

Careful with washing! – Gentle skin care for babies and small children

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The epidermis of children up to 3 years is relatively thin, shows minimal sweat and sebum production, has an increased transepidermal water loss (TEWL) and is sensitive. Recommendations for the care of the infant skin are compiled in the following article.

Skin care products are designed by adults for adults and tested with adult test persons. The results then are simply extrapolated to develop analogous treatments for the infant skin – with ingredients that appear to be appropriate and safe for the adult skin. The situation is far more complex though. Further alarming trend is that small children are perceived as a market niche that has to be opened up and developed. In other words, demands are created which in principle often are superfluous.

Baby and toddler skin undergoes a complex process of adapting to its environment in order to become resistant against all kinds of external influences. Just like all the other organs of the body, the skin literally makes its experiences and undergoes a learning process. Today it is widely known that an extremely protected skin is not as resistant as the skin that during early childhood came in contact with the real world alias dirt, allergens and irritating substances. The increasing prevalence to barrier disorders such as neurodermatitis or allergic reactions only substantiates the fact.

Largely pathogen-free

In modern times, babies are born into a more or less sterile household environment. Dishes, textiles and food are clean and largely free of pathogens. Further characteristics are disposable wash clothes, air fresheners, disposable diapers and skin care preparations equipped with preservatives. The daily repertoire includes a thorough body cleansing with subsequent creaming. The question rises whether all that is appropriate and necessary? Hygiene is a major achievement in our culture today. Nevertheless it would be appropriate to scrutinize some of our daily routines.

Body cleansing

Less is more! There is no reason to clean the baby skin with liquid soaps, shampoos, shower creams or the like on a daily basis. Lukewarm,

soft water serves its purpose and will eliminate a lot less of the natural protective substances that the little body badly needs and that cannot be substituted by the best cream ever after the tenside treatment. On the contrary, if this cream is equipped with one of the preservatives listed in the appendix of the Cosmetic Directive (KVO), the developing natural skin flora will also be affected.

It is a matter of fact though that lukewarm water will not be sufficient for the anal region. However the cleansing power of vegetable oils can be used for this area. Avocado oil with its phytosterols, essential fatty acids and vitamins is one of the oils with additional skin care features. Using water and oil of course is less convenient. This approach however will largely exclude diaper rashes. When on the road, dry disposable washcloths should be preferred to moist wash clothes.

After cleansings it is recommended to wait a little while with dressing so that the surplus moisture can dry off. This will reduce the potential problems with facultative pathogenic germs such as mucus that can affect the skin. Just assume that small children enjoy these minutes without their clothes on and that they are not that sensitive to cold as we largely suppose. In terms of clothing, light and loosely fitting clothes should be preferred unless an excursion into the snow is planned.

Sun protection

When staying outside, adequate clothing and a shady place (sun umbrella) are the best protection against radiation. The scattered radiation that impinges on the skin is not harmful though, it even helps the body deal with environmental influences. Use a sun cream if direct radiation cannot be avoided. Even after creaming caution is recommended since there is no protection against the strong infrared radiation of the sun. It causes overheating of the surface skin layers. In case of a reddening despite all precautions taken, it is recommended using biodegradable nanoparticulate

lotions with linseed or kiwi oil as well as aqueous D-panthenol solutions.

Skin care creams

If occasionally, as for instance in winter, skin care creams are needed to protect the skin against dehydration and hypothermia the following criteria for skin and hand preparations should be met:

- Skin care creams should be free of all the preservatives listed in the Cosmetic Directive (KVO). They in general are powerful allergens. Some of them even are suspected of being endocrine disruptors or in other words of developing hormonal activity. This also applies for some of the UV filters as well as plasticizers of the phthalic acid esters type. The INCI denomination alcohol denat. means that the alcohol used is denatured with diethyl phthalate.
- The emulsifiers contained in skin care creams particularly the non-biodegradable ones often are counterproductive. Due to the fact that they do not modify on the skin, they are reactivated with every contact with an aqueous medium - thus cleansing - and then transport not only the skin care substances but also barrier substances out of the skin. In this context the more conventional emulsifiers such as mono and diglycerides, alkaline fatty acid salts or emulsifier free creams should be preferred.
- Non-aqueous creams are advantageous insofar as they can be formulated without such additives as preservatives and consistency regulators both used for the microbiological and physical stabilization of the aqueous phase of emulsions. When using oleogels (lipogels) make sure that the lipids are low in or preferably even free of paraffins. Paraffins will not penetrate into the skin and leave an unpleasant oily film on the skin surface.
- Skin care creams for children should be free of essential oils as e.g. tea tree oil, and perfumes. They contain declarable allergenic components on the one hand and on the other hand form allergenic degradation products due to their interaction with atmospheric oxygen and radiation. In order to prevent said interaction, antioxidants and complexing agents are added to the formulation. Complexing agents such as ethylenediamine tetraacetic acid and its salts as e.g. Disodium EDTA (INCI) are not appropriate for skin care creams since they deactivate physiologically important trace elements. Apart from that, com-

plexing agents serve to stabilize emulsifiers that are prone to oxidation as e.g. polyethylene glycols (PEGs) or sensitive natural substances. Vitamin E, possibly in combination with vitamin C or its derivatives are the better choice, it should however be pointed out that they will not guarantee the long shelf life or even products without best-before date both favoured by the trade.

Besides the lipid and barrier active substances as mentioned above, skin care preparations for children contain further active agents. Since itching is an issue with small children, skin care creams and powders often contain urea, allantoin and fatty acid amides but also aloe vera and witch hazel extracts. Similar to birch and oak tree extract, witch hazel also contains tannins that have astringent or in other words contractive effects.

Problem cases

Not every insect bite needs to be treated with antihistamines or local anaesthetics of the pharmacy. Evening primrose or kiwi oil - both are rich in gamma respectively alpha-linolenic acid - combined with a urea-containing lotion or cream already will soothe the problem after a few minutes only. In the case that tight clothes, shoes, scratching or similar caused a sore point, a small amount of vitamin cream with D-panthenol, vitamin A, C and E will quickly and effectively soothe the area. In the case of repeated applications, vitamin A should be avoided in order to prevent overdosing. Just like adults, also little children love massages that can be enhanced with some almond, wheat germ, grape seed, avocado or jojoba oil. A mixture of the mentioned oils in the form of massage oil also is appropriate here.

If the recommendations concerning cleansing and skin care are observed, the little ones will probably not complain unless they insist on their foam bath. It should be mentioned though that foam and also oil baths unfortunately are equipped with tensides or emulsifiers, which means that the loss of natural barrier substances and a swelling of the skin are to be expected. A real pity though since there are alternatives on the market such as liposomes-forming bath supplements with high-grade vegetable oils. The products mentioned also are appropriate in the case of prevalence to atopic skin. The products are relatively expensive though.

Inherent barrier or cornification disorders up to rare cases of epidermolytic conditions where recurrent inflammations and infections are to be expected are quite a challenge. In these

particular cases, the cosmetic skin care can only partly be helpful. Or in other words: if the above-mentioned criteria for cleansing and skin care are not observed, the consequences will be much more serious.

Skin care with oleogels

Implications: More and more pharmaceutical preparations are administered - against the principle that the corticoid and antibiotics medication should be kept as low as possible. Prescribing oral antibiotics against superficial infections seems convenient on first sight however it needs to be pointed out that the long-term consequences of this practice will be resistances against pathogen germs, disorders of the normal flora and side effects of pharmaceutical drugs. Locally applied antiseptics without chlorine such as zinc oxide certainly are less convenient but systemic effects can thus be excluded - traditional know-how that obviously must have been forgotten in some of today's medical practices. Should perianal barrier disorders develop after repeated cleansings, it is recommended to treat the area with the above mentioned oleogels.

Minor reactions

Small children only develop dry skin in the case of excess hygiene. Hence the use of moisturizing substances is not necessary in baby preparations whereas multifunctional substances such as urea, allantoin, glycerin and phosphatidylcholine already have hydrating effects.

If urea containing preparations are applied on the reddened skin, a short burning sensation may appear which actually is not very pleasant, but not a problem either. Try to mix the preparation with a little water on your hand and apply gradually, a practical measure that will reduce the burning effect of the concentrated substance. A significant issue in the context of very young skin is the resorption of substances via skin, since it happens far easier than via the adult skin. Consequently the skin will also react faster, certainly to cosmetic products that actually are designed for the adult skin. Already low doses of preservatives & Co. may cause skin reactions.

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