



CONDITION OF POSTURE, SPINE AND MALOCCLUSION OF 11-12 YEARS SCHOOLCHILDREN

*Petr Khramtsov,
Anna Sedova,
Galina Kravchenko,
Helena Karpova*

Louven - 2017

BACKGROUND

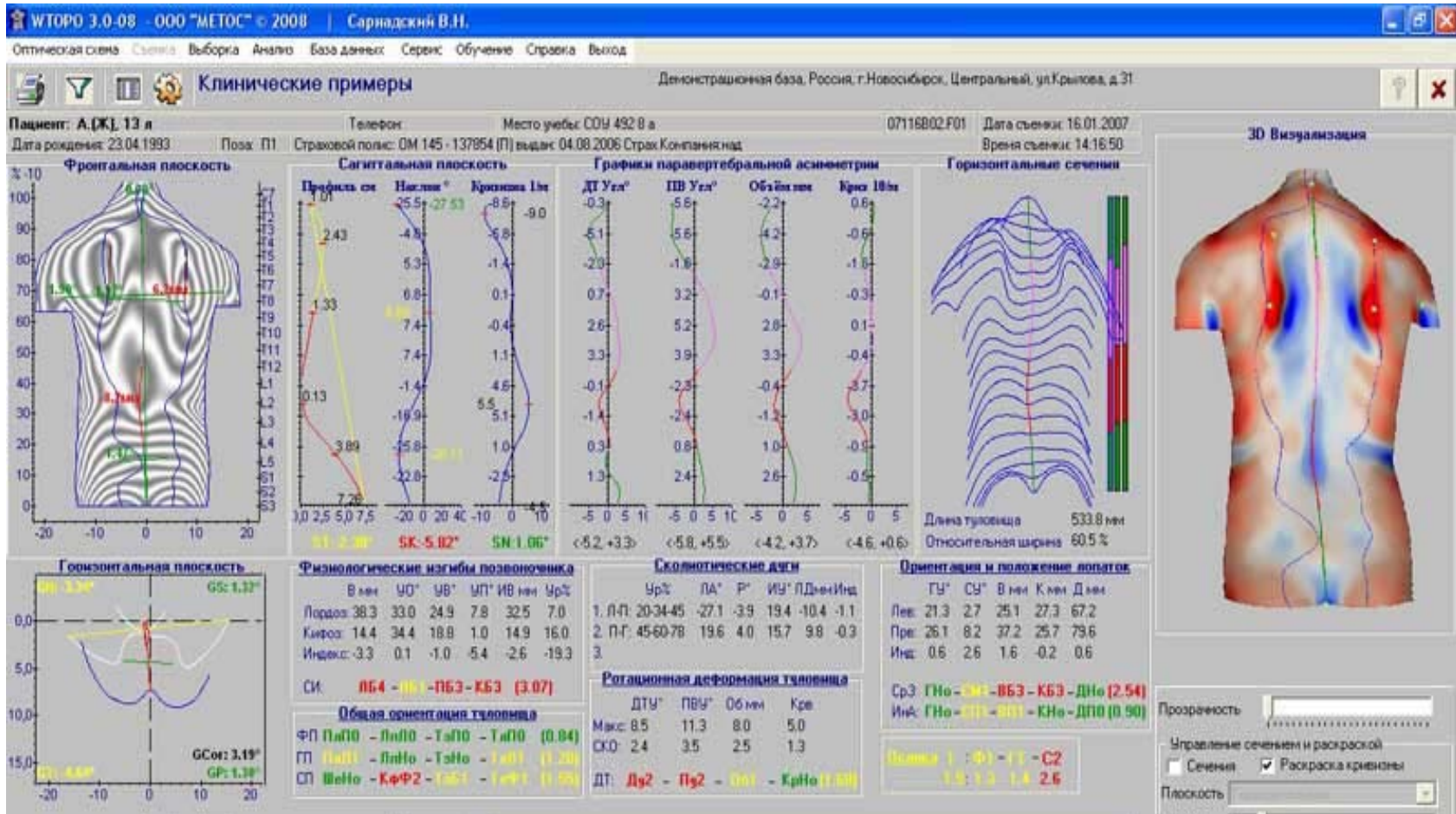
1. The musculoskeletal system is one of the important indicators of students' health.
2. The posture disorders and spine deformities have the leading rank place in the structure of sickness rate of schoolchildren.
3. The factors of non optimal educational environment have a negative impact on this system and they should be considered in preventive technologies.
4. Medical and social importance of children's posture disorders, spine deformities and malocclusion requires the creation of preventive program, which should be integrated into educational process.

The aim of the study was to assess the state of posture, spine and occlusion in schoolchildren aged 11-12 to determine the prerequisites for the development of preventive technologies.

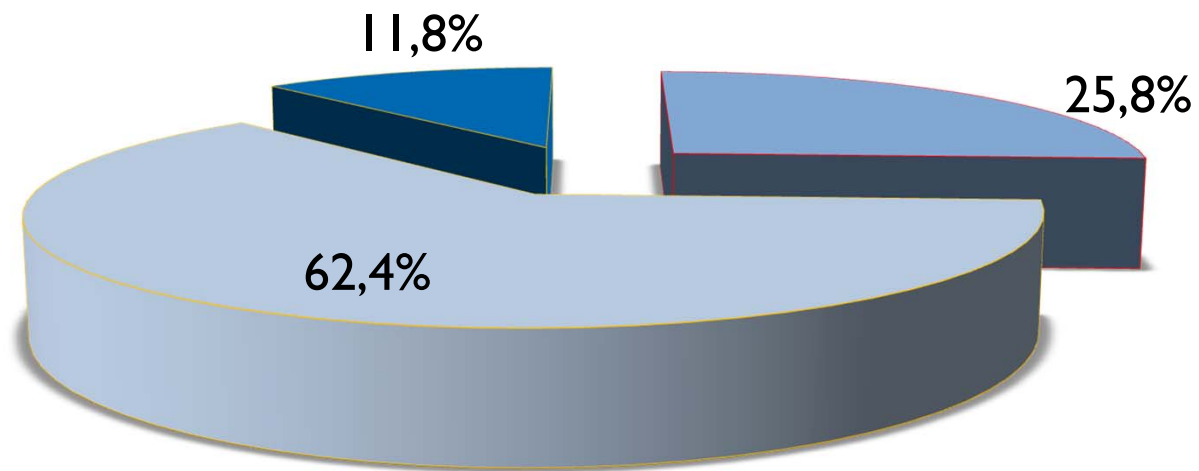
STUDY DISIGN

- study of posture and spine using the method of computer-optical topography;
- dental examination;
- functional muscles testing;
- evaluation of the stato-kinetic stability of children with normal occlusion and malocclusion;
- determination of the prerequisites for the development of preventive technologies.

COMPUTER-OPTICAL TOPOGRAPHY

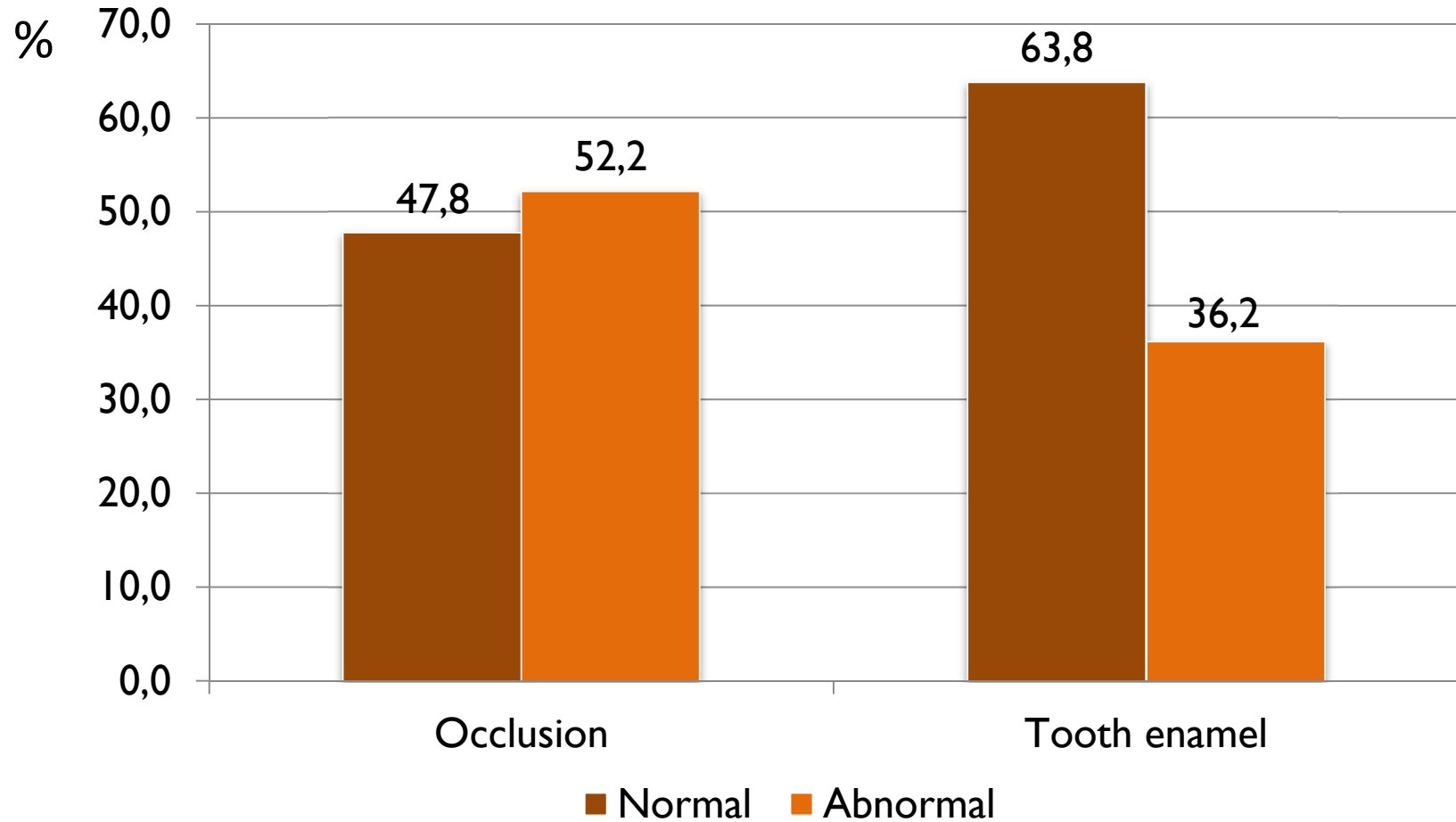


THE POSTURE DISORDERS AND SPINE DEFORMITIES IN SCHOOLCHILDREN AGED 11-12 YEARS

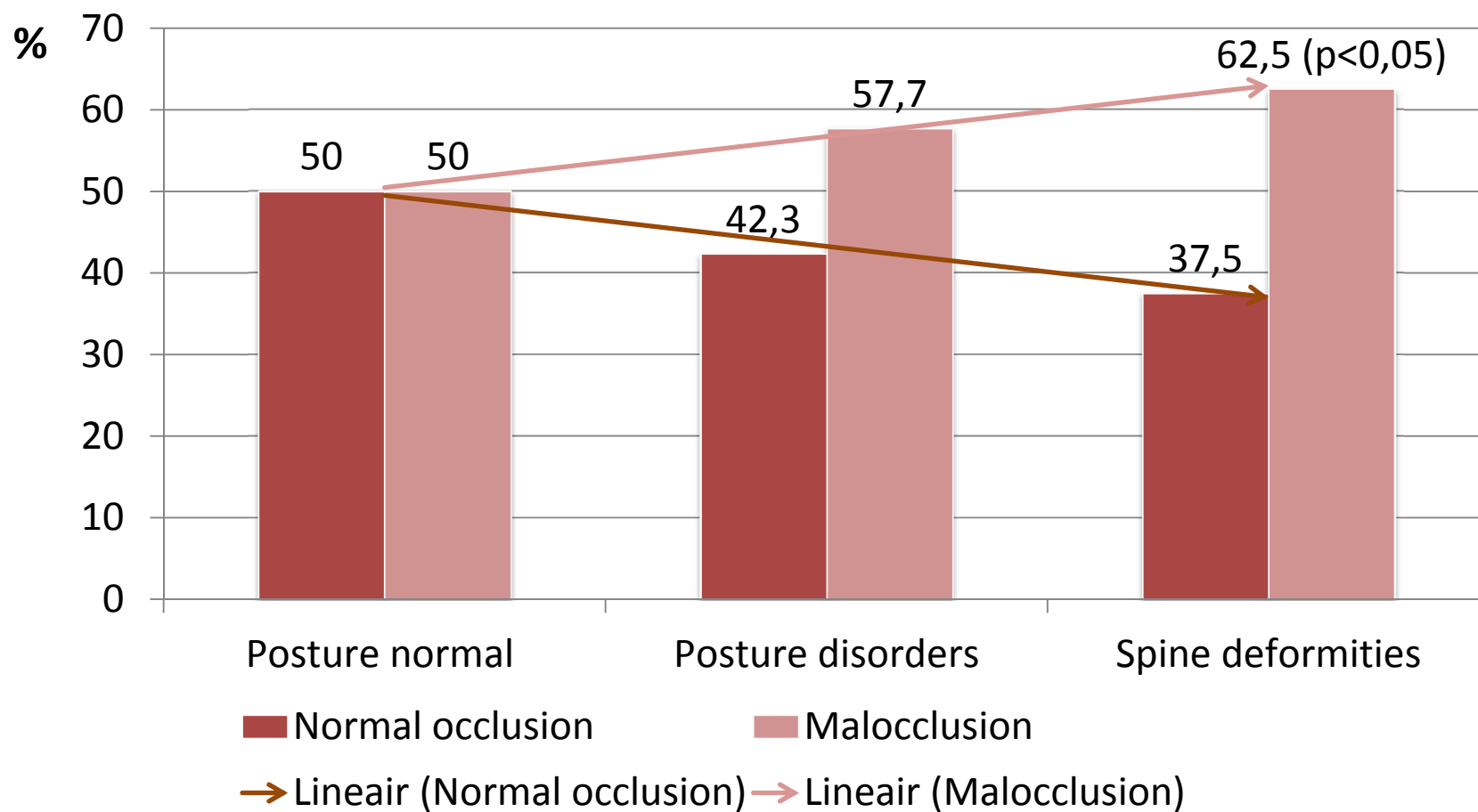


■ normal ■ posture disorders ■ spine deformities

MALOCCLUSION AND DENTAL CARIES IN SCHOOLCHILDREN AGED 11-12 YEARS



POSTURE, SPINE AND MALOCCLUSION IN SCHOOLCHILDREN AGED 11-12 YEARS



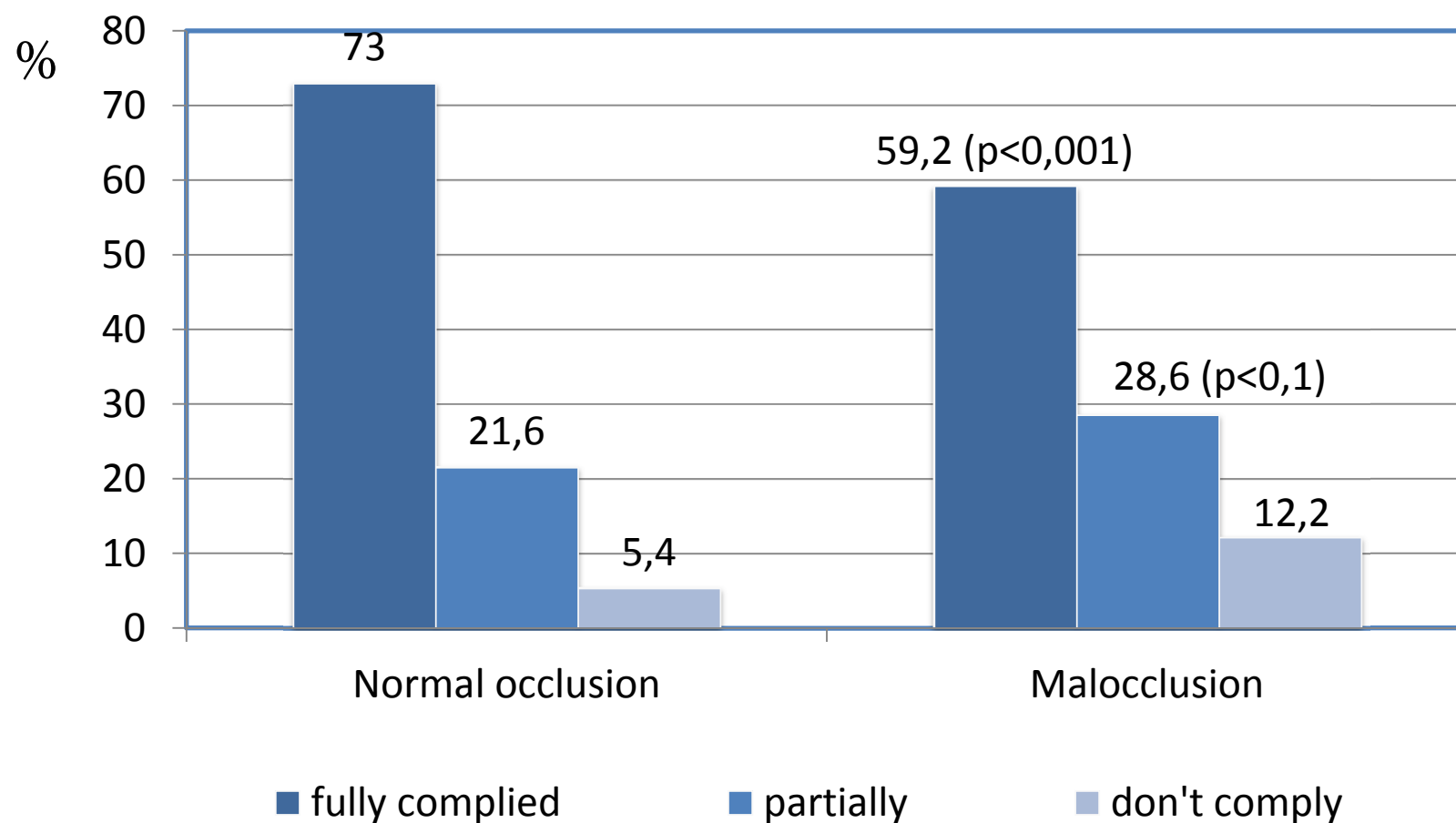
FUNCTIONAL MUSCLES TESTING



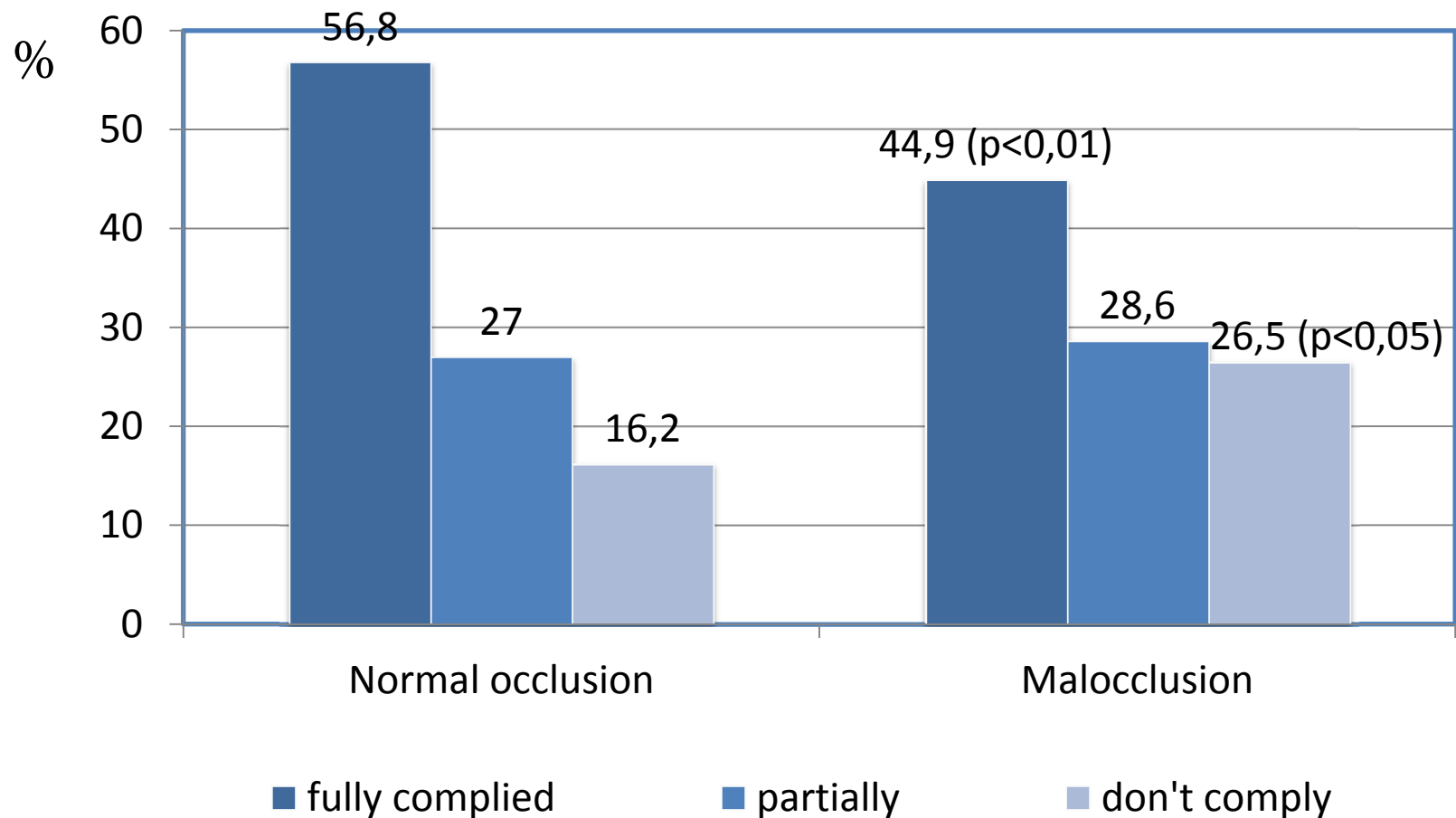
Test 1

Children performed the test on the grip of the hands behind the back: right hand top, left hand bottom (test one) and vice versa (test two).

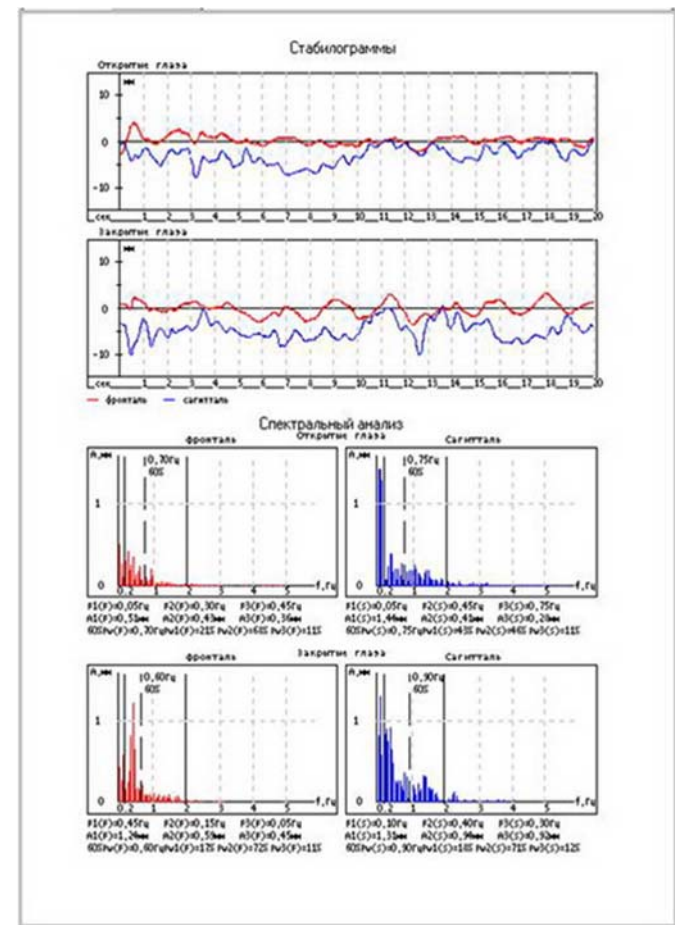
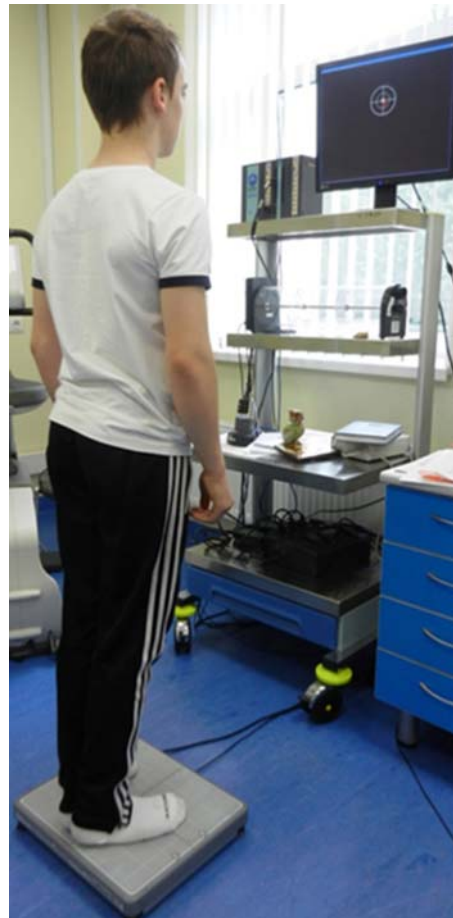
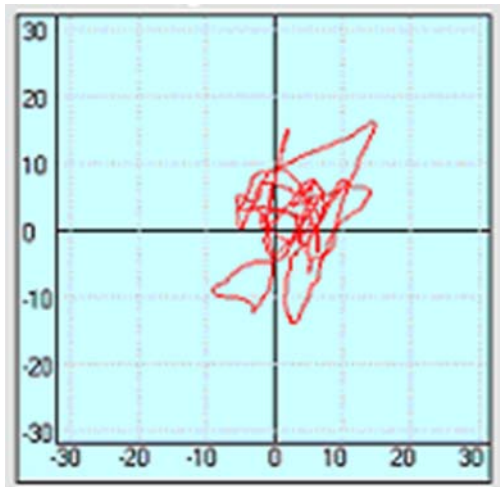
THE RESULTS OF FUNCTIONAL MUSCLES TESTING IN CHILDREN WITH NORMAL OCCLUSION AND MALOCCLUSION (TEST 1)



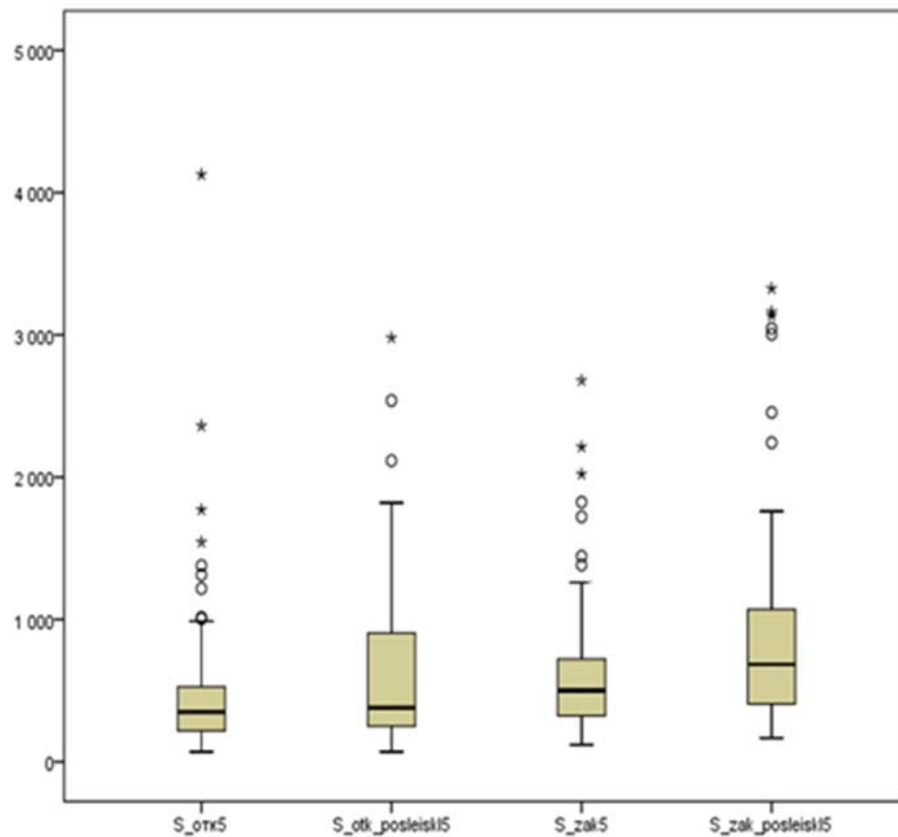
THE RESULTS OF FUNCTIONAL MUSCLES TESTING IN CHILDREN WITH NORMAL OCCLUSION AND MALOCCLUSION (TEST 2)



POSTUROGRAPHIC STUDIES USING COMPLEX “STABILAN-01”

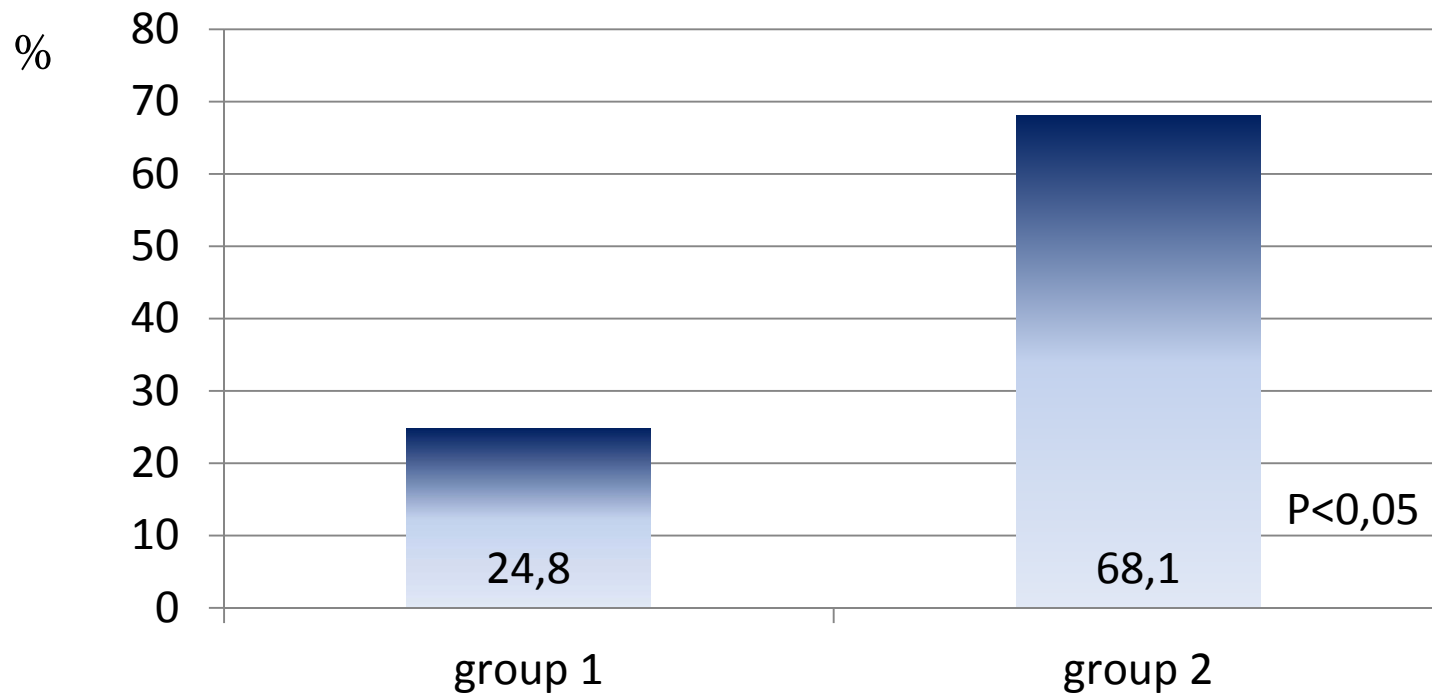


THE ELLIPSE SQUARE OF BODY SWAY IN CHILDREN BEFORE AND AFTER STATO-KINETIC LOAD



THE INCREMENT (R) OF ELLIPSE SQUARE OF BODY SWAY UNDER STATOKINETIC LOAD IN CHILDREN OF GROUPS 1 AND 2

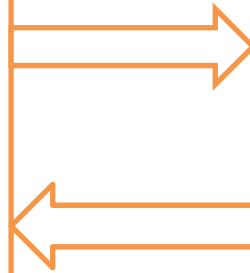
$$R = \frac{SEC2 - SEC1}{SEC1} \times 100\%$$



DISCUSSION

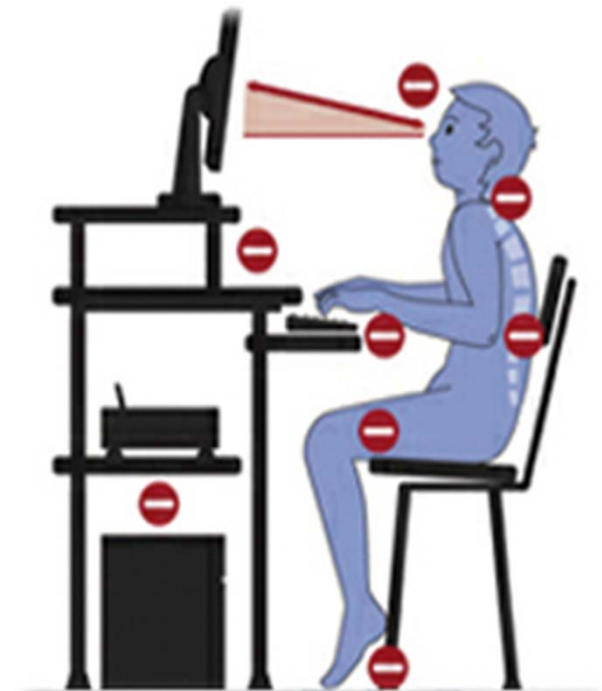
The functional disorders in children with the malocclusion can lead to posture disorders.

The functional posture disorders contribute to the development of dentofacial anomalies.



THE MAIN NEGATIVE BIOMECHANICAL EFFECTS OF THE SITTING POSITION

1. A decrease of the activity of the vestibular system due to fixed head position.
2. Change the physiological curves of the spine (smoothing of the cervical and lumbar lordosis).
3. Increase of the mechanical load on the spine.
4. Shortening of the different muscle groups of the trunk and upper and lower extremities.
5. A weakening of the muscles of the lower extremities due to the reduction of the supporting mechanical load on the feet and joints.
6. A decrease of the bone tissue mineralization due to the hypokinesia and lack of mechanical load on the bone.



THE PREVENTIVE TECHNOLOGIES OF THE POSTURE DISORDERS AT THE LESSON OF PHYSICAL EDUCATION



INFLATABLE TRAMPOLINE
IN THE SCHOOL GYM

STRETCHING THE MUSCLES AND SKIPPING AT THE LESSON OF PHYSICAL EDUCATION





THE LESSONS IN THE MODE
OF DYNAMIC POSES:
SITTING AND STANDING



CONCLUSIONS

- 1) Posture disorders, spine deformities and malocclusion are frequently identified in children 11-12 years;
- 2) in children with posture disorders and spine deformities the malocclusion reveals more often than in children with normal posture;
- 3) children with malocclusion have low values of statokinetic stability and muscles condition;
- 4) school risk factors associated with prolonged sitting, should be considered in the development of preventive technologies.

RESEARCH TEAM



Anna Sedova

FSAI "National Scientific and Practical Center of Children's Health" of the Ministry of Health of the Russian Federation, Moscow, Russia

Scientific researcher



Galina Kravchenko

MAEI "Zemskaya gymnazium", Balashikha, Moscow Region, Russia

Administrator



Helena Karpova

Balashikha dental clinic, Balashikha, Moscow Region, Russia

Dentist hygienist

THANK YOU FOR
YOUR ATTENTION!

*The Laboratory of the new technologies in hygiene
and children's Health*

E-mail: pikhramtsov@gmail.com