The human desire to look, smell and feel good is one of our oldest and most ingrained. For centuries, people have been using cosmetics to enhance and alter their appearance. However, these days, a lot of the products we put on our bodies may actually be causing more harm than good. What we put on the body can have as large an effect on our health as what we put into it. The body is a temple that should be respected and cared for, not something that needs to be tamed!

Women- and increasingly men and children- are under huge pressure to use cosmetics to look and smell a certain way and attempt the defy the natural process of ageing. But we need to ask ourselves who defines this image, and why do we find ourselves striving to achieve it?

Approximately 93% of British women use cosmetics, making us one of the highest users in Europe.

The majority of modern cosmetics are complex mixtures of industrially produced synthetic chemicals. Individually, these cosmetic products contain very small amounts of chemical ingredients- it is the cumulative and combined effect of applying these ingredients that gives cause for concern.

Some commonly used chemicals can trigger allergic reactions or chemical sensitivity. Some are suspected hormone disruptors and may affect immune and nervous systems. Others have been linked to birth defects, male infertility and the early onset of puberty in girls.

UK consumers spend £5 billion a year on cosmetics.

- We shouldn’t have to stop using cosmetics and toiletries, but we should have the assurance that the products we buy are safe, both for ourselves, our families and the planet. Synthetic chemicals commonly used in cosmetics are polluting both the environment and our bodies. We wash large quantities down the drain every day which can then come back to haunt us in our water supply and accumulate in seas and rivers. However, it can often be hard to make the right choices. Claims that a product is ‘organic’ or ‘natural’ are often empty. ‘Natural’ suggests that it is made entirely plant and animal based materials, however these too have undergone chemical processing in the manufacture of the product.
PACKAGING Pretty Wasteful

Cosmetics are often over packaged in bags, boxes and bubble wrap as well as the plastic casing. Not only is this wasteful, but it creates environmental problems in its own right.

Packaging is frequently made from polyvinylchloride (PVC), a product associated with the release of dioxins into the environment during its production, use and disposal. Difficult to recycle, much of it ends up in landfill.

EDCs interfere with our body’s natural hormones, and have been linked with several health problems including male infertility, hormone related cancers, cardiovascular disease, obesity and diabetes. They are found in many cosmetics and household cleaners and plastic.

To minimize your exposure to EDCs, try to eat food that was grown without the use of pesticides. Avoid unnecessary chemicals, especially those in indoor and outdoor pesticides. Attempt to avoid cosmetics with hazardous chemicals in the ingredients, particularly during pregnancy.

For more information, visit the EDC Free Europe website: www.edc-free-europe.org

Is beauty really just skin deep?

The skin is the body’s largest organ. In the average adult, it covers about 2 square metres while being less than 2mm thick in most places. Made up of several layers, it is an impressive physical barrier, designed to protect us from the world around us. The surface layer, the epidermis, completely renews itself in 45-75 days.

The outer layer is made up of 15 layers of flat, dead cells. It can be penetrated quite easily by oils and alcohols, so they are often used in skin products to help carry the active ingredients into the deeper layers. Most of our exposure to the chemicals in cosmetics is via the skin. Once the product has been placed on the skin, absorption begins- we are only briefly exposed to the chemicals in products we wash off, such as soap and shampoo, but products we leave on our skin, such as moisturiser or makeup, can have a far more damaging effect. In an experiment conducted with hair-dye under actual use conditions, 43 micrograms (millionths of a gram) of the dye paraphenylenediamine (PPD) was found in the users’ urine only 30 minutes after use.

60% of what you put on your skin gets absorbed into it
Below are some of the most common and most harmful chemicals to look out for in your cosmetics and household products.

**AHAs & BHAs**

Alpha-hydroxy acids, or AHAs, are most commonly used as chemical exfoliants in a wide range of products such as cleansers, toners, eye creams and moisturisers because of their ability to remove dead skin cells from the surface of the skin.

Originally used in clinics as “chemical peels”, they have become increasingly popular within the last decade and are marketed as “anti-ageing” products as they supposedly “reveal new, younger looking skin”. Beta-hydroxy acids, or BHAs, are now being favoured for use as exfoliants on oily or acne-prone skin. AHA/BHAs are extensively absorbed into and through human skin. They cause increased sun-sensitivity, leaving the skin prone to extensive sun damage. If they are used, a high level of sun protection is required at all times to protect against this.

**Nitrosamines**

Nitrosamines are not intentionally added to cosmetics, but are contaminants accidentally formed either during manufacture or storage if amines are combined with a nitrosating agent, either through contamination or through the two ingredients being contained in the product. Amines and their derivatives are mostly present in creams, lotions, shampoos and hair conditioners.

Although they have not yet been proven to cause cancer in humans, evidence has existed for over 30 years showing that they cause cancer in a wide range of animals, including primates. The SCCS produced a report in 2012 detailing its opinion on nitrosamines (see SCCS/1458/11), in which it analysed various nitrosamines and ranked them in order of carcinogenicity. As nitrosamines are not ingredients but rather formed as contaminants, there is no legislation requiring them to be listed on product labels. Look out for ingredients such as mono-, di- and triethanolamine (MEA, DEA and TEA), which are found in products such as hair dye and may form nitrosamines if combined with a nitrosating agent such as Bronopol (2-bromo-2-nitropropane-1,3-diol) or Bronidox (5-bromo-5-nitro-1,3-dioxan). Aldehydes such as formaldehyde may act as catalysts and speed up this process. Also, beware of mixing products as you may inadvertently cause nitrosamine formation.

**Parabens**

Parabens are a family of compounds (e.g. methyl-, propyl- and butylparaben (also known as –hydroxybenzoic acids) widely used as preservatives in cosmetics including shampoos, makeup, lotions and deodorants. They can cause an allergic reaction and even contact dermatitis in a small number of individuals. Parabens have been detected in human breast tissue, and, although they cannot be conclusively linked to breast cancer, there is evidence to suggest that they can mimick oestrogen. Some research has also suggested that parabens found in breast tumours could be there as a result of applying something to the underarm area, such as deodorant/anti-perspirant. Whilst there is no formal legislation against parabens due to a lack of sufficient evidence that they cause harm below the concentration allowed in the EU, several companies, including several mainstream brands, are now opting to offer paraben-free products.
The amount of fragrance chemicals used each year is enormous – nearly 1 million kilograms of benzyl acetate, a synthetic “floral” fragrance ingredient, are used in the US each year. Allergy to fragrance is believed to affect 1-3% of the European population, and ingredients in fragrances have been found to cause one third of all cosmetic allergies. In 1999, the SCCNFP identified 26 fragrance allergens, including benzyl alcohol and cinnamal. An EEC directive stated that manufacturers must list these fragrance ingredients separately where they are present in a product. Since then, a further 30 chemicals and 26 natural extracts have been identified as allergens following clinical testing by the SCCS. There is currently no legislation stating that these ingredients must be listed on product labels. In 2013, concentration limits were determined following rigorous testing in order to impose a limit below which the fragrance is considered to cause minimal harm to humans.

Phthalates are a group of synthetic chemicals used as softeners in PVC and in cosmetics as solvents, fragrance enhancers or to denature alcohol. Products such as deodorants, hair gels, hair sprays/mousses and hand and body lotions can all contribute to a possible body burden of up to seven different phthalates, as found by the CDC. As they are very often used as fragrance enhancers, there is no legal requirement to label them separately and they may be included as “fragrance”, however ingredients to watch out for include DEHP, DBP, BzBP, DEP and DMP. Phthalates can be absorbed quickly into the body. A Swedish study found phthalates in children absorbed through contact with a PVC floor— they don’t even have to be deliberately applied to find their way into the bloodstream. Women between the ages of 20 and 40 are estimated to be at 20 times greater risk for phthalate exposure due to their increased use of cosmetics. A 2005 study found birth defects in baby boys whose mothers had been exposed to phthalates during pregnancy. Research has also shown that phthalate exposure can be linked to breast cancer through endocrine disruption. DHEP and DBP (most commonly used in nail polish) are now banned in the EU following an amendment to the EEC directive 76/768/EEC in 2003, which classified them as toxic for reproduction.

Sodium Lauryl Sulphate & Sodium Laureth Sulphate

Sodium Lauryl Sulphate (SLS) and Sodium Laureth Sulphate (SLES) are common ingredients in personal care products including face and body washes, shampoos, mouthwash and toothpaste. It is a surfactant and a detergent, with its most widely known function being as a foaming agent. Whilst it may not add any extra benefits, many consumers feel that a product which foams is more effective at cleaning than one which doesn’t.

It is a skin and eye irritant, even at low concentrations, and is used in cosmetic testing to irritate the skin of humans and animals prior to testing a particular product designed to help irritatation. It can be easily absorbed into the bloodstream and permeate the body’s vital organs and is potentially corrosive to the fats and proteins inside the body. SLES may become contaminated with a compound called 1,4-dioxane during a process called ethoxylation, which uses ethylene oxide to convert SLS to the milder, less abrasive SLES. 1,4-dioxane is irritating to eyes and the respiratory system. It has also been identified as a potential carcinogen and linked to birth defects and miscarriages. Independent laboratory testing carried out by the Campaign for Safe Cosmetics in 2007 identified 1,4-dioxane in several baby products including body washes and shampoos. As it is classed as a contaminant and not an ingredient, it is not required by law to list it on any packaging. The FDA encourages companies to remove it where possible, but it is impossible to tell which products have undergone this process. Several manufacturers are also reluctant to either remove 1,4-dioxane or use alternative SLES manufacturing processes, as ethoxylation is cheap and convenient, although some companies say they are making an active effort to remove 1,4-dioxane from their products.
Triclosan (or 5-chloro-2-(4-dichlorophenoxy)-phenol) is a chlorophenol used in products such as toothpaste, soaps and body washes, as well as several household cleaning products. Its main function is as an antimicrobial agent. Whilst it may be very effective at killing bacteria, it is unable to distinguish between good and harmful bacteria, so it will kill the beneficial bacteria which our bodies need. Several studies suggest triclosan could alter thyroid function, disrupt the endocrine system and have adverse effects on liver function. A 2008 study carried out in the US found triclosan present in the urine of nearly 75% of adults and children tested. An FDA advisory committee has determined that the use of products containing triclosan provides no added benefits over using soap and water. One way to avoiding using it is to be wary of any products specifically labelled as “antibacterial”. Read the labels of these products carefully to check for triclosan. It also poses an environmental threat, as it can be converted to dioxin (linked to cancer) when exposed to sunlight in water. As wastewater treatment is not 100% effective in removing traces of triclosan, the chemical pollutes rivers and lakes. It has been classified as “toxic to aquatic organisms” and could be causing long term damage to the aquatic environment.

Manufacturers spend enormous sums of money to tell us about their products and make us think we need them. Cosmetics companies spend 20-25% of their time on advertising, pumping over $1 billion into promotional campaigns. Marketing techniques are used to exploit our insecurities concerning body image, based on idealised and sometimes enhanced images of women and men. Deodorants, anti-perspirants and body sprays are a good example of the great success story that is marketing. They successfully convince us that our natural aromas are unattractive in order to sell us a cocktail of synthetic chemicals to mask them. Ironically, chemicals produced by our underarm apocrine sweat glands, known as pheromones, are one of the things that creates human attraction. Wrinkles are another favourite target of the beauty industry, yet they are a natural result of aging, caused by the loss of collagen from the deeper layers of skin. Laughing, crying, smoking, pollution, sunlight and time all contribute.

A lot of the terminology used on labels can be misleading.

- **Hypoallergenic** the manufacturer feels the product is less likely to cause an allergic reaction, but they are not required to substantiate these claims
- **Unscented** implies the product has no noticeable odour, however fragrance may still have been added to the product to mask the odour of other ingredients
- **Organic** can be used even if as little as one percent of the content is of organic origin. Look out for the Soil Association (SA) logo, which is granted to a product if 95% of its content is from organic sources
- **Natural** a meaningless word that can be applied to ingredients derived from petrol as much as from plants

The best way to avoid being misled by marketing jargon is to familiarise yourself with any specific ingredients to watch out for. EU law states that all cosmetic and personal care products must contain a list of ingredients, any warning statements, precautionary information and restrictions. Perfume compositions and their raw ingredients do not need to be declared and can simply be called ‘parfum’ or ‘aroma.’
WHAT CAN YOU DO?

The onus should be on the manufacturer and government to ensure cosmetics are safe under all circumstances. An ingredient might be declared safe when tested in isolation under laboratory condition, but how safe is it in a cocktail of other chemical, used over a long period of time or combined with the different products you use regularly? You can use your consumer power to ask questions and demand safer products.

Never mix cosmetics- such as remnants of your old shampoo- as they may not be made to be mixed with other chemicals

Never allow cosmetics to exceed their sell by date- if there is not one listed it means the product has been formulated to have a minimum shelf life of 30 minutes.

Wear less makeup!

Use some of the easy, natural alternatives (listed below!)

• Try to avoid synthetic fragrances and perfumes, and opt for diluted essential oils instead

Write to the makers of your favourite products and ask them for a list of ingredients- they are legally obliged to send you one

Urge your MP, MEP, SMP to back proposals for better regulation, testing and labelling of perfumes and cosmetics

Try to avoid products in unnecessary packaging

Avoid PVC packaging! this can be recognised by a recycling triangle with a 3 in the middle

Alternatives

A lot of alternatives can be made from natural ingredients, many of which you probably already have in your kitchen (like bananas!) Below are some basic recipes that can be adapted with different ingredients or essential oils.

Basic Shampoo

200ml liquid castille soap
200ml water
1 tablespoon honey
1 tablespoon olive oil
Mix all the ingredients together.

Honey has many nourishing properties that help keep your hair enriched

Basic Moisturiser

½ cup shea butter
2 tbsp avocado, apricot, jojoba, coconut or sweet almond oil (nourishing oil)
15 drops lavender essential oil
10 drops rosemary essential oil
3-5 drops tea tree essential oil
Mix together.

Experimenting with different combinations of essential oils is a great way to personalise your cosmetics to your needs.

Some, such as rose or lavender, can be used to add a floral fragrance, however, many also have health benefits. Tea tree helps fight bacteria, and can be used to heal acne and cold sores. Sandalwood is good for aiding the respiratory system, so add it if you have asthma or a chest infection. It also helps soothe the flamed skin, and can even be used to combat the signs of aging. Rosehip oil is good at healing scar tissue, while almond oil is an excellent moisturiser for dry skin. Trying different combinations of oils will allow you to create cosmetics that are perfect for your own body. Organic essential oils are easy to find and relatively inexpensive (considering you only use a few drops per recipe!) Our favourite supplier is Neals Yard Remedies.