

Couperosis - a field for active agent concentrates

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Couperosis - a complicated cosmetic topic: quite a few questions regarding its origin and treatment are still waiting for an answer. Just like other problem skins also couperosis demands for a thoroughly balanced skin care. Particularly in the field of supporting prevention skin care plays a significant role and all the more if the skin is susceptible to couperosis or if there is a family history of couperosis cases.

The expression couperosis originates from the French language and literally translated it means "copper rose" or "copper pimple". It signifies small dilated superficial blood vessels with a characteristic red copper color. They belong to the group of teleangiectases and indicate a weak capillary and connective tissue system. It is often caused by the impact of cold on the facial skin which paralyzes the minor capillaries and thus leads to system instability. The dilatations of the blood vessels may also appear as little dots however mostly in form of little threads.

Regarding the facial skin the expressions couperosis and teleangiectases are more or less synonymously used if there are numerous local symptoms on the cheek area and around the nasolabial fold.

From the medical point of view the symptoms are quite difficult to diagnose and sometimes it is quite complicated to draw a distinction between rosacea, erythrosis and actinic skin disorders.

It all began with rosacea ...

Among others couperosis may be the consecutive syndrome of a previously suffered rosacea. First symptom of rosacea is a temporary skin redness which may last for several hours or even several days. The redness may be intensified by stress, agitation, alkaloids in coffee or tea, alcohol, hot spices or by external temperature conditions. In the long term the hyperactive blood vessels may be damaged and this leads to permanent teleangiectases as well as inflammatory conditions in the vascular endothelium with erythema symptoms. If a light red tone is predominant arterial vessels are affected, bluish symptoms disclose that the venous system is concerned.

Prevention should start early

As teleangiectases tend to be quite persistent it is significant to take preventive measures as soon as a certain disposition can be diagnosed. This means that hypothermia of the skin in winter through cold and dry wind and hyperthermia through direct exposure to the infrared radiation of the sunlight as i.e. extended sun bathing or also sauna have to be avoided, a precaution which not only applies for the facial area but also for the sensitive thighs and lower legs where the symptoms are called spider veins. Mechanical stress in the foot area caused by improper footwear is a frequent trigger though. As a matter of fact, in the female population the roots for the disease are already laid in early youth when trendy and stylish aspects predominate and preventive and healthy reasons only have minor priority. But also other causes play a significant role like venous diseases in the lower leg area or medicinal drugs as e.g. the long term medication with corticoids. Frequent nose bleeding may be a sign for a specific sensitivity of the vascular system. A weakness of the connective tissue and the minor capillary system becomes apparent when minor mechanical stress leads to a bluish discoloration of the skin. Dark rings around the eyes also belong to the symptoms.

Mild cleansing systems and preventive measures

As far as skin cleansing products are concerned, aggressive tensides based on lauryl sulfate and lauryl ether sulfate have to be avoided as besides their already strong degreasing effect they may also cause irritations. A more appropriate cleansing method are lukewarm water and products based on low cleansing agent concentration and mild com-

ponents. It is recommended to use cleansing milks as make up removing products.

In order to prevent erythema caused by sun exposure a sun protection product is recommended, a fact, which however should not seduce to stay in blazing sun as infrared radiation still is able to penetrate into the surface skin layers and the buildup of heat may damage tissue and vessels.

Non-irritant skin care

For the care of couperosis and teleangiectases skin it is highly recommended to use products with the smallest possible content of potential irritants. Actually, as couperosis skin is very sensitive and permeable, potentially irritating or sensitizing substances like perfumes and preservatives should definitely be avoided. And this applies all the more if a rosacea symptom has been treated with corticoids on a long term base as the atrophic condition of the skin still increases the permeability for noxious substances. Due to the fact that the superficial vessels react very sensitive to mechanical stress as already mentioned above, if any at all, only very gentle massages are recommended. Peelings with rubbing products have to be avoided or should be carried out with extreme caution only. More appropriate here are enzyme peeling masks.

Skin care creams should still allow the skin to breathe and be applied only sparsely. High concentrations of indifferent long chain hydrocarbons like mineral oils and waxes are not appropriate as they cause an artificial swelling of the outer skin layers. Even additives to improve the consistency which normally have a positive and balancing influence on the skin hydration as they release a thin film on the skin may prove counterproductive in this case. It is rather necessary to use products with an individual skin-related composition and if possible without any stressing additives.

Synthetic emulsifiers are also additives which may stress the skin, if they cannot be metabolized, and hence will destabilize the skin structure. If emulsifiers are used at all they should be mono and diglycerides of physiological fatty acids as these are able to integrate into the natural skin balance.

Selective use of active agents

Active agents should only be used when and where they are really needed. When selecting the respective agent for the couperosis specific skin care the following features should be considered:

- **Soothing** the skin especially in case of currently existing rosacea and in connection with it, generating anti-erythematous effects
- **Stabilizing** the superficial blood vessels
- **Anti-inflammatory effects** especially in case of simultaneous rosacea and actinic keratoses symptoms
- **Antimicrobial effects**, as couperosis skin is quite permeable and hence specifically sensitive
- **Supporting the skin regeneration** in rosacea cases

If a weak vascular and tissue system is diagnosed highly concentrated aqueous (hypertonic) or aqueous alcoholic solutions should only sparsely be used. The application could easily cause a temporary but unintentional irritation if the skin care products are used more often than once or twice per day and in high concentration and the water soluble components then inevitably concentrate on the skin.

It is recommended to apply the active agents on the respective areas and then use the skin care cream on the whole skin. The following active agents are possible

- **Vitamin K1** has soothing and vascular stabilizing effects in case of erythema, spider veins and purpura, either traumatic or treatment-induced as e.g. after laser or plastic surgery and also helps against dark rings around the eyes.
- **D-Panthenol** increases the skin hydration, has smoothing effects and increases the cell proliferation rate which means that it supports the healing process. It has antipruritic and antibacterial effects.
- **Boswellia extract** (from *Boswellia sacra*) inhibits the expression of metalloproteinases which participate in the collagen degradation process. Boswellia impedes the 5-lipoxygenase which is a key enzyme in inflammatory processes. Boswellia extract encapsulated in nanoparticles is used in skin care products for actinic keratosis.
- **Chamomile** has anti-irritant, anti-erythematous, antiseptic and anti-inflammatory effects.
- **Aloe Vera** is moisturizing due to its content of amino acids as well as to its film forming effect on the skin surface, it furthermore is anti-inflammatory and supports the healing process.
- **Butcher's broom extract** has anti-inflammatory, astringent, anti-oedemous

- as well as a vein-toning and capillary-sealing effects.
- **Echinacea** inhibits the hyaluronidase and acts antiseptic and anti-inflammatory. Its healing effect has been known for a long time from traditional folk medicine.
 - **Linseed oil** in form of water soluble nanoparticles acts anti-erythematous and anti-inflammatory. It supports the skin with omega-3 fatty acid (α -linolenic acid).
 - **Evening primrose oil** in form of water soluble nanoparticles has anti-inflammatory effects. It supports the skin with omega-6 fatty acids (γ -linolenic acid). It is more effective in form of a topical than an oral application.
 - **Vitamin A** promotes the collagen formation and regeneration of the skin in the case of rosacea.
 - **Salicylic acid** is used against rosacea as a pure substance or in form of salix extract. Salicylic acid has antibacterial and anti-inflammatory effects.

Active agent mixtures with liposome concentrates, or active agents encapsulated in liposomes and nanoparticles significantly increase their penetration and efficacy. Particularly fatty oils and boswellia resin will loose the fatty or sticky consistency and can then be applied like an aqueous lotion.

Knowing how to conceal reddened skin

Finally, a few general remarks concerning make-up and concealing tips for couperosis skin:

- **Green pigments** may neutralize redness of the skin. They are carefully dabbed on the skin in form of a cream foundation and equaled out with the help of a brush.
- Alternatively **compact make-ups** with high pigment content can be applied as coverage. It should be taken care however that the coverage will still allow the skin to breathe and that a swelling of the skin is avoided.
- **Self-tanning products** based on dihydroxyacetone may darken the skin tone with the consequence that the capillary vessels will be less noticeable.

Skin colored dermatological powders which are free of talcum and without any dehydrating effects help to achieve a natural skin appearance.

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