

MS bone loss may be caused by brain inflammation, not lack of weight-bearing activity alone

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(Medical Xpress) -- Multiple sclerosis (MS) appears to be associated with loss of bone mineral density, but that loss may not be due to lack of weight-bearing activity, the usual cause of osteoporosis.

Instead, results of a new study from the University at Buffalo conducted with MS patients who were completely ambulatory showed that 40 percent had osteopenia or osteoporosis, indicating that the inflammatory milieu that is linked to the cause and progression of MS may also directly impair bone density.

The results were presented at the 2011 American Academy of Neurology meeting held in April in Honolulu, Hawaii. Bianca Weinstock-Guttman, PhD, UB professor of neurology, is senior author on the study.

Sonia Batista, a neurology resident from Coimbra University Hospital, Coimbra, Portugal, who worked with Weinstock-Guttman, is first author.

"From previous work, including ours, it is well known that MS patients (men and women) have more severe bone reabsorption and less bone formation, resulting in osteoporosis, compared to healthy age-matched individuals," says Weinstock-Guttman.

"Although the decreased mobility and use of steroids usually represent

the most significant factors associated with osteoporosis, additional factors appear to affect the bone homeostasis in [chronic inflammatory diseases](#), including MS."

The researchers conducted a case-control study of 58 MS patients enrolled consecutively at Baird MS Clinic at Jacobs Neurological Institute at Buffalo General Hospital. All participants were younger than 50 years old, and had an EDSS disability score equal to or less than 4.5.

(The EDSS score is an average number derived from measures of various functions of the [central nervous system](#), based on a scale from 0 to 10, the most severe.)

All participants also had a bone density test within one year of their neuropsychological testing.

Patients were divided into cognitively impaired (27) and cognitively intact (31) groups.

The average age was 43; 76 percent were women, and 86 percent were diagnosed with relapsing-remitting MS, the most prevalent form of the disease.

The results from assessing disability with [bone mineral density](#) (BMD) were unexpected.

"Surprisingly, these study findings suggested that cognitive impairment is independently associated with reduced BMD in MS patients," says Weinstock-Guttman. "This finding is particularly relevant considering that the study population includes only fully ambulatory patients.

"Clearly, factors other than the loss of weight-bearing activities are contributing to bone mass reduction in MS patients. These data imply

that the associated MS-related inflammatory and degenerative processes may directly impair, not only the CNS with secondary cognitive dysfunction, but also bone homeostasis."

"Our study results are raising awareness of the high risks of [bone](#) loss in MS patients, even if they are fully ambulatory," says Weinstock-Guttman. "Physicians -- primary care, gynecologists and especially neurologists taking care of MS patients -- should prescribe DEXA scan studies, in addition to recommending supplementation with calcium and vitamin D in all [MS patients](#) over 40, especially if they have also cognitive concerns."

Provided by University at Buffalo

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