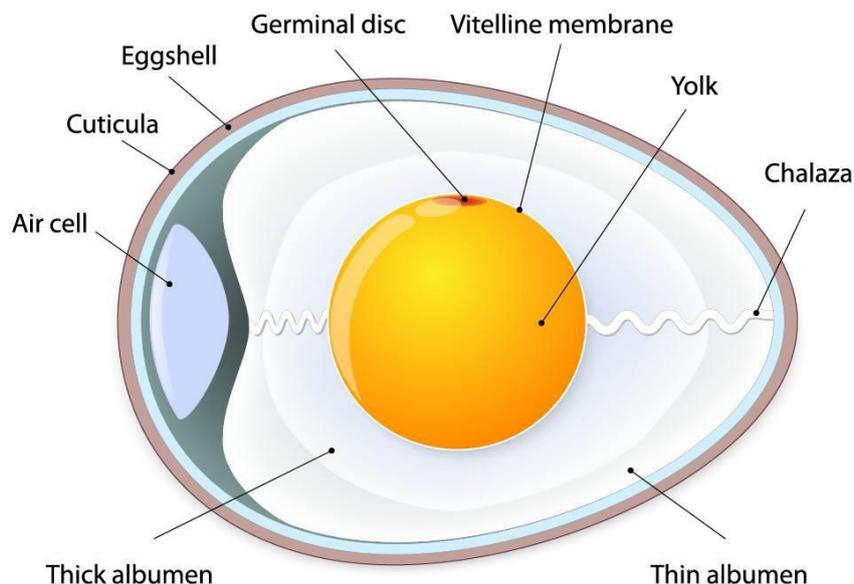


## UNIT 9: EGG COOKERY

Certain foods play a major role in cookery and the egg is one of them. It can be served as a main dish, as an accompaniment to other dishes or as an ingredient in a dish. Due to its versatility, the egg is considered a primary ingredient in culinary preparation, providing moisture, structure, and richness to a dish. It is also an emulsifier and an aerator when properly handled and used.

In cooking, the term 'EGG' refers to the oval ovum of a bird, used as food. There are many types of eggs, such as goose, duck and turkey. However, we are most concerned with the egg of the domesticated fowl called chicken. A recipe calling for egg normally means chicken egg unless otherwise specified.

### CHICKEN EGG





## COMPOSITION

A whole egg is made up of yolk, white and shell. A membrane lines the shell and forms an air cell at the large end of the shell. The yolk is centered in the shell by the Chalazae. These are two white strands that are visible when the egg is broken. The shell or the outer covering of the egg may be white or brown. Shell color has no effect on the quality, cooking properties or nutritive value of the egg. The breed of the bird determines color of the shell. Composed primarily of Calcium Carbonate, the shell is extremely fragile. It is porous, which allows it to breathe. The porous nature of the shell allows loss of moisture even if the shell is unbroken.

The egg white is the food and moisture source for the embryo in a fertilized egg. It accounts for 65% of the liquid weight of the egg. Egg white is made up of two parts. A thick white surround the yolk. Thinner, more liquid white is between the membrane and the thicker white. Albumin protein is the major component of the white. It also contains sulfur. The white is clear and soluble when raw. It is white and firm when coagulated. Albumin is the egg white valued by the cook and the baker for its ability to hold air when beaten. Beaten egg whites provide light fluffy texture for soufflés and light sponge cakes.

The yolk is the unfertilized embryo in the egg. Although normally yellow, the depth of color will vary with the feed of the hen. The yolk is high in fat and protein, and contains iron. The yolk is valued for the richness and texture it provides in both cooking and baking.

The most important rule of egg cookery is a very simple one: avoid high temperature and long cooking times. In other words, do not overcook. Eggs are largely proteins, so the principle of coagulation is important to consider. Eggs coagulate at the following temperatures.

Egg Whites: 140-149°F or 60-65°C

Egg Yolks: 144-148°F or 62-70°C

Note that the egg white coagulates before the yolk. That is why it is possible to cook the egg with a firm white but a runny yolk. As the temperature of coagulation is reached, the eggs change from semi liquid to solid, and they become opaque. If the temperature continues to rise, they become firmer. An



overcooked egg is tough and rubbery. Low temperatures produce the best-cooked eggs.

**SULFUR**: The familiar blue ring that you have often seen in a boiled egg, is caused by cooking for extended periods at a high temperature. This is caused by the sulfur in the egg white, which combines with the iron in the egg yolk to form Ferrous Sulphide, a strong-smelling compound that is deposited around the yolk. The best way to avoid this is to cook at low temperatures for the correct cooking time.

**EGG FOAMS**: Beaten Egg Whites are used to give lightness and rising power to soufflés, fluffy omelettes, cakes and some pancakes. The following guidelines will help you handle beaten egg whites properly.

1. **Fat inhibits foaming**: When separating eggs, take care not to allow any yolk to be mixed with the white. Yolks contain fat and this will inhibit the foaming. Always use very clean equipment to beat egg whites.
2. **Mild acids help foaming**: A small amount of lemon juice or cream of tartar gives more volume and stability to beaten egg.
3. **Egg Whites foam better at Room Temperature**: Remove the eggs from the cooler or refrigerator about an hour before beating.
4. **Do not over beat**: Beaten egg whites should look moist and shiny. Over beaten eggs look dry and curdled. They have now lost their capacity as aerators.
5. **Sugars make foams more stable**: Adding some sugar to partially beaten egg whites will make the foam more stable. It will retain shape for a much longer period of time.



### **EGG SIZE CLASSIFICATION:**

Jumbo 70 gms 850 gms/doz

Extra Large 60-65 gms 765 gms/doz

Large 55 gms 680 gms/doz

Medium 48 gms 595 gms/doz

Small 40 gms 510 gms/doz

Peewee 35 gms 425 gms/doz

### **MARKET FORMS:**

- Fresh eggs or shell eggs
- Frozen eggs (whole, whites, yolks)
- Dried eggs (whole, yolks and whites)

### **STORAGE AND HANDLING:**

Protection of eggs is of great importance. When improperly handled, its properties as an ingredient and independent food item are greatly impaired. Eggs lose their qualities rapidly at room temperature. They should always be stored at 36-40°F. Eggs have porous shells which allow air to enter the shells. They should be stored away from food, which are strong smelling and which may pass on their odours.

### **NUTRITIVE VALUE:**

Nutritionally, eggs are important. They contain vitamins A, D, E and K. They also contain some of the B-complex vitamins. They are high in Iron and provide 15% of the protein requirement of the body. Eggs are low in saturated fats and one egg provides approx. 80 calories. The major concern with egg is cholesterol. One large egg averages 213 mg of cholesterol. This is fairly high for people who have restricted diets. Using the egg white only is part of the solution as most of



the cholesterol is concentrated in the yolk. The egg is unquestionably one of the best sources of food, yet it requires thought and consideration.

Egg is considered the most versatile ingredient to be used in the kitchen. On a separate sheet of paper, list the various uses of egg in cooking and baking.

### **HEALTH BENEFITS/ADVANTAGES:**

- Egg is nature's most perfect package of nutrition.
- It is naturally sealed, absolutely unadulterable.
- Egg protein is of the highest quality. It is used as a standard to measure the quality of any other protein food.
- Its biological value (96) is the highest, compared to other food.
- Egg contains carotenoids and Vitamin A – good for eyesight; Vitamin D and Calcium – good for strong teeth and bones; Vitamin E – good for glowing skin; and a wide range of other vitamins and minerals necessary for good health.
- Egg whites (albumen) is an antidote for certain toxins and prevents ulcers, enteritis, gastritis, diarrhoea and dysentery.
- Carotenoid pigments present in egg yolk are natural anti-oxidants which reduce the risk of cardio - vascular diseases
- Folate B Vitamin found in eggs play an important role in prevention of birth defects and cardio – vascular diseases
- Lutein and Zeaxanthin found in eggs significantly reduce the risk of cataracts and age-related muscular degeneration.
- Eggs have a higher agglomeration of seven natural anti-oxidants, which prevents premature aging, per oxidation, formation of plaques in the arteries, artherosclerosis and cardio – vascular diseases. They also help minimize memory loss and certain neurological disorders.
- Egg is easily digestible, good for all age groups. At Rs 25-30 per kilo, it is the cheapest source of animal protein.



- Egg is one of the most versatile foods. It can be cooked and enjoyed in umpteen exciting ways.
- Specific Pathogen Free (SPF) eggs are essential raw material for production of Human and Avian/Animal vaccines, as per the WHO guidelines.
- The per capita consumption of eggs in India is 38. In Taiwan it is 358, Japan: 346, USA: 308 and in Europe: 290. The National Institute of Nutrition (India) recommends 180 eggs per capita consumption.
- WHO has given Egg a 100-point rating as the best protein food for humans.

