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<b>Thesis Title</b>	<b>Assessment of Bone Mineral Density in Female Patients with Joint Hypermobility Syndrome</b>			
<b>Year</b>	<b>2013</b>			
<b>Abstract</b>	<p>Joint hypermobility syndrome (JHS) is a relatively common, but largely unrecognized rheumatologic condition mainly characterized by joint hypermobility and related musculoskeletal, dysautonomic and gastrointestinal features. JHS is considered a benign syndrome because it has a better prognosis than other inherited HDCT. It is even considered a form frustre of the other types of HDCT and it is also more frequent in the population than the other types.</p> <p>The aim of this study was to investigate the relationship between JHS and bone mineral density in pre-menopausal women and to determine the effects of body mass index and body surface area on bone mineral density.</p> <p>In this study 85 premenopausal female patients with hypermobility diagnosed by Beighton score, at least 4 out of 9 points applied for diagnosis with 85 matched age, age of menarche, parity, body mass index female subjects as a control with Beighton score zero. The patients were selected from premenopausal women with regular menstrual periods, or those who had stopped using hormone replacement therapy or oral contraceptives in the 3 months prior to screening, followed by a regular menstruation pattern. Any patients with other systemic diseases or with drugs effecting bone metabolism were excluded from the study. Measurement of bone mineral density (BMD) with DEXA and daily calibration with a phantom daily check was done. Patients and controls enrolled in this study and had low BMD (osteopenia or osteoporosis) by DXA (dual energy x-ray absorptiometry ) were investigated for other causes of osteoporosis.</p> <p>At the present study, the bone mineral density measurement by Z-score of lumbar spine and both femurs of hypermobility patients showed higher percentage of osteopenia and osteoporosis than controls, it was recorded (50.6% versus 25.9%) when at least two regions of measurements according to Z-score showed low BMD and considered as normal if one area was affected with a statistical significant difference (P-value 0.0016) with relative risk for low BMD</p>			

by (1.95) times (95% confidence interval 1.28- 2.96). Also at the present study there was a statistical significant difference of BMD of both femurs in hypermobility patients with discordance between hips in (34.11%) of hypermobility patients.

This study showed that BMD not correlated with severity of hypermobility assessed by Beighton score. Also additional tests for hypermobility were found not correlated with BMD.

In our study we did not find a significant statistical association between body mass index (BMI) and BMD but we found a higher percentage of low BMD in hypermobility patients with underweight or normal BMI. The patients divided into two groups, first group with BMI<25 showed low BMD in 14 out of 24(58.33%) while second group with BMI ≥25 showed low BMD in 29 out of 61(47.55%). These findings support that there is a weak positive correlation between high BMI and BMD in hypermobility patients.

This study showed that patients with normal BMD was much higher in large body surface area (LBSA) (85.72%) than small body surface area SBSA(4.76%) while low BMD found in LBSA(60.47%) and SBSA (30.23%).

This study supports that patients with JHS have low BMD and even reaches osteoporotic values but with lesser tendency to osteoporosis and this low density may be one of musculoskeletal manifestations of JHS.