

Reactions to Hair Dye

Advice provided by allergyuk.org

Reactions to hair-dye products are not uncommon. They range from irritation in areas of direct contact with the dye (irritant contact dermatitis) to allergy which will provoke local symptoms (allergic contact dermatitis) and can also produce a systemic generalised reaction affecting other areas of the body. In both cases, the symptoms can vary from very mild to quite severe. The local irritation will tend to affect the scalp, neck, forehead, ears and eyelids; in more severe cases the swelling can be confused with cellulitis (an infection of the scalp) or angioedema and anaphylaxis. Very rarely, an allergic contact called urticaria (nettle rash) can progress to include more widespread itching, general unwellness or, extremely rarely, anaphylaxis (which is a very severe life-threatening allergic reaction involving difficulty breathing or collapse).

Black henna tattoos have been associated with causing future allergic sensitivity and reactions to hair dye, so they should be avoided.

Hair-dye products contain a wide range of chemicals and almost any of these could trigger sensitivity reactions. However, there are a group of well recognised culprits:

Paraphenylenediamine (PPD) and related chemicals are found in virtually all permanent and semi-permanent hair dyes. These hair dye systems usually require the use of two components; the PPD-based dye in one bottle, together with various other chemicals for example resorcinol to vary the colour tone and ammonia which is necessary

for the chemical reaction, and an oxygen-providing 'fixative' (usually hydrogen peroxide) in the second bottle. PPD is actually colourless but becomes coloured when oxidised by the release of oxygen from the second bottle. It is during this oxidation process that the chemical acts as a sensitiser - so once the process is complete the dye is generally 'safe' and does not continue to cause problems once the initial symptoms have settled down - although this may take a number of days.

Because PPD is known to be a strong sensitiser in some people, other chemicals have been used as alternatives in an attempt to produce safer hair-dye products. Para-aminodiphenylamine (PADA), paratoluene diamine (PTDA) and 3-nitro-p-hydroxyethylaminophenol (usually found in dyes at the less dark, 'redder' end of the spectrum) are less troublesome than PPD, but can still cause sensitivity problems in some people. So for someone who has become sensitised, there are no 'safe' permanent hair dyes.

Cross-reactivity will occur in some people who have become sensitised to one of these chemicals. Typically, they may also react to azo dyes (used in temporary hair dyes and synthetic clothing), local anaesthetics, such as benzocaine (used in some topical products for sore throat, insect bites and piles) although injectable local anaesthetic is usually safe, sulphur-antibiotics (rarely used these days) and para-amino benzoic acid (PABA - a sunscreen used in creams and lotions).



For more help, contact the Allergy UK helpline: Monday to Friday, 9am to 5pm
01322 619 898

info@allergyuk.org

Key facts

Local irritation to hair dye will tend to affect the scalp, neck, forehead, ears and eyelids

Black henna tattoos have been associated with causing future allergic sensitivity and reactions to hair dye, so they should be avoided

If you react to hair dyes, try to find a safe alternative or stop using them altogether



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There are several approaches to the problem of hair-dye, but none of them are easy!

- Stop using hair dyes altogether – this is the only truly safe option.
- Try and find a safe alternative. As mentioned above, there are no completely 'safe' products, but there may be a product out there that is safe for you. In order to find it, you could follow one of two routes:
 1. Undergo formal patch testing at an allergy (dermatology) clinic. The main chemicals that cause problems in hair-dyes are well known and are available in patch-test form. The clinic will test a range of these chemicals (as well as other potential sensitisers such as formaldehyde) and will then tell you which ones you are sensitive to. You can then look for products that are free of the offending chemicals. There are drawbacks with this plan - getting referred; waiting lists; the limited number of chemicals tested - they can't test everything and you may be sensitive to something they haven't tested that could be a problem if it is in the product that you choose to use.
 2. As an alternative, switch to a combination of pure henna (not black henna) and indigo. This is a combination which can produce shades from brown to black. Products are widely available on the internet. Some products contain metal salts which can cover grey hair but need to be used regularly to maintain the appearance. Non-permanent hair dyes that wash out with the next shampoo may also be safe. These generally use different, less troublesome chemicals.

Finally, as with all allergy and chemical-sensitivity problems, it is important to sensibly reduce exposure to unnecessary chemical exposure.

Clinical contributions

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