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# DIVERSITY INDICES of chicken eggs for selection

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*This article presents data on various indicators of eggs according its morphological and chemical composition, in particular according to content of essential amino acids, vitamins, macro-and micronutrients and other substances that have dietary value and perspectives in selection work. Attention is paid to the content of cholesterol and lysozyme in eggs as factors affecting on human health.*

**Tags**: chicken eggs, selection indices, egg white, egg yolk, nutrition value, protein, fat, amino acids, vitamins, macro- and micronutrients, cholesterol, lysozyme, human health.

**The purpose of our work** is to show the possibility of selection of specific qualities of eggs, which determine dietary and healthy properties. The sources of scientific data on morphological composition of eggs and content of nutrients and bioactive substances as well as experimental studies on the influence of cholesterol eggs on human health served as the material for scientific researches.

**Results**. Scientific data on egg quality indicate that today the high-quality nutritive chicken eggs are generally characterized by a high nutritional value. In particular, one egg first category (53,0-62,9 g) has so much protein-energy value (nutrition) as a one cup (200-250 g) of normalized cow milk (2.0-2.5% fat).

Egg protein contains all essential amino acids that provide its high full-value accepted as a standard. Quantitatively there are more amino acids such as leucine and isoleucine, glutamic and aspartic acids, lysine, arginine, proline, valine (from 5 to 12%). Methionine, cystine, tryptophan and tyrosine are in relatively small amounts (1-2%). The proportion of amino acids in yolk and albumen is almost identical [8].

Due to the presence of above-mentioned complex of dietary medicinal substances - essential amino acids, vitamins for the body of minerals, lysozyme, essential fatty acids, and enzymes (amylase, proteases, dypeptydaza, oxidase, etc.) in chicken eggs [7] and taking into account the statistic data of the highest life expectancy in the countries with a higher egg consumption, it is concluded the fallacy of a point of view about the negative effects of higher consumption of eggs on human health (in our country for the person recommended amount of 280 pcs. per year). On the contrary, as can be seen from the above-mentioned facts that due to the higher eggs consumption it increases their healing ability [1-4;5;7].

By that reason experimental studies were conducted to determine the capacity of human consumption (by the first author), significantly increasing of the number of eggs - 365 pcs. per year (one raw egg a day at breakfast). The observations lasted 20 years and during that time human health was improved. However, it is obviously that cholesterol affect human in dependence on an individual constitutional peculiarity.

Moreover, the new studies made by researchers at the Cambridge University show that due to a special albumin contained in eggs, orexin is producing in the brain, it is a specific substance that stimulates a human body [9]. The above data confirm that egg productivity of chickens is characterized by a set of different

indicators that are value for human health. And the selection should specify its effective assessment and subsequent improvement. Thus, by studying the diversity indices of eggs it is confirmed its value to human health as well as its interdependence in the inheritance of quantitative and qualitative features. Selection gives possibility to identify, to measure and to create new factor indicators in the chicken egg production that contributes human health improvement.

By analyzing all that mentioned factors it is determined that chicken egg is an ideal food product [8], because it contains a balanced set of dietary and healthy substances which are well absorbed in the body, amino acids, vitamins, macro- and micronutrients, unsaturated fatty acids, enzymes, lysozyme , cholesterol that (the last one) is a material for sexual and other hormones, vitamin D and etc. As lysozyme has a strong antibacterial property, so it is obvious that for some time it gives such possibility after entering in a "raw state" to the human body, showing its healing properties. Lysozyme is healthy for the gastrointestinal tract.

Thus, limiting of egg consumption less than 365 eggs per year because of the presence of cholesterol is not justified. Dietary and healing properties of chicken eggs show up better when eaten in a raw form. Consumption of egg lysozyme with its known antibacterial property has a positive value for the human body.

## Conclusions and recommendations

1. The selection work in the chicken egg poultry farm is conditioned by considering and evaluating the quality of eggs according to its various indicators of egg whites and yolk: to its morphology and physical properties; to the content of proteins, amino acids, macro trace elements, vitamins, lipids, saturated and unsaturated fatty acids, enzymes, lysozyme, cholesterol, etc., that in the process of selection can be varied.

2. Knowledge about importance of eating eggs that have complex and biologically active nutrients, is growing, and in particularly by effect on the human protein, cholesterol, lysozyme, that considered in selection work.

3. It is refuted allegations of negative impact of cholesterol on the human. The reproducible ability and general performance of poultry is connected with a number of cholesterol in eggs. Whereas, by decreasing of cholesterol in eggs is reducing reproducible ability of hens, so in selection work the level of cholesterol in eggs is controlled according to interrelated indicators.

4. Specialists of production eggs and medical research institutions based on necessary studies and researches should revise scientific advices about an optimal amount of consumption eggs for food purposes and more carefully study an impact of cholesterol, lysozyme and other substances in eggs on human. And selectors should consider their recommendations.

5. It is advisable to breed laying hens for creating lysozyme and cholesterol in eggs.

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