

Cooking

Roasting and boiling are some of the common methods used in the preparation of poultry. Another method, which is extensively used, is frying. Less tender cuts may be steamed or cooked in juices till slightly tender and fried. Mature poultry is usually cooked by moist heat methods. Braising and stewing, using a covered pan are some of the moist heat methods used. Cooked pieces of the bird may be added to curries, soups etc.

TABLE 10.5 Classification of Poultry

Name	Age	Weight
1. Chicken		
Broiler Fryer	9 to 12 weeks	2 to 2½ lbs
Roaster	3 to 5 months	3 to 5 lbs
Capon	Less than 8 months	
Hen	5 to 7 weeks	2 lbs
Stewing hen	mature female	
Cock	Mature male	
2. Turkey		
Fryer Roaster	Less than 16 wks	4 to 8 lbs
Young hen	5 to 7 months (female)	8 to 14 lbs
Young tom	5 to 7 months (male)	12 lbs
Old turkey	15 months (mature)	
3. Ducks	Small ducklings	3 to 7 lbs
4. Geese	Young bird	6 to 12 lbs

Meat

Meat is one of the animal protein foods used in diet. Meat protein has high biological value. The high cost of meat, shortage of animals, customs and religious beliefs are some of the reasons why meat is not consumed by some people in India.

Meat is a good source of proteins and fat. The proportion of nutrients in meat depend upon the kind of animal, the species and the type of cut. The protein content of meat decreases with an increase in fat content. The average protein content of meat ranges from 16 to 23 per cent and the average fat content ranges from 10 to 40 per cent. Meat is a good source of phosphorus, iron and some trace elements. Unless the cooking water is discarded, minerals and water soluble vitamins are not lost to a great extent. Meat provides us vitamin B-complex and some vitamin A, depending on the cut.

The meat of sheep, which is under 12 months of age, is sold as *lamb*. After the age of 12 months, it is called *mutton*.

Pork is the meat of swine slaughtered between the age of 5 and 12 months.

Veal is the meat from cattle that is slaughtered 3 to 14 weeks after birth. If slaughtered between 14 and 52 weeks, the meat is called *calves*. Meat obtained from cattle that is slaughtered one year after birth is called *beef*.

Variety of Meats Available

Various organs of the animal are used in food preparation. They may be liver, kidney, tongue, brain etc. These organ meats are less costly than muscle meat (Fig. 10.6).

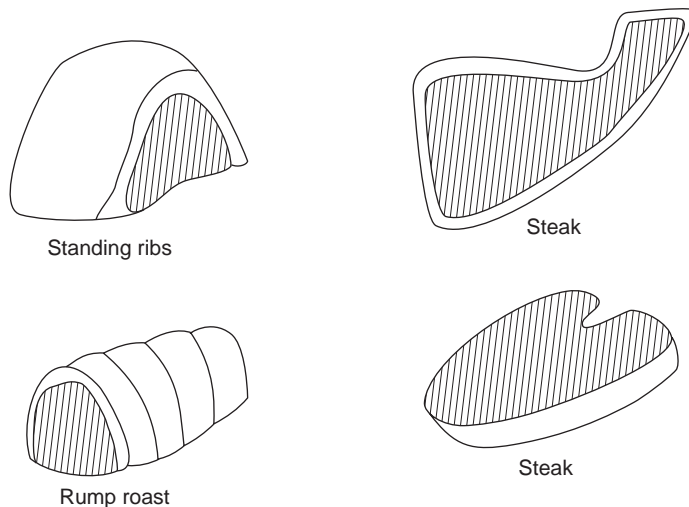


Fig. 10.6 Meat cuts

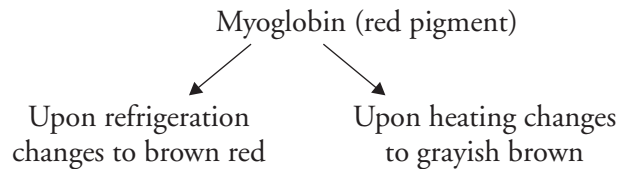
Sausages Ground meat from pork and beef is made into sausages. Chicken and turkeys are also now being used for this purpose. Some sausages are ready to eat where as others require cooking. Sausages are usually used in sandwiches.

Structure of the Muscle

1. **Muscle Tissue** Muscle is a complex structure. The smallest unit of a muscle is a *muscle fibre*. Many fibres are joined by connective tissue into bundles. These bundles are called *fasciculi*. The fasciculi together with fat deposits are covered with a thick membrane and attached to the bone.
2. **Connective Tissue** These are the tissues, which bind meat fibres together. Meat muscle is connected to the bone by means of a connective tissue. Collagen and elastin are two types of connective tissues. During cooking, collagen is softened and converted to gelatin. Elastin does not become soft during cooking. Some parts of the animal have greater amount of connective tissues, where as others have a lower amount of the tissue. The part of the

animal which is exercised more contains greater amount of the connective tissues e.g., the leg. The greater the amount of connective tissue the less tender is the cut of meat.

3. *Fatty tissues* These are made up of connective tissues with embedded fat cells. Fat is deposited under the skin, around the glands, organs and between and within the muscle fibres. Fat distribution in lean part of meat is called *marbling*. A meat which is well marbled is desired by consumers.
4. *Bones* The appearance of the bone is an indicator of the part of the animal from which the cut of meat is taken. Bones are either long or short. Long bones are hollow and contain yellow marrow. Other bones, which contain red marrow, are spongy inside.
5. *Pigments* Myoglobin is the pigment in meat that gives the characteristic red colour to meat. The greater the amount of myoglobin, the darker the colour of meat. As the animal ages the amount of myoglobin increases. Raw meat when allowed to stand in the refrigerator, changes its colour from red to brownish red. If myoglobin is heated the colour changes from red to brown.



Postmortem Changes

When the animal is slaughtered, certain changes take place. The meat starts to stiffen. This change is called *rigor mortis*. Along with this change, other metabolic changes also take place. More lactic acid is formed, which lowers the pH. The muscle fibre swells with fluid and become hard.

As soon as the animal is slaughtered, the circulatory system stops functioning but the enzymes continue to remain active. Oxidation of glycogen brings about production of lactic acid. The amount of glycogen stored in a particular animal decides the amount of lactic acid produced after slaughter. A lower glycogen storage produces sticky and gummy meat which is undesirable.

Stiff muscles of the animal start softening after holding for some time. This is called *aging*. Tenderness in the meat increases with holding time. Holding conditions should be carefully controlled. Uncontrolled conditions may allow putrefactive bacteria to grow. Controlled conditions of holding are:

- (i) Temperature of holding should have a range of (34–36°F)
- (ii) Carbon dioxide in the atmosphere
- (iii) 70 per cent humidity

This helps keep the meat in a good condition for 3 to 6 weeks. After this aging process, the meat is ready for sale. This process of aging is also called ripening of meat.

Ways of Preserving Meat

Curing Many methods are used. Meat is treated with salt, sugar, sodium nitrate and spices to give different flavours. Smoke is used some times to give a desirable flavour and to improve the keeping quality of meat.

Freezing This is a common method of preserving meat. Nutrient loss is least during freezing. The one undesirable effect, freezing has on meat is that, the meat when cooked, is less juicy. This method is commonly used for storing cooked meat.

Canning Meat can also be preserved by this method. Higher temperatures which are used during canning bring about some undesirable changes in flavour and texture.

Radiation and Sterilization This is a new method of preservation of meats. The meat is sterilized and bacteria present killed. According to some people, this meat is not palatable.

Cooking Meat

The method of cooking depends on the type of meat. Dry heat methods like roasting, broiling, pan frying are used for tender cuts or young animals. Moist heat methods like pressure cooking, closed pan cooking, steaming are used for less tender cuts.

Most common cooking methods appear to be roasting, broiling and pan-frying.

Effect of Heat on Meat

Thiamin in meat is partially lost during cooking. If the food is heated for a long time, the loss is extensive. If water or juices, in which the meat is cooked, are discarded, then the loss of the vitamin increases. Low temperatures are preferred for meat cookery.

Points to Remember

Protein found in every living cell. Primary source plants, animal proteins made from plant proteins.

Plant Sources Dals, pulses, nuts and oilseeds.

Animal Sources Milk, eggs, fish, poultry and meat.

Dals Decorticated, split products from pulses.

Pulses Edible seeds of leguminous plants.

Dals and pulses are easily bought, stored and prepared for the table.

Are an important source of protein in the Indian dietary. Are a good source of iron and B-complex vitamins also. Germinated pulses contain vitamin C.