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Holistic Approaches to Maintain Healthy Hairs of Human Being



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Omprakash G. Bhusnure*, Naresh S. Halke,
Sachine B. Gholve, Sanjay S. Thonte, Chandrakant
Shinde, Padmaja S. Giram, Mokshada C. Utikar

*Channabasweshwar College of Pharmacy,
Dept. of Quality Assurance, Latur, Maharashtra,
India- 413512.*

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ABSTRACT

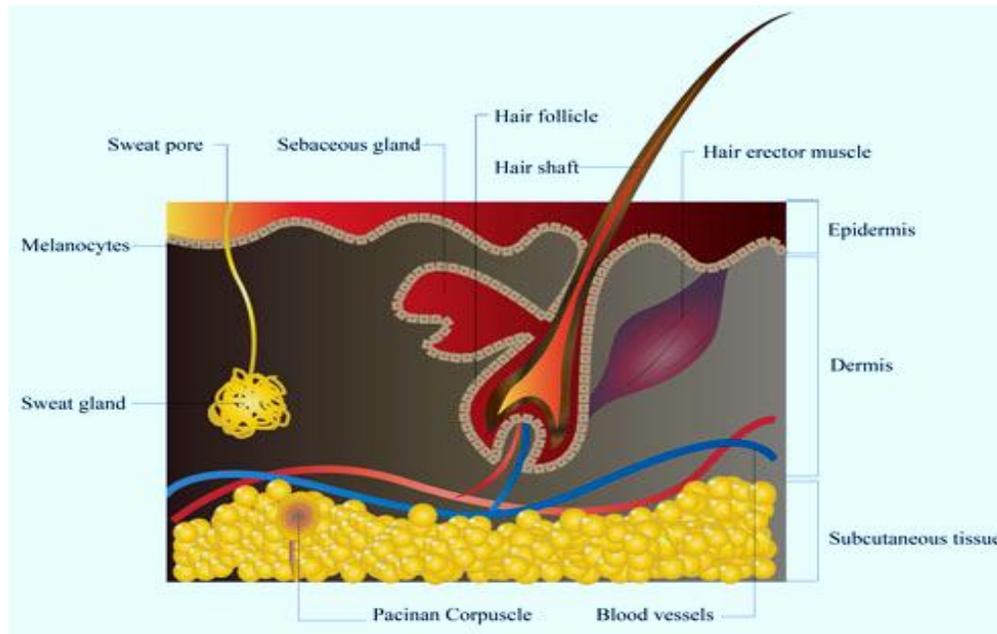
Now-a-days, graying of hair has become one of the most common problems for both men and women; this is due to the adoption of unhealthy lifestyle, pollution, stress, poor diet, hormonal changes and usage of detergents. The number of pigment granules naturally begin to decrease as a person ages. The person usually begins to gray between twenty-eight and forty years of age. The reason for this is that the melanocytes begin to slow down and produce less melanin. This is part of the natural aging process in humans. In recent years there is increasing demand for synthetic and natural dye to overcome problems related to graying of hair. Considering the harmful effect of synthetic dye such as temporary skin irritation and allergy, hair breakage, skin discoloration and unexpected hair color as well as problem with excess use of herbal dye such as competition to food grain crops, environment and mislead to excess use of natural adulterated formulation with synthetic chemicals. To avoid this genuine problem in use of synthetic as well as natural hair dye it is a need to think a holistic approach for natural remedies and to study root cause analysis for graying of hairs. This review focused on chemistry in interaction of natural and synthetic hair dye to hair constituents as well as various possible holistic approaches to overcome graying of hair and hair falls at early stage.

INTRODUCTION

Hair dyeing is a kind of cultural art that crosses international boundaries. For thousands of years, hair has been dyed first with natural dyes and then with synthetic organic dyes. At present, organic coloration is mainly used to cover the gray hair of women and men. In such cases, permanent coloration is commonly sought-after with the common treatment being oxidation dyeing. Hair color is produced inside the hair fiber through hydrogen peroxide-induced oxidation and commonly combined with coupling reactions of aromatic amines and phenols⁽¹⁾ Although graying of hair is a natural phenomenon associated with ageing, there has been a significant occurrence of premature graying specially in women and men also, attributable probably to stress and use of synthetic shampoos. Loss of color in hair is due to varied reasons like genetic influence, effect of environmental factors, use of alcoholic preparation, etc.⁽²⁾ Though permanent synthetic hair dyes are available in varied color and ranges retain natural luster, they have the chief disadvantage of producing hypersensitive reactions in some individuals. Some hair dyes marketed as natural dye, contain 1- 3% of phenylenediamine which is a synthetic hair dye and stain the skin and clothes during use⁽³⁾. In comparison to natural hair dyes, synthetic hair dyes are reported to cause skin and other skin related diseases. The manufacturing process is hazardous to health of the people involved in the process and its applications lead to environmental pollution and also cause potential side effects to the consumers of the product.

The number of pigment granules naturally begin to decrease as a person ages. A person's hair usually begins graying between ages of twenty to forty. The reason for this is that the melanocytes begin to slow down and produce less melanin. This is part of the natural aging process in humans. It is to be noted however, that some serious illnesses or emotional conditions may also cause the hair to gray. Hair get black by using either synthetic hair dye or natural hair dye but if we are using the synthetic hair dye it will be dangerous or harmful to body and if we are using the natural hair dye it will affect the production of crop means the more of the land get acquired to fulfill the requirement of the people and therefore it may have huge chances of adulteration of the natural crops. According to the WHO, it says that prevention is better than cure. This review highlights various parameter related to hair and hair dye by chemistry point of view as well as various possible holistic approaches can utilized to overcome graying of hair and hair falls.

PHYSIOLOGY OF HAIR



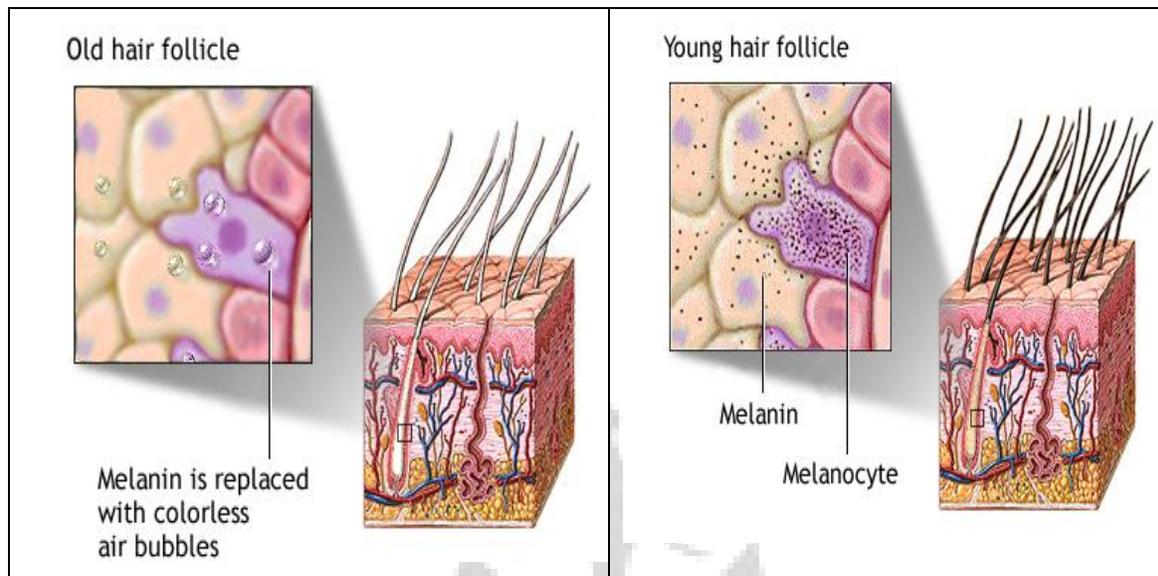
The different layers of the visible part of hair (shaft) are due to the alterations in the morphology and structure of matrix cells of the bulb. In the matrix cells protein synthesis takes place especially Keratin synthesis- which contributes to the strength and endurance of the hair shaft and to nail configuration as well. Keratin also lies in the skin. Keratin is a group of proteins that contain sulphur and is being produced in the keratogen zone of the root. Hair consists of proteins (65% - 95%), lipids (1% - 9%), trace elements, polysaccharides and water⁽⁶⁾.

I) **Lanugo hairs-** In the 3rd month of pregnancy, very smooth, soft and colorless hairs cover all the embryo's body and remains till few weeks before birth.

II) **Vellums hairs-** Vellums hairs are fine, soft and barely pigmented hairs, usually 1 or 2 cm. Due to the small quantity of pigment, they are nearly invisible. They emerge from hair follicles and usually have no sebaceous glands, so they don't get oily.

III) **Terminal hairs-** They are the distinguishable hairs of body and head, bigger in diameter and length than vellus hairs. They are responsive to hormonal influence and the hair follicles they come from sebaceous glands. In men who experience androgenetic alopecia, the most common

type of male hair loss, a percentage of the terminal hairs progressively weakens and converts into vellus hairs²⁶.



Hair color is caused by a pigment (melanin) that is produced by the hair follicle. With aging, the follicle produces less melanin; Melanin is the natural substance that gives color (pigment) to hair, skin, and the iris^(7, 10). Hair is actually dead material when it leaves its root otherwise it would hurt very much when your hairdresser works with his scissor. Most people know about this fact, but did you know about other facts on a normal scalp there are about 100-150 thousand hair fibers. A blonde head of hair has usually much more fibers than red or dark haired heads. Hair consists mainly of keratin, which is also responsible for the elasticity of fingernails. A single hair has a thickness of 0.02-0.04mm, so that 20-50 hair fibers next to each other make one millimeter. Hair is strong as a wire of iron. It rips after applying a force equivalent to 60kg, after it stretched itself for about 70%. The root of a hair fiber sticks in a bag in the skin. The fiber is pushed out of this bag about 0.35mm per day, making an average growth rate of 1cm, or half of an inch, per month. The growth rate is however very much related to the individual person, his/her age, his/her diet etc. Healthy hair has an average lifetime of 26 years. After a rest period of three months the single hair fallout and a new fiber starts to grow out of the bag. The lifetime depends on circumstances and person, too. The lifetime of hair is responsible for the maximum of hair length you can have. Waist length hair takes about 6 years to grow out from a short hair cut, periodic trims included. If your hair has a lifecycle of 2 years, you will never achieve a nice

waist length mane. Baby hair begins to grow around the third month after conception within the womb of the mother. {Trichocysts} are first formed. They develop into hair follicles as the fetus grows, and then become downy hairs several centimeters long when the baby is born. The total number of hairs is determined before the baby is born. After that, the number of hairs never increases. It just decreases. The number of hairs greatly varies for each person, from sixty thousand to one hundred and fifty thousand, and makes up one of natural characteristics of each person when they are born. We should take good care of our hairs. Human beings have about one million and four hundred thousand hairs on their body, with about four hundred and fifty thousand of them to be found above the neck! Approximately we have 100 thousands of hair strands and these strands will increase its length for about half inch every month and keep growing its length for around two to six years and then lead to a relaxing stage.

HAIR CHEMISTRY AND STRUCTURE

We will begin by defining the hair. Hair is composed primarily of proteins (88%). These proteins are of a hard fibrous type known as keratin. Keratin protein is comprised of what we call "polypeptide chains." The word, polypeptide, comes from the Greek word "poly" meaning "many" and "peptos" meaning "digested" or "broken down". In essence, if we break down protein, we have individual amino acids. Many (poly) amino acids joined together form a "polypeptide chain". Two amino acids are joined together by a "peptide bond", and the correct number of amino acids placed in their correct order will form a specific protein; i.e. keratin, insulin, collagen and so the "alpha helix" is the descriptive term given to the polypeptide chain that forms the keratin protein found in human hair. Its structure is a coiled coil. The amino acids link together to form the coil and there are approximately 3.6 amino acids per turn of the helix (coil). Each amino acid is connected together by a "peptide bond". The peptide bond is located between the carbon atom of one amino acid extending to bond with the nitrogen atom of the next amino acid. The best hair vitamins are typically great sources of amino acids. There are various elements found in the hair and they are used to make amino acids, keratin, melanin, and protein.

The average composition of normal hair is composed of 45.2 % carbon, 27.9% oxygen, 6.6% hydrogen, 15.1% nitrogen and 5.2 % sulphur. The keratin found in hair is called "hard" keratin. This type of keratin does not dissolve in water and is quite resilient. So what is keratin made

from? Keratin is an important, insoluble protein and it is made from eighteen amino acids. The most abundant of these amino acids is cystine which gives hair much of its strength.

Various Amino Acid Present in Hair

| | |
|---------------|---------------|
| Cysteine | Aspartic acid |
| Serine | Alanine |
| Glutamic acid | Proline |
| Threonine | Isoleucine |
| Glycine | Tyrosine |
| Leucine | Phenylalanine |
| Valine | Histidine |
| Arginine | Methionine |

The Alpha Helices Coil

In the organization of a single hair, three "alpha helices" are twisted together to form a "protofibril". This is actually the first fibril structure of the hair. Nine protofibrils are then bundled in a circle around two or more to form an eleven rounded cable known as the "microfibril". These microfibrils are embedded in an amorphous unorganized protein matrix of high sulfur content, and hundreds of such microfibrils are cemented into an irregular fibrous bundle called a "macrofibril". These macrofibrils are grouped together to form the cortex (or the main body) layers of the hair fiber. Packed dead cells surround these structures and are known as the cuticular layers of the hair. In the center of these structures lies the medullary canal, which is actually a part of the excretory system and houses any foreign debris, heavy metal⁽¹¹⁾, synthetics and medications that are thrown off by the body and eventually released through the canal. Bonding in Keratin protein when the hair is in its normal un-stretched state. It is referred to as A of alpha keratin. The original configuration of the hair is held in place by the bonding found in the cortex layers of the hair. As we stated earlier, keratin protein begins with an alpha helix building into protofibrils, microfibrils, macrofibrils, and then cortex layers. The bonds in the hair are located within each and every alpha helix.

| | |
|-------------------------------------|--------------------------------------|
| | |
| <p>The Bonding Structure</p> | <p>The Alpha Helices Coil</p> |

The Hydrogen Bond

The first bond we will discuss is the hydrogen bond. This bond is located between the coils of the alpha helix and is responsible for the ability of the hair to be stretched elasticity and return back to its original shape. The hydrogen bonds allow us to change the shape of the hair temporarily with the aid of water. These bonds are electrolytically controlled and are the most readily broken down and the most readily reformed. These bonds are responsible for approximately 35% of the strength of the hair and 50% of the hair's elasticity (some would argue up to 99.9% of the hair's elasticity).

The Salt Bond

The salt bond is also an ionic (electrolytically controlled) bond formed by the electron transfer from the side chain of a basic amino group (an amino acid with an NH_3^+ group) to the side chain of an acidic amino acid, i.e. COO^- . (This is two positive and negative charges attracting one another). This occurs in a position paralleled to the axis line of the rotation of the helix of the hair. The salt bond is responsible for approximately 35% of the strength of the hair and 50% of the hair's elasticity.

Cystine Bond

The cystine bond also known as the disulfide bond, sulfur bond, or just S bond is formed by cross links between cystine residues (amino acids) of the main polypeptide chains. This bond is perpendicular to the axis of the hair and between the polypeptide chains.

Because of its position in the hair, it is responsible for the hair's toughness or abrasion resistance (It actually holds the hair fibers together). These crosslinks are frequent in the hair fiber, with maximum of frequency of one cystine bond every four turns of the alpha helix. This is what enables us to permanent wave the hair.

The Sugar Bond

The sugar bond is formed between the side chain of an amino acid having an OH group and an acidic amino group. This bond is also formed perpendicular to the axis of the hair. Because of its position, it gives the hair toughness but little strength (5%). Some moisture is contributed to the hair as a byproduct of this bonding.

Chemistry of hair dye

In humans, all the different hair colors are due to just two types of pigment (melanin) called eumelanins and pheomelanins (European spelling, phaeomelanin). Eumelanins are the dark brown and black pigments while pheomelanins are the red and blonde pigments¹¹. The different colors of hair in different people are due to a combination of these two different basic biochemical structures. By mixing the two types together in different concentrations the many different shades of hair color are made. A study that analyzed the amount of eumelanin and pheomelanin in human hair suggested that; black hair contains approximately 99% eumelanin and 1% pheomelanin, brown and blond hair contain 95% eumelanin and 5% pheomelanin; and red hair contains 67% eumelanin and 33% pheomelanin¹². Although people with dark hair may still produce the yellow - orange pheomelanin¹², A wide variety of dyes, dressings, and conditioners are available to men and women to enhance the color of hair or to alter its condition, providing the "feel good" factor. Natural hair dyes such as henna and mineral salts are still used, but hair dyeing increasingly involves careful chemical manipulation of the chemistry of hair fibers through bleaching or enhancement of natural colors. Available hair dyes include²³:

- Minerals such as lead acetate (<1% aqueous), lead sulfide (kohl); silver nitrate; salts of bismuth, copper, and cobalt (commonly called "gradual" colorants)
- Vegetable materials such as henna (flowers and leaves of *Lawsonia interims* that contain acidic naphthoquinone, chamomile, and indigo)

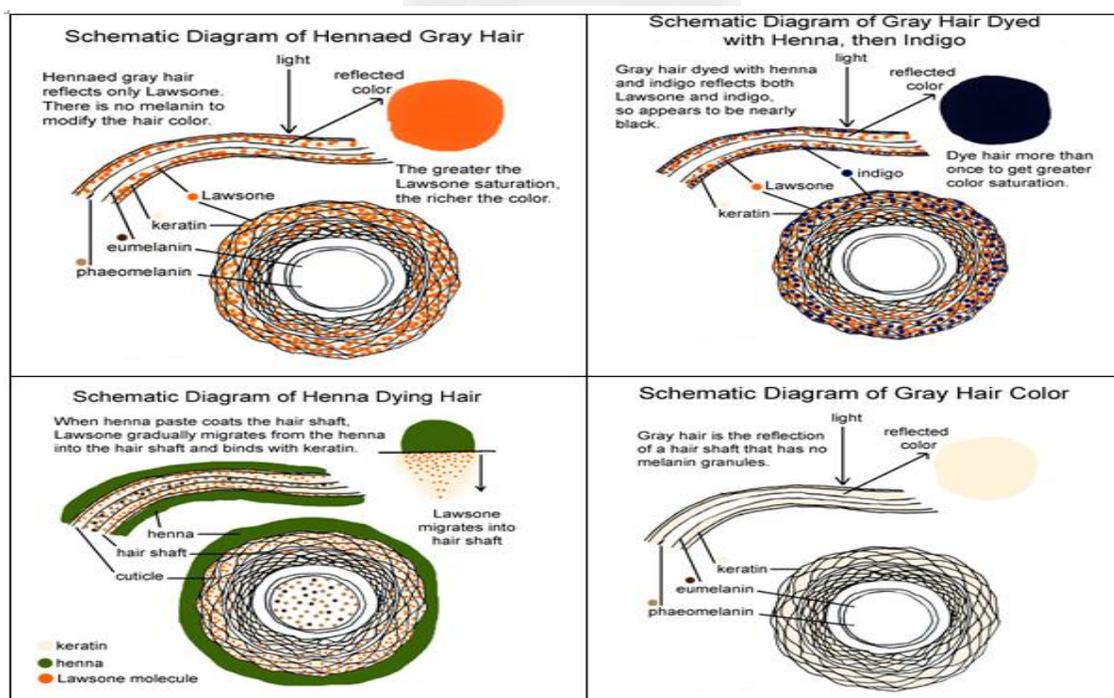
Synthetic dyes including a large number of organic dyes to provide permanent, semi-permanent, temporary, or progressive color changes or to enhance natural colors. The dyeing process

provides for temporary, semi permanent (direct dyes), and oxidation-type reactions (semi-permanent or permanent colors). It may involve absorption or adsorption (electrostatic) of the colorant into/to the hair structure, bleaching or otherwise masking the natural melanin colors or alteration of the structure of the hair shaft, allowing deep penetration of the colorant. The hair cuticle provides a barrier to the absorption of hair dyes. Henna is the oldest and most widely used vegetable dye utilized in hair coloring. A temporary chestnut color is produced in blond or auburn hair by applying a paste of henna flowers and leaves ground in hot water immediately before use. The dye is unstable in aqueous solution. The addition of indigo achieves darker blue-black shades; extracts of walnut shell or logwood enhance brown coloration, Mineral dyes of the mineral dyes, only lead acetate is commercially available²⁹.

Natural dyes plant used as hair colorant

| Sr. No | Hair Colorant (General Name) | Hair Colorant(Chemical Name) |
|--------|-----------------------------------|--|
| 1 | Henna (<i>Lawsonia inermis</i>) | 2-hydroxy-1,4-naphthaquinone |
| 2 | Chamomile | 4',5,7trihydroxyflavone |
| 3 | Indigo (<i>Indigofera</i> sp.) | CI Pigment Blue 66 - C ₁₆ H ₁₀ N ₂ O ₂ |
| 4 | Logwood - haematein | C ₁₆ H ₁₂ O ₆ |

HAIR DYE CHEMISTRY & ITS INTERACTION



When you dye gray hair with henna, the Lawsone molecules will penetrate the keratin in the hair shaft and dye it orange. If you dye your hair with indigo immediately afterward, the indigo molecules will penetrate the keratin in the outer layers of the hair shaft with indigo molecules which will oxidize to dark blue. Powdered indigo leaves prepared for hair will react with the acidic henna to blacken the orange. Your hair will be dyed black as the result of this interaction. In Turkey, white woolen yarn was dyed rich, long-lasting black by dyeing it once with henna, and overlying that with indigo. Your hair is made of keratin, just as wool. If you use pure body art quality henna that has been tested at an independent laboratory and certified to have lawsone at 2.3% or above, and leave the paste in your hair for several hours, the keratin hair shaft will become saturated with dye. If you use high quality indigo immediately after body art quality, laboratory certified high dye content henna; you have the best chance of dyeing your gray hair a deep, natural-looking black color. If the indigo has been lab tested and proven to be a neutral pH, your hair will be sleek, shiny, healthy and perfectly black! You can get these from Mehandi. After you complete the dye process, it will take two days for the dyes to naturally darken to peak color. If you do not get satisfactory color saturation the first time, repeat the dye process until you build up the color you want. Henna is beneficial for your hair, you can dye as often as you like! However, once you've gotten your perfect color, you probably only need to keep up the roots. The indigo molecules are slightly larger than Lawsone molecules, so they stain the outer layers of the hair shaft. Some people find the indigo color fades slightly over several weeks, and the henna begins to show through. You can refresh the color by dyeing your hair with a mix of mostly indigo, and a little henna.

Gradual hair coloring can only darken hair to a brown or black colour. The metal particles in the dye interact with the hair shaft to form metal sulfide, which accumulate over a period of weeks. Gradual? Semi-permanent? Natural? Have you ever stood in front of a shelf of hair products trying to figure out which dye option is best? It's important to understand the chemistry of hair coloring because different products will color your hair differently. In general, hair dyes are classified into four categories according to how long the color remains in your hair⁽¹²⁾:

Gradual coloring, normally used to color grey hair, uses metallic dyes such as salts of lead, bismuth, or silver. These dyes cause a chemical reaction on the cuticle (the outermost layer of the hair) and then build up on the hair shaft. Particles from the dye often cause hair to become stiff,

dull, and brittle. Using gradual coloring, it usually takes a few weeks for hair to reach the desired colour. Temporary coloring uses water soluble dyes (dyes that dissolve in water) made up of large molecules that normally can't penetrate the hair shaft. Instead, they are temporarily deposited on the surface of your hair and eventually wash off with shampoo and water. Usually, this happens after just one shampoo. But, unless your hair has previously been chemically treated, which can cause the dye to penetrate beyond the surface of the hair shaft.

Semi-permanent coloring uses mostly synthetic dyes that have a lower molecular weight (the mass of a singular molecule) than temporary dyes. This allows the colour to remain on the hair shaft longer. Semi-permanent coloring usually washes off after 6-8 shampoos. The smaller-sized particles in these dyes can penetrate freely into the hair shaft, increasing the likelihood of breakage. They are a good option if you're looking for a temporary change, or you just can't commit to a colour!⁽¹³⁾

Permanent coloring uses synthetic dyes and accounts for the majority of hair dye sales. The color results from a chemical reaction that occurs between the hair shaft and the synthetic chemicals in the dye. An ammonia and hydrogen peroxide solution is often used to help the hair dye molecules penetrate the hair shaft by causing the shaft to swell up. However, the solution has a very strong odor and can irritate the scalp.

Potential health impacts associated with overexposures to ingredients used in hair care products:

Chemical Constituents of Hair & Hair Dye:

Various constituents which are used in synthetic hair dye & their side effects:

| Ingredient | Product | Potential Health Effects |
|---|--|---|
| 1Lead** | Hair Dye ¹ | Lead has been associated with harmful impacts to virtually every organ system in the body. Elevated exposures are associated with severe central nervous system delays and behavioral changes in children associated with increased rates of miscarriage and reproductive toxicity. |
| 2Paraphenylenediamine* Other names: Para-Phenylenediamine; PPD; P Dilatory Factors -Phenylenediamine; 1, 4 diaminobenzene; 1, 4 phenylenediamine; P-Aminoaniline | Hair dye | Exposure could cause mild dermatitis in contact location including redness, pain, and swelling, and when in contact with the eyes could possibly cause swelling of the eyelids, blurred vision and possible permanent loss of vision. Inhalation of this chemical may be associated with cough, headache, dizziness and labored breathing |
| 3SodiumHydroxide** Looks like this on a label: Lye; Caustic Soda; Sodium Hydrate | Relaxer, Permanent, Hair Wave | Overexposure is corrosive to all tissues and mucous membranes such as in the eyes, nose, and throat. Direct contact with sodium hydroxide can result in constrictive scarring, and inhalation results in acute damage to the pulmonary system. |
| Colorants/Synthetic Colors*** Looks like this on a label: D&C; FD&C; azo grenadine; disodium 5- amino-4-hydroxy-3- (phenylazo)-naphthalene- 2,7-disulfonate; Acid Red 33;Red 33; Naphthalene Red | Makeup and hair products to create color; some are derived from coal tar. | Some specific dyes and color compounds have been associated with carcinogenic activity at extremely elevated concentrations. Some of these compounds have also been associated with edema and irritation in hypersensitive individuals. |
| 1Hydroquinone* Looks like this on a label: 4-Dihydroxybenzene; P-Dioxybenzene; 4-Hydroxyphenol; P-Hydroxyphenol; 1,4 Benzendiol | Hair bleaches and skin lighteners | Elevated exposures are associated with tinnitus (ringing in the ears), nausea, and shortness of breath, cyanosis and convulsions. Edema and irritation to skin, eyes, nose, mucous membranes and intestinal tract have also been reported. |

This premature graying of hair has been related to several factors:

| Intrinsic factors: | Extrinsic factors: |
|---|--|
| <ul style="list-style-type: none"> • Genetic defects • Hormones • Body distribution • Age | <ul style="list-style-type: none"> • Climate • Pollutants • Toxins • Chemical exposure |

CAUSES/ REMEDIES /HOLISTIC APPROACH

CAUSES:

A number of medical conditions as well as lifestyle choices have been related to premature graying of hair

| Medical condition | Life style |
|-------------------------------|------------------------------|
| Thyroid disease | Faulty diet (Fast foods) |
| B12 deficiency, vita A,E,C,B5 | Nutritional Deficiency |
| Iron, Copper, Iodine | Use of alcoholic preparation |
| Not cleaning the scalp | Stress, hereditary condition |
| Hot water using during wash | Use of chemical shampoo |
| | Smoking |

REMEDIES

A. Dilatory Factors

In the vast majority of cases, dietary modifications will do little to reverse or restrict premature graying of the hair. Your diet only contributes to the problem so far that your nutrition affects every aspect of your health, and healthy hair requires nourishment as well. If you wish to make any dietary modifications to deal with premature graying, it would be best to simply turn to a healthy balanced diet that includes every food group providing you with all your nutritional requirements. Contact a nutritionist or dietician for a specialized diet plan suited to your activity levels and biological requirements^{28 29}.

Protein

As hair is made up of protein, ensuring you have enough protein in your diet is crucial for making hair strong and healthy. If you are not consuming enough protein in your diet, your hair is likely to become dry, brittle and weak. Extremely low protein diets may result in hair loss. Choose chicken, turkey, fish, dairy products and eggs as excellent sources of protein along with vegetarian sources such as legumes and nuts.

Iron

Iron is an especially important mineral for hair and too little iron (anaemia) is a major cause of hair loss. The hair follicle and root are fed by a nutrient rich blood supply. When iron levels (serum ferritin) fall below a certain point, you may experience anaemia. This disrupts the nutrient supply to the follicle, affecting the hair growth cycle and may result in shedding. Animal products such as red meat, chicken and fish provide iron with a high bioavailability, meaning the iron is readily available to the body. Vegetarians can raise their iron stores by including lentils, spinach and other leafy green vegetables such as broccoli, kale and green salads.

Vitamin C

Vitamin C aids the absorption of iron so foods high in vitamin C are good to eat in conjunction with iron-rich foods. Vitamin C is also an antioxidant so is used readily by the body. The best sources are blackcurrants, blueberries, broccoli, guava, kiwi fruits, oranges, papaya, strawberries and sweet potatoes. Vitamin C helps in the production of collagen that strengthens the capillaries that supply the hair shafts.

Omega-3

Omega-3 fatty acids are important fats. Our body cannot produce itself, and therefore must be obtained through our diet. Omega-3s are found in the cells that line the scalp and also provide the oils that keep your scalp and hair hydrated. Look out for oily fish such as salmon, herring, sardines, trout and mackerel and plant sources including avocado, pumpkin seeds and walnuts.

Vitamin A

Vitamin A is needed by the body to make sebum. Sebum is an oily substance created by our hairs sebaceous glands and provides a natural conditioner for a healthy scalp. Without sebum we

may experience an itchy scalp and dry hair. Include animal products and orange/yellow colored vegetables which are high in beta-carotene (which makes vitamin A) such as carrots, pumpkins and sweet potatoes.

Zinc and selenium

Scalp protection involves other important minerals, notably zinc and selenium. A lack of zinc can lead to hair loss and a dry, flaky scalp. Fortified cereals and wholegrain are a good source of zinc along with oysters, beef and eggs.

Vitamin E

The sun can damage our hair just like it can damage our skin so ensure you eat foods rich in vitamin E to provide protection for your hair. Nuts are nutritional powerhouses, providing zinc and selenium as well as vitamin E so try to include them as part of a balanced diet.

Biotin

Biotin is a water-soluble vitamin B. Deficiency of biotin can cause brittle hair and may lead to hair loss. Include biotin rich foods such as wholegrain, liver, egg yolk, yeast.

B. Regular body exercise

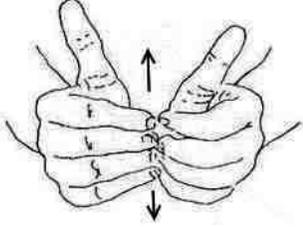
Men and women, who perform yoga, are much less susceptible to grey hair. This is because yoga helps you to improve digestion and your metabolism, allowing the protein to be synthesized in a better manner. Breathing exercises, such as pranayama, are ideal for relaxing your body and dealing with the stress, which releases toxic chemicals in the body and affects the production of melanin. Breathing exercises also help you to regulate the hormones in your body. These hormones are responsible for growth and synthesis of a lot of proteins. Pranayama also increases the flow of blood to your scalp. This not only rejuvenates the cells in your scalp, but also the melanocytes. As the blood flow to your scalp improves, it promotes the growth of longer and healthier hairs. These hairs also retain their original color for a longer time. Along with yoga, you should also ideally consume a healthy diet that gives you all the nutrients required for healthy hair.

Here are some yoga asana that prevent premature hair graying.

| | |
|--|--|
| <p>Ustrasana (Camel pose):</p>  | <p>Improve digestion and your metabolism, allowing the protein to be synthesized in a better manner.</p> |
| <p>Sarvangasan</p>  | <p>The blood flow to your scalp improves, it promotes the growth of longer and healthier hairs. These hairs also retain their original color for a longer time. Along, with yoga, you should ideally also consume a healthy diet that gives you all the nutrients required for healthy hair.</p> |
| <p>Bhujangasana (Cobra pose):</p>  | <p>Relaxing the body and dealing with the stress, which releases toxic chemicals in the body and affects the production of melanin.</p> |
| <p>Shirsasan</p>  | <p>Increases the amount of blood flow to the cells producing melanin which helps them retain the moisture for the production of it, hence helping them to keep the hair black</p> |

C. Rubbing nails

Fold the fingers of both your palms and bring them together. Rub the surface of fingernails of both hands vigorously leaving out the thumbs. Practice this every day for at least three times. This asana strengthens the nerves of your fingernails that are connected to your scalp; There by rubbing them stimulates blood flow to prevent premature graying of hair and increasing hair growth.

| | | |
|---|---|---|
|  |  | <p>Sample list of oils for scalp massages</p> <p>Extra Virgin Olive Oil, Avocado Oil, Coconut Oil, Castor Oil, Jojoba Oil, Almond Oil, Emu Oil, Jamaican Black Castor Oil, Grapeseed Oil, Neem Oil, Burdock Oil, Basil Oil, Tea Tree Oil, Lavender Oil, Peppermint Oil, Rosemary Oil</p> |
| <p>Rubbing nails</p> | <p>Scalp Massages</p> | |

D. Scalp Massages

Daily scalp massages have been proven to be a very effective hair growth aid and they REALLY boost hair growth. Just like our skin, our scalp needs to be pampered and moisturized. Good circulation is an important element in the natural hair growth journey and scalp massages are enjoyable way to relax and boost your hair's ability to grow.

E. Sleeping without pillow

Maintain the proper posture when sleeping and do not use the pillow when sleeping. Possibly easy supply of nutrients to hair by improves blood circulation.

F. Other Exercises

For increase the circulation of blood through body it is beneficial to do some yoga like sun salutation, joint rotation, stretches, yognidra and most important is meditation.

G. Cysteine-Rich Food

The health of hair, skin and nails depends on getting enough of the amino acid cysteine. We also need cysteine to produce the powerful antioxidant glutathione. Healthy people can synthesize what they need as long as they get adequate methionine, the essential amino acid from which cysteine is derived. However, stress or sickness may leave the body unable to produce enough cysteine. In these cases, a cysteine-rich diet can fulfill the requirement. Cysteine can exist naturally in foods as cystine, a compound metabolized to yield two cysteine molecules. Cysteine amino acid is responsible for production of keratin. Cysteine is a potent antioxidant that shields the hair from sun damage and other harmful radiations. It also provides sulphur to hair cells to improve their texture and strength. The major dietary sources of Cysteine include broccoli, chicken, wheat germ, Brussels sprouts and some dairy products like milk and yogurt.

CONCLUSION

Some serious illnesses or emotional conditions, dietary aspects, lifestyle and many other parameters are responsible for graying of hairs and hair falls. Hair get black by using either synthetic hair dye or natural hair dye but if we are using the synthetic hair dye it will be dangerous or harmful to body and if we using the natural hair dye it will affect the production of crop means the more of the land get acquired to fulfill the requirement of the people and

therefore it may have huge chances of adulteration of the natural crops. According to the WHO, it says that prevention is better than cure. To avoid this problem to use the holistic approach and root cause analysis for graying of hair and natural remedies to prevent the graying of hair. Permanent coloring of hair involves addition of aromatic diamine or hydric phenols or polycompounds such as para phenylenediamine in the formulation. Continuous usage of such compounds containing dye on natural hair causes so many side effects such as skin irritation, erythema, loss or damage of hair and skin cancer. Other chemicals used in hair dyes act as modifiers, which stabilize the dye pigments or otherwise act to modify the shade. This review article conclude that, there are various possible holistic approach can be utilized such as dietary factors, regular exercise, scalping massages, sleeping without pillow, rubbing of nail and other many things in day to day and avoid the hair graying and hair falls at early stages. One can have attitude to think at quantum level, change conventional thinking, change lifestyle, be positive, be happy and study the root cause analysis and failure mode effect analysis to overcome problems facing by budding technocrats of Indian population.

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