Estrogen deficiency is a well-recognized risk factor for osteoporosis. Young women with Turner syndrome are at an increased risk and may have greater health implications due to their long remaining life. We investigated the effects of continuous estrogen therapy on bone mineral density (BMD) in young Turner syndrome (TS) patients by measuring lumbar spine BMD of 67 TS patients using dual-energy X-ray absorptiometry. Twenty-seven patients who were treated with adult-doses of estrogen prior to the first evaluation exhibited a significantly higher initial BMD than 30 patients treated with low-dose estrogen therapy and 10 patients without estrogen therapy (0.808 g/cm², 0.714 g/cm², and 0.664 g/cm², respectively). During continuous adult-dose estrogen therapy, BMD significantly increased in each group (maximum BMD during the study, 0.842 g/cm², 0.790 g/cm², and 0.724 g/cm², respectively). Initial and maximum BMD showed significant negative correlation with the age at which adult dose estrogen therapy was initiated (r = -0.57 and -0.45, respectively). Among the patients not treated with adult-dose estrogen therapy prior to the first evaluation, the annual increase in the rate and amount of BMD was significantly higher when adult-dose estrogen therapy was initiated before age 18 (rate, 4.4 % before age 18 vs. 3.1 % after age 18; amount, 0.03 g/cm² before age 18 vs. 0.02 g/cm² after age 18). In summary, estrogen therapy increased BMD in young TS patients and might be more effective if initiated by age 18.