

Zoe Diana Draelos, MD

New Concepts in Skin Care

Dermatology Consulting Services, PLLC

High Point, North Carolina



Zoe Diana Draelos, MD, is a research and clinical board-certified dermatologist and a Fellow of the American Academy of Dermatology. She is in solo private practice in High Point, North Carolina, and a Consulting Professor of Dermatology at Duke University. In 1988, she founded Dermatology Consulting Services, PLLC, to initiate and perform research in aging skin, acne, rosacea, psoriasis, atopic dermatitis, actinic keratoses, eczema, and aesthetic procedures in the cosmetic, OTC drug, and pharmaceutical arenas. Prior to pursuing a medical career, Dr. Draelos completed an undergraduate degree in Mechanical Engineering and was elected a Rhodes Scholar. A member of Sigma Xi research honorary and Alpha Omega Alpha medical honorary, she is author of 14 books including *Cosmetics in Dermatology and Hair Cosmetics* and *Cosmetic Dermatology: Products and Procedures*, as well as the editor of *Cosmeceuticals*, now in its third edition and translated into 7 languages. She has contributed chapters to 42 textbooks, written 90 posters, served as the principle investigator on 750 studies, written 596 published papers, delivered 335 oral presentations, served on or contributed to 38 journal editorial boards, functioned as the editor-in-chief of the *Journal of Cosmetic Dermatology* for 10 years, and was a past member of the Board of Directors of the American Academy of Dermatology and the American Society for Dermatologic Surgery. She was elected Vice-President of the American Academy of Dermatology. She is recognized as a pioneer in cosmetic dermatology and received a lifetime achievement award from Health Beauty America for her research and the 2008 DermArts award for her contributions to dermatology. In 2010, she received the Albert Kligman Innovation Award and in 2016 she was awarded a Presidential Citation from the American Academy of Dermatology for her research contributions to advance the specialty. She received the prestigious Maison deNavarre award from the Society of Cosmetic Chemists for her contributions to the art and science of cosmetics in 2017. In 2019, she was the inaugural recipient of the Florence Wall Award from the Society of Cosmetics Chemists honoring her as the most influential woman in cosmetic science.

Abstract:

Increased understanding of skin physiology has led to many new concepts in skin care. Addressing these physiologic mechanisms allows the development of targeted skin care products. The following concepts will be explored:

1. Natural Moisturizing Factor Construction

The concept of the natural moisturizing factor (NMF) is not new, but the ingredients that comprise the skin's natural moisturizing factor are being rediscovered for their enhanced physiologic effects. Lactic acid and urea are well known skin actives, but it is now understood that these keratolytics allowed enhanced keratin water binding. The enzymes of cellular desquamation require water, thus

restoring water content to dehydrated skin allows the natural exfoliative activities to resume improving skin texture and renewal. It is the breakdown of filaggrin that results in NMF formation, which is defective in individuals with dry skin and atopic dermatitis.

2. Aquaporins and Cellular Osmotic Balance

Aquaporins are highly conserved water channels that are present in all living cells, including the skin. They are responsible for cellular osmotic balance allowing the transport of water, glycerin, and urea. Glycerin has been noted to produce a reservoir effect in the skin with continued modulation of skin moisturization even 48+ hours after application. This effect is due to the ability of glycerin to transport through aquaporin channels modulating cellular differentiation.

3. Autologous Growth Factors

Platelet rich plasma, obtained by centrifuging blood and concentrating the platelets, contains a variety of growth factors. Placing platelet rich plasma into facial moisturizers allows the use of autologous growth factors to be used for facial rejuvenation, representing a truly personalized approach to skin care.

4. Peptide Signaling

Peptides, which are protein fragments, can be used to signal skin physiologic events. Redirecting cellular events may be beneficial to skin, but challenging to maintain.

5. Subcutaneous Tissue Remodeling

The subcutaneous compartment provides the cushion over the bone over which the skin lays. Modulation of the subcutaneous compartment can improve skin appearance without skin modifications. Injectable lipolysis can be used to decrease the presence of subcutaneous fat while deep hyaluronic acid injections can mimic lost subcutaneous tissue restoring a more desirable skin contour.

6. Microbiome Modulation

Much skin disease is related to microbiome abnormalities. These disease conditions include acne, seborrheic dermatitis (dandruff), atopic dermatitis, rosacea, and cutaneous infections. Normalizing the microbiome is a target of both cosmetic and prescription medications.