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Stress may switch on bone 'mets'

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Stress stimulates the formation of blood vessels in bone and may help breast cancer cells to invade this organ.

In the July issue of the *Journal of Bone and Mineral Research*, Florent Elefteriou, Ph.D., Julie A. Sterling, Ph.D., and colleagues describe a mechanism for skeletal colonization by breast cancer cells that could lead to new ways to stop or prevent it.

In a mouse model, they show that mimicking an increase in sympathetic nerve activity triggers a skeletal neo-angiogenic switch dependent on increased levels of vascular endothelial growth factor (VEGF), leading to increased bone blood vessel density and higher incidence of breast cancer metastasis to the skeleton.

These results could explain the link between chronic stress and higher breast cancer recurrence, reduced survival and poor prognosis in women diagnosed with breast cancer.

They may also contribute to the discovery of new strategies to improve treatment outcomes, especially for women subjected to chronic stress, the researchers concluded.

More information: Patrick L Mulcrone et al. Skeletal Colonization by Breast Cancer Cells Is Stimulated by an Osteoblast and β2AR-Dependent Neo-Angiogenic Switch, *Journal of Bone and Mineral Research* (2017). DOI: 10.1002/jbmr.3133

Provided by Vanderbilt University

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