

Vascular problems associated with symptoms of menopause and quality of life measures

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A new study shows that more frequent and severe menopausal symptoms such as hot flashes, sleep disturbance, loss of sexual interest, weight gain and other quality of life measures, were associated with markers of vascular aging, according to researchers at the University of Colorado Anschutz Medical Campus.

The researchers, however, found no association between these vascular markers and symptoms of depression. The study was published online today in *Menopause*, the Journal of the North American Menopause Society.

"The menopausal transition is a vulnerable time for [women](#) in terms of vascular health," said the study's lead author Kerry Hildreth, MD, assistant professor in the Division of Geriatric Medicine at the University of Colorado School of Medicine. "Many women also experience menopausal symptoms that can negatively affect their quality of life and can contribute to depression, which is an established risk factor for cardiovascular disease. We investigated whether these [symptom](#) and mood aspects of [menopause](#) were associated with markers of vascular aging."

Hildreth and her colleagues studied 138 healthy women grouped according to the stage of menopause. They found that arteries were stiffer, and the endothelium, the layer of cells that line the blood vessels, was progressively less healthy across the stages of menopause. Menopausal symptoms and depression symptoms were greatest, and

quality of life was lowest, in the late-perimenopausal and early postmenopausal stages. Importantly, more severe menopausal symptoms and lower quality of life were associated with worse vascular function.

"To our knowledge this was the first study to examine the association of mood, menopausal symptoms, and quality of life measures with these key markers of vascular aging in a well-characterized population of women spanning the stages of menopausal transition," the study said.

Women entering menopause experience profound hormonal changes coinciding with adverse changes in cardiovascular disease risk factors like high blood pressure, weight gain and insulin resistance, the study said. This may help explain the acceleration of vascular aging during the menopause transition.

Although the majority of women do not experience depression during the [menopause transition](#), the risk is two to three times higher than in premenopausal women. One hypothesis is that the brain has to adapt to the irregular fluctuations in estrogen, a potent neurosteroid, during perimenopause, and eventually to a new, lower baseline level after menopause. This may explain why depressive symptoms returned to lower levels in the late postmenopausal women.

But while the researchers did not find an association between depression and vascular dysfunction across the stages of menopause, they did find an association with common [menopausal symptoms](#). These include vasomotor symptoms, such as [hot flashes](#), palpitations and headaches, and general symptoms, such as sleeplessness, poor appetite, constipation, [weight gain](#), and poor concentration.

The reasons behind these changes are unclear but loss of estrogen could play a key role.

"Estrogen modulates the synthesis and uptake of serotonin which has neuromodulatory, thermoregulatory, and cardiovascular actions," the study said. "Fluctuating and declining levels of estrogen with the menopausal transition may alter serotonin activity."

Another culprit could be oxidative stress. Estrogen is a potent antioxidant and higher levels of oxidative stress are seen in estrogen-deficient, post-menopausal women compared to premenopausal women, according to the study. Hot flashes are also associated with higher [oxidative stress](#).

Hildreth said the next step is studying the mechanisms underlying these associations between vascular aging and symptoms of menopause.

"A better understanding of these aspects of the menopausal transition will be important for developing effective lifestyle and therapeutic interventions to promote psychosocial well-being and cardiovascular health in women," Hildreth said.

Provided by CU Anschutz Medical Campus

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