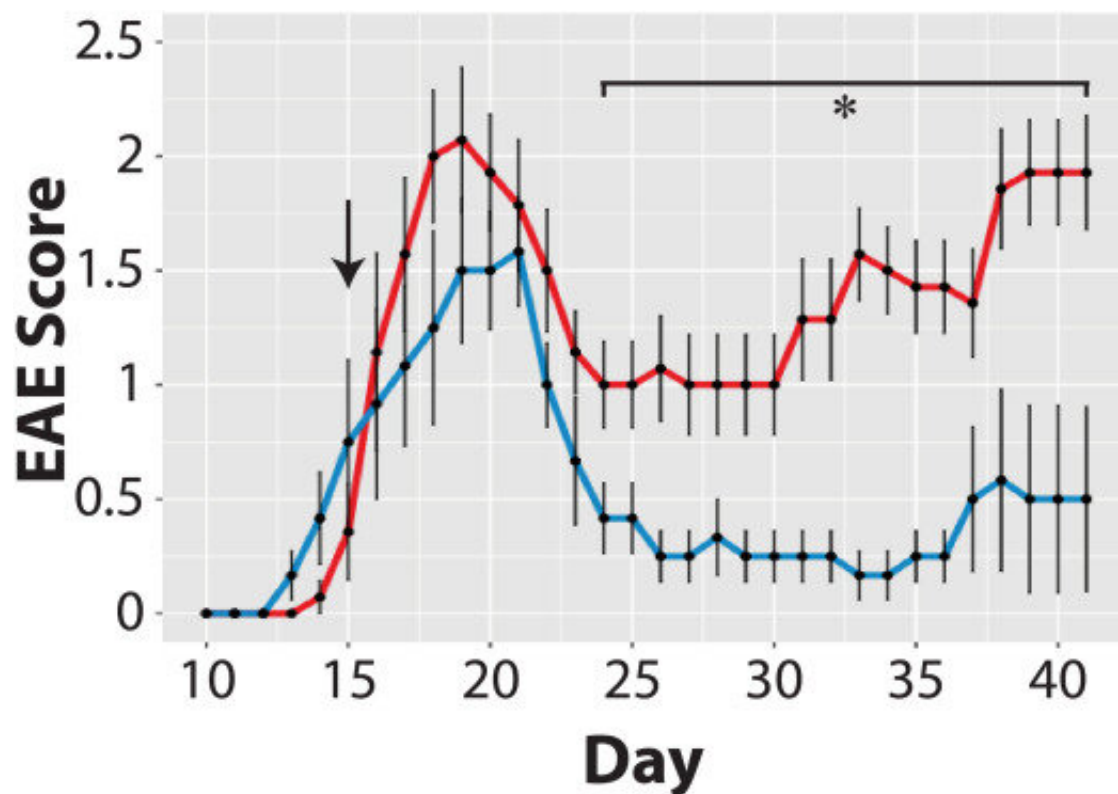


Pregnancy hormone repairs myelin damage in MS mouse model

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Therapeutic estriol treatment reduces clinical scores. Estriol (blue; n = 7) or placebo pellets (red; n = 6) were implanted in each animal at first sign of disease. The average day of onset was 15 days after disease induction (arrow). Estriol-treated mice demonstrated significantly reduced experimental autoimmune encephalomyelitis (EAE) severity compared to placebo-treated mice 23 days after disease induction. The ameliorative effect continued through 45 days after disease induction when the animals were sacrificed. A one-way ANOVA indicated a significant effect of estriol treatment ($F(1,62) = 22.85$, $p = 0.000011$). The asterisk indicates a significant difference (p Laboratory Investigation (2023). DOI: 10.1016/j.labinv.2023.100189

Treating a mouse model of multiple sclerosis with the pregnancy hormone estriol reversed the breakdown of myelin in the brain's cortex, a key region affected in multiple sclerosis, according to a new UCLA Health study published in *Laboratory Investigation*.

In multiple sclerosis, inflammation spurs the [immune system](#) to strip away the protective myelin coating around nerve fibers in the brain's cortex, hampering [electrical signals](#) sent and received by the brain. Atrophy of the cortex in MS patients is associated with permanent worsening of disability, such as [cognitive decline](#), [visual impairment](#), weakness and sensory loss.

No currently available treatments for MS can repair damage to myelin. Instead, these treatments target inflammation to reduce symptom flare-ups and new nerve tissue scarring. Previous UCLA-led research had found that estriol, a type of estrogen hormone produced in pregnancy, reduced brain atrophy and improved cognitive function in MS patients.

In the new study, researchers treated a mouse model of MS with estriol and found that it prevented brain atrophy and induced remyelination in the cortex, indicating that the treatment can repair damage caused by MS, rather than just slow the destruction of myelin.

This is the first study to identify a treatment that could repair myelin in the cortex, undoing some of the damage caused by MS.

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More information: Cassandra E. Meyer et al, Neuroprotection in cerebral cortex induced by the pregnancy hormone estriol, *Laboratory Investigation* (2023). [DOI: 10.1016/j.labinv.2023.100189](https://doi.org/10.1016/j.labinv.2023.100189)

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