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CURRENT APPROACHES TO SCOLIOSIS
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The aim of this study is to consider different types of scoliosis, methods used to estimate spine curvature and current approaches to treatment.

Scoliosis is a spinal deformity in the coronal plane associated with vertebrae rotation in the transverse plane and abnormal curvature in the sagittal plane. An estimated 65% of scoliosis cases are idiopathic, about 15% are congenital and about 10% are secondary to a neuromuscular disease.

Idiopathic scoliosis represents the majority of cases, but its causes are largely unknown. Results of recent studies indicate potential heritability of the disorder. About 38% of variance in scoliosis risk is due to genetic factors, and 62% is due to the environment. Several genome-wide studies have identified a number of loci as significantly linked to idiopathic scoliosis. Fifty-three single nucleotide polymorphism markers in the DNA that are significantly associated with adolescent idiopathic scoliosis were determined.

There are two types of scoliosis based on the direction of the curve: dextroscoliosis and levoscoliosis – and three types of scoliosis based on the location of the curve: thoracic scoliosis, lumbar scoliosis and thoracolumbar scoliosis.

One of the most common tests for detecting scoliosis is called the Adam's <u>Forward</u> Bend Test, in which the individual bends from the waist as if touching the toes and asymmetry of the parts of body is observed.

Full-length standing spine X-rays are the standard method for evaluating the severity and progression of the scoliosis, and whether it is congenital or idiopathic in nature. In growing individuals, serial radiographs are obtained at three- to 12-month intervals to follow curve progression, and, in some instances, MRI investigation is performed to look at the spinal cord.

The conventional method for assessing the curvature quantitatively is measuring the Cobb angle, which is the angle between two lines, drawn perpendicular to the upper endplate of the uppermost vertebra involved and the lower endplate of the lowest vertebra involved.

Recent studies have also demonstrated a high potential of a newly developed 3D ultrasound imaging system for scoliosis assessment, named as Scolioscan.

Scoliosis may cause chronic back pain and noticeable changes in appearance. In severe cases it may lead to diminishing lung capacity, pressure exerted on the heart, and restricted physical activities.

Scoliosis treatment decisions primarily depend on the skeletal maturity of the patient and the degree of spinal curvature. There are three main scoliosis treatment options: constant observation, back braces and scoliosis surgery.

There are special educational institutions for children suffering from scoliosis all over the world, one of them is located in Minsk. It offers specialized therapeutic programs directed towards improving the patients' condition and teaching them to cope with scoliosis.