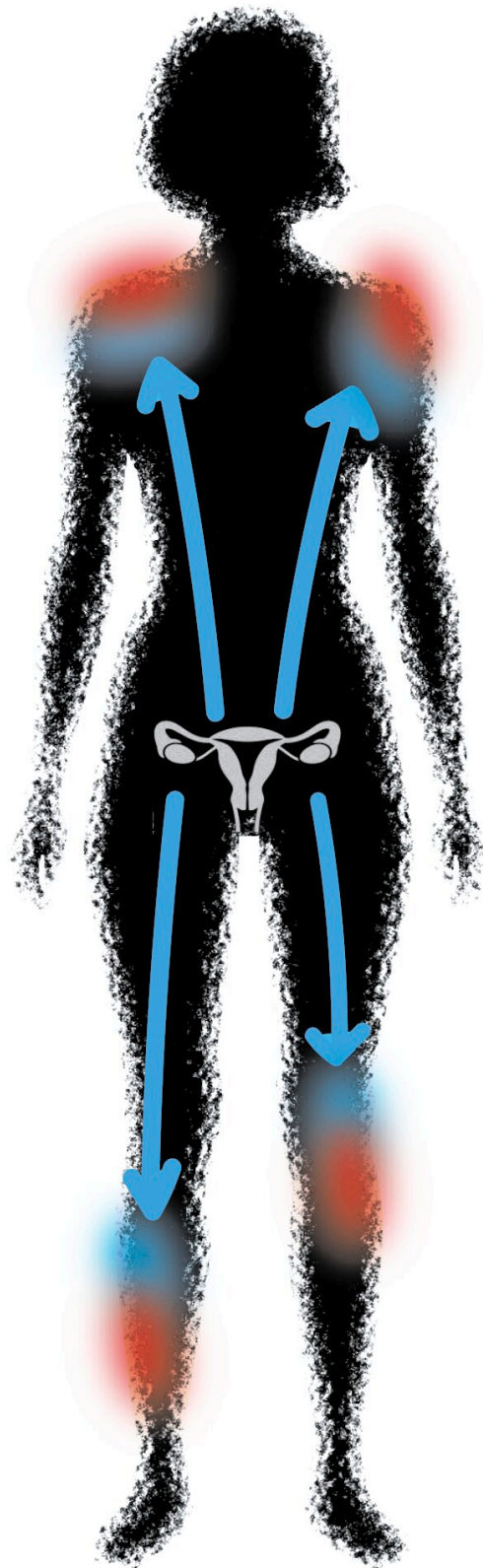


Females found to itch less than males

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Skin inflammation was found in the absence of ovarian estradiol in mice. Credit: KyotoU/Global Comms

Among the many reasons men may have for envying women, at least when it comes to skin inflammation, is that women have a significantly lower incidence of severe psoriasis. However, the underlying reason for the sex differences had been unclear.

Now, a team of researchers has found that the female hormone estradiol suppresses psoriasis, and the protective role of the hormone has provided a basis for its therapeutic potential.

"Our results have not only revealed the molecular mechanisms of [sex differences](#) in psoriasis but also shed new light on our understanding of the physiological role of estradiol," says Hamamatsu University School of Medicine's Tetsuya Honda, formerly of Kyoto University.

The team tested conditional knockout mice, or cko mice, with ovaries removed but supplemented with estradiol pellets or a placebo. In contrast to wild-type mice, the cko mice without the natural ovarian hormones estradiol showed symptoms of severe [skin inflammation](#).

Once these mice were given estradiol, the production of IL-17A and IL-1 β cytokines in neutrophil and macrophage [immune cells](#) was reversed, reducing the inflammation. This effect was also observed in human neutrophils in vitro.

What intrigued the researchers was how the lack of estrogen receptors in immune cells made estradiol ineffective against the cytokines.

"These results indicate that estradiol suppresses psoriatic inflammation by regulating neutrophil and macrophage cells," concludes the author.

The paper, "Estradiol suppresses psoriatic inflammation in mice by regulating [neutrophil](#) and macrophage functions," appeared on 4 May 2022 in the *Journal of Allergy and Clinical Immunology*.

More information: Akimasa Adachi et al, Estradiol suppresses psoriatic inflammation in mice by regulating neutrophil and macrophage functions, *Journal of Allergy and Clinical Immunology* (2022). [DOI: 10.1016/j.jaci.2022.03.028](#)

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