

# **FEATURES OF ANTHROPOMETRIC INDEXES AND STATUS OF BONE TISSUE OF CHILDREN OF SOCIAL RISK GROUP**

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**FEATURES OF ANTHROPOMETRIC INDEXES AND STATUS OF BONE TISSUE OF CHILDREN OF SOCIAL RISK GROUP**

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Deterioration of the state of environment and some social factors have an impact on the functional state of the bone system (especially on the state of bone mineral density), namely on the possibility of development of osteopenia of the children of socially dangerous categories. The task of pediatrician consists in early diagnostics of these children's disorders that gives possibility of conducting their adequate therapy and prophylaxis. Among main factors which can influence the development of bone tissue are smoking, disorders of nutrition, social factors – financial difficulties, asocial family, bad habits of parents, low physical activity, presence of chronic diseases of gastroenterology and cordially – vascular types are important.

We have determined the high rating of factors, which represent the state of mouth cavity and disorders of bearing.

The estimation of bone mineral density was conducted with screening method (183 orphans – I group; 40 – children of asocial families – II group; 30 – students of general schools – control group). Densitometry was conducted in the area of heel bone, where spongy bone tissue predominates. We studied the parameters of speed of extension the ultrasonic wave in bone tissue – SOS (Speed of Sound), BUA (Broadband Ultrasound Attenuation) and index of bone quality (%) – BQI that determines elasticity and density of bone tissue. These indexes give the possibility to estimate the state of spongy bone tissue. Z-score is used for determination of degree of abnormality of the structural state of bone tissue. Value of Z – score to  $-1SD$  is a norm, value from  $-1SD$  to  $-2,5SD$  is possible to consider as osteopenia. We defined that children of I and II groups have a little higher indexes of SOS, BUA and BQI (relative to control group), but this difference was not reliable. Interest was caused only by the dynamics index of the Z-score as the index of the structural state of bone tissue of children. All indexes of Z-score were in an interval to  $-2, 0 SD$ , in other words, in the area of osteopenia, but we defined the dependence of Z-score index on the basic anthropometric indexes. It was clear to us, that the anthropometric indexes of the children with normal bone density were higher than those of children with osteopenia. Children (I and II groups) in 67,8% and 56,9% cases have signs of osteopenia. The indexes of Z-score for the children of the 1st group hesitated from  $-1,6 SD$  to  $-2,1SD$  on the average, and for the children of the 2nd group arrived at to  $-2,4SD$ . Children of control group had high indexes of Z-score only in 37,8% of the cases, but this index did not exceed  $-1,4SD$  for girls and  $-1,6SD$  for boys on the average. This results cause alarm, because they detect the disorders of plastic processes more than in the half of children from the group of social risk. Development of effective measures, directed on preservation and strengthening of health of the children of

social risk group, is to be based not only on information about the common state of health of this contingent, but also on the individual features of physical development and state of bone tissue.