

Delicate children skin – criteria for the adequate skin care

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Cosmetic products usually are developed for adults. Thus customers often are not sure which product may be used for children or baby skin. Not every product is appropriate - specifically if it contains substances that are inadequate or overdosed for children skin.

There are only very few cases of cosmetic products particularly designed for the skin of babies and toddlers, and in terms of figures the selection is quite limited. That is why sometimes adult skin care products are applied as a last resource. The question arises now whether this is sensible?

Children's skin is different from adult skin. Specifically baby skin is comparatively thin and rather permeable. This may lead to the conclusion that it should be particularly protected with skin care products. Wrong conclusion though. First of all, it is indispensable that the child's immune system develops naturally which means that the effects of external stimuli should not be impeded. Secondly, harmful ingredients have a strong impact on the organism as the skin surface is comparatively small. That is the reason why skin care products should only be used if deficits have been diagnosed.

These deficits may be caused by cleansing procedures and that is also the point where to start with protective measures. There is a simple rule for cleansing which says just as much as necessary and as little as possible in order to protect the natural skin pH and lipid value of babies which still is developing. Thus, an extended warm foam bath is not really beneficial but rather harmful for the skin barrier. The warm tensides containing water causes intense swelling of the infantile skin and the longer the bathing procedure takes the more the skin barrier will be washed out. In this case, it is recommended to use barrier active skin care products.

Excessive hygienic measures are not beneficial for the health of the child. It has been proved that these exaggerated cleansing and skin care procedures during infancy correlate with cases of atopic and sensitive skin in later life. The more often tensides containing cleansing products are applied the higher the frequency of diaper dermatitis.

Applying emulsifier containing skin care products after the diaper change is not very helpful since the natural conditions on the skin cannot be restored this way. A more gentle

cleansing process is using pure water and an appropriate vegetable oil. In this way irritations can be avoided. Though it takes some time to get used to apply pure vegetable oils. Paraffin oils rather have the same cleansing effects, yet they are not physiological and last but not least leave a surface film which impairs the development of a natural skin flora.

Avoiding consequences later on

Direct sun exposure is harmful for children since their melanin formation still is insufficient specifically in their first year of life. Sun screens may help to protect the skin from UV however not from IR (infrared) radiation. The best alternative for toddlers though are an appropriate cover for their head as well as adequate clothing. Both measures help to avoid that the skin is strained by UV filters. If sun screens are used though, physical UV filters like titanium dioxide or polymer filters should be preferred as they cannot penetrate the skin barrier and will remain on the skin surface. Since an extremely high sun protection factor is required in this case which cannot be achieved with the above mentioned filters and hence chemical filters are necessary, it is at least recommended to keep the dosage of emulsifiers rather low or even avoid emulsifiers at all in the cream bases. Specifically non ionic emulsifiers support the diffusion of the filters into the skin. If an erythema develops despite of all the precautionary measures taken, the application of both liposomes rich in linoleic acid and active agents for the recovery, as e.g. echinacea or linseed oil in form of liquid nanoparticles may provide fast and effective relief. Radiation induced skin damages in early life may cause premature skin aging and increase the risk of cancer despite the recovery of the skin.

Active agents and additives

Also the water balance of children's skin is different from adult skin. Specifically the stratum corneum is thinner and more permeable and

the skin dehydrates easily. It has been known from pharmacology that the active agents' transport of topical pharmaceuticals occurs a lot faster which also involves intense side effects. Penetrating rates even increase with occlusive conditions as for example in the diaper area or under impermeable clothing. Thus the application of Vitamin A acid and its derivatives on children's skin will cause irritations much faster than on adult skin. Glucocorticoids and chlorine containing antiseptics also are critical substance groups.

These conditions also apply for cosmetic products. Above all vitamin A should be mentioned in this context which is largely metabolized into vitamin A acid. This means that specific attention has to be paid to the adequate dosage of vitamin A. The same applies for cosmetic preservatives. The allowed chlorinated phenol compounds and chloromethyl isothiazolinone are not suitable for the preservation of products for children. It is definitely recommended to prefer preservative free products since all the preservatives listed in the appendix of the Cosmetic Decree have a sensitizing potential. This problem still is increased by the high permeability of infant skin.

Furthermore, it should be added that tolerance studies for cosmetic products are generally carried out with adult test persons. That is why there are very few results concerning the tolerance of these products especially with regard to toddlers. Therefore it is all the more important to carefully study the INCI of cosmetic products for adults before they are used for the care of children skin as an alternative.

Emulsifier free products

Due to the increased permeability not only skin care products and active agents but also emulsifiers are easily transported into the skin. This also leads to the fact that natural barrier sub-

stances of the skin can be washed out during the next skin cleansing. This specifically applies for oil-in-water emulsifiers. Hence vegetable oils are better than emulsions not only for skin cleansing but also for skin caring purposes. Alternatively emulsifier free barrier creams with the same structure as the natural skin barrier may be applied. Preservative free products sometimes show a relatively high concentration of water soluble substances. This may lead to a light itching on minor lesions at the skin surface. Although rather insignificant children may find it a nuisance. In this case oleogels may be preferred which contain the skin care substances of the above mentioned barrier creams however are water free.

Hydrogels also belong to the group of emulsifier free products. In contrast to oleogels the matrix of these products consists of an aqueous base. Skin redness and other conspicuous skin conditions are a reason to see the dermatologist. Sometimes highly effective corticoid creams are prescribed then. They bring immediate relief however are rather counterproductive in the long term.

An adequate basic care may be very effective for the irritation prone skin. Mainly non-irritating products are used and additives like preservatives and perfumes as well as mineral oils are largely avoided.

In case of barrier and cornification disorders it is recommended to apply essential fatty acids of the omega-6 and omega-3 group as active agent components. The oils can be applied in pure form or also as nano dispersions which are even more beneficial.

Hamamelis extract is a suitable agent for chapped hands because of its astringent effects. D-panthenol is an effective substance for the treatment of minor superficial lesions and stimulates a fast recovery of the skin.

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