

Vaping Culture and Cutaneous Health: A Trend with Skin-Deep Consequences

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Introduction

Vaping has emerged as a global trend, particularly among adolescents and young adults, with rising prevalence since the early 2000s. Originally marketed as a smoking cessation tool, e-cigarettes have evolved into widely used consumer products. Although the respiratory and cardiovascular risks of vaping are increasingly understood, its dermatological implications remain underrecognized. Vaping exposes users to a complex mix of chemicals, including nicotine, propylene glycol, vegetable glycerin, heavy metals, and flavoring agents, many of which have pro-inflammatory, cytotoxic, or allergenic properties relevant to skin health.

Methods

A comprehensive literature review was conducted using PubMed, case reports, and peer-reviewed journals to examine vaping's impact on skin health. Search terms included "vaping," "skin health," "electronic cigarette," "wound healing," "nicotine," "hair loss," "acne," and "oxidative stress." Findings were synthesized into thematic narratives supported by relevant citations.

Discussion

Vaping poses significant yet underrecognized risks to skin health. While the systemic harms of e-cigarettes are increasingly acknowledged, their dermatologic impacts remain underreported and are not reflected on product labeling. The aerosolized chemicals in vape product, nicotine, propylene glycol, flavorings, and heavy metals, can affect the skin through both direct contact and systemic absorption, leading to inflammatory reactions, impaired wound healing, pigmentary changes, and premature aging. Despite growing evidence, dermatologic complications are rarely considered in clinical evaluations. Dermatologists are in a key position to identify these effects and should routinely screen for vaping habits, especially in adolescents and young adults. Patient education on the cutaneous consequences of vaping can help mitigate harm and support cessation efforts.

As vaping continues to rise, particularly among youth, targeted dermatology-focused research is essential. Longitudinal studies will help clarify the full scope of skin-related outcomes and inform both clinical practice and public health regulation.

Improved labeling and stronger regulatory oversight are also critical to raise awareness and reduce preventable skin complications.

Objective

To evaluate the current literature on the dermatological consequences of vaping with an emphasis on clinical manifestations on skin, hair, and nails, mechanistic pathways, and implications for dermatologic practice and public health awareness.

Figure 1. Cutaneous Manifestations of Vaping



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Table 1. Acute Manifestations of Vaping

	Condition	Mechanism / Agent	Clinical Notes
Acute	Allergic Contact Dermatitis	Nickel (coil), flavorings, propylene glycol (PG)	Localized to hands, face, neck; reactions can be severe; patch testing may help identify allergen
	Irritant Contact Dermatitis	Direct exposure to e-liquids/aerosol	Often occurs in perioral, perinasal regions; may resolve with avoidance
	Burns and Thermal Injuries	Battery explosions, coil overheating	Injuries can be superficial to full-thickness; may require surgery; often from pants pocket devices
	Perioral/Perinasal Irritation	Repeated vapor exposure, device contact	Redness, dryness, and scaling around lips/nose; seen in chronic users

Table 2. Chronic Manifestations of Vaping

	Condition	Mechanism / Agent	Clinical Notes
Chronic	Premature Skin Aging	Nickel (coil), flavorings, propylene glycol (PG)	Collagen degradation, reduced elastin; similar to traditional smoking effects
	Delayed Wound Healing	Direct exposure to e-liquids/aerosol	Impairs keratinocyte migration and angiogenesis; risk during surgery or procedures
	Acneiform Eruptions	Battery explosions, coil overheating	Part of "acne exposome"; more common in younger users
	Eczema / Psoriasis Flares	Repeated vapor exposure, device contact	Increased frequency/severity of flares; may resist standard treatment
	Chronic Urticaria	Heavy metal (e.g., cadmium) toxicity from vape exposure	Documented case resolved with vaping cessation + chelation
	Pigmentary Changes	Nicotine, inflammation	Hyper- or hypopigmentation; melanocyte dysregulation due to nicotine and ROS

Table 3. Other Manifestations of Vaping

	Condition	Mechanism / Agent	Clinical Notes
Other	Hair Thinning / Hair Loss	Follicle ischemia, inflammation, apoptosis	Androgenetic alopecia and premature graying potentially exacerbated by nicotine exposure
	Nail Changes	Nicotine staining, vascular changes	Yellowing ("nicotine sign"); unclear impact on nail strength or growth
	Oral Lesions (erythema multiforme)	Contact with flavorants, immune activation	Painful erosions, ulcerations on lips/mucosa; linked to mucosal immune response