

# Diet in dermatology

## Part I. Atopic dermatitis, acne, and nonmelanoma skin cancer

Tara Bronsnick, MD, Era Caterina Murzaku, BS, and Babar K. Rao, MD  
*New Brunswick, New Jersey*

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1. Reading of the CME Information (delineated below)
2. Reading of the Source Article
3. Achievement of a 70% or higher on the online Case-based Post Test
4. Completion of the Journal CME Evaluation

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##### Learning Objectives

After completing this learning activity, participants should be able to describe the relationship between diet and the following conditions: acne, psoriasis, and urticaria.

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Patients commonly inquire about dietary modifications as a means to prevent or manage skin disease. Answering these questions is often challenging, given the vast and conflicting evidence that exists on this topic. This 2-part continuing medical education article summarizes the evidence to date to enable physicians to answer patients' questions in an evidence-based manner. Part I includes atopic dermatitis, acne, and nonmelanoma skin cancer. The role of dietary supplementation, dietary exclusion, food allergy, maternal diet, and breastfeeding in the development and/or prevention of atopic dermatitis is summarized. The dermatoendocrinologic mechanism for the effects of glycemic index/glycemic load and milk on acne is described, as well as related clinical evidence for dietary modifications. Finally, evidence and recommendations for restriction or supplementation of dietary factors in the prevention of nonmelanoma skin cancer, including fat, vitamins A, C, D, and E, and selenium, are reported. (J Am Acad Dermatol 2014;71:1039.e1-12.)

**Key words:** acne; atopic dermatitis; basal cell carcinoma; diet; nonmelanoma skin cancer; nutrition; squamous cell carcinoma.

The role of diet in dermatology is a frequent source of patient inquiry and physician uncertainty. In part I of this continuing medical education article, we discuss the effect of diet on atopic dermatitis (AD), acne, and nonmelanoma skin cancer (NMSC).

## ATOPIC DERMATITIS

### Key points

- Prenatal followed by postnatal probiotic supplementation decreases the risk of atopic dermatitis
- Postnatal prebiotic supplementation decreases the risk of atopic dermatitis
- Elimination diets are only appropriate for patients who have a food allergy that has been proven by oral food challenge
- Maternal allergen avoidance diets do not prevent atopic dermatitis
- Exclusive breastfeeding and supplementation with hydrolyzed formula is protective against atopic dermatitis for high-risk infants
- For infants at normal risk, breastfeeding is not protective for atopic dermatitis

Seven recent Cochrane Reviews and numerous guidelines from professional societies have explored the role of diet in AD.<sup>1-10</sup> The literature focuses on dietary supplementation, dietary exclusion, food allergy, maternal diet, and breastfeeding.

### Dietary supplementation

A 2012 Cochrane review analyzed the evidence for dietary supplements as treatments for AD.<sup>1</sup>

#### Abbreviations used:

AD:	atopic dermatitis
AK:	actinic keratosis
BCC:	basal cell carcinoma
BO:	borage oil
EPO:	evening primrose oil
GI:	glycemic index
GL:	glycemic load
NMSC:	nonmelanoma skin cancer
RCT:	randomized controlled trial
SCC:	squamous cell carcinoma
UV:	ultraviolet

Eleven randomized, controlled trials (RCTs) with 596 participants were included in the analysis, which addressed fish oil, zinc sulphate, selenium, vitamin D, vitamin E, pyridoxine, sea buckthorn seed oil, hempseed oil, sunflower oil, and docosahexaenoic acid. The reviewed studies were of poor quality and were too small to provide conclusive evidence for the benefit of dietary supplements in AD.<sup>1</sup>

### Vitamin D

Recent interventional studies investigated the impact of vitamin D supplementation on patients with AD. In 1 RCT, supplementation with 1600 IU daily for 2 months significantly improved Scoring Atopic Dermatitis (SCORAD) and 3-item severity scores compared to placebo.<sup>11</sup> Similarly, in a cross-sectional study, supplementation with 2000 IU daily for 3 months in patients with low serum vitamin D levels significantly improved SCORAD.<sup>12</sup> Conversely, in another RCT, supplementation with

From the Department of Dermatology, Robert Wood Johnson Medical School, Rutgers University, New Brunswick.

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Correspondence to: Tara Bronsnick, MD, Department of Dermatology, Robert Wood Johnson Medical School, Rutgers

University, 1 World's Fair Dr, Ste 2400, Somerset, NJ 08873.  
E-mail: [tarabronsnick@gmail.com](mailto:tarabronsnick@gmail.com)  
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