



The optimal solution for all common soft hydrophilic replacement system contact lenses

Concept

The special tensides and hyaluronic acid ingredients achieve an optimising cleaning and disinfecting action in the care of contact lenses and also an optimum wetting of their surfaces.

A multifunctional solution that cleans, disinfects, rinses and maintains as well as wetting, and all this is achieved in one product. The universal comfort solution "simply one" makes the contact lenses comfortable to wear both immediately and long-lastingly. The regeneration of the cornea is enhanced for contact lens wearers.

"Simply one" is particularly recommended for all common soft hydrophilic replacement system contact lenses for planned replacement intervals from several days to three-month usage.

"Simply one" is the result of intensive research carried out together with recognised contact lens specialists. The new solution is a synthesis of practical years of experience with contact lenses and their care, together with the tireless endeavour to make the care of the lenses as simple and efficient as possible for their wearers. This is achieved without compromising the safety and comfort of the eye and the lens system.

Eyes and Contact Lenses

Eyes and contact lenses have been a controversial topic repeatedly discussed over many decades, where comfort and mobility for the wearer are up against the long and short term risks of contact lenses and their handling.

Considerations in the Development

From the findings of cell biology, we have redefined the basic ingredients of a universal solution. We have developed a solution to the particular biochemical stress that can arise when using replacement system lenses^{1, 2}, that produces an environment compatible with the tissue between the tear film and the contact lens even under unfavourable conditions.

Why is the Contopharma Universal Comfort Solution "simply one" universal?

It cleans:

The cornea-neutral formulation contains extremely mild sugar derivatives which act as cleaning components, and these gently and sustainably remove proteins, mucins and fats that have been deposited on the lens by the tear film.

It disinfects:

Disinfecting preservatives that are free of heavy metals disinfect the lenses overnight from any contaminating microorganisms.

It rinses and maintains:

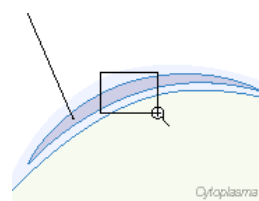
The Contopharma Universal Comfort Solution "simply one" maintains the surface and matrix structure of the lens. Cleaning, disinfecting and wetting take place during rinsing and keeping in solution.

It wets and regenerates:

A special combination of polymeric humectants (hyaluronan) enhances the stability of the tear film and improves wetting of the lens surface during wearing and keeping in solution. The continuous depositing of contaminants from the tear film can be avoided or the cleaning process can be made easier and this preserves the surface structure of the lens. Various substrates (minerals) sustainably support cell growth and regeneration, and this is particularly important in the case of reduced tear flow

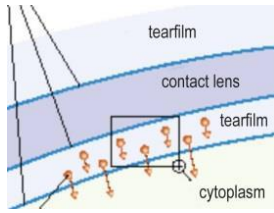
Hyaluronan

When hyaluronan is used, a coating effect is achieved. The contact lens is enclosed by hyaluronan and thus optimal wetting is created by binding with the tear film.



Hyaluronan

The hyaluronan coating improves the wettability of the contact lens and the cornea. It prevents any mechanical rubbing between the contact lens and the cornea.

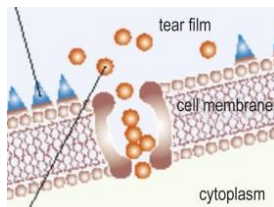


Minerals

The tear film is enriched with calcium, potassium and magnesium by the application of "simply one".

Hyaluronan

The hydrophobic part of hyaluronan forms a bond to the cornea and the lens matrix. The hydrophilic part of hyaluronan binds water. Result: The tear film is stabilised in the eye and contact lens system.



Minerals

Minerals are channelled through the cell membrane by active cell transport mechanisms (import + export). They are then available in the cell interior (cytoplasm) for improving cell metabolism.

Our Investigations

The "simply one" solution, which is based on an utterly innovative concept, has been tested in different biological systems in order to ensure a maximum degree of safety for the user. In cell cultures⁶ various epithelial cell types, which react with great sensitivity to various chemicals, were tested with the new solution during short-term ("acute toxicity") and long-term exposures ("chronic toxicity").

At physiological temperatures, any toxicity in the cell culture from the "simply one" solution could be excluded.

In a model for corneal epithelial wound healing^{3,5}, in which we had already previously found a series of contact lens care products to have a particularly adverse effect on the epithelium⁴, the "simply one"

solution showed no impairment of the epithelial wound healing.

The effects of the "simply one" solution were tested on the physical properties⁶ of common soft

hydrophilic contact lens types. The results of the measurements complied with the requirements of all relevant standards⁶.

Additionally two user studies were carried out for practical suitability on volunteers⁶. The multicentre, randomised trial complied with today's Gold Standard for clinical trials and demonstrated that the test solution achieved high acceptance level with the test participants.

Further information

For lubrication we recommend CONTOPHARMA comfort solution. If the tear formation is low, the "drop&see" solution supports the cell function of the cornea by its balanced active ingredients. The optimised composition of the "lens&lid" solution protects the contact lens surfaces from contamination during wearing.

Summary

Complementary to the basic improvements introduced by CONTOPHARMA's new comfort solutions, the "simply one" solution is geared to the special needs and requirements of replacement system contact lens wearers.

Literature

- 1 H.W. Roth: Das Cornea-Deprivation-Syndrom nach Tragen von One-Day Kontaktlinsen; Die Kontaktlinse, Vol. 11, 11-13, 1998
- 2 H.W. Roth: Das Cornea-Deprivation-Syndrom (CDS); Contactologia, 20, 65-70, 1998
- 3 C.P.Lin, M. Böhnke: Effect of Fortified Antibiotic Solutions on Corneal Epithelial Wound Healing; Cornea 19, 204-206, 2000
- 4 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.01, 639-643, 1998
- 5 C.P.Lin, M. Böhnke: Influences of Methyalcellulose on Corneal Epithelial Wound Healing. Journal of Ocular Pharmacology and Therapeutics, Vol. 15, No. 1, 59-63, 1999
- 6 data on file: Contopharma AG und Laboratorium Dr. G. Bichsel AG, Interlaken

New developments can only be achieved today through networking of existing resources. For the design on the new Universal Comfort solution "simply one", basic findings from cell biology and cornea physiology were transferred to the possibilities in pharmacological manufacture. Thus with the instrument of basic research (cell culture, in-vitro experiments, physical measurements) and user studies, an optimal pre-characterised, compatible and effective solution could be developed.

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External Testing Sites

- Aeschmann Optik, Solothurn
- Eschmann Contactlinsen, Bern
- Häusler Augenoptik, Lyss
- Kläy Kontaktlinsen, Burgdorf
- Probst Optik, Thun
- Wolf Contactlinsen-Studio, München