Abstract: Objective: To study daily intake of calcium, phosphorus and vitamin D, to determine the biochemical findings of rickets and the effect of sunlight exposure and vitamin D supplementation in school girls with hypovitaminosis D.

Methods: A cross-sectional study was conducted on school girls aged 11-15 years selected randomly from various areas of Tehran, Iran. Dietary information and amount of sunlight exposure were estimated by a 7 day recalling method using self-reported questionnaire. Hypovitaminosis D defined as low serum 25-hydroxyvitamin D concentration with two or more others abnormal biochemical findings. Girls with hypovitaminoses D were randomly divided into two groups. The faces and hands of girls in group 1 were exposed to sunlight for one hour per day for twenty days, while those in group 2 were administered vitamin D capsules, 50,000 IU per day for the same period.

Results: Four-hundred fourteen girls evaluated, mean daily calcium intake, sunlight exposure and vitamin D acquirement were 360 mg, 10 minutes and 119 IU, respectively. Mean serum 25-hydroxyvitamin D concentration was 30 ng/ml among all girls whereas in 15 (3.63%) of 414 girls was 7.8 ng/ml. Abnormal biochemical findings in these girls included hypocalcemia (n=4), hypophosphatemia (n=5), raised serum alkaline phosphatase (n=13), and parathyroid hormone (n=15). After intervention, mean serum 25-hydroxyvitamin D concentration in sunlight exposure (n=8) and vitamin D (n=7) supplementation increased to 14.4±4 ng/ml and 23±4 ng/ml respectively. There was a significant difference between the two groups (p<0.05).

Conclusion: Vitamin D deficiency developed in rapid growth period of girls without clear clinical rickets in sunny temperate climate city in Iran which vitamin D supplementation improved biochemical findings better than sunlight exposure. J. Med. Invest. 53:204-208, August, 2006

Keywords: 25-hydroxyvitamin D, intake, calcium, sun exposure