

Supplement	Potential Use	Mechanism of Action	Potential side effects	Concerns and Cautions
Nicotinamide (also known as niacinamide)	Skin cancer prevention in high-risk patients. A RDBPC trial of nicotinamide 500 mg twice daily for 12 months in high-risk patients (those with at least 2 NMSC in the preceding 5 years) showed 23% relative rate reduction in new NMSC. ³	DNA repair	Well-tolerated in a large number of clinical trials. ³⁸ Lack of medication interactions in 12-month trial. ³	Only studied in a narrow population, specifically those at high risk for NMSC due to prior history of NMSC.
Biotin	To strengthen brittle nails ^{14,39} or to improve hair loss in those with low biotin levels due to hereditary disorders, GI malabsorption, or other. ⁴⁰		Interferes with lab tests, including troponin (used in the diagnosis of MI) and tests for thyroid function. ³¹	Little research to support its use in those with healthy nails, or with hair loss and normal biotin levels. While often marketed as a general “skin, hair, and nail” supplement, has only shown efficacy for narrow indications.
Synbiotics: Combination probiotics with prebiotics	Adults and children over the age of 1 year with AD. ⁴¹	Unclear. In lab and animal studies, certain beneficial microbes may combat pathogenic microbes or improve skin barrier function, but unclear how well ingested microbes are incorporated into gut flora.	Probiotics reported to be well-tolerated in general, but many RCTs lack harms-related data, safety results, and number of serious AEs. ⁴² Need to use caution in the immunosuppressed or those with central lines, due to reports of systemic infections. ^{43,44}	High individual variability in response/ no way to predict responders/ many different types and doses of prebiotics and probiotics used/ no clear answer on which is best/ no consensus on dose and duration/ in individual supplements, viability of live organisms unknown. ⁴⁵
Vitamin D	Multiple potential dermatology applications, but more research needed to differentiate between effects of repleting vitamin D deficiency vs. providing extra.		Well-tolerated at recommended doses, but multiple potential AEs from regular use of high-dose supplements.	Many different potential applications, but many conflicting reports. In AD, while overall vitamin D serum levels appear to have an inverse correlation with AD, weaker evidence links supplementation to AD improvement. ²⁶ Testing and/ or supplementation may possibly be helpful in population subsets: consider in those with very low levels, multiple food allergies, or frequent skin infections. ⁴⁵⁻⁴⁸
Melatonin	Short-term use for AD with sleep disturbance. ⁴⁹	Hormone involved in sleep regulation; may have anti-inflammatory effects.	Trials have reported drowsiness, poor balance in older patients, other AEs. ^{50,51} No AEs noted with 4 weeks of treatment in one RCT in children. ⁴⁹	Serious concerns on long-term use in children, as animal studies have demonstrated profound effects on reproductive systems. ⁵² Has not undergone long-term safety testing in humans.

Table 3: A selection of dermatology supplements for which further research may be indicated, with important considerations.

AD = atopic dermatitis; AE = adverse event; AO = antioxidant; MI = myocardial infarction; NMSC = non-melanoma skin cancer; RCT = randomized controlled trial; RDBPC = randomized, double-blind, placebo-controlled