LECITHIN AS PHOSPHATIDYLCHOLINE EMULSIFIER OF MAYONNAISE IN TREATMENT FOR HAIR

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ABSTRACT

In this age when spas and expensive treatments rule the hair care industry, mayonnaise treatment is not only inexpensive but natural and safe too. It gives strength to hair and goodness of eggs, increases hair density and makes hair shaft stronger. When most salon treatments do more harm than good, mayonnaise hair treatment comes as an easy solution for hair care. No matter how healthy hair is, we all need some timely caring and pampering. Mayonnaise is said to have a lot of oils and proteins that are needed for well-hydrated mane. It is an excellent way of moisturizing hair. No matter how good the hair is, it is needed some hair treatment. It is an excellent way of moisturizing the hair. Mayonnaise hair treatment is natural and safe. It gives the hair strength and goodness to grow hair stronger and thicker. Below are some of the benefits of mayonnaise hair treatment:

Moisturize hair: Mayonnaise contains oils which helps nourish and moisturize your hair from deep within. It is very much useful for dry and damage hair.

Protects from harmful styling products: Mayonnaise treatment helps to protect from harmful styling products. The styling products usually dry our hair, mayonnaise helps to replenish and repair damage.

Protects from sun: It creates a coating on hair strands and helps the hair to protect it from the sun.

Helps stop breakage: The protein found in mayonnaise helps fill the gaps and clings on to the hair strains really well. This makes your hair look fuller and gives it an excellent shine.

Restores pH balance: Vinegar found in mayonnaise, helps restore the healthy pH balance to hair which will prevent your hair from damage.

Hydration property of mayonnaise generates from humectants property of lecithin, vinegar and lemon juice to keep the hair smooth and silky.
KEYWORDS: Egg yolk, Egg white, Lecithin, Emulsifier, Phosphatidyl choline, Humectants, Amphiphile

INTRODUCTION
Mayonnaise is a thick, creamy sauce often used as a condiment. It is a stable emulsion of oil, egg yolks and either vinegar or lemon juice, with many options for embellishment with other herbs and spices. Lecithin (logP=11.42) in the egg yolk is the emulsifier.

![Figure 1: Emulsifier lecithin as phosphatidyl choline in mayonnaise](image)

Lecithin is a phosphatidyl choline having both cation and anion acting as amphipathic surfactant. Amphiphile is a term describing a chemical compound possessing both hydrophilic (water-loving, polar) and lipophilic (fat-loving) properties. Such a compound is called amphiphilic or amphipathic. It has \( \text{CH}_3-(\text{CH}_2)_7-\text{CH=CH-(CH}_2)_7-\text{COOH} \) (Oleic acid unit), \( \text{CH}_3-(\text{CH}_2)_{14}-\text{COOH} \) (Palmitic acid unit), Choline unit, Phosphoric acid unit, Glycerol unit. This comes under phospholipids specially phosphatidyl choline.
The yolk makes up about 33% of the liquid weight of the egg; it contains approximately 60 calories, three times the caloric content of the egg white. The yolk of one large egg (50 g total, 17 g yolk) contains approximately: 2.7 g protein, 210 mg cholesterol, 0.61 g carbohydrates, and 4.51 g total fat. All of the fat-soluble vitamins (A, D, E and K) are found in the egg yolk. Egg yolk is one of the few foods naturally containing vitamin D. The composition (by weight) of the most prevalent fatty acids in egg yolk is typically as follows:

Unsaturated fatty acids:
- Oleic acid, 47%, Linoleic acid, 16%, Palmitoleic acid, 5%, Linolenic acid, 2%

Saturated fatty acids:
- Palmitic acid, 23%, Stearic acid, 4%, Myristic acid, 1%

Egg yolk is a source of lecithin as well as egg oil for cosmetic and pharmaceutical applications. Based on weight, egg yolk contains about 9% lecithin. The yellow color is due to lutein and zeaxanthin, which are yellow or orange carotenoids known as xanthophylls. Lutein is a xanthophyll and one of 600 known naturally occurring carotenoids. Lutein is synthesized only by plants and like other xanthophylls is found in high quantities in green leafy vegetables such as spinach, kale and yellow carrots. In green plants, xanthophylls act to modulate light energy and serve as non-photochemical quenching agents to deal with triplet chlorophyll (an excited form of chlorophyll), which is overproduced at very high light levels, during photosynthesis.
Zeaxanthin is one of the most common carotenoid alcohols found in nature. It is important in the xanthophyll cycle. Synthesized in plants and some micro-organisms, it is the pigment that gives paprika (made from bell peppers), corn, saffron, wolfberries, and many other plants and microbes their characteristic color. Both of these enter into the host from vegetable sources. Vinegar or lemon juice is a source of acetic acid/citric acid both having free –COOH group which hydrolyses lecithin into all subunits. Mayonnaise varies in color, but is often white, cream, or pale yellow. It may range in texture from that of light cream to a thick gel. In countries influenced by French culture, mustard is also a common ingredient, but the addition of mustard turns the sauce into a remoulade with a different flavor and the mustard acts as an additional emulsifier. In Spain, Portugal, Italy and Greece, olive oil is used as the oil and mustard is never included. Commercial egg-free mayonnaise-like spreads are available for people who want to avoid animal fat and cholesterol, or who are allergic to eggs.

**Preparation**

Mayonnaise can be made by hand with a mortar and pestle, whisk or fork, or with the aid of an electric mixer or blender. It is made by slowly adding oil to an egg yolk, while whisking vigorously to disperse the oil. The oil and the water in yolks form a base of the emulsion, while lecithin and protein from the yolks are the emulsifiers that stabilize it. Additionally, a bit of a mustard may also be added to sharpen its taste, and further stabilize the emulsion. Mustard contains small amounts of lecithin. If vinegar is added directly to the yolk it can emulsify more oil, thus making more mayonnaise.¹

For large-scale preparation of mayonnaise where mixing equipment is being employed the process typically begins with the dispersal of eggs, either powdered or liquid, into water. Once emulsified, the remaining ingredients are then added and vigorously mixed until completely hydrated and evenly dispersed. Oil is then added as rapidly as it can be absorbed. Though only a small part of the total, ingredients other than the oil are critical to proper formulation. These must be totally hydrated and dispersed within a small liquid volume, which can cause difficulties including emulsion breakdown during the oil-adding phase. Often a long agitation process is required to achieve proper dispersal/emulsification, presenting one of the trickiest phases of the production process. Though, as technology in the food industry advances, processing has been shortened drastically allowing roughly 1000 liters to be produced in 10 minutes.
Contents

Homemade mayonnaise can approach 85% fat before the emulsion breaks down; commercial mayonnaise is more typically 70-80% fat. "Low fat" mayonnaise products contain starches, cellulose gel, or other thickeners to simulate the texture of real mayonnaise. Commercial producers pasteurize the yolks, freeze them and substitute water for most of their liquid, or use other emulsifiers. They also typically use soybean or rapeseed oil, for its lower cost, instead of olive oil. Some recipes, both commercial and homemade, use the whole egg, including the white.

Nutrition: Commercially made mayonnaise may contain sucrose, high fructose corn syrup, citric acid, thickeners, emulsifiers, EDTA, flavor enhancers, and water. Such mixtures allow for the production of products that are low in fats and/or sugars. Commercial mayonnaise is also readily available without these additional ingredients.

A typical formulation for commercially made mayonnaise (not low fat) can contain as much as 80% vegetable oil, usually soybean but sometimes olive oil. Water makes up about 7% to 8% and egg yolks about six percent. Some formulas use whole eggs instead of just yolks. The remaining ingredients include vinegar (4%), salt (1%) and sugar (1%). Low-fat formulas will typically decrease oil content to just 50% and increase water content to about 35%. Egg content is reduced to 4% and vinegar to 3%. Sugar is increased to 1.5% and salt lowered to 0.7%. Gums or thickeners (4%) are added to increase viscosity, improve texture and ensure a stable emulsion. There are several ways to prepare mayonnaise, but on average mayonnaise is approximately 700 kilocalories (2,900 kJ) per 100 grams of product. This makes mayonnaise a calorically dense food. There are egg-free mayonnaise-like spreads available for people who want to avoid animal fat and cholesterol, or who have egg allergies. These are also
suitable for vegans, and for religious vegetarians who abstain from egg consumption, such as followers of Hindu vegetarianism.

**Few Benefits of Mayonnaise Hair Treatment:**
1. Moisturizes hair: Mayonnaise contains oils which help nourish and moisturize your hair from deep within. It is considered very useful for dry and damaged hair.
2. Protects from sun: It creates a coating on hair strands and hence protects it from the sun.
3. Protects from harmful styling products: Mayonnaise treatments also help protect your hair from all the harmful effects of styling products. These products tend to dry our hair out. Mayonnaise helps replenish and repair damage.
4. Restores pH balance: The vinegar, found in mayonnaise, helps restore the healthy pH balance to your otherwise damaged hair.
5. Helps stop breakage: The protein found in mayonnaise helps fill the gap and clings on to the hair strands really well. This makes your hair look fuller and gives it an excellent shine.

![Figure-5: Scanning Electron Micrograph of hair follicle](image)

How to Use Mayonnaise as a Hair Treatment?

- Dampen your hair
- Take a cup full of mayonnaise and apply it starting from your scalp to ends.
- Give yourself a good hair massage. Make sure you massage outwards from roots to end.
- Let it sit for 20 minutes and thoroughly wash your hair thereafter.
- Use a gentle moisturizing shampoo that cleanses your hair well without drying it too much.
- This treatment should ideally be done monthly.
Alternately, this mayonnaise hair treatment can also be done on dry hair.

Mayonnaise Hair Treatment for Dry Hair
- Every hair strand should be well-coated with mayonnaise.
- Pile your hair up together and cover using a shower cap.
- Use a warm towel and wrap up the cap with it.
- Let it sit for 20 minutes and thoroughly wash your hair thereafter.
- Use a gentle moisturizing shampoo that cleanses your hair well without drying it too much.
- This treatment should ideally be done monthly.

You can also add other natural ingredients like olive oil, eggs and avocados for some extra nourishment. Add almond oil and some vinegar if you face lice problem.[2]

Figure-6: Anatomy of hair

Make your own Mayonnaise at home:
If you do not want to try readymade mayonnaise from the market, try making one at home. All you would need for this is some extra virgin olive oil and egg yolk.
- In a mixing bowl, take the yolk and ½ cup of extra virgin olive oil.
- Now mix the two together, you can use a hand blender
- Keep mixing until you see mayonnaise being formed.
- Now use this mixture as a hair mask as mentioned in the steps above.

Tips:
- Always opt for full-fat mayonnaise
- Dilute your shampoo a little before washing your hair. Mayonnaise is greasy and might take some time to clean off completely from your hair. You do not want to rip off all the
good that mayonnaise has done to your hair by using too much shampoo. So dilute it a little.

- Some people always complain that mayonnaise hair treatment makes them smell like a salad. If you feel the same, add one tsp of vanilla extract before applying it to your hair.
- Use up the leftover mayonnaise on your face. It will leave your face looking glowing and feeling soft. The leftover can also be used to treat your Crow’s Feet or wrinkles.

Table-1: Composition in mayonnaise

<table>
<thead>
<tr>
<th>Nutritional value per 100 g (3.5 oz)</th>
<th>Nutritional value per 100 g (3.5 oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy 1,325 kJ (317 kcal)</td>
<td>Proline 0.545 g</td>
</tr>
<tr>
<td>Carbohydrates 3.59 g</td>
<td>Serine 1.326 g</td>
</tr>
<tr>
<td>Fat 26.54 g</td>
<td>Vitamin A equiv.</td>
</tr>
<tr>
<td>Protein 15.86 g</td>
<td>Cholesterol</td>
</tr>
<tr>
<td>Tryptophan 0.177 g</td>
<td>Thiamine (B1) (15%) 0.176 mg</td>
</tr>
<tr>
<td>Threonine 0.687 g</td>
<td>Riboflavin (B2) (44%) 0.528 mg</td>
</tr>
<tr>
<td>Isoleucine 0.866 g</td>
<td>Pantothenic acid (B5) (60%) 2.990 mg</td>
</tr>
<tr>
<td>Leucine 1.399 g</td>
<td>Folate (B9) (37%) 146 μg</td>
</tr>
<tr>
<td>Lysine 1.217 g</td>
<td>Choline (167%) 820.2 mg</td>
</tr>
<tr>
<td>Methionine 0.378 g</td>
<td>Vitamin D (36%) 218 IU</td>
</tr>
<tr>
<td>Cystine 0.264 g</td>
<td>Trace Metals</td>
</tr>
<tr>
<td>Phenylalanine 0.681 g</td>
<td>Calcium (13%) 129 mg</td>
</tr>
<tr>
<td>Tyrosine 0.678 g</td>
<td>Iron (21%) 2.73 mg</td>
</tr>
<tr>
<td>Valine 0.949 g</td>
<td>Magnesium (1%) 5 mg</td>
</tr>
<tr>
<td>Arginine 1.099 g</td>
<td>Phosphorus</td>
</tr>
<tr>
<td>Histidine 0.416 g</td>
<td>Potassium (2%) 109 mg</td>
</tr>
<tr>
<td>Alanine 0.836 g</td>
<td>Zinc (24%) 2.30 mg</td>
</tr>
<tr>
<td>Aspartic acid 1.550 g</td>
<td>Other matters</td>
</tr>
<tr>
<td>Glutamic acid 0.595 g</td>
<td>Water</td>
</tr>
<tr>
<td>Glycine 0.488 g</td>
<td>Cholesterol</td>
</tr>
</tbody>
</table>

Caution

This hair treatment is not meant for people allergic to olive oil or eggs.

So are you going to try this treatment soon? If you have already tried it, leave us a comment below and tell us how this treatment turned out for you.

How to Use Mayonnaise on Your Hair

As you learn about the benefits of mayonnaise in hair treatment, surely you must also be eagerly waiting to know about the right process of its usage. Here we go for it…

Purchase some good quality mayonnaise from your local market or grocery store. No need to worry about its fat content as it’s meant for your hair and not body. Use some lukewarm water on the hair and get it damp. Make sure you do not soak or wash your hair completely...
with water. Now take some mayonnaise on your hand in accordance to the length and size of your hair and rub it thoroughly. Wrap a plastic bag or shower cap on your head to hold the heat for some time. Keep it this way for 15-20 minutes and then wash off with a mild shampoo. Mayonnaise hair treatment is extremely easy and loaded with multiple benefits. You can even add other ingredients to the mayonnaise such as almond oil, eggs, olive oil, vinegar and more to make it extra effective.

Egg Benefits: Eggs are rich in protein and help to strengthen and thicken hair. Unlike chemical thickeners, eggs keep the hair's natural oils intact so they are easy to comb through, resulting in less breakage. They are effective on hair that is thinning or damaged from heat styling and coloring. Eggs work well with mayonnaise, as they seal the cuticle to lock in moisture and make the results long lasting.

Root hairs are single cells that develop by tip growth and are specialized in the absorption of nutrients. Their cell walls are composed of polysaccharides and hydroxyproline-rich glycoproteins (HRGPs) that include extensins (EXTs) and arabinogalactan-proteins (AGPs). Proline hydroxylation, an early posttranslational modification of HRGPs that is catalyzed by prolyl 4-hydroxylases (P4Hs), defines the subsequent O-glycosylation sites in EXTs (which are mainly arabinosylated) and AGPs (which are mainly arabinogalactosylated). We explored the biological function of P4Hs, arabinosyltransferases, and EXTs in root hair cell growth. Biochemical inhibition or genetic disruption resulted in the blockage of polarized growth in root hairs and reduced arabinosylation of EXTs. Our results demonstrate that correct O-glycosylation on EXTs is essential for cell-wall self-assembly and, hence, root hair elongation in Arabidopsis thaliana.

While hair contains water, lipids, traces of mineral elements and melanin, it is keratin which is its main constituent. Its organisation within the cortex is so reminiscent of a rope or a cable that it is almost worrying.
Keratin is the essential component of hair. It is a protein formed by the combination of 18 amino acids, among which cysteine deserves special mention, being rich in sulphur and playing an important role in the cohesion of the hair.

It is produced by the keratinocytes. These cells, situated in the bottom of the dermal papilla, multiply and differentiate: while some spread to the periphery of the hair follicle to form the internal and external epithelial sheaths, others become elongated to form the hair shaft. During this journey they fill with keratin fibres. As soon as they have filled with keratin, the keratinocytes die. Thus, after a journey of about 0.5 mm inside the root, the hair is definitively formed, and during the remainder of its life does not receive any further supply from the tissue which created it.

Within the body of the hair, the cortex, the keratin is organised into protofibrils, composed of 4 chains of keratin. This assembly is held together by bonds or bridges between the atoms of the different chains. These bonds may be of variable strength: weak bonds such as hydrogen bonds can be distinguished from the stronger ionic bonds and sulphur bridges. It is by acting on these bonds that the shape of the hair can be modified. To stay looking beautiful and ensure its strength, hair needs lipids. Some are a constituent part of the hair shaft, others are supplied to it by the sebaceous glands.[3]

The lipid components of hair represent 3% of its composition. Produced in the hair bulb they are formed from sterols, fatty acids and ceramides. They are present essentially in the intercellular cement of the cortex and the cuticle and provide the hair with a certain impermeability and ensure the cohesion of the capillary fibre. In-depth study of the latter point has allowed L’Oréal Laboratories to create Ceramide R which behaves in an identical way to natural ceramides, allowing damaged hair to be repaired. Ceramides are a family of waxy lipid molecules. A ceramide is composed of sphingosine and a fatty acid. Ceramides are found in high concentrations within the cell membrane of cells. They are one of the component lipids that make up sphingomyelin, one of the major lipids in the lipid bilayer. Contrary to previous assumptions that ceramides and other sphingolipids found in cell membrane were purely structural elements, ceramide can participate in a variety of cellular signaling: examples include regulating differentiation, proliferation, and programmed cell death (PCD) of cells. The sebaceous glands, next to the hair follicle, supply the sebum. This mixture of triglycerides, waxes and squalene form a film on the surface of the skin and lubricate the hair, thus preserving its suppleness and sheen. Being hormone dependent, the
Sebum can be produced in excessive quantities, making the hair greasy and heavy. On the other hand, if too little is secreted, the hair becomes damaged, dry and dull.

Melanin is responsible for the natural colour of hair. Produced deep in the root by the melanocytes, it is then transmitted to the keratinocyte as the hair is formed. Meaning that hair is coloured right from the outset. The immense range of natural hair colour is absolutely astonishing. However, melanin only represents 1% of the total composition of the hair and only exists in the form of two pigments: eumelanin, rather dark and phaeomelanin, rather lighter.

Figure-8: Melanins

Hair color is the pigmentation of hair follicles due to two types of melanin: eumelanin and pheomelanin. Generally, if more eumelanin is present, the color of the hair is darker; if less eumelanin is present, the hair is lighter. Levels of melanin can vary over time causing a person's hair color to change, and it is possible to have hair follicles of more than one color on the same person. Melanin is a broad term for a group of natural pigments found in most organisms (arachnids are one of the few groups in which it has not been detected). Melanin is produced by the oxidation of the amino acid tyrosine, followed by polymerization. The pigment is produced in a specialized group of cells known as melanocytes.

There are three basic types of melanin: eumelanin, pheomelanin, and neuromelanin. The most common type of melanin is eumelanin. There are two types of eumelanin- brown eumelanin and black eumelanin. Pheomelanin is a cysteine-containing red polymer of benzothiazine units largely responsible for red hair, among other pigmentation. Neuromelanin is found in the brain, though its function remains obscure. Apart from water which, under normal conditions, accounts for 12% to 15% of the composition of hair, still other elements are also present in small quantities. Some of these are provided by the environment. Thus its relative
porosity allows it to take up water or water vapour in considerable quantities and trap the mineral salts in it. These form an integral part of the hair shaft.

Others come directly from our organism. Since the hair root has a good blood supply, substances from the blood are incorporated into the hair during its formation. Because of this, a hair can supply a great deal of information about its "owner" and, without exaggerating, we really can now say that hair has become a real "informer".

**Mayonnaise Benefits:**
Mayonnaise contains many of the properties found in store-bought hair masks. It contains oils that deeply moisturize hair, making it ideal for dry or chemically processed hair. It also coats hair much like silicone to add shine and protect it from heat styling. The protein content replenishes weak strands to prevent breakage and encourages new growth from the root. Its combination of oil and protein make it a suitable option for those with fine hair who may find undiluted natural oils too heavy on their hair.

**Eggs & Mayonnaise Treatment for Hair**
Whether you're loyal to hair dye and hot tools or are diligent about air-drying, all hair loses its luster from time to time. Trying to find a hair mask that smooths and repairs without leaving strands limp can be a challenge. Many additives in deep conditioners coat the hair shaft for temporary smoothness and do nothing for its condition in the long run. Eggs and mayonnaise combine for a treatment that looks after everything from dryness to thinning hair. Trade in your usual conditioner for this moisturizing duo twice a week to repair your locks.

**Mayonnaise Hair Treatment Recipe**
1. **PURCHASE** some mayonnaise at your local grocery store. It doesn’t matter which brand you choose, just as long as it is regular mayonnaise. (No need to get the low-fat stuff — it’s going in your hair not in your body!)
2. **PREP** your hair using warm water to get it nice and damp, but not soaking wet.
3. **SCOOP** some mayonnaise out of the jar and start rubbing it through your hair like you would a conditioner. The amount that you are going to use really depends on the length and thickness of your hair. Feel free to lather on the amount that you feel most comfortable with.
4. **WRAP** your head of hair with a plastic wrap, a plastic bag, or shower cap to trap the heat inside. Heat opens the pores and allows the treatment to penetrate strands further and thus work better.
5. LEAVE the treatment to sit on the hair for at least 20 minutes. You can let it sit longer depending on how damaged your hair already is.

6. WASH the mayonnaise out. This is most easily done in the shower using a diluted shampoo. You may need to shampoo a few times before you are able to get all of the mayonnaise out. Be sure to use the shampoo gently, not tangling the hair.

Is your hair dry, brittle or frizzy? A deep conditioning treatment using mayonnaise might be just the way to restore its health. Mayonnaise contains oils, eggs and other ingredients that nourish hair. It's an inexpensive alternative to pricey conditioning products that offer similar results. Applying mayonnaise as a conditioning treatment will leave your hair soft, silky and shiny.

![Mayonnaise treatment on hair](image)

**Figure-9: Mayonnaise treatment on hair**

Use full fat mayonnaise. Regular, full-fat mayonnaise has the ingredients that nourish your hair and make it soft and silky. Low-fat or fat-free mayonnaise is full of fillers that probably do your hair more harm than good. Choose regular mayonnaise for best results.

Avoid mayonnaise that contains extra flavoring, such as herbs or spices. Besides smelling funny, these extra components may not be good for your hair.

If you're concerned about using the best possible product for your hair, go for an all-natural, organic mayonnaise. This type of mayonnaise usually contains olive oil and other nutritious ingredients that are great for your hair.

Measure out the mayonnaise you need. Use approximately 1/2 cup of mayonnaise, more or less depending on the length of your hair. You want to use enough mayonnaise to entirely coat your hair from the roots to the tips. Don't use more than you need, though, since it can be tricky to wash it all out.

Let the mayonnaise come to room temperature. Take the mayonnaise out of the refrigerator half an hour to one hour before using it and allow it to warm a little. The fats and oils from the mayonnaise enter the follicles of your hair more readily if the mayonnaise is warm.
Dampen your hair with warm water. This makes it easier to smooth the mayonnaise into your hair. Don't shampoo or condition your hair; just get it wet with warm water. When your hair is heated the follicles open, allowing the mayonnaise to enter the strands and condition your hair.

![Image of mayonnaise on hair]

**Figure-10: Application of mayonnaise on hair**

Massage the mayonnaise into your hair and scalp. Take care to coat each strand well, and concentrate on working mayonnaise into the tips. You may want to use a wide-tooth comb to help distribute it throughout your hair.

If you don't seem to have enough mayonnaise to coat your hair, apply an extra teaspoon or two.

Apply a little warm water to loosen the mayonnaise if it clumps in your hair.

Cover your hair with a plastic shower cap for one hour. You can also use plastic wrap or a plastic bag. This will trap your body heat against your head and help the mayonnaise get to work deep conditioning your hair. Leave the mayonnaise in your hair for at least a 1/2 hour and up to 1 hour, depending on the level of conditioning your hair needs.

If you don't have time to do the full conditioning treatment, you can use mayonnaise as a pre-conditioner in the shower. Wet your hair, apply the mayonnaise, and let it sit for five minutes while you go about your shower routine. At the end of your shower, shampoo it out.

For maximum conditioning benefits, you can leave the mayonnaise in overnight and wash it out in the morning.

Shampoo your hair. Remove the towel and plastic covering and rinse the mayonnaise from your hair with warm water. Use just enough shampoo to remove the mayonnaise. Your hair should feel soft, but not oily.

Make your own mayonnaise. Using store bought mayonnaise is a convenient option, but you can also make your own using all-natural ingredients. That way you'll know exactly what
you're putting on your hair. An all-natural mayonnaise mask contains ingredients that nourish your hair, with none of the preservatives. Here's how to make it:

Combine an egg yolk, 1 teaspoon vinegar, and 1 teaspoon lemon juice in a bowl. Whisk in 1/2 cup of canola oil in a slow, steady stream. Keep whisking until the mixture takes on the texture of mayonnaise.

Apply it to your hair, cover your hair with a shower cap, and let it sit for an hour before shampooing.\[4\]

![Figure-11: Nourishing mayonnaise mask with milk and honey](image)

Make a nourishing mayonnaise mask with milk and honey. Mayonnaise alone does a great job conditioning hair, but adding milk and honey makes it even better. Milk and honey are both natural conditioners that leave hair incredibly soft and silky. Use this mask if your hair is in need of major rehydration. Here's how to make it:

Combine 1/2 cup mayonnaise, 1 tablespoon honey and 1 tablespoon milk.
Apply it to your hair, cover your hair with a shower cap, and let it sit for an hour before shampooing.

Make a clarifying mayonnaise mask with vinegar or lemon juice. If your hair has been looking rather dull lately, you might want to use a few extra ingredients that will cleanse your hair and bring back its shine. Vinegar and lemon juice can both be used to clarify hair. Here's how to make this mask:

Mix 1/2 cup mayonnaise with 1 tablespoon vinegar (distilled or apple cider) or 1 tablespoon lemon juice.
Apply it to your hair, cover your hair with a shower cap, and let it sit for an hour before shampooing.

Make a frizz-reducing mayonnaise mask by adding an egg white. Egg white helps to reduce frizz and dryness, leaving your hair shiny and healthy. Mayonnaise often contains egg yolks,
but in this case you want to combine it with an egg white for maximum frizz-reducing benefits. Here's how to make it:

Separate an egg white from the yolk. Save the yolk for a later use.

Mix the egg white with 1/2 cup mayonnaise.
Apply the mixture to your hair, cover your hair with a shower cap, and let it sit for an hour before shampooing.
For extremely dry and damaged hair, leave the mayonnaise on overnight. Protect your pillow from oil stains with a plastic cover in case the plastic covering over your hair leaks while you sleep. Or, cover the plastic shower cap with a tighter-fitting over cap to be sure it stays in place.
Store any unused conditioner in the refrigerator and warm it to room temperature before use.
Cover your head with a plastic shower cap.

**CONCLUSION**

Mayonnaise is an emulsion derived by drizzling oil into egg yolks or whole eggs with seasoning and whisking until the blend thickens. It sometimes includes vinegar or lemon as a key ingredient because it increases the amount of oil the egg yolks can hold. The pH of mayonnaise varies depending on the ratio of eggs to vinegar. Commercial mayonnaise is acidic with a pH ranging from 4.2 to 4.5. Healthy hair has a pH ranging from 4.0 to 5.5 so it lies within this range. Note, however, that the pH of mayonnaise can at times fall below 4.

Egg yolks is rich in proteins and fats/cholesterol, vitamins: A, D, E, B1, B2 & B5 and a wide array of minerals (including iron and zinc). Egg whites are rich in mostly proteins. pH of egg yolks is c. 6.2 (weakly acidic), pH of egg whites is c. 9.3 (alkaline) and the pH of blended egg is c. 7.9 (weakly alkaline). Benefits of Eggs and Mayonnaise on Hair: Improves hair's moisture, Boosts hair’s shine, Fortifies hair by providing nutrients not present in commercial shampooos, Lecithin and proteins in egg yolk are particularly useful for this function, Softens hair, Makes hair more silky and manageable, Sulfur in egg yolks helps to relieve dandruff.
REFERENCES