

# Eye care basics - on active agents and eye formulations

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Besides language and gestures also our eyes play a significant role in communication. Expressive eyes can be the decisive factor in determining sympathy and appeal. That is why the preventive cosmetic care of the eye area is of particular importance.

**T**he skin around the eye is extremely elastic, quite thin and has comparatively little connective tissue. That is the reason why variances in the skin appearance like fat deposits (lachrymal sacks), surface blood vessels (eye circles) and tiny veins are more visible in this area than on other skin parts. This also applies for swellings of the eyelids caused by water retention or, the other way round, for the formation of wrinkles on the lower eyelids caused by dehydration in dry and warm environment. Tiny mimic wrinkles, loss of skin elasticity and eye muscles fatigue complement the problem field "eye area".

Although there are excellent cosmetic active agents and decorative tricks to improve the appearance of the eyes, the non-cosmetic preventive measures still have priority:

- regular exercise - if necessary also specific eye gymnastics to increase the micro-circulation
- nutrition rich in vitamins including a balanced intake of essential fatty acids
- alternating contraction and relaxation of the eyes during work (as e.g. regular breaks during screen handling)
- sufficient sleep
- adequate lighting in rooms and positioning of the working equipment in due consideration of the incident light
- room humidification during the winter months
- draught-free rooms and workplaces
- protection against extreme cold, heat and sun radiation
- moderate consumption of alcohol and nicotine
- regular control of vision aids.

Provided that these tips are observed, optimal results can be achieved with adequate cosmetic measures.

## Skin cleansing & peeling

It is inevitable that also natural protective substances of the skin are removed during skin cleansing. Ideally, only lukewarm, soft water is used. Most of the time, however, this will not be sufficient because of the make-up applied on the skin. An excellent alternative is non-irritating cleansing milk based on vegetable oils without emulsifiers. Subsequently, it is suggested to rinse the skin with pure water.

Peelings should be sparingly applied in the eye area. Whether abrasive bodies in form of wax particles or enzyme peeling are used, it is inevitable to carefully cover the eye area. Fruit acid and chemical peelings should only be applied by experienced dermatologists with respect to the specific indication.

## Lotions

Lotions calm the skin with their antimicrobial and astringent additives (hamamelis, cucumber, horsetail) after the cleansing. They also have a stimulating effect due to their caffeine, green tea and coenzyme Q10 content. Cooling lotions may contain aloe and algae for instance. There are interesting solutions available for the home care (see below) based on different active agents if the customer is not prepared to use additional skin care products. If a mask is to be applied it is beneficial to formulate the lotion with D-panthenol or liposomes (from phosphatidylcholine). These ingredients support the availability of the active agents in the mask. Otherwise the lotions have a watery base that may contain alcohol to stabilize the extracts. The alcohol concentration should be low, though, in order to prevent irritations or dehydration of the skin.

## Masks

There is a wide field of activity in terms of masks, depending on whether cream masks, occlusive or hardening modeling masks, mineral bases (clay, aluminosilicates) or active

agent impregnated fleece masks are applied. The selection of active agents used in these different variants basically remains the same. The crux here is the subsequent removal of the mask. Cream and fleece masks definitely are the preferred treatments here as they are easily to remove and will not require additional cleansing procedures. This also applies for modeling masks; however, it has to be considered that the active agents contained in the modeling mask are only partly released into the skin due to the hardening process. If calcium sulfate based modeling masks are used it is recommended to add a layer of oil or cream on the skin in order to avoid a direct contact with the skin surface. This step facilitates the removal later on and, in addition to that, also protects the skin barrier against potential damage caused by calcium sulfate. Cream masks - if applied abundantly - can be used as a massage medium. In contrast to the remaining skin areas, the eye area should be massaged very gently in order to prevent stressed skin. It already starts with mild tapping at the beginning of the treatment.

#### Bases and active agents

Depending on the specific skin condition around the eye, gel or cream bases are used. The gels (gelling agents see below) may also contain lipid fractions. Gels are insofar beneficial as they have a cooling effect and do not contain emulsifiers. It should be mentioned in this context, though, that emulsifier-free creams and make-ups are also broadly available by now.

The former classification into day and night care products also has changed. While traditional night creams frequently are rich in lipid substances, quite often in form of mineral oil products that cause a swelling of the skin which leads to a smoothing of wrinkles, today's formulations contain light and oxygen sensitive substances that support the skin recovery. Their effect may slightly decrease during daytime due to the influence of light, though. An additional principle is to use as little additives as possible. Some of the active agents and their applications are covered in the following.

**Dry spots and wrinkles caused by dehydration (lower eyelid):** amino acids, urea, minerals salts and D-panthenol support the natural NMF. They should be assisted by a superficial film of gelling agents like hyaluronic acid, aloe vera, GM-glucan, cellulose derivatives, alginic acid or polyvinyl pyrrolidone (PVP). Hyaluronic acid is most suitable as the film will not form parchment-like layers. Vegetable triglycerides as for instance avocado and wheat germ oil

provide indispensable fatty acids and phyosterols combined with additional smoothing effects.

**Lachrymal sacks:** They form because the connective tissue is slackening with the result that the developing pockets subsequently fill with fat tissue. Lachrymal sacks are hereditary and do not respond to cosmetic treatments. Frequently they are only swellings on the lower eyelid caused by water retention. They are very often observed in the morning after getting out of bed and vanish after the microcirculation has been stimulated with the breakfast coffee or tea. Their regression can be supported by cucumber, green tea or eyebright extracts or alternatively by applying cucumber slices, teabags or compresses. Liposomes accelerate the process.

**Dark circles:** The brownish or bluish shadows make a person look tired. The fairer the skin the more visible they are. These eye shadows can be effectively treated with butcher's broom extract respectively the saponins contained therein. Dark circles can be concealed with a light foundation after the shadows have been neutralized with a complimentary color shade before.

**Atrophic skin and loss of elasticity:** Beneficial here are the recovery-supporting vitamins A, C and E, coenzyme Q10 as well as matrikinines. The microcirculation is stimulated with tea products. Butcher's broom has a stabilizing effect on connective tissue and blood vessels. Skin tightening effects are achieved with cucumber, horsetail and kigelia extracts.

**Erythema** can be treated with linseed oil, evening primrose oil, aloe, echinacea, ribwort and hamamelis extracts. Rosacea and couperosis treatments are covered in the following.

**Blemished skin:** there is a whole arsenal of excellent active agents like yeast (series of B vitamins), boswellia resin and linseed oil (anti-inflammatory), red clover and soybean extracts (phytoestrogens) and native phosphatidylcholine (linoleic acid).

**Mimic wrinkles:** crow's feet in the corners of the eyes belong to them and can be treated with paracress extract or peptides.

**Drooping eyelids** come under the heading of decorative cosmetics. In this case the fairly or even no longer visible movable eye lid is brightened with a light tone while a dark brown line is applied along the edge of the eye sockets. The eyelashes are accented in deep black.

#### Skin protection

Just like the décolleté also the eye area is very sensitive to radiation. Premature skin aging is particularly noticeable here. Yet, this does not mean that the skin has to be completely sealed

with a permanent UV protection. A sensible use of light protection products reduces the permanent stress due to chemical UV filters which are indispensable especially in products with high light protection factors. Direct sun radiation automatically involves high infrared exposure and the only protection against it is shade. The carry along sun hat seems to be old fashioned though, but it still is the most effective protection.

The sensitivity of eyelids and neighboring skin to cold air and dry cooling wind is extremely high. Blood vessels and nervous system are easily damaged this way. Rosacea symptoms and noticeable veins are the result. Associated to it are irritations and redness, both conditions, that are more often observed with low humidity (winter and spring period) and may even aggravate with irritating fragrance components and preservatives but also during pollen flight season. While, on the one hand, the protection with lipid-rich and low-aqueous skin care products and a hat that sits low on the forehead are easy to deal with, on the other hand, the care of damaged skin is rather complicated as also the connective tissue is involved. If an infection with anaerobic bacteria has been diagnosed, the skin can no longer be treated with re-fattening and filming products. If watery products have been used in abundance the water soluble substances will accumulate and irritate the skin. It is recommended, though, to apply the products sparingly and use non-filming products, a balancing act which often doesn't make sense for the persons concerned. Appropriate active agents are butcher's broom and echinacea extract, linseed oil, betulinic acid and azelaic acid (licensed as a non-filming consistency agent for cosmetic applications in concentrations up to 1%). In the beauty institute, anti-inflammatory vegetable oils like linseed oil, evening primrose oil or rose hip oil can be vigorously mixed with an adequate liposome concentrate and aqueous phase. The mixture is free of emulsifiers. A ready-made nanodispersion is available for the home care.

The number of therapies that combine specific devices and products such as ultrasound therapies has increased only recently. Particularly around the eye area these techniques are considered risky, though.

Dr. Hans Lautenschläger