

A Safe Start in Life

When a parent purchases baby care products or toys, the last thing that crosses their mind is whether they contain chemicals that may harm their baby. However, parents and practitioners owe it to themselves and to their baby to know all about the products they use, the potential risks and how to seek suitable alternatives. Babies are particularly susceptible to chemicals due to their rapid rate of growth and development. Even exposure to small doses of common everyday chemicals can have a profound effect on their future health, learning and development.

The aim of this article is to make parents and practitioners aware that some toys and baby care products contain substances that can disrupt hormone activity, harm the baby's developing brain and lead to a wide array of health and behavioural problems in later life. With the increase in asthmatic conditions, learning and attention deficient disorders and other diseases, the need to help babies develop to their full potential as healthy and intelligent children is more important than ever.

Pre-natal development

What happens in the critical early months of pregnancy can affect the baby's future. Everything that the mother consumes will reach the baby through the placenta or amniotic fluid. Alcohol for example, can interfere with cell development, and the chemicals in cigarette smoke can deplete oxygen supplies to the brain and deprive the baby of both calcium and protein. Research suggests that phyto-oestrogens found in some plant products including soy, may affect the reproductive development of the male foetus. Long term use may lead to early puberty in girls, late puberty in boys, infertility and other reproductive problems in later life. Cleansers, toners, deodorants and skin

creams may also contain oestrogens, which can enter the mother's body through the skin and harm the unborn baby.

Skin care products

Babies are highly sensitive to toxic substances due to the permeability of their skin and the immaturity of their immune system. From the moment of birth, they are exposed to a myriad of substances before their skin has developed its own protective barrier. With the explosion of baby care products such as shampoos, lotions, powder and creams, it is hardly surprising that eczema, asthma and other health disorders have continued to rise each year. These products may contain acceptable levels of a chemical for an adult, but are far beyond tolerable levels for a baby.

Research now tells us that some of the products that we put on the baby's skin contain parabens (methyl, ethyl, propyl and butylparaben), synthetic preservatives which inhibit the growth of organisms. Parabens act like hormones, disrupting the immune system and reproductive development. There are also reports of young children developing breasts after exposure to shampoos containing oestrogen-based parabens. Parabens can adversely affect development of the baby's brain and other organs. Because they are stored in the body, it may take years for their effects to become apparent.

The following products are not safe for babies:

- Baby oil - a mixture of liquid hydrocarbons manufactured from crude oil, which clogs pores, damages the skin and causes allergic reactions leading to arthritis, migraine, epilepsy and diabetes
- Petroleum jelly - comes from crude oil and used in industry as a metal cutting fluid. Inhibits the intake of oxygen and the release of carbon

dioxide, which can clog and suffocate the skin. Can affect the nervous and immune systems after prolonged exposure

- Lanolin - often found in cosmetics and hand creams. Commercially produced lanolin may contain dioxins, which are known carcinogens. Linked to developmental problems such as attention deficit hyperactivity disorder (ADHD) and other learning disabilities. High concentrations of dioxins have been found in breast milk, which raises concerns about potential disorders in nursing infants
- Baby lotions - may contain parabens and propylene glycol, an industrial anti-freeze that can penetrate the skin and cause liver abnormalities and kidney damage. Unless there is a skin problem, most babies don't need them
- Baby wipes - may contain alcohol, propylene glycol and parabens
- Baby powder - a very soft type of rock, which can enter the respiratory system and cause breathing problems if inhaled in large quantities
- Baby shampoo- may contain synthetic substances such as sodium laureth sulphate (SLS), used for its foam-building and detergent properties. SLS can cause eye irritations, skin rashes, hair loss, cradle cap and other allergic reactions. SLS may enter the blood system from just one shampooing. All baby needs to keep clean is a bath of warm water

Although ingredients may be listed on the packaging, no single company warns of the presence of carcinogens in its products. There are also no legal boundaries for the terms 'herbal', 'natural' or hypoallergenic', which can mean anything the

manufacturer wishes. Seemingly 'green' products can have hidden ingredients such as parabens.

If products are to be used on baby's delicate skin, then these should be without antiseptic or antifungal agents, preservatives, perfumes or colouring. Instead, use an ointment with no added chemicals or just use plain water and cotton wool.

Phthalates

Researchers have found a strong and consistent link between phthalate exposure and the prevalence of asthma, bronchitis and other related disorders in babies and young children. Phthalates are used to stabilize fragrances and to make plastics soft and flexible. They are found in many ordinary products from lotions and aerosols to plastic toys and vinyl flooring. The increase in lung problems is hardly surprising, considering the fact that babies spend a great deal of their time close to the ground where phthalates collect in dust. Babies that sleep on vinyl covered mattresses may also inhale the chemical molecules, which then accumulate in body fat. Phthalates that resist breakdown can interfere with the function of hormones that regulate the body's various processes, such as metabolism, growth and normal sexual development.

Phthalates can also cause miscarriage, birth defects and reproductive problems. A recent study found that pregnant women with high phthalate levels were more likely to give birth to boys with genital abnormalities. Phthalates enter the baby's body through the amniotic fluid affecting brain and tissue development and production of the male sex hormone testosterone. Problems such as low sperm count (since 1940, sperm counts have declined by 50 percent worldwide), infertility, breast and prostate cancers may only become evident in later life.

The greatest concern is with plastic toys made from polyvinyl chloride (PVC or vinyl), which are made by combining highly toxic chemicals to form the final material. Excessive chewing or sucking can accelerate release of the phthalate di-isononyl, which is potentially toxic even in small amounts. Pacifiers and feeding-bottle nipples however, are made of latex or silicone, which should not cause concern unless the baby has an allergy to the protein in latex.

Despite fierce industry opposition, the use of phthalates in the manufacture of baby toys in the UK was banned in 1999. China, which makes 85 percent of the world's toys, has since banned their use in manufacturing lines designed for the European market. Even so, over 40 new chemical products enter the market every week and few are properly tested. Some may slip through the regulatory loopholes, only to be recalled when a problem is discovered. About 30 percent of toys and teething aids on retailers shelves are thought to contain phthalates. Phthalates may still be present in toys for older children, food containers, cosmetics and household products.

Although it is impossible to completely avoid contact with products that contain harmful chemicals, babies and small children can be prevented from mouthing plastic objects not designed for that purpose. Generally, anything that is made of soft or squishy plastic should be avoided. The best advice is to only buy toys made from natural materials such as solid wood with a non-toxic finish, rubber or organic textiles such as cotton, hemp or wool.

Increasing health concerns have forced some manufacturers to switch to less controversial materials such as polyethylene or EVA plastic, which do not contain phthalates. Several major retailers have removed potentially dangerous items and only stock products that are phthalate-free. Companies committed to a PVC-free policy include Ikea, Boots, the Early Learning Centre and Mothercare. Others may use 'PVC-free' labels on some of their products. Unfortunately

chemical additives often don't appear on product labels. The best way to find out if a product is phthalate or PVC-free, is to contact the manufacturers directly.

Bisphenol-A

Bisphenol-A (BPA), the basic building block of polycarbonate plastic, has recently dominated the headlines as a potential health threat to babies. Although BPA has been used in the manufacture of plastic baby bottles and food containers for over 40 years, research suggests that the chemical can leach into formula milk and stored baby foods as the plastic breaks down. Several studies have shown that BPA can mimic oestrogen in the human body. However, there is no conclusive evidence to suggest that BPA has a long-term impact on human health.

Some scientists argue that the release of BPA during pregnancy alters sexual development and brain chemistry of the foetus. Third-generation effects may also be possible because baby girls form eggs when they are in the womb. Babies and toddlers are especially vulnerable to the effects of BPA because their bodies and brains are still developing. In young and prepubescent children, the chemical may increase the risk of cancer, immune system inefficiency, learning and behavioural disorders, autism and obesity. Although some scientists believe that low levels of BPA produce no measurable changes, most studies have been carried out on animals. However, any chemical that puts babies at risk or increases the likelihood of health problems in later life should not be dismissed.

Safety measures

The Consumer Product Safety Commission and Greenpeace recommend the following steps to reduce exposure to potentially harmful substances:

- Dispose of all items containing BPA and use safer alternatives such as bottles made of glass or an opaque less-shiny safer plastic
- Use bottles made of polyethylene, polypropylene or polyamide, which are polycarbonate free
- Discard scratched, cloudy or damaged bottles
- Avoid pouring hot water directly into bottles and keep them out of direct sunlight
- Avoid dishwashing, sterilization or microwaving. Increased heat can cause the chemical to leach into baby drinks
- Look at the bottom of bottles and feeding cups for the triangle numbers 2, 4 or 5 (#2, #4 or #5), which are BPA-free
- Avoid plastics with the number 3 (#3) in the recycling triangle
- Look for 'PVC-free' labels on soft plastic toys and teething aids
- Avoid giving babies soft plastic toys designed for older children - these are more likely to contain phthalates or BPA
- Use 'certified' organic chemical-free baby care products or avoid them altogether
- Check out websites such as Greenpeace (www.greenpeace.org.uk), the Green Guide (www.thegreenguide.com), Friends of the Earth

(www.foe.co.uk) for lists of products to avoid as well as companies with good track records

- Check out the Consumer website (www.consumerreports.org) for information on chemical additives

Even if chemical exposure is very low, it makes sense to limit the use of baby skin care products, toys and bottles that may contain potentially harmful substances. Although there is no need to eliminate everything, parents and practitioners need to be vigilant, especially when it comes to babies who could be at the highest risk.