

# Re-energizers: lotions - the speedy skin care

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Lotions are speedy re-energizers for the skin. Especially when extended parts of the skin require a fast and evenly spreading care they are the best alternative. Nevertheless, lotions are not really a "lightweight" solution.

Lotions are gentle, light-bodied and easy to spread. In comparison to creams, they show a lower viscosity which allows a fast application by sponge, hand or spray system. Regarding both their composition and application, they are divided into skin care lotions, cleansing lotions and watery-alcoholic lotions for specific purposes. Most frequently used are oil-in-water-emulsions (O/W) whereas water-in-oil-emulsions (W/O) rather are the exception due to their complicated stabilization process. They offer the advantage of an extended adhesion capacity on the skin and thus are used for water-resistant products in the field of sun protection, baby care, make-up and general skin protection purposes. A specific feature are emulsifier-free systems for the sensitive and problem skin. Within these systems there are no distinctions between O/W or W/O emulsions.

## Intensive care

Lotions applied for replenishing the fat content of the skin generally are O/W emulsions with different dosages of oil- and fatty substances as well as additional moisturizing substances depending on the individual skin type. These lotions frequently are called milks and, according to their specific applications, we are talking e.g. of body lotion or face milk. In contrast to comparable creams, however, their emulsifier content is considerably increased to guarantee sufficient physical stability. The oils used here frequently are liquid paraffin oils whereas in W/O emulsions, predominantly branched-chain oil components are applied. The advantage in comparison to non-aqueous body oils is their fast penetration without leaving an unpleasant oil film on the skin. However, the disadvantage in contrast to pure oils is the fact that most of the emulsifiers contained in lotions form deposits in the skin which subsequently are re-activated as e.g. while taking a shower. As a result, fatty substances in the skin are again emulsified with the consequence that both cream-specific and endogenous fatty substances increasingly

are transported out of the skin, a process which can particularly be observed in O/W emulsions. Accordingly, after the shower the skin has to be replenished with fatty substances in order to avoid dry skin.

Special barrier lotions based on nanoparticles, however, do not show this disadvantage due to a manufacturing process which guarantees stability by endogenous membrane substances without using any emulsifiers. Compared to conventional lotions, this manufacturing process is more expensive; however, the products have a longer-lasting effect and hence are more economical. They are specifically suitable for extremely dry skin and in extreme cases also for neurodermitic skin.

In this connection, natural oils (triglycerides) are given preference as they have less influence on the skin's natural regeneration process than paraffin oils and also because they are integrated like endogenous fatty substances. Recently, also emulsifier-free lotions on DMS base have been developed, which are able to replenish missing links in the skin barrier layers due to their derma membrane structure which is related to the skin.

In order to facilitate the spreading of fatty substances on the skin, it is very popular to add spreading oil components to lotions as e.g. oils of the isopropyl myristate or diisopropyl adipate type. These additives can be avoided by using nanoparticles with natural membrane substances, as nanoparticles spread on the skin like water and penetrate into the skin without any side effects.

The preservation of lotions is a complicated process as the water content in these formulations frequently is higher than in creams. Accordingly, the amount of preservatives has to be increased too, unless alternatively moisturizing substances are used, which in certain concentrations prevent microbial growth. The latter are especially recommended for sensitive skin as they are virtually free of any allergenic potential. W/O products are less sensitive to microbial contamination than O/W lotions as it is pretty

difficult for germs to penetrate the outer oily phase.

### **Cleansing lotions**

Cleansing lotions or milks only differ from skin care lotions by their higher content of emulsifiers and by the specific type and amount of the oils respectively fats contained. Their content of fatty substances together with the emulsifiers removes fatty skin impurities or make-up. After applying the product, the surplus lotion is rinsed off with water. High-quality products or products free of emulsifiers generally do not require rinsing. In this case, the surplus lotion is removed with a moist towel. The thin coating of the product on the skin acts as an initial skin care step. This 2 in 1 principle shows the advantage of preserving the skin's own barrier substances and is specifically recommended for sensitive and dry skin.

Oil-containing cleansing lotions are less appropriate for fatty and bad skin. Besides conventional liquid soaps, liposomal lotions with a low content of fatty substances which also allow a 2 in 1 concept have proved successful. Thus, pollutant particles are assimilated by the aqueous liposomal dispersion while simultaneously liposomes penetrate the skin. This specific cleansing process is an advantage for the beauty institute as it prepares the skin for further treatment as e.g. the application of masks. If desired, the skin can be rinsed with pure water. The liposomes penetrated into the skin will not be washed-out and thus prevent cornification disorders of the sebaceous glands due to their high content of linoleic acid.

In case the cleansing milk is to be removed after cleansing, it is recommended to use lotions with a high content of emulsifiers which also can directly be used in connection with water.

### **Aqueous-alcoholic solutions**

Liposomal lotions can also be used as facial tonics and have proved successful in minor cases of acne. Furthermore, there are lotions containing D-panthenol, which, just like liposomal lotions make the skin receptive for the penetration of active agents during a mask treatment, but on the other hand also have a soothing effect. These solutions generally have a low-fat or aqueous base and may also contain alcohol. In case of higher alcohol concentrations they are rather recommended for insensitive or oily skin. Regarding the tolerability, low alcohol concentrations resulting

from added extracts may be neglected. Oil-free products with salts are called tonics.

Aromatic solutions and fitness preparations with a high content of perfume oil or essential oils, which, by adding emulsifiers are dispersed to a milky to transparent consistency, also belong to the lotions. However, their alcohol content can be considerably higher than in face tonics and easily add up to 50 %. High alcohol concentrations will not need additional preservation.

### **Preventive skin products**

Today, there are very interesting lotion products on the market which are recommended for problem skin and for the supportive prevention of barrier disorders. Classic examples here are nanoparticles and liposomes. In combination with DMS systems and specific active agents there is a large number of possible treatments to improve problem skin on a long-term base and to contribute a substantial part against premature aging of the skin. The products are chemically and physically adapted to the physiology of the skin and avoid a major part of the conventional additives. They are called lipid-barrier lotions and gain more and more importance for the dermatological prevention and treatment.

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