

## Cosmetic Trichology: Hair Cosmetics, Styling, and their Effect on the Hair Fiber!

It was with great interest that we read the article “Hair styling procedures and hair morphology: A clinico-microscopic comparison study” which is published concomitantly in this issue of the esteemed journal. This comparative, cross-sectional study comes just in the nick of time to address the “grooming boom” that has swept across the globe, enamoring not only the fairer sex, but men alike. And the Indian outfit has kept pace with this boom, especially over the past two decades. To put things into statistical perspective, the combination of heightened aspirations and progressive purchasing power in the subcontinent shall catapult the current 65 thousand-crore rupee cosmetic industry to a staggering 1.5 lakh-crore.<sup>[1]</sup>

Hair has been the subject of pathbreaking research, in terms of etiopathogenetic mechanisms, therapeutic modalities, and futuristic prospects like neogenesis and hair cloning are starting to seem plausible. Unfortunately, most of the research is directed to all factions of the pilosebaceous unit, but for the hair fiber. Gone are the days when cosmetics served the sole purpose of cleansing. And also days when a “healthy head of hair” was simply hair devoid of disease. The definition of healthy hair, over and above being free from thinning and baldness encompasses properties of bounce, volume, luster, smoothness, and freedom from frizz.<sup>[2]</sup> Hair cosmetics<sup>[2,3]</sup> are now expected to serve a multitude of functions—curing dandruff, preventing baldness, restoring vigor, augmenting shine and so on. The fashion scene has changed quite a bit over the years too, and cosmetic trichology has always had the daunting task of keeping up with the ever-changing trends. From perms to waves, from curls to “razor-sharp,” keratin “blow-out” straight; from slicks to the wet look to the “straight-out-of-bed” look, from pompadours to wafes to fades, from braids to hair extensions, from deep conditioners and cysteine-lanthionization to leave-ins and dry shampoos, from coloring to dyeing, from highlights to streaks, from smoothening to straightening to rebonding, cosmetic trichology serves all these purposes and help end-users to stay ahead of the grooming game. Even cosmetic themselves have undergone a makeover of sorts, with sulfate-based ionic shampoos, sulfate-sulfosuccinate free amphoteric shampoos, co-washes, and even hair sunscreens!

All good things come at a price; the flipside being after-effects. To say that these grooming procedures would be devoid of long-term effects on hair fibers would be a

gross understatement, which the said article delineates fairly well. We propose that treated hair fibers, when exposed to environmental stressors, undergo something called the “Weathering-Erosion model,” akin to what rocks go through. The first phase is degeneration of the cuticular structural fatty acid seal: 18-methyl-eicosanoic acid (18-MEA)<sup>[4]</sup> due to chronic mechanic-chemical strain from repeated treatments, which weakens, “weathers,” and separates the layers of the cuticle. The second step occurs with the interplay of the environment, which “erodes” the cuticle, completely eliminating the overlap between the cuticular layers and exposing the hair shaft, especially the outermost layer—the cortex, rendering it extremely prone to damage. A major contributor to this is unregulated heat that the hair fiber is made to withstand, during many hairstyling procedures.

Managing hair fibers hereon is a gargantuan task and would require an extensive review article. Restricting ourselves to the study at hand, it is mentioned that deep conditioners and hair oils did not have a preventive role in hair breakage, as per their opinion. The tool employed by them was simple microscopy, whereas to study the early effects of cuticular damage would require electron microscopy,<sup>[5]</sup> at the very least. A quick literature review also supports our rebuttal and reveals data on the fiber-protective properties of protein-based conditioners and oils,<sup>[3,6,7]</sup> which have proven cuticular restoration, the return of the hydrophobic seal, improved flexibility, and reduction in static electricity on scanning electron microscopy, in early stages.<sup>[8]</sup>

As dermatologists of today, we need to possess an in-depth understanding of esthetic trichology, to be able to gauge, recognize, and prevent the decrescendo of adverse effects which shall follow the crescendo of aggressive marketing and the prevalent cosmetic craze.

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### References

1. Assocham India [Internet]. Assocham.org. 2019. Available from: <https://www.assochem.org/newsdetail.php?id=5792>. [Last cited

on 2019 Nov 21].

2. Madnani M, Khan K. Hair cosmetics. *Indian J Dermatol Venereol Leprol* 2013;79:654-67.
3. Gavazzoni Dias MF. Hair cosmetics: An overview. *Int J Trichol* 2015;7:2-15.
4. Sinclair RD. Healthy hair: What is it? *J Investig Dermatol Symp Proc* 2007;12:2-5.
5. Kim YD, Jeon SY, Ji JH, Lee WS. Development of a classification system for extrinsic hair damage: Standard grading of electron microscopic findings of damaged hairs. *Am J Dermatopathol* 2010;32:432-8.
6. Shetty VH, Shetty NJ, Nair DG. Chemical hair relaxers have adverse effects a myth or reality. *Int J Trichology* 2013;5:26-8.
7. Keis K, Huemmer CL, Kamath YK. Effect of oil films on moisture vapor absorption on human hair. *J Cosmet Sci* 2007;58:135-45.
8. Robbins CR, Crawford RJ. Cuticle damage and the tensile properties of human hair. *J Soc Cosmet Chem* 1991;42:59-67.

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