Introduction
Nowadays the deficiency of vitamin D is a generally recognized public health problem in the world. Today the role of vitamin D in the body has been significantly revised, it not only regulates mineral metabolism, but also has a wide range of extra-skeletal action. It has been proved that the effect of vitamin D largely depends on its relationship with the human genome. Specifically, it interacts with a nuclear receptor that determines the expression of over 900 genes.

In humans, most of circulating vitamin D is synthesized from cholesterol under influence of ultraviolet radiation in sunlight. Proceeds of vitamin D from food defines only 10-20% of the content of 25(OH)D, but becomes significant at low insolation. Recently recommendations for preventive doses of vitamin D for children and adults were revised and increased. However, the need for studies of vitamin D among children of Ukraine remains relevant because there are certain differences in the level of insolation and consumption of foods containing vitamin D among groups living in different territories.

Objective: to establish the prevalence of vitamin D deficiency among children 10-16 years old who live in the Ternopil region, Western Ukraine.

Materials and methods.
118 children were examined in one of the secondary schools of Ternopil region. The average age of children was 12.8±2.5 years, average height – 1.56±0.14 m, the average weight – 45.9±10.9 kg. The study was conducted from mid-October to the end of December 2011 to reverse the impact of seasonal factors on the level of 25(OH)D.

After general clinical examination and interviewing, the level of 25(OH)D was determined using the electro-chemiluminescence method on the analyzer Eleksys 2010 and serum Ca content. Evaluation of vitamin D-status was performed according to the latest current classification, according to which vitamin D deficiency is established at the level of 25(OH)D serum below 50 nmol/l, insufficiency of vitamin D is diagnosed when levels of 25(OH)D 75-50 nmol/l. The concentration of 25(OH)D from 75 to 150 nmol/l is considered as being in the normal range.

Results.
Vitamin D deficiency was found in 107 (90.7%) children surveyed, insufficiency – in 9 (7.6%). The average content of 25 (OH) D in the boys 10-13 years was 34.7 ± 11.4 nmol/l, 14-16 years 30.3±10.0 nmol/l; girls 10-13 years – 31.1±11.1 nmol/l, 14-16 years 28.3±9.8 nmol/l. While
studying the average levels 25(OH)D depending on age, there was a tendency to registration of lower levels in pubertal age persons, both in boys and girls. Serum calcium level was within normal limits in all age groups.

The conducted interviewing revealed that 38.7% of children often suffer from acute respiratory infections (4 or more times per year); in 13.9% varying degrees of scoliosis were found. In 30 (25.4%) children limb fractures were recorded, in 12 (10.2%) repeated.

For normal skeletal growth and bone mineralization adequate intake of vitamin D, calcium positive balance, and physical activity outdoors are needed. These external factors also influence the reduction of risk of diseases. Our results show that the frequency of vitamin D deficiency among children in Ternopil region is very high. When European studies indicate the presence of this problem in 60% of the population, Ukrainian researchers has reported its findings in 95-98% of children, it has been also confirmed by our data. The trend is noted to decreasing the concentration of vitamin D in children entering puberty, which can be explained by the faster growth of bones in length, and the deterioration of the quality of food and lower attention to decreased consumption of vitamins in children at this age.

Ukraine has joined the "Methodological guidelines for the treatment and prevention of vitamin D deficiency for the population of Central Europe." Unfortunately, the recommended daily doses are carefully followed only in children during the first months of life, in older children vitamin D is prescribed occasionally or not prescribed. There remains the question of the risk of 25(OH)D toxic effects with its prolonged use in recommended doses, particularly if you do not take into account environmental factors (geographical and seasonal variations) or improvement if its supply from food.

**Conclusions**

Considering the significant percentage of children with vitamin D deficiency in Ukraine, longitudinal observations are needed to establish the effectiveness of the appointment of the vitamin in recommended doses on the basis of food correction and insolation level.