



Meat structure

The animals usually raised for meat are Cattle, sheep and poultry .Meat composition varies with species of animal,Species variation due to breed, age, sex, diet and exercise conditions

Average value of meat protein is about 23% that varies from higher to lower value according to the type of meat source.Fat content of animal carcasses ranges between 8 and 20%. few epidemiological studies have also pointed a possible relationship between its consumption and the elevated risks of having cardiovascular diseases, various forms of cancers and metabolic disorders .

meat is considered as a rich essential amino acids source whereas, mineral contents to a lesser extent. Apart from it, essential fatty acids and vitamins also make a part of it. liver is quite an enriched source of Vitamin A, Vitamin B1 and nicotinic acid. The normal pH of the muscle considers being around 5.6

The pH has a very strong influence on the muscle:

texture

tenderness

color

water-holding capacity.

The drop in pH is one of the most biochemical events in meat :

PH of meat is reduced to about 5.4-5.6 in red meat

PH of meat is reduced to about 5.9 in poultry meat

Carcass meat consists of:

lean

fat

bone

connective tissue.

The fat can be subcutaneous (lying under the skin of the animal), It is relatively easy to trim to produce leaner-looking meat

- intermuscular (lying between individual muscles) It is more difficult to remove simply.



- intramuscular (occurring within the body of the muscle). It is also referred to as marbling fat because when abundant it gives a marbled appearance to the lean.

The structure of the muscles is largely defined by sheaths of connective tissue. There are three types of organization. Individual muscle fibers are surrounded by a fine network of connective tissue, the endomysium.

Bundles of fibers are surrounded by the perimysium

the whole muscle is contained within the epimysium

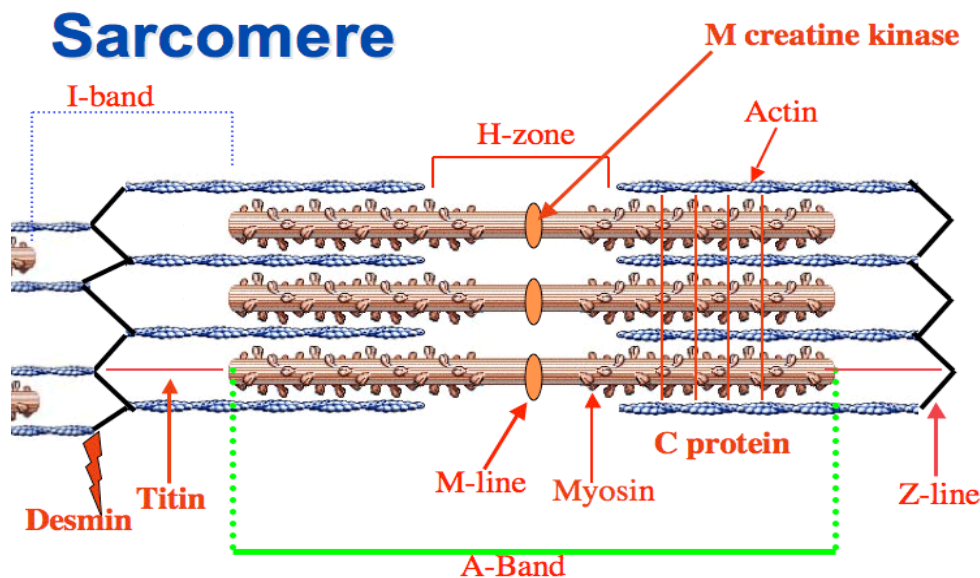
Thin, short fibers will give us meat that is mostly tender to eat.

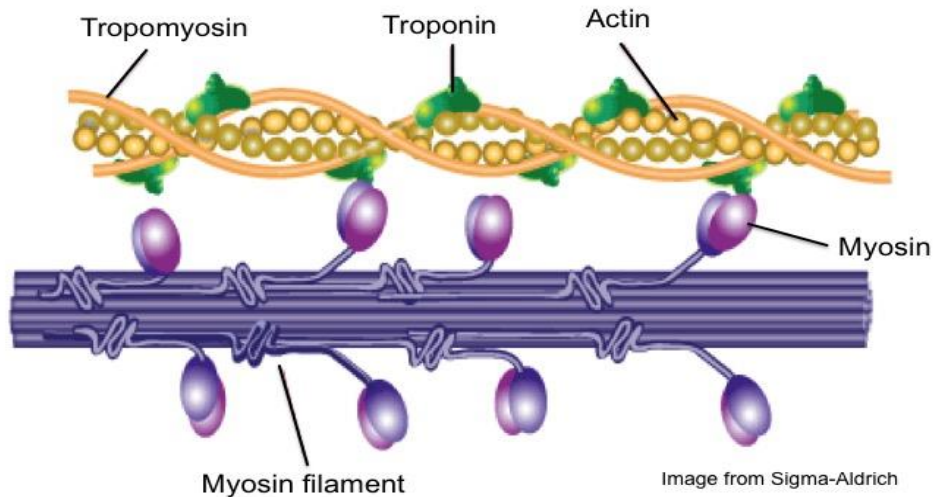
Thick, long fibers will give us meat that is mostly tough to eat.

The individual myofibrils also have alternating stripes, and the striations in the fiber occur because the adjacent myofibrils have their respective light and dark bands aligned.

The dark bands are called the A-bands and the light bands the I-bands. A thin perpendicular line referred to as the Z line bisects the I-bands. The region between successive Z lines is called a sarcomere and it is the smallest functional. The thick filaments are the contractile protein myosin

The thin filaments, known as actin contain two other proteins called Troponin and Tropomyosin





They are linked by the cross-bridges formed by the heads of the myosin molecules. Normally, the sarcoplasmic reticulum maintains the concentration of calcium ions (Ca^{2+}) in the sarcoplasm very low (less than $0.1 \mu\text{M}$). Depolarization causes a very large release of Ca^{2+} from the sarcoplasmic reticulum back into the sarcoplasm. An increase in Ca^{2+} (to about $10 \mu\text{M}$) removes the normal inhibition exerted by tropomyosin and troponin on the attraction between myosin and actin and so causes a contraction.

