

Session Three

**THE SCIENTIFIC ART OF TOPICAL  
FORMULATIONS**

Dr. Marco Taglietti

9:00 am - 9:20 am  
Saturday, March 24

Topical products are arguably the most complex formulations to deliver a drug to the site of action. A topical formulation should provide a stable chemical environment for compounds that may have different physico-chemical characteristics. Once applied, a topical formulation will interact with the skin environment and it will control the rate of release of the compound(s) into the skin. Moreover, the excipients themselves will provide a physical effect on the skin, such as drying, occluding or moisturizing. Finally, today's patients are looking also for topical products which are cosmetically elegant and easy to apply.

Many of the excipients used in topical formulations have been used for decades if not centuries. However, there have been recent advances with new materials and technologies opening the door for novel, effective and cosmetically elegant topical formulations. This presentation will focus on two new technologies: foams and novel polymers.

Foams are very complex physico-chemical systems constituted by polyhedral or spherical films enveloping gaseous cores. There are many different kind of foams used in dermatology depending on the nature of the compound to be delivered and on the characteristic of the area of the skin that will be treated. Foams have become recently very popular because they are easy to apply with high cosmetical acceptability.

A variety of polymers are now being used for topical formulations because of their versatility to address difficult formulation problems. For example, a polymer of acrylic acid has been used to develop a stable combination of Benzoyl peroxide and clindamycin by providing a microenvironment in which the two compounds are stable.

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In summary, new technologies and materials are allowing the design of novel topical products using a rational approach that takes in consideration physical-chemical characteristics of the compounds and the interactions with the excipients, leading to significant advancements in the treatment of dermatological conditions.