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## Adenosine increases anagen hair growth and thick hairs in Japanese women with female pattern hair loss: a pilot, double-blind, randomized, placebo-controlled trial.

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### Abstract

Adenosine upregulates the expression of vascular endothelial growth factor and fibroblast growth factor-7 in cultured dermal papilla cells. It has been shown that, in Japanese men, adenosine improves androgenetic alopecia due to the thickening of thin hair due to hair follicle miniaturization. To investigate the efficacy and safety of adenosine treatment to improve hair loss in women, 30 Japanese women with female pattern hair loss were recruited for this double-blind, randomized, placebo-controlled study. Volunteers used either 0.75% adenosine lotion or a placebo lotion topically twice daily for 12 months. Efficacy was evaluated by dermatologists and by investigators and in phototrichograms. As a result, adenosine was significantly superior to the placebo according to assessments by dermatologists and investigators and by self-assessments. Adenosine significantly increased the anagen hair growth rate and the thick hair rate. No side-effects were encountered during the trial. Adenosine improved hair loss in Japanese women by stimulating hair growth and by thickening hair shafts. Adenosine is useful for treating female pattern hair loss in women as well as androgenetic alopecia in men.

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