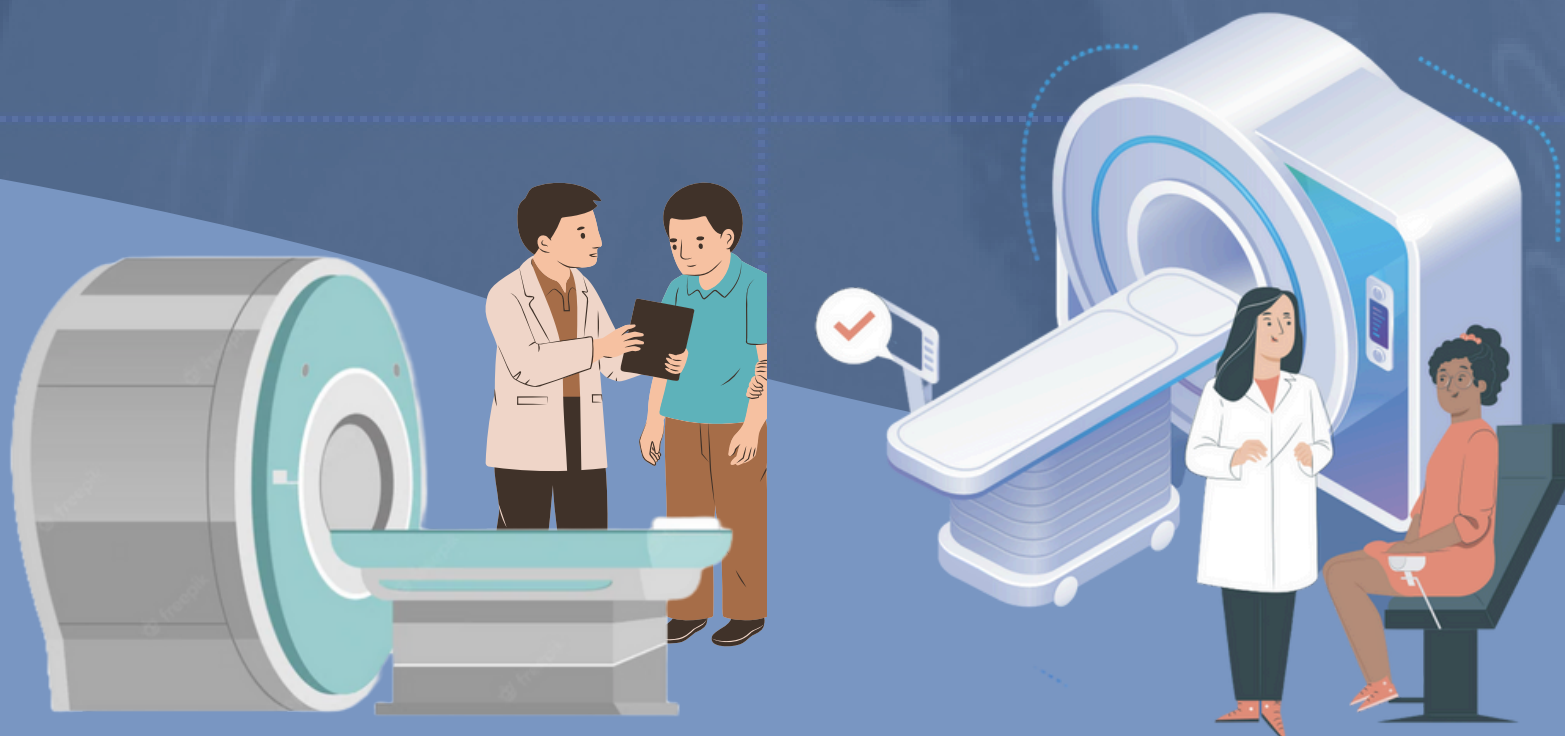# Crown Valley
IMAGING

Bone Density Report
Created by FDA Approved AI-Powered AutoBMD™

Approved by Radiologist

Male Report

Your Bone Mineral Density (BMD) Report

Patient Name: Doe, Jack
ID: 9008
Date of Exam: 2/16/2023
Date of Birth: 1/1/1953
Gender: Male

Your
Clinic's
Logo
Here

AutoBMD ™
Powered by HeartLung Technologies
To learn more visit
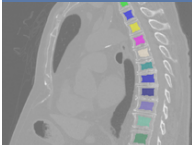**www.HeartLung.ai**

Hounsfield Unit (HU)

A quantitive scale for describing radiodensity.

Vertebra1	114.6
Vertebra2	100.1
Vertebra3	102.7
Mean HU	105.8

BMD (mg/cc)

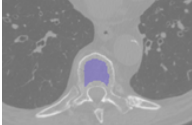|	
Mean BMD	106
Z-score	-2
T-score	-3.2

Sagittal (side view)
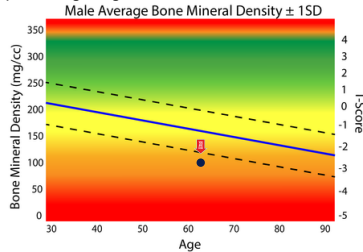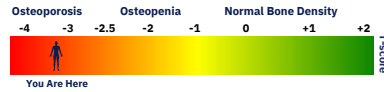
Coronal (front view)

Axial (cross sectional view)

Your Z-score: -2.0

Z-score compares your bone density to average values for a person of your same age and gender.

Male Average Bone Mineral Density ± 1SD

Your T-score: -3.2

T-score is your bone density compared with what is normally expected in a healthy adult of your sex. *Your T-Score of -3.2 indicates you likely have osteoporosis (severe bone loss).*

Osteoporosis		Osteopenia			Normal Bone Density		
-4	-3	-2.5	-2	-1	0	+1	+2

You Are Here

Recommendations

All patients should ensure an adequate intake of dietary calcium and vitamin D. The National Osteopororis Foundation recommends adults under age 50 need 1,000 mg of calcium and 400-800 IU of vitamin D daily. Adults 50 and over need 1,200 mg of calcium and 800-1,000 IU of vitamin D daily. **Based on your BMD results, you have osteoporosis and should seek follow up care with your physician.**

Follow up

People with diagnosed cases of osteoporosis or at high risk for fracture should have regular BMD tests. For patients eligible for Medicare, routine testing is allowed once every 2 years. For more information visit www.AutoBMD.ai.

Electronically signed by: Thomas Atlas, MD   1

Female Report

Your Bone Mineral Density (BMD) Report

Patient Name: Doe, Jane
ID: 9008
Date of Exam: 2/16/2023
Date of Birth: 1/1/1953
Gender: Female

Your
Clinic's
Logo
Here

AutoBMD ™
Powered by HeartLung Technologies
To learn more visit
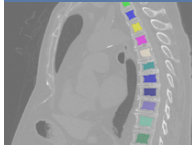**www.HeartLung.ai**

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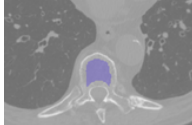|	
Mean BMD	106
Z-score	-2
T-score	-3.2

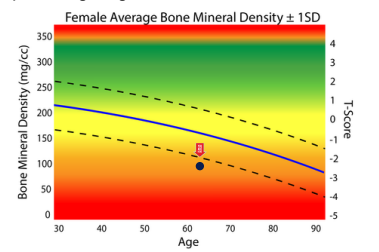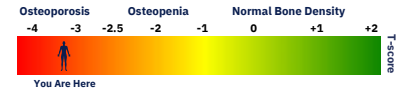### Sagittal (side view)

Coronal (front view)

Axial (cross sectional view)

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Female Average Bone Mineral Density ± 1SD

Your T-score: -3.2

T-score is your bone density compared with what is normally expected in a healthy adult of your sex. *Your T-Score of -3.2 indicates you likely have osteoporosis (severe bone loss).*

Osteoporosis		Osteopenia			Normal Bone Density		
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Electronically signed by: Thomas Atlas, MD   1

How This Report Is Created

This report is created using HeartLung's FDA approved AI- powered cloud based AutoBMD™ that helps doctors quickly identify patients who are having an accelerated bone loss and are at risk of cracks, compressions, or fracture in their spinal bones and other parts of the skeletal body but are unaware of their serious condition.

This AI-powered tool automatically extracts valuable information about bone health from any CT scan of a patient's chest or abdomen, done for any reason. Therefore, it saves patients extra radiation and extra screening cost.

FDA
U.S. FOOD & DRUG
ADMINISTRATION

USPTO No. 9,119,590 - Issued September 1, 2015
USPTO No. 10, 695,022 - Issued June 30, 2020
FDA510K approval K213760

FDA has labeled AutoBMD™ an Opportunistic AI-powered tool that enables: (1) retrospective assessment of bone density from CT scans acquired for other purposes, (2) assessment of bone density in conjunction with another medically appropriate procedure involving CT scans and (3) assessment of bone density without a phantom as an independent measurement procedure.

Did You Know...

Nearly 43 Million Americans

don't know about their severe bone loss and hidden spinal fracture while suffering from body pain?

Are You Among Them?

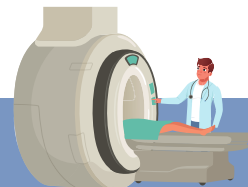# What Is Low Bone Density & How Is It Detected?

Low Bone Density

is a condition that causes bone mineral density to decline, increasing risk of fractures.

How It's Detected

Bone density is usually measured using a DEXA scan or quantitative CT scan (QCT)

DEXA Scan   **CT Scan**

AutoBMD™ uses QCT but does not require a new scan. It takes advantage of existing CT scans.

CT has at least three unique advantages: 1) ability to clearly separate cortical and trabecular bone; 2) offer "real" volumetric density in units of mg/cc; 3) high-resolution three-dimensional images of bone morphometry. Notably, compared to the cortical bone, trabecular bone loses quickly and responds first to medical therapies.
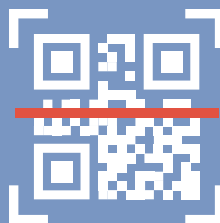
Our Approach Is Opportunistic Bone Mineral Density
It is superior to DEXA and regular QCT scans
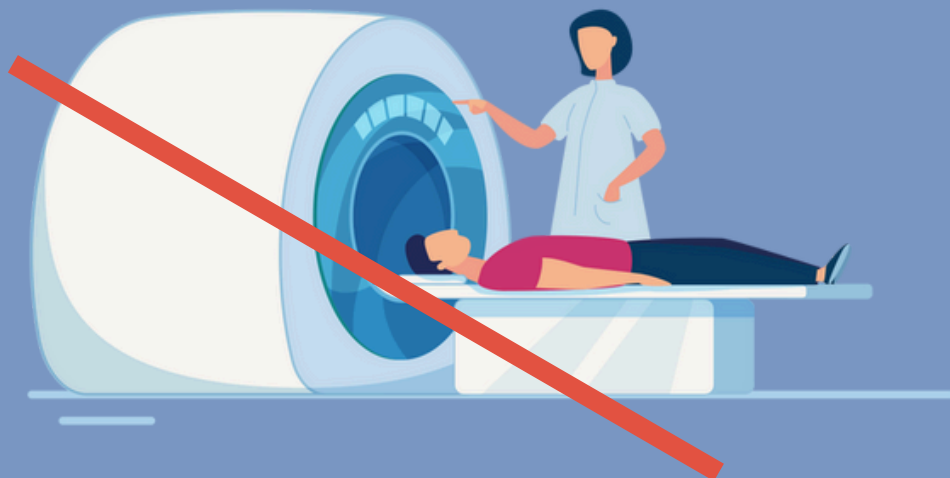
No Extra Scan

No Extra Radiation

No Extra Trip To Radiology Clinic

AutoBMD™ enables your doctor to take advantage of CT scans ordered for other purposes and measure your bone density.
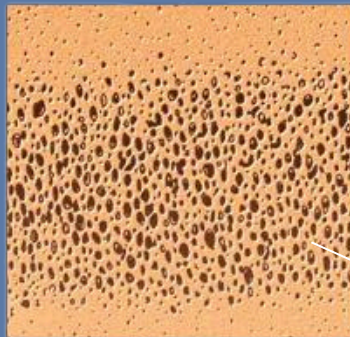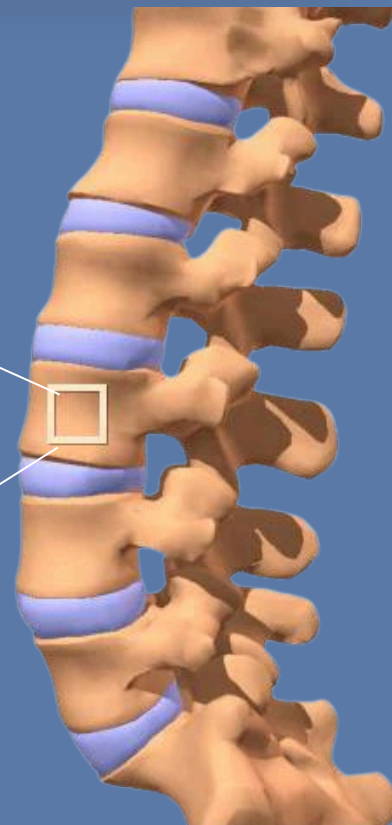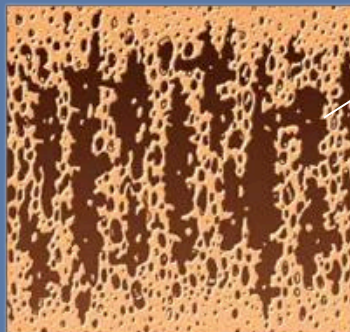
What Is Osteoporosis?

Osteoporosis

occurs when the bone mass is reduced secondary to microarchitectural changes in bone tissue, leading to enhanced bone fragility and a consequent increased risk of fracture. Osteoporosis is a major public health concern for our elderly population. One out of every two women and one in four men over age 50 will break a bone in their lifetime due to osteoporosis

Compression Fracture
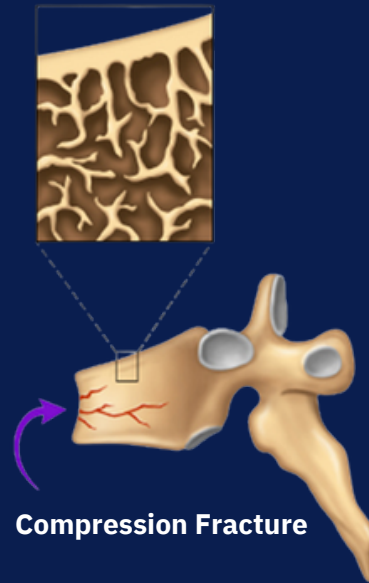
Normal

Osteoporotic (Severe bone loss)

Osteoporosis is Increasingly Being Recognized As A Public Health Concern in The Aging Population

Osteoporosis occurs when the bone mass is reduced secondary to microarchitectural changes in bone tissue, leading to enhanced bone fragility and a consequent increased risk of fracture. BMD measurement is a direct method of estimating human bone mass and predicting future fracture risk.
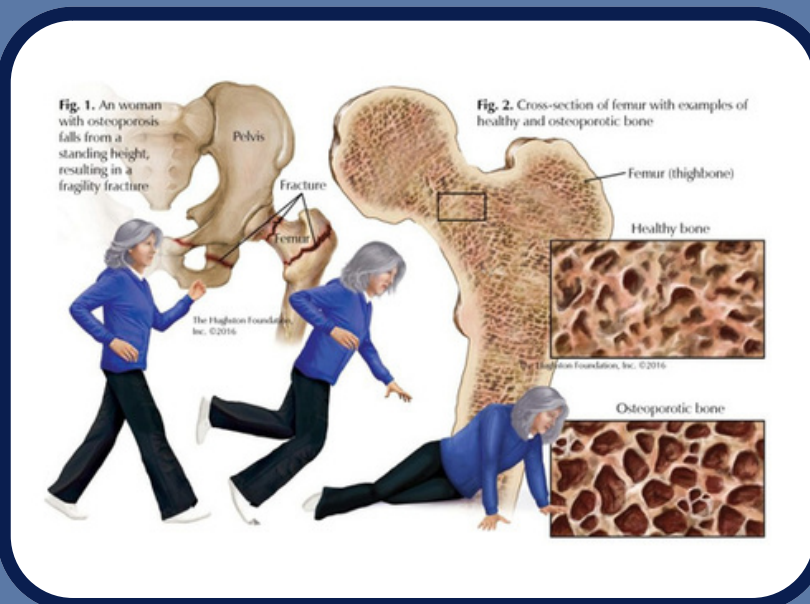
The Global Burden of Osteoporosis

Low Bone Density and Related Fractures in 204 Countries and Territories, 1990-2019

Total Number: 5,790,146 Low BMD related fractures

In 2019, the five countries with the highest disease burden of DALYs number in Low Bone Mineral Density (LBMD)-related fractures were:

India (2,510,288)
China (1,839,375)
USA (819,445)
Japan (323,094)
Germany (297,944)

Accounting for 25.59%, 18.75%, **8.35%,** 3.29%, and 3.04%.

Results: Global deaths and disability-adjusted life-years (DALYs) attributable to Low BMD increased from 207,367 and 8,588,936 in 1990 to 437,884 and 16,647,466 in 2019, **a raise of 111.16% and 93.82%, respectively.**

Number of DALYs in the population vs Age Group (Male, Female)

Age groups: 40 to 44, 45 to 49, 50 to 54, 55 to 59, 60 to 64, 65 to 69, 70 to 74, 75 to 79, 80 to 84, 85 to 89, 90 to 94
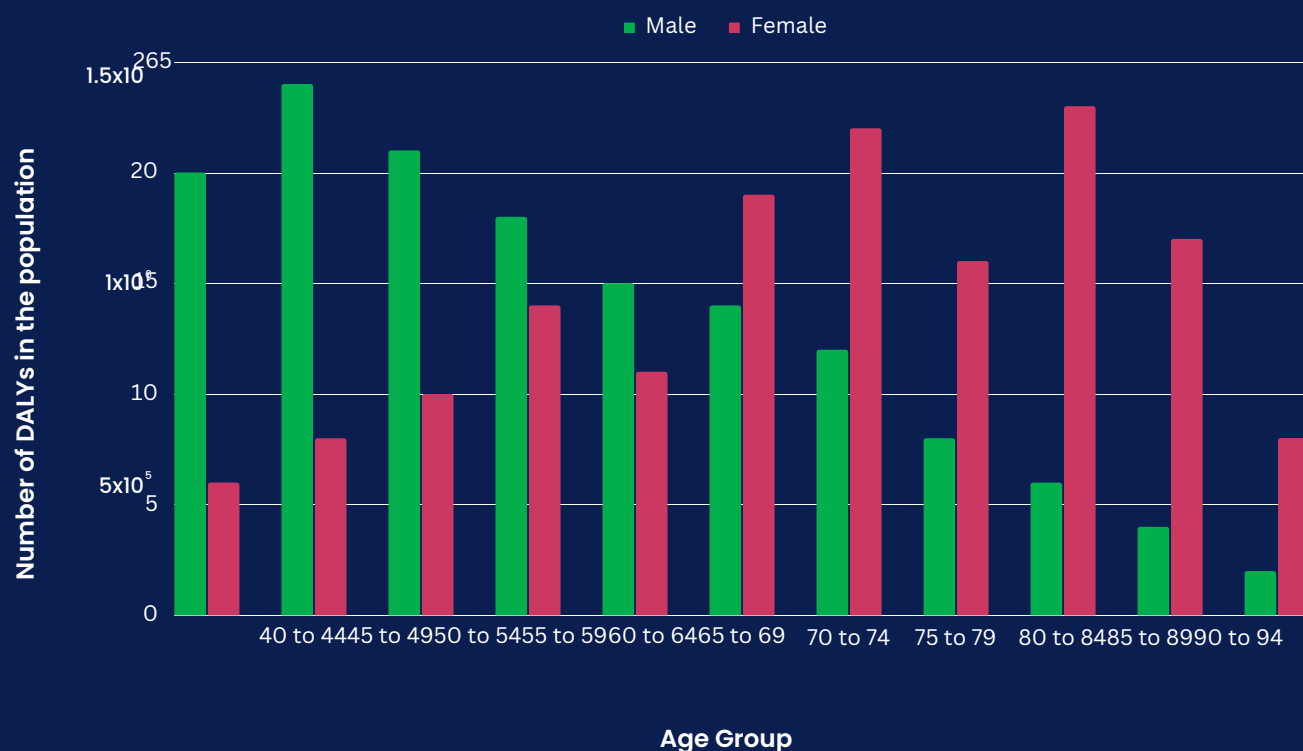
Here's A Deeper Look

AutoBMD™ software is an opportunistic tool that automatically reports BMD with Z-score and T-score, and accurately detects osteoporosis and osteopenia in CAC scans.

Male BMD Distribution Normal Range
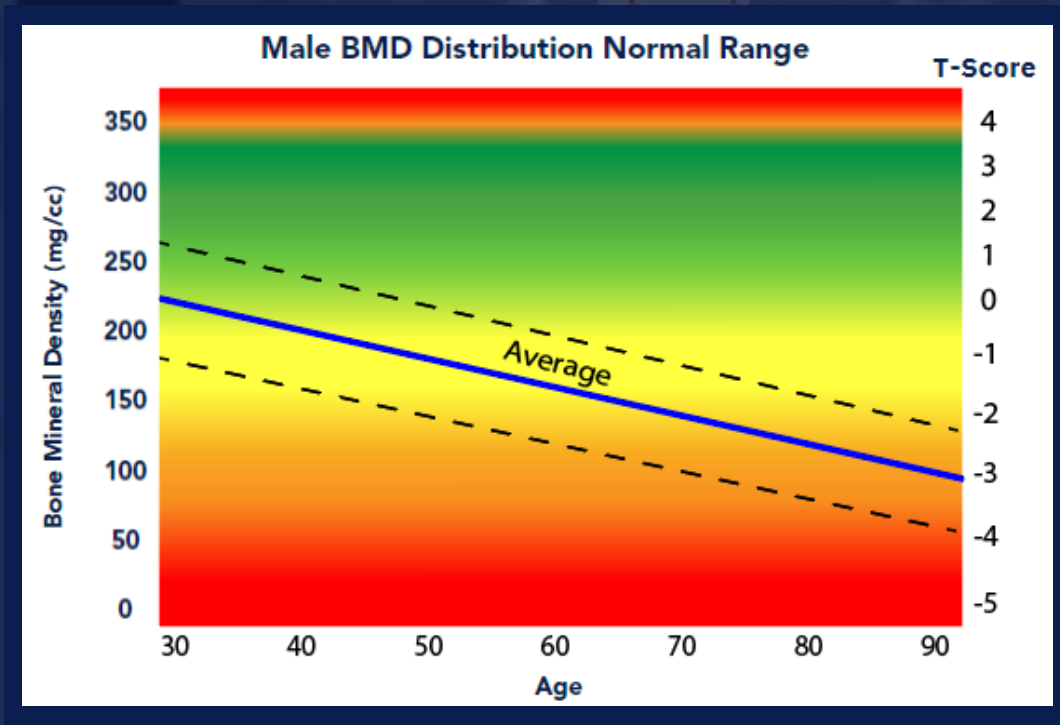
Osteoporosis			Osteopenia			Normal Bone Density	
-4	-3	-2.5	-2	-1	0	+1	+2

T-Score   T-Score

You Are Here

According to World Health Organization guidelines*, your T-Score of -3.9 indicates you likely have osteoporosis (severe bone loss).

Your T-Score -3.0 Your Z-Score -1.2

What is Z-Score & T-Score?

BMD

is the amount of minerals (mostly calcium and phosphorous) contained in a certain volume of bone.

Z-Score

is your bone density compared to a healthy person of the same age and gender. This represents how far off your score is (measured in the number of standard deviations) from the average score of healthy people of similar age.

Z-scores of – 2.0 or lower are classified as low BMD for chronological age and those above – 2.0 classified as within the expected range.

Male BMD Distribution Normal Range

Average

Bone Mineral Density (mg/cc) — Age
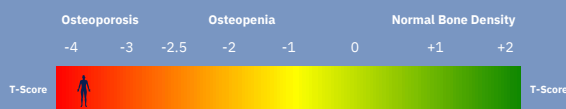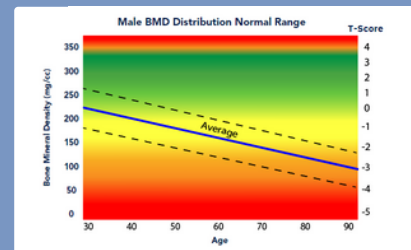
T-Score

T-score

is your bone density compared with what is normally expected in a healthy young adult of your sex. People with normal bone density have a T-score between +1 and -1.

Osteoporosis			Osteopenia			Normal Bone Density	
-4	-3	-2.5	-2	-1	0	+1	+2

T-Score ———————————————————— T-Score

Recommendations
Pharmaceutical

All patients should ensure an adequate intake of dietary calcium and vitamin D. The NOF recommends adults under age 50 need 1,000 mg of calcium and 400-800 IU of vitamin D daily. Adults 50 and over need 1,200 mg of calcium and 800-1,000 IU of vitamin D daily. Effective therapies for the prevention of osteoporosis include bisphosphonates (Fosamax and Actonel) and Evista. Hormone therapy may be an option based on review of risks and benefits of treatment. You have osteoporosis and should seek follow up care with your physician.

List of Osteoporosis Treatments
- Bisphosphonates
- Calcitonin
- Estrogen agonist/antagonist
- Estrogen and hormone therapy
- Parathyroid hormone (PTH) analong and parathyroid hormone related-protein (PTHrP) analog
- RANK ligand (RANKL) inhibitor
- Sclerostin inhibitor

Recommendations
Lifestyle

If you have osteoporosis, it's essential that you follow an alkaline diet, get regular exercise, and take high-quality multivitamin/mineral. For extra support, there are a few key nutrients that are especially important for treating osteoporosis naturally, as well as preventing it.

Natural Supplements for Treatments
- Calcium - fermented milk products provide calcium along with lactic acid
- Vitamin D - direct sunlight is one of the best sources
- Strontium - a trace mineral generally found along with calcium in foods
- X-Factor - this nutrient helps bones to absorb all the helpful dietary vitamins and minerals

Natural Treatments for Osteoporosis
- Nutrition - important part of eating healthy, balanced, diet
- Lifestyle Changes - important for optimizing bone health
- Exercise - strength or resistance training is recommended

Exercise

The BHOF strongly endorses physical activity at all ages, both for fracture prevention and overall fitness. In childhood and adolescence, consistent weight-bearing and high-impact activities contribute to acquisition of optimal peak bone mass. Weight-bearing exercises (in which bones and muscles work against gravity with feet and legs bearing body weight) include walking, jogging, tai chi, stair climbing, dancing, and tennis. Muscle-strengthening exercises include weight training and resistive exercises, such as yoga, Pilates, and boot camp calisthenics.

Follow-up

People with diagnosed cases of osteoporosis or at high risk for fracture should have regular bone mineral density tests. For patients eligible for Medicare, routine testing is allowed once every 2 years. The testing frequency can be increased to one year for patients who have rapidly progressing disease, those who are receiving or discontinuing medical therapy to restore bone mass, or have additional risk factors.