

Symposium der GD-Fachgruppe Dermokosmetik: Fakten und Trends in der Dermokosmetik

The Biology of Eyelash Growth: Consequences for Dermocosmetic Interventions

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Eyelashes play a fundamental role in protecting the eye from excess UV exposure, dust and allergens. In addition, eyelashes have played a prominent role throughout history in aspects of beauty and sexual attraction.

Cosmetically enhancing the thickness, length and shade of eyelashes is a multimillion dollar business; however, paradoxically, very little is known about the biology of human eyelashes. Understanding the mechanisms by which human eyelashes function is a crucial prerequisite for developing safe, effective and ethically sound eyelash cosmetics. Furthermore, understanding human eyelash biology requires the use of robust and biologically relevant tissue models which closely replicate key biological processes, such as follicular growth, eyelash curl and pigmentation.

Unfortunately, a lack of workable experimental models for assessing human eyelash function has delayed progress in this area of dermatology, leading to significant gaps in scientific knowledge. However, there is potential to develop relevant ex vivo and in vitro models of the human eyelash by taking advantage of surplus tissue following routine surgery and tissue obtained from healthy volunteers, following informed consent.

For example, intact human eyelash follicles can be obtained following routine oculoplastic surgery, and can be used to identify cellular markers involved in key biological processes such as eyelash growth and pigmentation. In addition, in vitro cell culture approaches using follicular epithelial cells, isolated from plucked human eyelashes, can be used to test the effects of cosmetic compounds on cellular proliferation and regeneration processes. Therefore, with a limited number of experimental models, fundamental questions about the biology of human eyelashes may be answered.

