

## A STUDY OF BONE MINERAL DENSITY OF JALNA URBAN PEOPLE



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### INTRODUCTION:-

Calcium is an essential component in bone health and helps to ensure that the body absorbs calcium, which is critical for building strong, healthy bones. Most people are familiar with calcium role in bone health. Unfortunately, research show that over 70% of women ages 51 to 70 and nearly 90% of women over 70 are not getting an adequate intake of calcium from food and supplements. Low level of vitamin D are associated with reduced calcium absorption, bone loss and increased risk of fracture.<sup>1</sup> Without sufficient calcium bones can become thin and brittle and its sufficiency prevents rickets in children and osteomalacia in adults. Calcium and vitamin D also protects older adults from osteoporosis. Calcium deficiency causes osteopenia, osteoporosis, causes the painful bone disease osteomalacia and increase muscles weakness and risk of fractures.

Osteoporosis derived from the Latin word meaning "porous bone". It is due to a decline in estrogen level after menopause. Osteoporosis is a disease characterized by low bone mass and loss of bone tissue/density is primarily found in middle age and elderly women. Its major symptom is an increased risk for fractured bones and also weak and fragile bone in the hip, spine and wrist.

### Scope of the Study :

According to WHO the prevalence of osteoporosis among U.S, women post menopause is estimated to be 14% in age of 50-59 yrs, 22% in those aged 60-69 yrs, 39% in those aged 70-79 yrs, 70% in age 80 yrs, and older. A study to access the incidence of osteoporosis fracture was conducted among women admitted to the hospital by NIN (98-99). It was observed that over 55% of women above the age 40 yrs has osteoporosis fractures, which confirms the problems of early on set of osteoporosis particular among low socio-economic group.<sup>4</sup> People in India are increasingly suffering from osteoporosis due to vitamin D and calcium deficiency as well as a poor diet. High steroid intake also has a negative effect on osteoporosis risk. Up to 12 million Indians have osteoporosis and some of them are only 20.5 Insufficient intake of calcium and vitamin D during childhood are believed to be the root causes. A full 25 million Indian women likely suffer from the condition of

number of fractures among knee and women over the age of 45 is on the increase.<sup>6</sup>

The situation of osteoporosis in our country is alarming, one out of 8 men and 3 out of 3 women in India are suffering from osteoporosis and majority of them are unaware of it. Studies from a camp on Bone mineral density in Jalna city to observe the osteoporosis of men and women. Women above 45 years enter into the phase of menopause that leads to silent physical change including osteoporosis and genitor-urinary problems, which are preventable to some extent.

### Objective of Study :

1) To establish peak bone mineral density reference value for women and men in Jalna city. 2) To access the prevalence of osteopenia and osteoporosis in Jalna city.

### Research Methodology :

Study sample are taken from a camp arranged on bone mineral density. The samples are 105 randomly selected from Jalna Urban people. Osteoporosis, a major public health problem is associated with substantial morbidity and socio-economic burden. It is a condition that can be prevented and treated if diagnosed early and accurately. Measuring bone density is the most important tool in the diagnosis of osteoporosis. The bone mineral density (BMD) values measured by the Hologic DEXA machine are based on Caucasian data.

The Average bone mineral density is calculated by formula

$$\frac{BMC}{W} \text{ (g/cm}^2\text{)}$$

where, BMC = bone mineral content  
W = width of the scanned line.

The estimation was done by 'T' score & 'Z' score.

### Result & Discussion :

Osteoporosis is becoming increasingly common situation in India. Age related changes vitamin D and calcium metabolism increase the risk of vitamin D insufficiency.

Irrespective of age group everyone showed deficiency of vitamin D and calcium. 52.38% person exhibited osteopenia among them 21.9% male & 30.47% female.

**Table No. 1 : Observed value of Osteoporosis & their age group ('T' score)**

Below 40 yrs.		41 to 50 yrs.		51 to 60 yrs.		61 to 70 yrs.		Above 70 yrs.	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
12	24	9	30	8	16	5	8	2	0

**Table No. 2 : Respondents of Bone Mineral Density 'T' Score test**

NORMAL (-1.0 or higher)		OSTEOPENIA (less than -1.0 & greater than -2.5)		OSTEOPOROSIS (-2.5 or lower)	
Male	Female	Male	Female	Male	Female
3	16	23	32	10	21
2.85%	15.23%	21.90%	30.47%	9.52%	20.0%

29.5% observation revealed osteoporosis among which 9.52% male and 20% female. While normal values percentage is very less i.e. 18.09% of which 2.85% are male and 15.23% normal female.

From all these study it is very clear that female are more vulnerable than male for osteopenia and osteoporosis. There were about 36 respondents of (34.28%) belong to age group of 40. But only 19 respondents have showed

(18.09%) normal Values. Other than these 86 respondents have osteopenia and osteoporosis consisting of age group 41 to 70 yrs.

**Conclusion :**

The high prevalence of osteoporosis, calcium insufficiency in the Urban group of Jalna city was observed. Measures such as adequate calcium intake and vitamin D supplementation in men and women for all the age group is highly recommended based on the study.

**REFERENCE**

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