

Short-term Estrogen Treatments Improve Memory

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Speaking about mood swings, hot flashes and memory loss in a room full of women likely will lead to a discussion about menopause and the effects of estrogen replacement therapy to curb these conditions. If Jill Daniel happens to be in that room, she'll probably share the details of her recent research that shows exposure to estrogen replacement during menopause can have an improving effect on at least one of these symptoms ? memory loss.



Short-term estrogen therapy during menopause may have a lasting effect on memory, according to research performed by a Tulane psychologist and neuroscientist. (Photo by Jose Luis Pelaez Inc/Blend Images/Associated Press)

[Daniel](#), associate professor of psychology and neuroscience, explains that estrogen has been shown to impact the hippocampus area of the brain, which is important to learning and memory. The decrease in estrogen production in postmenopausal women compelled Daniel to compare the implications of short-term estrogen therapy versus long-term.

She established three experimental groups using ovariectomized rats. One group received estrogen for 40 days to mimic short-term therapy used by women during the menopausal transition. A second group received a continual stream of estrogen

to imitate women who continue treatment into old age, and the third group received no estrogen. Memory was tested using a radial maze, and in every trial, the rats that received only a short-term dose of the hormone tested similarly to those under continued exposure.

Although Daniel's lab results indicate that short-term exposure to estrogen treatments improved memory and increased levels of important proteins in the brain long after the exposure was terminated, she says that actual hormone therapy in women can be different from what she tested in the rats.

She says, however, "If estrogen is good for brain areas important for cognition, we want to know the implications when women lose their primary source of estrogen in middle age. We want to understand how different estrogen treatments impact the brain as women age."

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