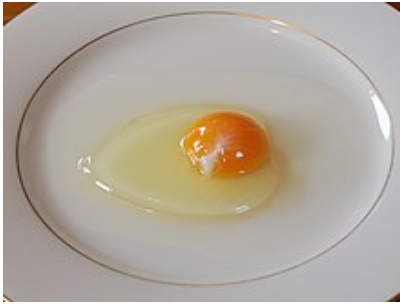


Egg Whites - The Albumen

Written by W.J.Pais



Egg white is the common name for the clear liquid (also called the **albumen** or the **glair/glaire**) contained within an

[egg](#)

. It is formed from the layers of secretions of the anterior section of the hen's oviduct during the passage of the egg.

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It forms around either fertilized or unfertilized egg. It consists mainly of about 15%

[proteins](#)

dissolved in water. Its primary natural purpose is to protect the

[egg yolk](#)

and provide additional nutrition for the growth of the

[embryo](#)

, as it is rich in proteins and also of high nutritional value. Unlike the egg yolk, it contains a negligible amount of fat. Cooks have many

[culinary](#)

and non-culinary uses for egg-whites. Mousse for example.

Composition

The egg white is approximately two-thirds of the total egg's weight out of its shell with nearly 90% of that weight coming from water. The remaining weight of the egg white comes from [prot](#)

[ein](#)

trace

[minerals](#)

, fatty material,

[vitamins](#)

, and

[glucose](#)

. The U.S. large egg's white weighs 38 grams with 4.7 grams of protein, 0.3 grams of

[carbohydrate](#)

and 62 milligrams of

[sodium](#)

. The U.S. large egg white contains about 20

[calories](#)

.
Egg white has no dietary

[cholesterol](#)

. Egg white contains approximately 40 different proteins.

Below is a list of the proteins found in egg whites by percentage along with their natural functions.

- 54% [Ovalbumin](#) - Nourishment; blocks digestive enzymes
- 12% [Ovotransferrin](#) - Binds iron
- 11% [Ovomucoid](#) - Blocks digestive enzymes
- 4% [Ovoglobulin G2](#)
- 4% [Ovoglobulin G3](#)
- 3.5% [Ovomucin](#)
- 3.4% [Lysozyme](#)
- 1.5% [Ovoinhibitor](#)
- 1% [Ovoglycoprotein](#)
- 0.8% [Flavoprotein](#)
- 0.5% [Ovomacroglobulin](#)
- 0.5% [Avidin](#)
- 0.05% [Cystatin](#)

(Total listed 96.25%)

Egg white foam

Creating an egg foam

The physical stress of beating the egg white can create a foam. There are two types of physical stress caused by the beating of the egg whites with a whisk, the first being that the whisk drags the liquid through itself creating a force that unfolds the protein molecules. This process is called [denaturation](#). *The second stress* comes from the mixing of air into the whites which causes the proteins to come out of their natural state. These denatured proteins gather together where the air and water meet and create multiple bonds with the other unraveled proteins and thus becomes a foam holding the incorporated air into place. This is because the proteins consist of amino acids; some hydrophilic (attracted to water) and some hydrophobic (repelled by water). This process is called coagulation, because it is like blood clotting.

Stabilizing egg white foam for culinary purposes

Copper bowl

[Copper](#) bowls have been used in [France](#) since the 18th century to stabilize egg foams. The copper in the bowl assists in creating a tighter bond in reactive [sulfur](#)

items such as egg whites. The bond created is so tight that the sulfurs are prevented from reacting with any other material. A silver plated bowl will have the same result as the copper bowl or a pinch of powdered copper supplement from a health store used in a glass bowl will yield the same result as well. Drawbacks of the copper bowl include the expense of the bowl itself, as well as the fact that the bowls are difficult to keep clean. Copper contamination from the bowl is minimal as a cup of foam will contain a tenth of one's daily normal intake level.

Adding an acid

[Cream of tartar](#) (potassium bitartrate) is an [acidic](#) salt that can be used to change the [pH](#) of the egg white to an acidic range by boosting the number of free-floating hydrogen ions in the egg white. This has the effect of stabilizing the foam, and is therefore an alternative to using a copper bowl. 1/8 teaspoon/0.5g cream of tartar should be used per one egg white to create this effect. 1/2 teaspoon/2ml of lemon juice can also be used to create the same results.

Health issues

Although egg whites are prized as a source of low-fat, high-protein nutrition, a small number of people cannot eat them. [Egg allergy](#) is more common among infants than adults, and most children will outgrow it by the age of five. [Allergic](#)

[reactions](#)

against egg white are more common than reactions against egg yolks.

In addition to true allergic reactions, some people experience a

[food intolerance to egg whites](#)

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