

Skin deep

Science can prove your baby's skin is very different from yours, and needs specialised, individualised care. Here's how.

By Margot Bertelsmann: Interview on ETV of Dr Rakesh newaj

Skin is skin, right? If your baby was born at full term, you probably thought her skin was like the rest of her organs: fully formed, and ready to take on the outside world. But dermatologists now feel that the skin continues to develop outside the womb, specifically that the skin's ability to act as a water barrier continues to develop after birth for the first year of life.

The world inside the womb is a wet one. Your baby was surrounded by amniotic fluid and her skin prepared for that by forming a waxy substance, called vernix, to cover and insulate her. Some vernix will still be on her at birth – and you needn't be in a rush to wash it off, by the way. Vernix has been found to contain antimicrobial substances (effective against group B strep and E. coli bacteria) similar to the immune-boosting, protective substances found in breast milk, so leaving the vernix layer on to absorb into the skin and delaying a baby's first bath for a day or two is a good post-birth option.

It's dry out there!

After your baby's birth, the skin now has to adjust to a brand new, dry environment. Studies measuring the rates of transepidermal water loss (TEWL) found that three- to six-month-olds had the highest rates of infant TEWL, as did those babies with diseases that manifested in skin barrier abnormalities, such as atopic dermatitis.

"Baby skin is structurally different to adult skin. At a microscopic level, the cells are smaller and the collagen fibres are thinner than in adult skin. Consequently, baby skin is more permeable and more prone to dryness than adult skin," says Johnson & Johnson's xxx.

Dr R Newaj: The ratio of the skin surface area to the body weight of the baby, exposed to external environment is high. Thus there is more heat exchange and water loss by conduction, convection and evaporation.

"Baby skin contains fewer natural moisturising factors, fewer lipids and less melanin than adult skin," she adds, which also makes babies lose water faster. "Baby skin also has a higher pH than adult skin, leaving the skin barrier less mature than that of adult skin." Infant skin is able to absorb more water than adult skin, but it loses it at a faster rate. This difference leaves baby skin prone to dryness.

As a baby's immune system is still developing, it also has a greater chance of developing skin irritation and infections. "Consequently, it is more vulnerable to the environment than adult skin. If not properly cared for, the skin becomes susceptible to diseases such as nappy dermatitis, atopic eczema and certain skin infections. This is why baby skin needs special care," argues J&J's xxx.

We can help protect infant skin by minimising water loss, and keeping the skin hydrated using barrier creams which, as their name suggest, form a protective barrier between porous baby skin and the harsh environment outside of it, keeping water in and bad stuff out.

The atopic march

Allergic diseases often begin and progress in similar ways in different people – a process doctors call the allergic or atopic march. Atopic dermatitis is one of the first symptoms (the first step in the march), and most children with asthma or allergic rhinitis first showed symptoms of dermatitis. Whether your child will join the atopic march depends on many factors: environmental factors such as “exposure to endotoxins, early infections, pets, pollutants, tobacco smoke, antibiotics and chemicals”, according to J&J, as well as heredity. Scientists are busy isolating the genes responsible for atopic diseases and specifically mutations in the Filaggrin gene seem to play a part in atopic dermatitis.

The best possible outcome, obviously, is never to take that first step on the atopic march. While you may not be able to avoid it if your baby is prone to allergic diseases, you may well lessen her chances by taking very good, careful care of her skin.

Environmental factors such as skincare products, surfactants, air pollution, and food can have a positive or negative effect on the skin barrier. Harsh products can irritate or even break the thin baby skin and must be avoided.

All creams are not created equal

Dr Newaj: could we have some examples of too harsh products?

A: Solution like detol, savlon, creams containing retinol, scrubs, glycerine soaps, chlorhexidine solutions. Creams that can be too harsh to baby skin tend to a warning on them.

Dr Newaj: Is it essential to maintain a skin barrier in children? What creams are good? What additives, if any, are to be avoided?

A: Of course it is essential to maintain a skin barrier. The skin barrier helps regulate the body temperature, maintain water balance and also protect the internal organ from the sun, pollution as well as microorganism invasion. Creams that are occlusive, containing ceramides or aquaporins are excellent. Even barrier creams containing zinc and be very effective. The best is not to have perfumes, alcohol or strong detergents in creams.

Good creams are: E45, Epizone, Aquaphor, Ungemulsifying ointment, Cetaphil restoraderm, Atoderm range from bioderma.

Preservatives in baby skin products: necessary when water-based to prevent spoiling

Olive oil – not a good barrier because of the oleic acid

Mineral oil is very good, is used to treat atopic dermatitis. It is non irritating, an emollient (softener), and does not block pores. It is chemically inert so unlikely to cause skin reactions and is more stable than most plant oils.

Water – not a good cleanser on its own, and it can be drying. Some dirt is fat-soluble and needs to be removed by surfactants (surface-active agents). “Although water does hydrate the skin, the effect is temporary, lasting only about 30 seconds. Once the water evaporates, skin begins to dry. Water alone bathing can increase TEWL and surface irritation. It has no buffering capacity which can cause skin pH levels to rise, leading to enhanced protease activity and skin barrier breakdown.”

A word on surfactants

“Because surfactants have both hydrophobic and hydrophilic properties, they form sphere-like structures in solution, called micelles. Micelles can interact and disrupt the skin structure, reducing barrier function. The smaller the micelle is, the greater its risk to disrupt the skin barrier. Therefore, a mild cleanser should be comprised of large micelles.”

“As infant skin continues to develop through the first year of life, it requires gentler cleansing than adult skin. Water alone is insufficient, but some cleaners are too harsh for baby skin. Only cleansers which are mild and specifically designed for baby skin should be used on baby’s sensitive skin,” says J&J’s xxx.

Dr Newaj: How to keep the skin healthy even in older children so that no problems present? What skincare regiment is advisable from 6-12 months, and one year and beyond?

A: Firstly do not keep the baby in water for too long. This causes the natural moisturising factors to dissolve and the skin becomes drier. Moisturise soon after a bath, as this seals in the humidity and keeps the skin moisturised for longer. Do not bath the baby too often(several times a day)- this causes loss in the natural moisturising factors. Use the mildest soaps- dove soap, aqueous cream may suffice.

For 6-12 months and above—no harsh soaps, moisturise and watch for skin rashes. Eczemas often develop within the first year and can be easily treated if identified. No overzealous cleaning and drying using harsh towelling. Do not start by restricting foods, if a skin rash is noted. The best is to consult a skin specialist, it is rare that foods are the causes of skin rashes. Keep it simple.