found within the muscle), goat meat can lose moisture and toughen quickly if cooked at high temperatures. Second, cook goat meat with moisture. To enhance flavor and increase tenderness, use a marinade on the meat before cooking and cook with moist heat, such as stewing. Note that the Internet contains numerous goat meat recipes.

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