

## Designer eggs: A healthier version of standard poultry eggs

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There has been a lot of improvement and advancement in technology in all the fields of science. Eggs are known to be the richest source of protein and also contain other nutrients but in small quantities. Through the application of biotechnology, a new version of eggs has been created and is getting popular, namely designer eggs. Designer eggs are those in which the nutritional composition of the eggs has been altered by feeding the poultry with a special diet in terms of low cholesterol, high omega fatty acids as well as high concentration of specific vitamins and minerals. They are also known as "functional eggs", "diet eggs" or "omega-3 fatty acid-enriched eggs". When compared to the normal egg, designer eggs are much healthier as they are vitamin and mineral enriched. The designer eggs contain vitamins, such as vitamin A, vitamin B12, biotin, pantothenic acid, vitamin D3 and vitamin E. It is a known fact that eggshells contain minerals, such as phosphorus and calcium; in addition to that, designer eggs contain micro minerals, such as iodine, zinc, copper and chromium which can actually help to treat deficiency-related diseases. A normal egg contains 200-220 mg of cholesterol; however, in designer eggs, the cholesterol level can be reduced by supplementing them with chromium at concentrations less than 1 ppm and also by feeding the hen with an all-vegetarian diet rich in protein and fibre. Designer eggs also contain omega-3 fatty acids, such as alpha-linolenic acid, eicosapentaenoic acid and docosahexaenoic acid, which are considered to be essential for our body. In the future, there could be pharmaceutical alterations where we can produce eggs that contain desirable compounds, for example, insulin for the treatment of diabetes. These eggs could be very helpful to obtain all essential nutrients from a single source. Therefore, in the future, biotechnologically modified food could give us promising results with regards to synthesising essential compounds and help in treatment as well as prevention of diseases.

*Keywords: Designer eggs, Poultry eggs, Nutrition, Biotechnology, Essential fatty acids, Low cholesterol, Health, Genetic manipulation*

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