

## **Relationship between stabilometrical reactions and type of functional asymmetry in the student's age**

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**Abstract.** The correlation between the type of the functional asymmetry and the psychological status of the students has been established. We aimed at studying the relationship between stabilometrical reactions and type of functional asymmetry. The 136 students of KNMU 2 course have been examined. Young adults with a right type functional asymmetry demonstrate the most expressive asymmetry endurance at rest and immediately after exercise; young adults with a left type functional asymmetry demonstrate high anxiety, aggression, constriction, frustration and petulance. Individuals with mixed type of functional asymmetry demonstrate the highest levels of physical and verbal aggression.

**Key words:** functional asymmetry, psychoemotional state, quality factor of the intellectual activity, adaptation to the physical loadings.

The issue of muscle tone asymmetry is a very interesting problem which still should be studied [1, 2]. This question is one of the aspects of the topical issue of twoness work of cerebral hemispheres [3]. There is much more information on arms asymmetry than on asymmetry of legs [4]. There are data according to which legs are not equally strong and the dominance of the left leg grows with age.

Despite great interest of many authors to the encephalic asymmetry studies, these data are of contradictory and fragmentary nature and can't shape a full picture of the gist of the problem.

**Objective:** we aimed at studying the relationship between stabilometrical reactions and type of functional asymmetry.

**Materials and methods:** The 136 students of Kharkiv National Medical University

(KNMU) 2d course have been examined. Control group includes 48 persons with a right type of functional asymmetry (RTFA). Comparison group consists of individuals with a left type of functional asymmetry (LTFA) – 42 persons, a person with mixed type of functional asymmetry (MTFA) – 26 people and those with socio-modified type of asymmetry (SMTA) – 20 persons.

In the course of study a complex of techniques was used: exercise tolerance was assessed with the help of the cycle ergometer test with load dosage (400 W for midgets, 200 W for girls) at constant pedals rotary speed 60 rpm, the degree of the functional asymmetry was defined in complex: with the help of the questionnaire (subjectively) and objectively – when assessing the ability to keep balance standing on one foot with eyes closed (cycle ergometer test).

Results: According to the results of cycle ergometer test the highest level of exercise tolerance is observed in individuals with LTFA (142.1 sec.), individuals with MTFA and SMTA show more or less equal results (125.1 and 125.3, correspondingly), and the last follow the individuals with RTFA (111.5 sec.).

The showings of the cycle ergometer test, which is based on the effectiveness of the central equilibrium control and muscle tone distribution, were distributed at rest in the following way: the most significant encephalic asymmetry of legs was demonstrated by individuals with SMTA (58.2%), and the least by individuals with RTFA (43.0%). Individuals with LTFA and MTFA had intermediate showings (46.0% and 48.3% correspondingly). Right after physical exertion individuals with MTFA showed the most significant functional asymmetry of legs (53.0%), while the least asymmetry was displayed by individuals with SMTA (41.2%). Individuals with LTFA and RTFA had intermediate showings (42.4% and 43.3%, correspondingly). It was found that 2 minutes after relaxation individuals with MTFA also showed the most MTFAs of legs (51.1%), while the least was shown by individuals with LTFA (38.2%). Individuals with RTFA and SMTA had intermediate showings (45.4% and 39.7%, correspondingly).

So we found that young adults with a right type functional asymmetry demonstrate the most expressive asymmetry endurance at rest and immediately after exercise. The least expressive asymmetry demonstrated endurance with socio-modified type of asymmetry at rest and person with mixed type of functional asymmetry immediately after exercise. Young adults with a left type functional asymmetry demonstrate high anxiety, aggression, constriction, frustration and petulance. Individuals with mixed type of functional asymmetry demonstrate the highest levels of physical and verbal

aggression. Herewith, the quality of the intellectual functioning is significantly improved in response to the physical activity. Such individuals quickly demonstrate the strong adaptive reaction as a result of the dominating excitative process. However, the vegetal “price” of such adaptation combined with high anxiety and aggression is too high, which rapidly exhausts the adaptive resources of the human body.

**Conclusion:**

1. Individuals with left type of functional asymmetry have the highest physical endurance.

2. Young people with socio-modified type of asymmetry at rest showed the most significant encephalic asymmetry of legs.

3. Individuals with mixed type of functional asymmetry, compared to individuals with socio-modified type of asymmetry and left type of functional asymmetry, showed the most significant encephalic asymmetry of legs right after physical exertion and in two minutes after the rest.

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