
RSNA Press Release

Belly Fat Puts Women at Risk for Osteoporosis

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At A Glance

- Excess visceral fat, located deep in the abdomen, may increase a woman's risk of osteoporosis.
- Approximately 72 million Americans are considered obese.
- Approximately 10 million Americans have osteoporosis, and 18 million more are at risk.

CHICAGO — For years, it was believed that obese women were at lower risk for developing osteoporosis, and that excess body fat actually protected against bone loss. However, a study presented today at the annual meeting of the Radiological Society of North America (RSNA) found that having too much internal abdominal fat may, in fact, have a damaging effect on bone health.

"We know that obesity is a major public health problem," said the study's lead author, Miriam A. Bredella, M.D., a radiologist at Massachusetts General Hospital and assistant professor of radiology at Harvard Medical School in Boston. "Now we know that abdominal obesity needs to be included as a risk factor for osteoporosis and bone loss."

According to the Centers for Disease Control and Prevention (CDC), approximately 72 million American adults are considered obese. The CDC defines obesity as having a body mass index (BMI) of 30 or more. Obesity is associated with many health problems including cardiovascular diseases, diabetes, high cholesterol, asthma, sleep apnea and joint diseases. Yet despite all the health issues, it was commonly accepted that women with increased body weight were at lower risk for bone loss.

But not all body fat is the same. Subcutaneous fat lies just below the skin, and visceral or intra-abdominal fat is located deep under the muscle tissue in the abdominal cavity. Genetics, diet and exercise are all contributors to the level of visceral fat that is stored in the body. Excess visceral fat is considered particularly dangerous, because in previous studies it has been associated with increased risk for heart disease.

Dr. Bredella and colleagues set out to evaluate the abdominal subcutaneous, visceral and total fat, as well as bone marrow fat and bone mineral density, in 50 premenopausal women with a mean BMI of 30. Each woman underwent an MR spectroscopy exam to evaluate the bone marrow fat of the L4, the fourth vertebra in the lumbar section of the spine. Then, the

bone mineral density of the L4 was assessed using quantitative computed tomography (QCT), which measures bone mass and is used to assess bone loss.

The imaging revealed that women with more visceral fat had increased bone marrow fat and decreased bone mineral density. However, there was no significant correlation between either subcutaneous fat or total fat and bone marrow fat or bone mineral density.

"Our results showed that having a lot of belly fat is more detrimental to bone health than having more superficial fat or fat around the hips," Dr. Bredella said.

According to the National Women's Health Information Center, 10 million Americans have osteoporosis and 18 million more have low bone mass, placing them at risk for the disease.

"It is important for the public to be aware that excess belly fat is a risk factor for bone loss, as well as heart disease and diabetes," Dr. Bredella said.

While bone loss is more common in women, the research team is currently conducting a study to determine whether belly fat is also a risk factor for bone loss in men.

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