

Meat Notes and Cooking Methods

1. Meat definition:

- refers to the edible flesh of animals
- is animal flesh that is eaten as food

2. What we eat are the **muscles** of animals. Meat and poultry are excellent **nutrient** sources of:

- **Protein** (builds and repairs body tissue, makes you feel fuller longer)
- **Iron** (helps carry oxygen to body tissues through blood, helps produce energy)
- **B vitamins** (support metabolism, maintain healthy skin and muscle tone, enhance immune system function, promote cell growth)

3. Meat consist of :

- Water – 75%
- Protein – 19%
- Intramuscular fat – 2.5 %
- Carbohydrates – 2.3%

4. Grades of Beef (from government inspection):

- Prime (best)
- Choice
- Select or Good
- Standard
- Commercial

5. **RED MEAT:** The color depends on the concentration of myoglobin in muscle fiber. When myoglobin is exposed to oxygen reddish color appears.

Redness depends on species, animal age, and narrow muscle fibers.

6. Red Meat Examples:

- Cow: Beef (adult cattle) veal (baby calves)
- Lamb, mutton, hogget
- Carabeef (water buffalo meat)
- A sheep in its first year is called a **LAMB**, The meat of a juvenile sheep older than one year is **HOGGET**; The meat of an adult sheep is **MUTTON**, a term only used for the meat, not the living animal.

7. **WHITE MEAT:**

- white meat may also refer to any lighter-colored meat.
- It is believe that white meat is healthier than red meat

Examples: pork, poultry and game, fish and shellfish

8. **Meats form different animals:**

- Pork – pig/hog
- Beef – cow/cattle, veal- baby calves
- Chevron – goat
- Venison – deer
- Lamb (less than 1 yr.) mutton- sheep (more than 1 yr)

9. Structure of Meats:

1. **Lean Tissue** – consist of one or more muscles which is made up of many bundles of muscle fibers.

2. **Connective Tissue** – Surround the fibers and unites them in bundles.

a) **Collagen** – arranged in parallel , do not stretch, color is white, disintegrate in hot water

b) **Elastin** – yellowish portion, do not tenderize while cooking

3. **Fat** – around or between muscles

10. Composition of Meat:

Water

- Water is about 75% of muscle tissue. Shrinkage can be a big problem in cooking meat which result to loss of weight and loss of profit.

Protein

- About 20% of the muscle tissue is a protein. Protein coagulates when it is heated. This means firmer and loses moisture. Coagulation is related to doneness.

11. FAT:

- 5 % of the muscle tissue is fat. A beef carcass can be as much as 30% fat.

1. Juiciness – *Marbling* is fat deposited within the muscle tissue. Juiciness depends on how much marble contains in the meat.
2. Tenderness – *Marbling* separates muscle fibers, making them easier to chew.
3. Flavor – Flavor depends on the marbling.

12. BEEF:

- Beef is the meat of domesticated mature cattle usually over 12 months of age
- It is usually bright, cherry red in color with creamy white fat.
- *Cattle* is the collective name for all domesticated oxen

13. Cattle are classified as:

- **Bulls** – male intact cattle, usually not raised to be eaten.
- **Calves** – young cows or bulls prized for their meat.
- **Cows** – female cattle after the first calving, raised principally for milk and calf production..
- **Steers** – male cattle castrated prior to maturity and principally raised for beef.

14. VEAL:

- Calves under the age of nine months. (8-16 weeks)
- more delicate flavor
- generally more tender.

15. Variety Meats / Organ Meats:

- **Sweetbreads** – these are the thymus glands of veal and lamb.
- **Liver, heart, kidney, and tongue** of beef, veal, lamb and pork.
- **Tripe** – the inner lining of the stomach of ruminant (cud-chewing) animals.
- **Brains**
- **Chitterlings** – cleaned intestines
- **other innards** – include the lights (lungs), melt (spleen) and mesentery (abdominal membrane)
- **Pork / beef blood**

16. Basic Beef Cuts:

- Head
- Chuck
- Ribs
- Short Loin
- Rump
- Round
- Hind shank
- Short Plate
- Flank
- Brisket

17. Pork Products:

- **Ham** – comes from pork leg. It is usually cured and smoked.
- **Bacon** – is smoked pork belly meat

18. Pork Carcass Basic Cuts:

- **Head**
- **picnic**
- **jowl**
- **Blade roast**
- **fore shank/ hind shank**
- **Spare ribs**
- **Ham**
- **Shank**
- **foot**
- **Picinic shoulder**
- **Side Belly**

19. Changes in Meat after death:

- 1) Muscle is pliant, soft, gel like, sticky, immediately after death
- 2) A few minutes to 1 hr. – muscle shortens, become rigid, hard, inflexible. Should not be cooked at this time
- 3) After a few days – gradual tenderization, after freezing. This is the time to cook the meat

20. Market forms of Meat:

- **Fresh Meat** – this is meat immediately after slaughter, without undergoing chilling or freezing.
- **Chilled Meat** – is meat that has been cooled to a temperature just above freezing (1-3°) within 24 hours after slaughter.
- **Frozen Meat** – are meat cuts frozen to an eternal temperature of 20°C (-40°C).

21. Market forms of meat continued:

- **Cured Meat** – are meat products that have been treated with a curing agent solution like salt, sodium nitrate (salitre), sugar, and spices. (brining)
- **Canned Meat** – are cooked meat products and only requires to be reheated.
- **Dried Meats** – dehydrated meats. (beef jerky)

22. Effects of cooking meats:

- Changes in pigment – myoglobin from bright red color to grayish brown.
- Changes in meat protein- Decrease in length of fiber causing shrinkage. Excessive heating makes the meat tougher, stringy and rubbery.
- Fat melts , causing shrinkage
- Loss in moisture
- Heat converts collagen into gelatin. This requires more heat
- Long cooking develops better flavor

23. Factors influencing Flavor:

- Flavor is due to decomposition of protein and oxidation of fat. Saltiness and sweetness of the blood. The distinctive flavor of animal is affected by specie, sex, age, amount of exercise, degree of ripening.
- The older the animal the stronger the flavor.
- More exercised animals have tougher meat
- The more varied the feed, the more distinctive its flavor.

24. 6 Stages of Doneness:

- **very rare** - red, juices blood, soft, jelly-like
- **rare** -raw red portion of meat is small, around is pink brown outer surface, juices are red
- **medium rare** –interior portion is rich pink. Meat is plump and firm
- **medium** – modified rose, pink juices are less
- **medium well** – pink color disappears, juices are clear gray, firm to touch
- **Well** - gray inside and out, shrunken, little or no juice appear, brown and dry.

25. Storage of Meats:

Fresh Meats:

1. Check purchases as soon as it arrives to ensure the quality.
 2. Do not wrap tightly, bacteria and mold thrive in moist. Allow air to circulate to inhibit the growth of bacteria.
 3. Do not open vacuum packed meats until it is ready to use.
 4. Store at 32° to 36° F
 5. Store fresh meat in the coldest part of the refrigerator (40°F/5°C or lower).
 6. Use refrigerated fresh meats within 3-4 days. Ground meats and variety meats are more perishable than other meats, use them within 1-2 days.
 7. Refrigerator cured & smoke meats, sausages, and ready to serve meats, unless the label says otherwise. Leave them in their original wrappers.
 8. Freeze meats for longer storage. (0°F/18°C or colder) for maximum keeping quality.
 - you can freeze luncheon meat, hotdog, and ham up to 2 months.
 - Ground meats will keep for 3 months.
 - Pork cuts for 6 months
 - Lamb will keep up to 9 months.
- Beef will keep for a year.

26. Principles of Cooking:

- To improve its palatability quality.
- To increase tenderness-
 - **Elastin** – is very tough and elastic, and cooking cannot soften it.
 - **Collagen** – also tough and elastic, but cooking can soften and tenderize it.

27. Methods of Tenderizing Tough Meat Cuts:

- **Mechanical Method**
Elastin can be broken down by:
 - Pounding/beating
 - Slicing thinly
 - Grinding
- **Marinating** – involves soaking meat in a solution called marinade which contains acid, such as vinegar, lemon/calamansi juice or tomato juice that helps tenderize meat.

28. Cooking Meat:

- During cooking, heat coagulates the proteins in the muscle fibers.
- Cooking meats at too high temperature or for too long will make it tough and dry.
- Meats cuts cooked in liquid will fall apart. This is due to over coagulation of the proteins.