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A novel cosmetic approach to treat thinning hair.

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Abstract

BACKGROUND: Many of today's treatments associated with 'thinning hair', such as female pattern hair loss and telogen effluvium, are focused on two of the key aspects of the condition. Over-the-counter or prescription medications are often focused on improving scalp hair density while high-quality cosmetic products work to prevent further hair damage and minimize mid-fibre breakage. Fibre diameter is another key contributor to thinning hair, but it is less often the focus of medical or cosmetic treatments.

OBJECTIVES: To examine the ability of a novel leave-on technology combination [caffeine, niacinamide, panthenol, dimethicone and an acrylate polymer (CNPDA)] to affect the diameter and behaviour of individual terminal scalp hair fibres as a new approach to counteract decreasing fibre diameters.

METHODS: Testing methodology included fibre diameter measures via laser scan micrometer, assessment of fibre mechanical and behavioural properties via tensile break stress and torsion pendulum testing, and mechanistic studies including cryoscanning electron microscopy and autoradiographic analysis.

RESULTS: CNPDA significantly increased the diameter of individual, existing terminal scalp hair fibres by 2-5 μm , which yields an increase in the cross-sectional area of approximately 10%. Beyond the diameter increase, the CNPDA-thickened fibres demonstrated the altered mechanical properties characteristic of thicker fibres: increased suppleness/pliability (decreased shear modulus) and better ability to withstand force without breaking (increased break stress).

CONCLUSIONS: Although cosmetic treatments will not reverse the condition, this new approach may help to mitigate the effects of thinning hair.

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