

Evidence for the inclusion of urea as constituent of emollient products

Urea

Urea is a natural component of the epidermis. Specifically it is part of the skin's own natural moisturising factor essential for maintaining skin hydration and skin health¹. It is an organic compound which has long been used as a skin hydrator and keratolytic to treat dry and scaly skin conditions. Its effect on keratin depends on the concentration of urea in a product. Evidence suggests that 5%-10% concentrations are effective as humectants in emollients. Recent evidence shows that an emollient containing 5% urea enhances skin hydration for longer than those without and that it also enhances skin barrier structure and function³. A study examining the effect of 10% and 20% urea in an emollient base, showed that at both strengths there was increased expression of the gene encoding for filaggrin, suggesting an improved barrier function⁴.

Urea is a well-researched humectant with a number of studies showing evidence of improving skin hydration and barrier function with very few adverse side effects². Its mechanisms of action in topical formulations have been listed as: humectant, keratolytic, stabilizer of intercellular lipids and enhancer of water uptake in the stratum corneum and regulator of genes required for barrier function¹. Evidence for efficacy at both 5% and 10% concentrations can be found for conditions including psoriasis, eczema and ichthyosis vulgaris^{1,2}.



DRY SKIN CONDITIONS

Atopic Eczema

Atopic eczema is described as a disease where skin barrier dysfunction leads to dry and itchy, often inflamed, skin, with frequent skin infections⁵. It is a skin disease in which genetics and environmental factors combine to produce a waxing and waning condition that can resolve and flare periodically. For some, although not all of those with eczema, filaggrin, which is a vital protein for the healthy structure of the skin, is deficient and this causes skin dysfunction⁶.

Psoriasis

Psoriasis is a hyper-proliferative condition characterised by thickened, scaly plaques of skin which may itch. The evidence for the use of emollients for psoriasis is significantly less than for eczema. Nevertheless, a 2008 review indicated that emollients are useful for reducing scale in psoriasis. In addition, when urea is added to an emollient base, epidermal thickening and cell turnover were both reduced⁷. A subsequent review in 2015 showed that in four out of five studies examined, 10% urea products were responsible for improving psoriasis outcomes⁸. Both these reviews suggest that as psoriasis is a hyper-proliferative condition it is likely that urea, particularly at higher concentrations, has an anti-proliferative effect on skin cells, as well as an humectant effect.

Ichthyosis vulgaris

Loss of function mutations in the filaggrin gene are present in individuals with ichthyosis vulgaris⁹. This leads to a defective skin barrier causing transepidermal water loss and hyperkeratosis. As a result of this the individual experiences dry, scaly skin. Whilst there is little direct research about the use of emollients and ichthyosis vulgaris, by understanding the effect of emollients in other dry skin conditions, it is possible to see how it is a vital part of treatment.



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⁴Grether-Beck, S Felsner, I Brenden, H Kohn, Z Majora, M et al Urea uptake enhances barrier function and antimicrobial defense in humans by regulating epidermal gene expression *J Invest Dermatol* 2012 132(6):156-72

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CÔNG TY CỔ PHẦN DƯỢC PHẨM THIÊN VÂN

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NHÃN PHỤ SẢN PHẨM LƯU HÀNH TẠI VIỆT NAM

Tên sản phẩm: Kem bôi ngoài da

Chủng loại/Mã sản phẩm: Dermatronics Dry Skin Balm

Số lưu hành:

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