

## **BONE MINERAL DENSITY (BMD) AND FRACTURE RISK ASSESSMENT TOOL**

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### **ABSTRACT**

A bone mineral density (BMD) test is used to measure bone density of minerals such as calcium, determine fracture risk for osteoporosis, and monitor the effectiveness of treatments for osteoporosis. A BMD test can be performed using a special X-ray, computed tomography (CT) scan, or ultrasound. BMD results are generally scored by two measures, the T-score and the Z-score. The World Health Organization uses T-scores to define normal bone mass, low bone mass (or osteopenia), and osteoporosis. The T-score compares a person's bone density to the average bone density of young healthy adults of the same gender. A Z-score compares his bone density to the average values for a person of his age and gender. A low Z-score (below  $-2.0$ ) is a warning sign that he has less bone mass (and/or may be losing bone more rapidly) than expected for someone his age.

The Bone Mineral Density and Fracture Risk Assessment Tool is an online system that aims to empower physicians with treatment management tools for effective interpretation of osteoporosis risk factors based on Kanis' Method, Black's Method, and the Canadian Osteoporotic Society Method. The risk assessment tool incorporates not only bone density, but other, important risk factors, including age, body mass index, smoking habit, corticosteroid usage, and other factors. It also classifies patients as either normal, osteopenic, or osteoporotic.

**Keywords:** Bone Mineral Density (BMD), osteoporosis, Kanis' Method, Black's Method, Canadian Osteoporotic Society Method, fracture risk assessment