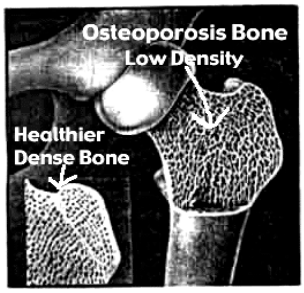
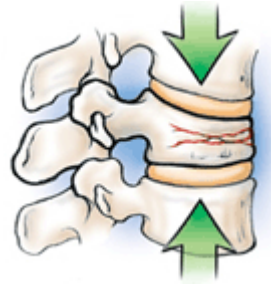
OSTEOPOROSIS

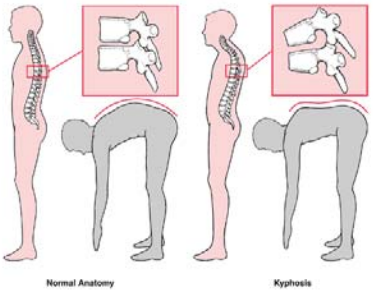
Definition: A condition characterized by decrease of bone mass with decreased density and enlargement of bone spaces producing porosity and fragility.1,6

Pathophysiology: Osteoporosis develops when bone that is being lost is not replaced in equal measure by new bone formation, and has been thought to result from a decrease in bone production activity. Several factors attribute to this condition including: diet, changes in gonads/adrenal glands and inactivity. Usually discovered in the elderly person, after lifting or bending, develops a sudden pain the lower back that is accompanied by a snap/crack. The vertebral bodies (spine bone) often appear biconcave because of widening or ballooning of the disk spaces. Deformation of multiple vertebrae may lead to kyphosis(round back), loss of height, and stoop shoulder appearance of the elderly.(see illustrations below)1,4,5



Osteoporosis


Compression Fracture of Spine



Normal (left) and Kyphotic (right) posture

Affected People/Population: When osteoporosis affects older patients, it is termed Senile osteoporosis. Women of small stature, especially white women with less than average bone mass are more prone to osteoporosis. Women are 4 times more common to have osteoporosis than men until age of 80 years old.1,4,5,8

Medications: Increase in dietary calcium is given to ensure a positive calcium balance. Supplementary vitamin D is taken to enhance calcium absorption in the gut.1,3

Surgery: Support of the back by using high corsets with metal stays and shoulder strap may relieve pain and prevent further compression fracture on the spine. Fractures of the vertebrae and other bones should be treated as indicated in a case to case basis.1,4,8

Physical Therapy: Restoration of bone structure can be hasten by physical exercises to the limit compatible with the patients general health. Exercises such as stationary bicycle, walking, swimming and pool therapy are helpful in restoring/maintaining bone mass. In cases of vertebral(spinal) fractures, maintaining the normal functioning of the joints and muscles of the limbs by exercises is important. Standing and walking is taught to the patient in a step by step progression of exercises. Such examples of those exercises are: Sitting balance/tolerance, ambulation inside parallel bars, ambulation with walker or cane and many others.1,2,4,7,8,

References:

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4. Rehabilitation Medicine by De Lisa and Ganz 3rd Ed.
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