

## **ABSTRACT**

In recent years vitamin D is at the forefront of scientific research because of its huge impact on human health. Vitamin D plays pivotal roles in metabolism of bones by regulation of their mineralization and building. Dysfunction or deficiency of vitamin D can lead to occurrence of many diseases like osteoporosis, rickets and osteomalacia. In the archeological studies of my bachelor's essay I have mentioned that deficiency of vitamin D was also found in last human population. There is no difference in present. In March in 2010 was published 59 % of people are affected by deficiency of vitamin D and 25 % from them are affected by acute deficiency of vitamin D (Gilsanz *et al.*, 2010). Deficiency of vitamin D is typically for people who don't expose for the Sun and eat poor food for vitamin D, for women after menopause and for people afflicted with failure of kidney, liver, intestine absorption and hyperparathyroidism. Deficiency of vitamin D is the most critical for children because of disrupting their growing of cartilages, bones and teeth. Bones begin soft, fragile and usually are deformed by weight of body. Disease with these symptoms is known like rickets. In adults deficiency of vitamin D can cause bad accumulation of calcium in bones and so bones are demineralized, thin, soft and easy to deform. Disease with these symptoms is known like osteomalacia. What is the world health problem is osteoporosis also caused by vitamin D deficiency. Osteoporosis is disease characterized by loosing of bone mass under safe level. Bones begin thinner and easier to break.

Goal of my bachelor's essay has been to create a review about metabolism of vitamin D, its functions and its importance during the beginning of bone diseases. In the first section of my essay I describe main steps which vitamin D must undergo for reaching its active form. These steps take place at organs which play key roles for right function of vitamin D. The dysfunctions of these organs can be reason for development of bone diseases how I describe in the second section of my essay. In the last section of my essay I describe several bone diseases in relation to their possible treatment and their occurrence in last human population.

**Keywords:** vitamin D, osteoporosis, rickets, osteomalacia