

<https://doi.org/10.36719/2707-1146/50/30-33>

Heyran Gasimova
Nakhchivan State University
heyranqasimova@ndu.edu.az

Nutritional and Biological Value of Poultry Products

Abstract

Food is one of the important elements for human life, like air and water. Nutrition rich in high-quality protein, fat, carbohydrates, vitamins, and minerals is the basis of the body's development, immune system, intellectual and reproductive activity. The connective tissue in poultry meat is easily digestible (up to 80 %) by the human body due to the fact that it is composed of delicate muscle fibers. Bird eggs are also very useful for the body. However, in addition to the amount and chemical composition of food, its microbiological indicators should also be under strict control. Eggs, which have a rich biochemical composition and useful biological properties, can be a source of danger to human health if veterinary-sanitary and hygiene rules are not followed. That is, the fall of various disease-causing agents, chemical and biological toxic substances into food products can cause mass illness and poisoning.

Keywords: *poultry, poultry meat, eggs, poultry products*

Introduction

Poultry – meeting the population's demand for poultry meat and eggs. The largest poultry complexes are located in major cities such as Baku, Ganja and Nakhchivan. Egg layers are used to obtain eggs from chicken breeds. Chickens of this breed differ in rapid maturity and have a relatively small mass (2 kg). They have a noticeable broad chest, a long, light body, a straight back and a light head. Their legs are thin, wings are long, feathers are dense (Gadimova, 2013, pp. 9-10)

Meat from naturally raised and naturally fed chickens has a high nutritional value. The high nutritional value of poultry meat is related to its chemical composition. Poultry meat therefore contains proteins, fats, vitamins, minerals and carbohydrates that are easily digestible by the human body. These substances that make up poultry meat have a special importance in the quality of poultry meat. The chemical composition of poultry meat includes 72 – 75 % water, 18 – 22 % protein, 1.5 – 5 % fat, 1 – 1.2 % minerals, 1.7 – 1.9 % extractive nitrogenous substances, 0.9 – 1.2 % nitrogen-free extractive substances. It also contains vitamins, enzymes and other substances formed during metabolic processes. Poultry meat is dominated by vitamins A, D, E, B1, B2, B12 and PP. However, it should be noted that the amount of vitamins in poultry meat is low compared to other substances. Unlike beef, poultry contains more vitamin B6 and biotin. One of the components in poultry meat is carbohydrate (glycogen). The amount of this substance in poultry is less than in other substances. The amount of this substance in poultry meat is up to 0.5 %. Poultry meat contains all the essential amino acids – tryptophan (the most deficient amino acid in the human diet), threonine, valine, isoleucine, leucine, lysine and methionine, in optimal proportions. It also contains a complex of essential amino acids – alanine, histidine, aspartic acid and a number of other amino acids (Bessarabov, Bondarev, & Stolya, 2005, p. 72; Isfandiyarov & Akhmedov, 1982, pp. 23-25; Zhuravskaya, 1985, pp. 40-42).

Research

A distinctive feature of young poultry is that the breastbone of birds at this age is not ossified, the beak is soft and the skin is soft and elastic. In addition, the feet of birds at this age are smooth, dense and covered with scales. Spurs do not grow for a long time. Older poultry meat includes goose, duck, chicken and turkey, as well as products from their processing. Birds at this age are characterized by complete ossification of the breastbone and hardening of the beak. The scales covering the legs of chickens and turkeys are hard. The skin of the feet of ducks and geese is thick and rough.

More extra substances (0.9–2.1 %) are found in the meat of competent birds. Nitrogenous extractive substances include: carnosine, anserine, carnitine, creatine phosphate, creatine, adenosine monophosphate, adenosine diphosphate, adenosine triphosphate, purine acids, substituted amines, carbamide, etc. One of the main nitrogenous extractors is carnosine. It strengthens the excretion and separation of mädə syrup (Gabrielyants & Kozlov, 1986, p. 189).

Poultry is one of the fastest growing industries. Large quantities of high-value food products, especially eggs and meat, are produced in a short time. The flavor and fullness of poultry meat is due to the wealth of extractive substances in it. The amount of these substances has a decisive influence on the taste and aroma of poultry. Among birds, turkey is considered the most protein-rich meat, while goose meat is considered the least nutritious. The nutritional value of poultry meat is shaped by its main composition and the importance of its individual components in the human diet. Poultry meat has many benefits. In general, it has dietary properties (except for duck and goose meat) and is easy to digest, rich in biologically active substances (non-substitutable amino acids, essential fatty acids, etc.). It also contains high amounts of tryptophan, which gives the body comfort. Since poultry meat is rich in unsaturated fatty acids (olein, linole, arachidone, etc.), it helps prevent atherosclerosis and hypertension by removing harmful cholesterol from the body. It is also useful in the treatment of gastrointestinal diseases. It also accelerates the healing processes of anemia and circulatory disorders thanks to its easily absorbed iron content. It has a metabolism-regulating effect in diabetics and plays a role in the treatment of colds and respiratory diseases by strengthening the immune system (Pozdnyakovskiy, Ryazanova, & Motovilov, 2007, s. 31).

The protein content of lean and young poultry meat is higher than that of fatty and old poultry meat. However, the total amount of protein does not fully reflect the nutritional value of the bird. Because poultry meat contains complete proteins as well as incomplete proteins. Therefore, the nutritional value of poultry meat is evaluated according to the amount of complete protein. This shows that poultry meat is different from beef.

The fats in poultry meat are mostly unsaturated fatty acids and are therefore easily digested by the body. The amount of unsaturated fatty acids is 5-20 times higher than in beef and mutton. Also, the presence of mineral substances in poultry meat is particularly important (Ahmadov & Hasanova, 1982, pp. 12-16; Isfandiyarov & Ahmadov, 2006, pp. 23-25; Mirzayev, 2006, pp. 32-33).

An egg is a structure in which new life is born in a frame, separated from the world that surrounds it. This means that each egg contains all the components a bird needs. The world's largest egg is considered to be an ostrich egg, but an ostrich egg weighs less than the weight of the bird itself. The smallest bird in the world is the hummingbird, but its egg weighs more than 6 % of its own weight (Jabbarov & Hajiyev, 2017, p. 34).

It is accepted that inclusion of xanthophyll containing feedstuffs in the diet of laying hens is required to produce egg yolks with a normal color appearance. In addition to widely used feedstuffs such as yellow corn and alfalfa, various other materials that contain xanthophyll have been evaluated for pigmentation of egg yolks (Janky et al., 1982).

Chickens start laying eggs at 5 months of age. 10 chicken eggs have the same nutritional value as 1 kg of beef. However, not all birds' eggs can be used in the kitchen. Goose and duck eggs are only recommended for use in desserts, as they must be cooked at high temperatures and their freshness is also very important. Otherwise, it can lead to paratyphoid (an infectious stomach disease similar to flatulence) in the human body. Chicken eggs are the most common product in the kitchen and contain protein, fat and carbohydrates. In short, chicken eggs contain 74 % water, 12-13 % protein, 11-12 % fat and 1 % carbohydrates. The calorie content of 100 grams of chicken eggs is 150-160 kcal. Chicken eggs, especially the yolk, contain enzymes and unsaturated fatty acids. The yolk is rich in carotene, which can only enter the human body through food. Quail eggs are much more valuable than chicken eggs. As long as they are fresh, they are germ-free and harmless for children. In general, quail eggs contain 2 times more vitamins than chicken eggs, 5 times more phosphorus and calcium, and 4 times more iron than chicken eggs. By consuming quail eggs, it is possible to boost immunity, mobilize stamina and mental strength, as well as cure abdominal diseases. These eggs also contain calcium carbonate, which plays an important role in the uptake of

calcium needed by the human body. Eggs are nutrient-rich and a valuable source of high-quality proteins and are low in harmful fats and calories. High-quality protein helps to maintain normal body mass or reduce excess weight; therefore, it plays an important role against obesity (Jabbarov & Hajiyev, 2017, pp. 180-188; Corsello et al., 2015).

Currently, a number of preservatives, ionizing radiation, ultraviolet rays, carbon dioxide and antibiotics are used to preserve the quality of poultry meat in line with the high demand of the population. Thanks to these preservatives, it is possible to extend the shelf life of poultry meat. Each of them is of particular importance in maintaining the quality of poultry meat.

Ionizing radiation has a very strong bactericidal effect and is one of the most effective methods against microorganisms that cause deterioration of poultry meat quality during storage. Ionizing radiation consists of radioactive γ -rays with high transmittance. Two types of γ -radiation are used during product storage: high dose (0.8 million rad) radopreservation and low dose radiopreservation. When a high dose is applied to poultry meat, the microorganisms contained in the meat are destroyed, thereby eliminating the danger of meat spoilage (Didenko, 1972; Sidorov, 1986).

The beneficial signs we have listed apply to chickens and their eggs that are raised naturally in villages and gardens. We witness the conditions under which these chickens are raised. When buying chickens, it is important to choose village chickens because their meat is rich in vitamins and minerals, as they are fed natural rather than artificial feed. It takes 12-16 weeks for a chicken to grow naturally, and chickens raised earlier than this period may contain harmful substances.

Birds have their own growth period and should be fed with natural products. However, the extent to which these conditions are complied with in our factories should be checked. There may be factories where chickens are fed food that they would eat in nature (barley, wheat, millet, grass, earthworms, etc.). There are also factories where chickens are fed genetically modified feed or hormonal preparations. Therefore, care should be taken when choosing products.

It is extremely important to comply with veterinary health rules during the transportation and sale of poultry products. Such products should not be transported openly in vehicles without observing the appropriate temperature regime and without veterinary documents. Compliance with hygiene rules when using products is of great importance for our health.

Conclusion

This article provides information about the benefits of poultry products to the human body, the vitamins, proteins and minerals contained in these products. One of the most important food products that form the basis of human nutrition is meat and meat products. Therefore, meat and meat products, including poultry and eggs, are recognized as complete protein sources. Poultry farming is a very useful field in terms of agriculture, and poultry meat and eggs offer significant benefits for the body. In recent years, many poultry farms have been established in different regions of Azerbaijan. These facilities are equipped with the latest technology and equipment of leading companies from developed countries of the world.

References

1. Ahmadov, A., & Hasanova, Y. (1996). *Technology of meat and meat products*.
2. Bessarabov, B. F., Bondarev, E. I., & Stolyar, T. A. (2005). *Ptitevodstvo i tekhnologiya proizvodstva yayts myasa ptits*. SPb. Lan.
3. Corsello, F., Cricelli, G., Ferrara, C., Ghiselli, N., Lucchin, A., & Poli, L. (2015). *Role of poultry meat in a balanced diet aimed at maintaining health and wellbeing: An Italian consensus document*. Food Nutr. Res.
4. Didenko, R. A. (1972). *Kachestvennyye izmeneniya myasa ptitsy pri khranении puti uluchsheniya effektivnosti*.
5. Gadimova, N. S. (2013). *Technology of Meat and Meat Products*. Textbook, Baku Economic University Publishing House.

6. Gabryelyants, M. A., & Kozlov, A. P. (1986). *Tovarovedenie myasnykh i rybnykh tovarov*. Ekonomika.
7. Isfandiyarov, J. (1982). *Commercialization of food products*.
8. Janky, D. M., Francis, C., Damron, B. L., & Fletcher, D. L. (1982). *Evaluation of waste activated sludge (citrus) as a source of pigment for laying hens and broilers*. Poultry Science.
9. Jabbarov, A., & Hajiyeu, S. (2017). *Poultry*.
10. Juravskaya, N. K., et al. (1985). *Issledovanie i kontrol' kachestva myasa i myasoproductov*. Agropromizdat.
11. Mirzayev, G. S. (2006). *Tutorial on performing laboratory work on examination of meat, fish and egg products*. Fairy house company.
12. Pozdnyakovskiy, V. M., Ryazanova, O. A., & Motovilov, K. Y. (2007). *Ekspertiza myasa ptitsy, yayts, i produktov ikh pererabotki*. Novosibirsk Sib. Univ.
13. Sidirov, M. A. (1986). *Mikrobiologiya myasa i myasoproductov ptits*. Agropromizdat.

Received: 23.08.2024

Revised: 26.09.2024

Accepted: 22.10.2024

Published: 20.11.2024