




LOW CHOLESTEROL EGG PRODUCTION

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EGG?

- Egg is valuable product produced by poultry for the continuation of their own generations.
- The well-known eggs for the human diets are chicken, quail and goose eggs.
- 58 g standard chicken egg consist of shell and shell membrane (11%; 6,4g), albumen (57%; 32.9g and yolk (32%; 18.7 g).



NUTRITION VALUE OF EGG

- Egg contains (with shell) %65.6 (38.1 g) water, %12.1 (7.0 g) protein, %10.5 (6.1 g) fat, %0.9 (0.5 g) carbohydrate, %10.9 (6.3 g) ash.
- **Albumen** contains 88% water, 11 % protein, 0.2 % fat and 0.8 % minerals while **yolk** contains 48 % water, 17.5 % protein, 32.5 % fat and 2 % minerals.



NUTRITION VALUE OF EGG

- **Amino Acids and Proteins;**

Egg includes balanced and sufficient amount of all of the essential amino acids.

Egg proteins high quality and easily digestible.

- **Vitamins;**

riboflavin, A, D, E, B12, B6 and folic acid.

- **Minerals;**

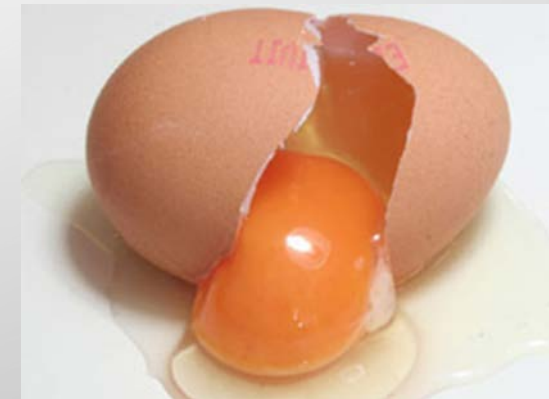
phosphorus, selenium, iron and zinc

- **Antioxidants;**

Lutein, Zeaxanthin, Tryptophan, Tyrosine and Vitamin E

BIOACTIVE COMPOUNDS OF EGG

- Egg contains some bioactive compounds such as;
- Sialic Acid
- Liposomes
- Immunoglobulin Yolk
- Choline
- Lecithin
- Lysozyme
- Shell Membrane Protein



WHAT IS THE PROBLEM???

- In addition to the mentioned above characteristics, the egg contains approximately 373 mg/100g cholesterol.
- Quail, chicken or the other poultry eggs are not preferred by consumer due to linear relationship between cardio-vascular diseases and cholesterol level.
- Particularly most studies reported low density lipoprotein (LDL) and high density lipoprotein (HDL) balance is important for preventing cardio vascular diseases. It is well known that intake of saturated fatty acids (SFA) leads to increase of cholesterol storage, while unsaturated fatty acid intake can protect against cholesterol storage.

CHOLESTEROL

- LDL CHOLESTEROL IS DEFINED AS “BAD CHOLESTEROL” AND RESPONSIBLE TO CARDIO-VASCULAR DISEASES.
- HDL CHOLESTEROL IS DEFINED AS “GOOD CHOLESTEROL” BECAUSE IT PROTECT TO THE BLOOD VESSEL WALL AGAINST LDL CHOLESTEROL NEGATIVE EFFECTS

HOW CAN WE SOLVE THE PROBLEM???

- In recent studies, addition of PUFA or MUFA group oils into poultry feed was done and the changes on fatty acid composition due to egg cholesterol were investigated.
- In literature there were different reports such as: effects of the supplementation of different levels of fish oil, flaxseed oil, conjugated linoleic acid, canola oil, sesame oil and pomegranate seed oil were reported.

PUFA/ MUFA OILS EFFECTS

- SATURATED FATTY ACIDS ARE INCREASED TOTAL CHOLESTEROL LEVEL, ESPECIALLY THE LDL LEVEL.
- MUFAs ARE DO NOT CHANGE TOTAL CHOLESTEROL LEVEL WHILE THEY INCREASE HDL CHOLESTEROL LEVEL.
- PUFAs ARE REDUCED LDL LEVEL AS WELL AS INCREASE HDL LEVEL.

SUPPLEMENTATION OF PUFA OR MUFA OILS IN POULTRY FEED

- MUFA OR PUFA OIL ADDITION LED TO A DECREASE IN TOTAL UNSATURATED AND MONOUNSATURATED FATTY ACID CONTENT OF THE EGG.
- MUFA OR PUFA OIL ADDITION INCREASED THE PUFA AMOUNT AND TOTAL SATURATED FATTY ACID CONTENTS OF THE EGG SAMPLES.
- THE REMARKABLE RESULT IS THAT MUFA OR PUFA OIL SUPPLEMENTATION CHANGED THE EGG FATTY ACID COMPOSITION.

Thank you...
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