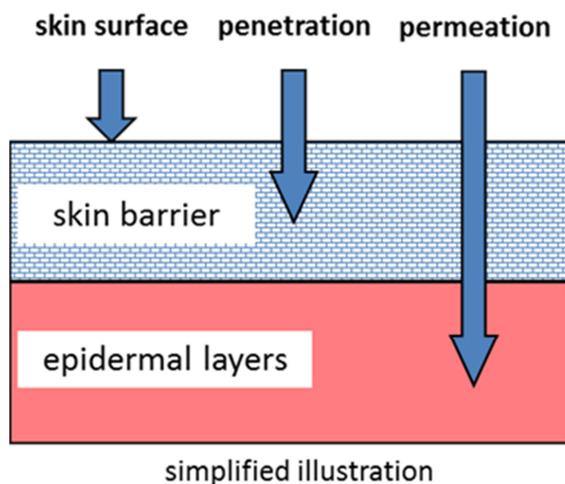


Immediate effects – revenue generators at the institute

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Nothing is more convincing than the difference between before and after. Especially when just one treatment has improved the appearance of the skin and a skin problem is hardly there anymore. But how can such visible immediate effects be achieved?

Effects of cosmetics occur on the skin surface, after penetration into the skin barrier or after passing through the skin barrier (permeation) in the epidermis.



On the surface of the skin, for example, remain:

- Paraffins, siloxanes (colloquially: silicones)
- Polymeric consistency enhancers
- Hyaluronic acid and other polysaccharides
- UV filter
- Pigments (decorative cosmetics)

Preferably penetrate the skin barrier:

- Phytosterols - structurally similar to the cholesterol of the skin barrier
- Long-chain fatty acids
- Ceramides
- Moisturizers (NMF)
- Fatty substances
- Emulsifiers

Must permeate through the skin barrier to be effective:

- Vitamins

- Antioxidants
- Terpenes (essential oils)
- Anti-wrinkle active ingredients
- Substances that block or stimulate enzymes
- Enzyme substrates – substances converted by enzymes into active substances.

Naturally, the effect of the substances that reach the skin surface is immediate. Paraffins, siloxanes and polymeric consistency agents smooth the skin and in some cases give it a silky feel. Hyaluronic acid and polysaccharides (alginates, cellulose and starch derivatives) form a moisturising film and even out unevenness. Hyaluronic acid is most effective in this regard because it builds hydrogen bonds to the keratins, which ensure optimal adhesion and moisture retention. Pigments from make-up preparations also unfold their appearance immediately. The same applies to the skin-protecting effect of UV filters and paraffins, which protect against external aqueous substances from household and occupational sources. Paraffins, however, slow down the skin's regeneration activities. In this respect, phytosterols, long-chain fatty acids and fatty substances in the form of triglycerides have a much more sustainable effect. They are transported into the skin by means of lamellar creams – with the advantage that typical emulsifiers with a high critical micelle formation concentration (CMC) can be dispensed with altogether.

At the latest for substances that rely on transformation by enzymes or reaction with receptors in deeper parts of the epidermis, immediate effects can only be achieved with penetration enhancers. This includes both individual substances and carrier systems such as liposomes and nanodispersions. These vehicles, which usually contain physiological phosphatidylcholine, fuse with the bilayers of the skin barrier, fluidise them and thus enable the rapid passage of the active substances they carry.

Device support

A further acceleration of the transport of active substances and thus also of the effect is achieved by energy in the form of mechanical waves, heat, radiation or electric current. The most common methods are:

- Radio frequency (monopolar)
- Mesoporation (pulsed electric fields)
- Iontophoresis (transport of acid anions)
- Infrared waves
- Ultrasound (1-40 MHz)
- Shock waves
- Mesotherapy (microinjections, dermatology)
- Dermal needling (0.5-3 mm needles)
- Vaporizer

In this way, the time between application and onset of effect can be reduced to a minimum. However, the requirements of the NiSG (German Law on Protection against Non-Ionising Radiation in Human Applications) must be observed.

The individual methods depend on the structure of the active ingredients on the one hand – iontophoresis, for example, can only be effective with charged particles – and on the other hand on the existing skin condition or, if applicable, the dermatological indication.

In addition to the equipment with apparative technology, which as such also serves advertising purposes, the classical mask and the modelages should not be forgotten. They are mostly based on occlusive effects that last for about 20-30 minutes. They can be further optimised by liposomes and nanodispersions, but also massages.

Preliminary peeling and abrasion procedures – dry or wet – accelerate the onset of effect of subsequent treatments, but have the disadvantage of higher local concentration peaks combined with shorter duration of effect due to the thinned skin barrier. Similar to topical medications, temporary irritations may occur due to the concentration. Peeling and abrasion – considered alone – already have an immediate effect.

Sustainable impact

A distinction must be made between temporary and lasting immediate effects. Temporary is, for example, the hyaluronic acid effect, as the superficial film is not water-resistant despite no-flaking adhesion. It has to be reapplied again and again. The reduction of skin redness by tranexamic acid, skin tightening by saponins (kigelia, butcher's broom), stimulation of micro-

circulation by caffeine or wrinkle reduction by spilanthol as well as relevant peptides are also examples of strong temporary effects.

Lasting active ingredients, which are characterised by both a direct onset and a longer-lasting effect, serve to regenerate and as problem solvers. Ascorbyl phosphate (skin whitening and collagen formation), N-acetylglucosamine (increase of skin moisture and stimulation of endogenous hyaluronic acid formation) and phosphatidylcholine (influence on ceramide metabolism, treatment of dry eye) have a regenerative effect. Problem solvers are witch hazel, epigallocatechin gallate and cucumber extract (astringent) as well as aloe vera, echinacea, niacinamide, D-panthenol, boswellic acids and essential fatty acids (soothing, anti-inflammatory).

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