

DESCRIPTION FOR THE GENERAL PUBLIC

Morphological changes of the lateral abdominal muscles in adolescents with idiopathic scoliosis.

Idiopathic scoliosis is a phenomenon quite commonly occurring among children and adolescents where we find changes in the shape of the spine of equivocal (unknown) etiology. Many clinicians, physical therapists or physical education teachers (dealing with correction) underline the importance of the re-education of the abdominal muscles in the conservative therapeutic treatment of scoliosis. Interestingly, there is virtually no research (with the exception of a few works by the author of this project) defining the relationship between scoliosis and the abdominal muscles. Those that exist, have quite a number of methodological limitations that prevent definitive indication of such a relationship. Thus, the opinion commonly present among therapists that abdominal muscles play an important role in therapy, or in the pathogenesis of scoliosis, is not reflected in the current scientific evidence.

Therefore, the scientific goal of the project is to evaluate the differences in the morphology of the muscles of the lateral abdominal wall in adolescents with selected types of idiopathic scoliosis. The research will be conducted on a group of adolescents aged 9-17 years who are diagnosed with idiopathic scoliosis confirmed by X-ray. The test procedure will include: 1. A detailed X-ray analysis regarding the value and direction of the scoliosis, as well as the rotation of the vertebrae. 2. Ultrasound analysis of the muscle thickness of the lateral abdominal wall; 3. Ultrasound analysis (elastography) of muscle stiffness of the lateral abdominal wall.

This will clearly indicate whether a particular type of scoliosis has a characteristic (unique) pattern of stiffness and thickness of individual muscles of the lateral abdominal wall, which can translate into more targeted therapeutic coverage for this muscle group. Later the presence of such patterns may allow for the early detection of changes in the shape of the spine – e.g. by introducing harmless ultrasound screening of the lateral muscles of the abdominal wall in the early stages of development. Thus, not only the aspect of improvement, but also the prevention of changes in the muscles of the lateral abdominal wall may be a far-reaching result of the research conducted.