

**National Institute of Arthritis and Musculoskeletal and Skin Diseases:**  
**Use of Antidepressant Medications Linked with Osteoporosis Risk**

*Selective serotonin reuptake inhibitors (SSRIs), a commonly-prescribed class of antidepressants, have been associated with bone loss in women and reduced bone mineral density in men.*

**Lead Agency:**

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)/National Institutes of Health (NIH)

**Agency Mission:**

The mission of the National Institute of Arthritis and Musculoskeletal and Skin Diseases is to support research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases, the training of basic and clinical scientists to carry out this research, and the dissemination of information on research progress in these diseases.

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**Partner Agency:**

National Institute on Aging (NIA)

**General Description:**

**Use of Antidepressant Medication Linked with Increased Risk for Osteoporosis**

In 2004 the *Surgeon General's Report on Bone Health and Osteoporosis* pointed to the need to identify secondary causes of osteoporosis in order to prevent fractures in the elderly. A number of diseases, conditions and treatments have consequences on bone that can be successfully mitigated if recognized. Depression was mentioned as a possible condition associated with lower bone mass and an increased risk of osteoporosis and fractures, although the mechanism is not completely understood. Now, recent papers from two large cohort studies, the Osteoporotic Fractures in Men (Mr. OS) Study and the Study of Osteoporotic Fractures (SOF), point to the deleterious effect on bone of

selective serotonin re-uptake inhibitors (SSRIs), a very common treatment for depression, in both older men and women.

The SSRIs account for over 60 percent of the prescriptions for depression particularly in the elderly since they have a better safety profile for cardiovascular disease. This could lead to a high exposure in a population vulnerable to bone loss and osteoporosis. Results of Mr. OS and SOF indicate that use of SSRIs is associated with reductions in bone mineral density among men and an increased rate of bone loss at the hip in women. Because bone loss is common among older people, with the most severe loss generally seen among post-menopausal women, the finding that SSRIs may be a significant contributing factor to osteoporosis could have major public health implications.

***Excellence:*** What makes this project exceptional?

The finding that a common treatment for depression may contribute to or accelerate bone loss in this already vulnerable population has potentially major clinical implications.

***Significance:*** How is this research relevant to older persons, populations and/or an aging society?

Depression is common and 8.5 percent of Americans use anti-depressive medication. The SSRIs account for over 60 percent of the prescriptions for depression, particularly in the elderly, since they have a better safety profile for cardiovascular disease. At the same time, some 10 million Americans currently have osteoporosis and 34 million more have low bone mass, placing them at increased risk for this disease.

***Effectiveness:*** What is the impact and/or application of this research to older persons?

These provocative findings, if confirmed, could lead to major changes in the way depression is managed in middle aged and older individuals. For example, even if treatment with SSRIs appears to be clinically appropriate in a given case, measures to forestall bone loss may also be indicated. However, further research is needed to confirm these findings and to determine the best interventions to ameliorate depressive symptoms without compromising bone health among older Americans.

***Innovativeness:*** Why is this research exciting or newsworthy?

A common treatment for depression may have unexpected and harmful side effects on bone. If the association between SSRI use and bone loss is confirmed through additional studies, this research could lead to major changes in the standard of care for depression in older people.