

# Topical use of estradiol may stimulate collagen production in aging skin

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Applying the hormone estradiol to skin protected from the sun appears to stimulate production of the protein collagen in older men and women, according to a report in the September issue of *Archives of Dermatology*, one of the *JAMA/Archives* journals. However, it may not have the same effect on sun-exposed skin, such as the face or arms.

As skin ages, its function is reduced, it becomes more fragile and wound healing is compromised, according to background information in the article. On areas of the body that are typically not covered by clothing, long-term exposure to the sun's ultraviolet rays causes skin to look prematurely old, a process known as photo-aging. Natural aging and photo-aging share biochemical features, including a reduction in collagen, the major protein that forms the structure of skin's inner layer.

Laure Rittié, Ph.D., and colleagues at the University of Michigan Medical School, Ann Arbor, recruited 70 healthy volunteers (40 postmenopausal women and 30 men, average age 75 years) with photodamaged skin. For two weeks, volunteers were treated with estradiol three times every other day both on sun-protected areas near the hip and photodamaged skin on the forearm; a 4-millimeter biopsy (tissue sample) was taken from each treatment area 24 hours after the last treatment. Participants also applied estradiol, incorporated into moisturizing cream, to their faces twice per day during the two weeks. A 2-millimeter biopsy was taken from the crow's-foot area near the eye before and 24 hours after the last treatment.

After the two-week treatment period, applying estradiol to the sun-protected hip skin increased levels of collagen and other compounds that promote its production in the women and, to a lesser extent, in the men. "Surprisingly, no significant changes in production were observed in women or men after two-week estradiol treatment of photo-aged forearm or face skin, despite similar expression of estrogen receptors [protein molecules to which estrogen binds] in aged and photo-aged skin," the authors write.

Source: JAMA and Archives Journals

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