



The comfort system for a facilitated and brought to perfection daily lid hygiene

Conception

„lid & lens“ is a combination of an eye/skin-friendly Comfort Solution and novel cleansing pads.

Disturbance of normal eyelid secretion leads to the build up of impurities at the lid margins and disturbance of the tear film. The use of a simplified and effective cleansing system shall create the conditions for optimal lid hygiene.

The „lid & lens“ system is suitable for everyone for a daily lid cleansing and hygiene.

The extremely well-tolerated cleansing Comfort Solution is used together with a specially developed, slightly abrasive pad for daily hygiene of the eyelid skin and lid margins. Residues of sebaceous gland secretions, cell debris and other undesirable impurities and cosmetics can be removed gently this way.

Hygiene of the eyelid margin often is inadequate in practice since it has not been offered in a simple form till today. Now the composition of the tear film can be positively influenced by this optimised lid hygiene system. In this way the tolerability of contact lenses that were previously tolerated only to a limited degree due to chronic blepharitis at the lid margin can be improved again.

The „lid & lens“ system is recommended for the daily lid hygiene, since besides the care of the lids an improvement of the tear film in general can be achieved.

Eyes and contact lenses

For decades the eyes and contact lenses have constituted a recurring controversial topic in which the gain in comfort and mobility for users is balanced against the short- and long-term risks of contact lenses and their handling.

A normal tear film is an essential prerequisite for the tolerability of contact lenses because only adequate flushing can preserve the physiology of the cornea and a clean lens can be maintained.

In persons with overactive sebaceous glands on the eyelids and the seborrheic skin alterations that often accompany this condition, these impurities, which are also loaded with bacteria from the skin, multiply in the tear film. This triggers a state of chronic irritation of the lid and conjunctiva (“blephar-

conjunctivitis”) which can be very troublesome in itself and can also hinder the wearing of contact lenses.

In this situation, the use of artificial tear drops is insufficient and consistent daily care and hygiene of the lid margin, the cause of the disturbance of the tear film, is required.

Development principles

A Comfort Solution with a mild cleansing effect, developed according to the principles of cell biology for optical tolerability, is used with a newly developed special pad for cleaning the eyelid margins.

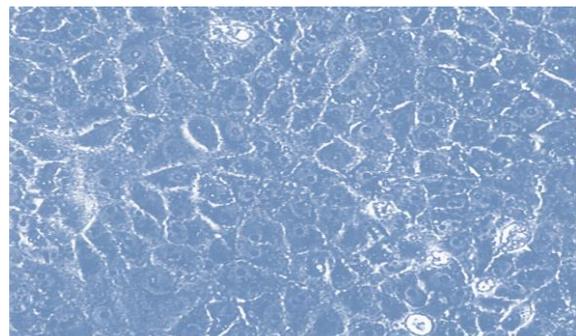
Because the pad has two different types of surface, a greater or less abrasive effect is available for wet cleaning according to requirements.

This means that thorough cleansing and supportive disinfection of the lid and its margin can be obtained without irritating the skin or eyes, and this helps to normalise the tear film.

Our investigations

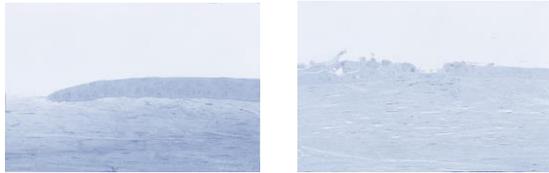
To achieve the greatest possible level of safety for the user, the “lid & lens” Comfort Solution designed on a completely new basis was tested in various biological systems before its clinical use.

In cell cultures⁴, various types of epithelial cells that respond very sensitively to benzethonium chloride or other preservatives, for example, were tested by brief (“acute toxicity”) or prolonged exposure (“chronic toxicity”) to the new solution. We found that the addition of “lid & lens” did not inhibit normal cell function in any way.



Cell culture:
The cell culture shows no signs of toxicity with “lid & lens”.

In a model of healing of corneal epithelial wounds^{1,3} in which we had previously found that a number of contact lens care products were antagonistic to the epithelium to a certain degree², the “lid & lens” solution caused no inhibition of epithelial wound healing⁴. Normal regeneration capacity is thus possible for the microscopic lesions of the corneal epithelium that can sometimes occur in contact lens wearers.



Regular wound healing under „lid & lens“

*Homogenous re-epithelialisation
8 hours after experimental
epithelium defect*

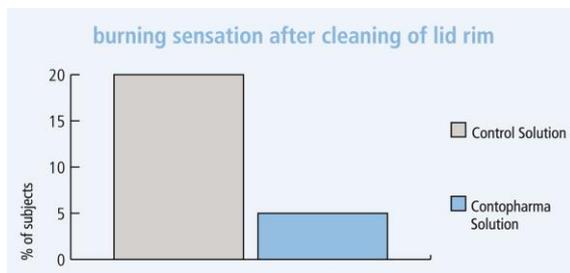
*Almost complete epithelial
closure with slight transient epi-
thelial irregularity at the wound
rim*

After comprehensive confirmation of its biological safety, the effects of „lid & lens” solution on the physical properties⁴ of all popular types of contact lenses were studied. It was found that all results complied with the relevant ISO standards.

After thoroughly testing various types of cleansing textiles, a new type of pad was developed in the form of a cushion with two different abrasive surfaces. A clinical trial of practical suitability⁴ was performed in test subjects to compare “lid & lens” with a reference combination.

The multicentre study was performed double-blind and randomised, and complied with the modern gold standard for clinical studies. Apart from subjective evaluation by the subjects of the eye and drops on one side compared to the other their eyes were examined at regular intervals over a period of four weeks.

A significant preference for the “lid & lens” comfort system was found, especially in the evaluation of the subjective parameters. Side effects were not observed, not even ones of mild type.



Clinical trial:

Despite the intensive efficacy and the great cleansing effect, only 5% (1:20) noted slight irritation. The figure was 20% (1:5) for the reference solution.

Summary

Combined with the advances made both in relation to contact lenses and care products in recent years, the development of a thoroughly new care system for lid hygiene represents an ideal supplement.

Literature

- ¹ C.P.Lin, M. Böhnke: Effect of Fortified Antibiotic Solutions on Corneal Epithelial Wound Healing; Cornea 19, 204 – 2006, 2000
- ² C.P.Lin, J. Y. Chen, M. Böhnke: Influences of Hydrogel Contact Lens Care Solutions on Corneal Epithelial Wound Healing; Kaohsiung Journal of Medical Sciences, Vol. 14, No. 10, 639 – 643, 1998
- ³ C.P.Lin, M. Böhnke: Influences of Methylcellulose on Corneal Epithelial Wound Healing. Journal of Ocular Pharmacology and Therapeutics, Vol. 15, No. 1, 59 – 63, 1999
- ⁴ data on file: Contopharma AG, Interlaken

New developments can be achieved today only through the networking of existing resources. For the design of the new “daily soft” solution a thorough knowledge of cell biology and corneal physiology was combined with pharmacological manufacturing capability. With the tools of pure research (cell culture, in vitro experiments, physical measurements) and clinical trials, an optimally researched, safe and effective Comfort Solution was developed.

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