

CHEMICAL COMPOSITION AND NUTRITIVE VALUE OF POULTRY MEAT

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Poultry meat/chicken is consumed all around the world and the consumption rate has tremendously increased during past few decades. The reasons for increase in consumption rate are the relatively low cost of production, the fast growth rate of poultry, the high nutritional value of poultry meat (contains protein, vitamins and minerals- iron & zinc) and the introduction of many new processed chicken products.

As a highly nutrient food item, meat provides major nutritive components to the diet relative to the amount of calories it contains. For example 100g of chicken (without skin, dark) contains about 20 g proteins, 4 g fat 1 mg iron and 125 calorie.

Dietary iron presents in food as heme iron and nonheme iron. The human body absorbs heme iron 5-10 times faster than nonheme iron. Heme iron accounts for 50-60% iron present in chicken, beef & lamb and 30-40% in pork fish and liver. All remaining iron is in nonheme form.

In general poultry meat is termed as white meat* and considered as lean meat in comparison to other red meat sources. **It is not only low in fat but also in saturated fatty acids than beef and pork** and therefore it is widely accepted as an excellent source of high quality protein, vitamins (B) and minerals. Moreover poultry meat (young birds) is juicy and easily digestible. In case of poultry meat fat is mostly found subcutaneously while in red meat* animal fat is found intramuscularly. (Again two types of poultry meats are there, termed as **white meat**→Muscles from breast →less myoglobin content. **Red/Dark meat**→Weight bearing muscles/muscles of leg. → High content of myoglobin.)

Overall, the composition of poultry meat is dependent on the kind, class, sex, age, diet. Turkey meat is usually low in fat than chicken while goose and duck meat are higher in fat. When skin is present the fat level is higher because skin includes subcutaneous fat.

Water/ moisture:- is the largest component of muscle tissue. It dissolves nutrient and acts as a medium for their transport. The moisture content of raw poultry meat is 70-74%. Generally skeletal muscles of younger birds contain higher moisture in comparison to older one. There is an inverse relation between fat and moisture content, when fat content goes up the moisture level is reduced. The protein content is not affected much by these changes.

Protein:-Protein is the most important component of meat from both nutritional and technical point of view. Poultry meat has higher protein content than most of the red meats. The meat of poultry is of superior quality in respect of the

Red meat refers to a meat that appears red before cooking, includes all meats invariably from mammals.e.g.beef, veal, lamb, mutton, pork, rabbit, kangaroo, buffalo etc.Red meat derives its red colour from myoglobin. The content of saturated fat is high. **White meat** refers to any light coloured meat such as Fish, sea food (oyster, crab, lobster), and particularly poultry

(Chicken, turkey, duck, goose, pheasant)

biological value and presence of essential amino acids. Meat of male birds contains slightly higher protein than from female.

Higher **fat** also results in a higher caloric value. The higher un-saturation also results in lower melting point of fat and also results lower stability to lipid oxidation. The consumers can obtain very lean meat from poultry after removal of skin (There is no marbling and minimum intramuscular fat in breast meat). As in

case of moisture fat content of poultry meat also varies widely depending upon sex, age, species and diet of the poultry. The carcass fat invariably increases with an increase in dietary fat or high energy diet. The proportion of desired unsaturated fatty acids Oleic and Linoleic is more than 40% of the total fat present in meat. Poultry meat contains less cholesterol, which is associated with atherosclerosis, as compared to most of other animal based foods.

Meat contains a mixture of saturated and unsaturated fatty acids :-

Species	% of saturated fatty acids in fat	% of unsaturated fatty acids in fat
Chicken	33	67
Beef	54	46
Pork	42	58

Prominent saturated fatty acids present in meat



Palmitic acid

Stearic acid

Myristic acid (Most atherogenic fatty acid)

MUFA -Oleic acid (most prominent MUFA)

PUFA - Omega-3 (n-3) and Omega-6 (n-6)

Linoleic and linolenic acids are essential fatty acids (not synthesized in the body).

Carbohydrate- very little amount of carbohydrate is found in meat (poultry) i. e. 1-2 % of total edible tissue. Inositol, glucose and fructose are major and ribose and mannose are minor constituents of carbohydrate.

Minerals- Mineral content of poultry meat is nearly one percent. Some important minerals found in

poultry met are Sodium, potassium, calcium, magnesium, iron, phosphorus, sulpher, chlorine etc.

Mineral content of raw chicken (mg/100 g) :-

Cal-	5.8
Phos-	407
Iron	0.7
Na	46
Pot	248
Mag	29
Sulph	268.

Vitamins – Poultry meat is a very good source of many vitamins. Niacin is present in good quantity whereas thiamin (B₁), riboflavin (B₂) and ascorbic acid is present in fair quantity. Poultry liver is a rich source of vitamin A, Vitamin B complex and Vitamin C.

Vitamin content of raw meat (per100g):-

Vit. A -	730 I U.
Thiamin (B ₁)	0.07 mg
Riboflavin (B ₂)	0.38 mg
Niacin	5.6 mg