



## Morphometric Parameters of the Trunk in Children with Scoliosis

1. **Kamalova Shaxnoza  
Muzafarovna,  
Baymuradov Ravshan  
Radjabovich**
2. **Sulaymonov Joraboy**

**Annotation.** Scoliosis is a lateral curvature of the spine, which is dangerous for severe complications, especially for a growing child's body. In 80% of the number of people with this pathology, idiopathic scoliosis is diagnosed.

**Keywords:** children, scoliosis, posture disorders, chest circumference, anthropometric parameters, body length

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<sup>1</sup> Teacher Bukhara State Medical  
Institute named after Abu Ali ibn Sino  
e-mail: feruzanazarova111@gmail.com

<sup>2</sup> Student Bukhara State Medical  
Institute named after Abu Ali ibn Sino

**Relevance.** Scoliosis is a lateral curvature of the spine, which is dangerous for severe complications, especially for a growing child's body. In 80% of the number of people with this pathology, idiopathic scoliosis is diagnosed. In most cases, parents skip the initial stage of pathology development and turn to specialists when spinal deformity is very visible [1,2].

Scoliosis is a disease that is not only accompanied by curvature of the spine, but also causes various deformities in other parts of the child's body [3,4].

To date, a significant omission in all ongoing research is the lack of scientific research that is aimed at the systematic study of the anthropometric-physical and physical parameters of the body from the point of view of their use in assessing the health of the population, diagnostics, as well as primary prevention [5,6].

Given the chronic nature of scoliosis, the presence of concomitant pathology of internal organs, brain, and subsequently, with the progression of the disease, transformation into psychological and social problems, it should be concluded that scoliosis in children is a socially significant problem of physiology and medicine. One of the ways to solve this problem is the timely detection of the disease, understanding the causes of its development, especially in the early stages, when it is characterized by a pain-free form and less expression of orthopedic symptoms [7, 8].

**The aim of the study** - is to study the anthropometric parameters of different body parts in children with scoliosis in postnatal ontogenesis and compare them with the parameters of healthy children.

**Materials and methods.** 400 children were examined, 250 of them healthy (120 boys and 130 girls) and 150 children with scoliosis (70 boys and 80 girls). Anthropometric measurements were carried out according to the methodological recommendations of N.H. Shomirzaev, S.A. Ten and I. Tukhtanazarova (1998). The research was carried out in secondary educational institution No. 61, in secondary school No. 2 and in boarding school No. 23 in Bukhara for children with scoliosis.

Anatomical and anthropometric features were evaluated: measurements of body length, chest circumference in pause, during inhalation and full exhalation, trunk length, body, chest height were carried out using a centimeter tape, and body weight using special scales.

### Results and discussions.

Studies have shown that newly injured children have an average body length of  $51 \pm 0.24$  cm, body weight -  $3.5 \pm 0.15$  kg, chest circumference in pause  $36.2 \pm 0.25$  cm, at the height of inspiration  $38.0 \pm 0.25$  cm, and at full exhalation  $35.8 \pm 0.30$  cm. The length of the trunk on average is  $18.4 \pm 0.22$  cm, the length of the body is  $30.1 \pm 0.30$  cm, the height of the chest is  $11.6 \pm 0.12$  cm.

Studies have shown that the body length in healthy children of the first period of childhood is on average  $112.9 \pm 0.72$  cm. Body weight on average was  $20.2 \pm 0.53$  kg, chest circumference in pause  $62.4 \pm 0.72$  cm, at the height of inspiration  $65.2 \pm 0.25$  cm, and with full exhalation  $61.8 \pm 0.30$  cm. The length of the trunk on average is  $20.6 \pm 0.52$  cm, the length of the body is  $41.3 \pm 0.42$  cm, the height of the chest is  $17.6 \pm 0.19$  cm.

In the study of children of the first period of childhood with scoliosis, it was revealed that the average body length was  $110.4 \pm 0.87$  cm. The average body weight is  $19.3 \pm 0.37$  kg, the chest circumference in the pause is  $60.0 \pm 0.26$  cm, at the height of inspiration -  $63.2 \pm 0.37$  cm, and at full exhalation -  $59.6 \pm 0.30$  cm. The length of the trunk on average is  $20.1 \pm 0.25$  cm, the length of the body is  $40.6 \pm 0.14$  cm, the height of the chest is  $16.9 \pm 0.30$  cm.

As a result of the research, it was found out that the body length in healthy children of the second period of childhood was on average  $134.0 \pm 0.56$  cm. The body weight of the healthy group is on average  $29.3 \pm 0.81$  kg, the chest circumference in the pause is  $65.5 \pm 0.34$  cm, at the height of inspiration -  $68.8 \pm 0.12$  cm, and with full exhalation -  $64.5 \pm 0.14$  cm. The length of the trunk on average is  $44.1 \pm 0.51$  cm, the length of the body is  $64.0 \pm 0.42$  cm, the height of the chest is  $21.6 \pm 0.27$  cm.

During the study of children of the second period of childhood with scoliosis, it was found that the average body length was  $125.8 \pm 1.05$  cm, body weight -  $27.0 \pm 0.62$  kg, chest circumference in pause -  $63.3 \pm 0.23$  cm, at the height of inspiration -  $66.2 \pm 0.22$  cm, and with full exhalation -  $64.3 \pm 0.56$  cm. The length of the trunk on average is  $42.1 \pm 0.37$  cm, the length of the body is  $60.4 \pm 0.35$  cm, the height of the chest is  $20.2 \pm 0.84$  cm.

**Conclusions.** Growth in children with scoliosis up to 12 years of age increases 1.52 times. The highest growth rate is observed in 5 (9.2%) and 7 years (8.8%), and the lowest – in 8.11 (3.0%) and 12 years (2.2%). The body weight of people with scoliosis increases by 2.65 times from the age of 3 to 12 years. The highest growth rate is observed in 6 (19.0%) and 8 years (16.5%), and the lowest – in 11 years (6.2%). The size of the chest circumference in postnatal ontogenesis before the age of 12 in males and females in healthy children increases by 1.45 times, and in scoliosis increases by 1.40 times.

Comparison of anthropometric parameters of children under 12 years of age with scoliosis with the parameters of healthy children of the same age shows that the growth rate in terms of chest circumference, trunk and body length, chest height is less than that of healthy peers.

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