

THE CHARACTERISTIC OF THE ENGINE QUALITIES OF THE STUDENTS OF TECHNICAL INSTITUTE OF III FUNCTIONAL HEALTH GROUP (SPECIAL MEDICAL GROUP)

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Annotation. *Purpose:* the study of the dynamics of engine qualities in the students of III functional health group (special medical group) dependent on age taking into account the frequency of occupations by physical culture for the correction of the program of their physical training. *Material:* the physical condition is evaluated among 467 students at the age from 18 to 21 year. Observation is carried out in the dynamics of the instruction of students at the university from 1 through 5 semesters. *Results:* installed age characteristics of physical readiness of students, depending on the frequency of physical training. It is shown that the passage to the single-time in the week occupations by physical culture reliably decreases their physical condition. The features of the dynamics of the physical fitness of students. *Conclusions:* monitoring the physical fitness of students can be considered as a factor in strengthening the pedagogical orientation of physical education of youth. Should pay particular attention to the development of motor abilities missing with appropriate exercise. Students are encouraged to use the self-study managed to maintain the required physical condition, as well as the mandatory maintenance of a diary of self-control.

Keywords: student, university, physical, preparedness, monitoring, physical, culture.

Introduction

Leading problem of the present time is protection of human health. Modern society puts health, psychological comfort, high workability and healthy reproduction of on one of first places. Without solution of these tasks stable economic and political development of country, as well as social and cultural prosperity, are impossible [5, 7, 8].

Recent years attention to students' health has been increasing and its is connected with society's care of specialists' physical condition, with trouble of their morbidity in process of professional training and resulting workability [1, 2, 4, 20]. Preservation of health of educational process's participants is one of important problems of higher professional education and of different branches in medicine. Against this background, seeking of ways for health improvement and increase of workability; increase of functional abilities and adaptation to training of future highly qualified specialists also become rather important [3, 12].

Many scientists regard physical education as significant factor I formation and rehabilitation of youth's health [3, 6]. In this case physical health is regarded as one of natural genetically programmed, non-medical and effective factors of youth's health improvement [17, 18, 21].

At present time at physical culture lessons more individual evaluation of students' physical fitness is required, which would be the base of discipline "physical culture". It will permit to clearly understand weak sides of development of students' motion and functional abilities, to correct curriculums in HEEs and, thus, to weaken negative aspects of students' adaptation to new educational environment [9].

Variety of deviations in health condition, different levels of physical fitness of students set special requirements to physical culture in special health groups (SHG), which imply more individual approach to physical exercises [10]. In this connection there appears a task of working out and foundation of differential approach to selection of optimal loads, considering motivations to self-perfection in interconnection with students' psycho-emotional and motion specificities [7].

A number of authors [4, 5, 6, 8] note that it is necessary to control indicators of physical fitness as important component of children's teenagers and youth's health. In other countries this problem has been studied rather substantially [13, 14, 15, 16, 19]. However, characteristics of special health group students' motion abilities have not been studied completely.

Purpose, tasks of the work, material and methods

The purpose of the work: characterize age dynamic of girl students of special health group, considering frequency of physical culture training, for correction of physical culture training program.

Materials and methods: we tested 467 girl students (18-21 years old age) of National research Irkutsk state technical university, who were members of special health group (SHG). Our research was conducted in the course of girl students' studying from 1st to 5th semester (01.10.2011, 01.05.2012, 01.10.2012, 01.05.2013, 01.11.2013). For evaluation of girls' motion characteristics we used tests, worked out by All-Russia scientific-research institute of physical culture [11]. For evaluation of quickness we used test – 20 meters run (sec.); for strength and power endurance of girdle – hanging (sec.) and pressing ups (times); for speed endurance of muscles, bending torso, - torso rising (times); for flexibility – torso bending (cm); for dynamic strength of lower limbs – long jump from the spot (cm); for general endurance – 1000 meters run (minutes, sec.). Material was registered in special record of the research. By primary materials we formed computer data base; calculation of indicators was fulfilled with the help of applied programs «Statistica 6.0».

We calculated mean arithmetic value of indicators (M), mean square deviation (s) and standard error (m). In our work we used parametrical methods of material's processing, considering normal Gauss distribution of quantitative characteristics in all age groups. Estimation of confidence of mean values of independent samples was carried out with Student's t- criterion. Differences between indicators with $P < 0.05$ were accepted as statistically confident.

Results of the research

Research during 5 semester permitted to determine that in test 20 meters from walking (see fig.1) there was improvement by the end of the research - from 3.58 ± 0.04 to 3.49 ± 0.04 sec. ($P < 0.05$).

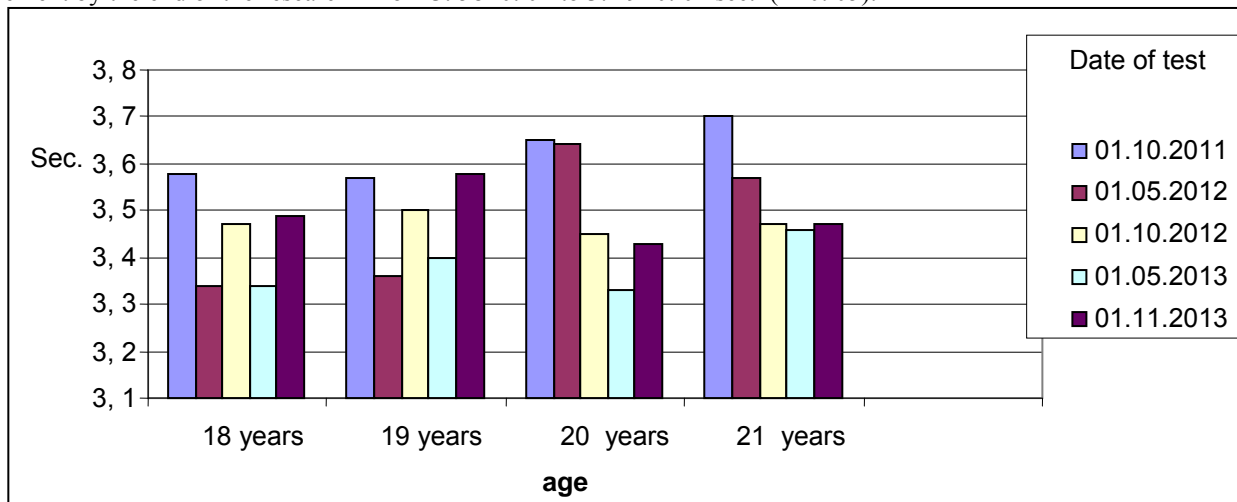


Fig.1. Dynamic of indicators in test 20 meters run from walking

In 19 years we registered improvement of this test result in 2, 3 and 4 semesters. With it, the best result was at the end of academic year of 2nd semester – 3.36 ± 0.03 sec. However, by fifth semester we noticed significant worsening up to 3.58 ± 0.06 sec. that approximately corresponds to 1st semester's result. It, in our opinion, is connected with passing of 3rd year students to “once a week” trainings.

20 years old girl students showed confident positive changes of the indicator by the end of 3rd semester; test result improved from 3.64 ± 0.04 sec. to 3.45 ± 0.05 (by 5.2 %); by the end of 4th semester – up to 3.33 ± 0.04 sec. (by 8.5%). Then there happens certain worsening of result up to 3.43 ± 0.03 sec., and its is, probably, is connected with organization of “once a week” trainings of physical culture.

In older group (21 years) we registered rather high increment of results in this test. By the end of 2nd semester it improved by 3.5 % (from 3.70 ± 0.06 to 3.57 ± 0.04) and by 5th semester – by 6.2% (up to 3.47 ± 0.05 sec.).

In dynamic of general endurance (see fig.2) we did not determined positive results (test 1000 meter run). In our opinion it is connected with insufficient application of physical loads, oriented on development of this quality, in physical culture trainings.

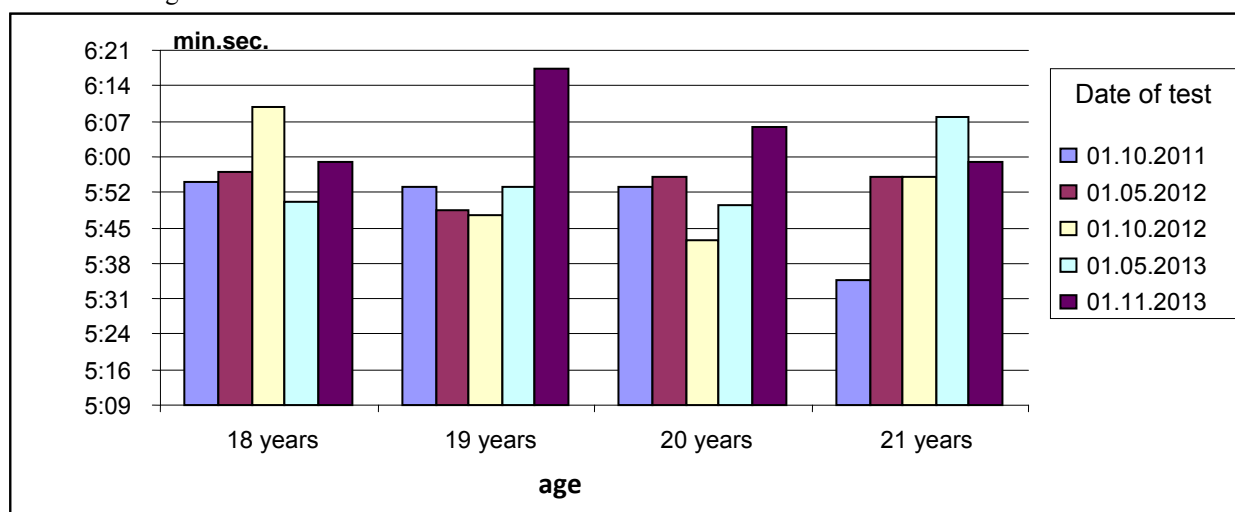


Fig.2.. Dynamic of indicators in test 1000 meters run

In one of strength qualities (hanging on bent arms) we registered the most expressed positive dynamic of indicators, connected with frequency of physical culture trainings in HEE (see fig. 3).

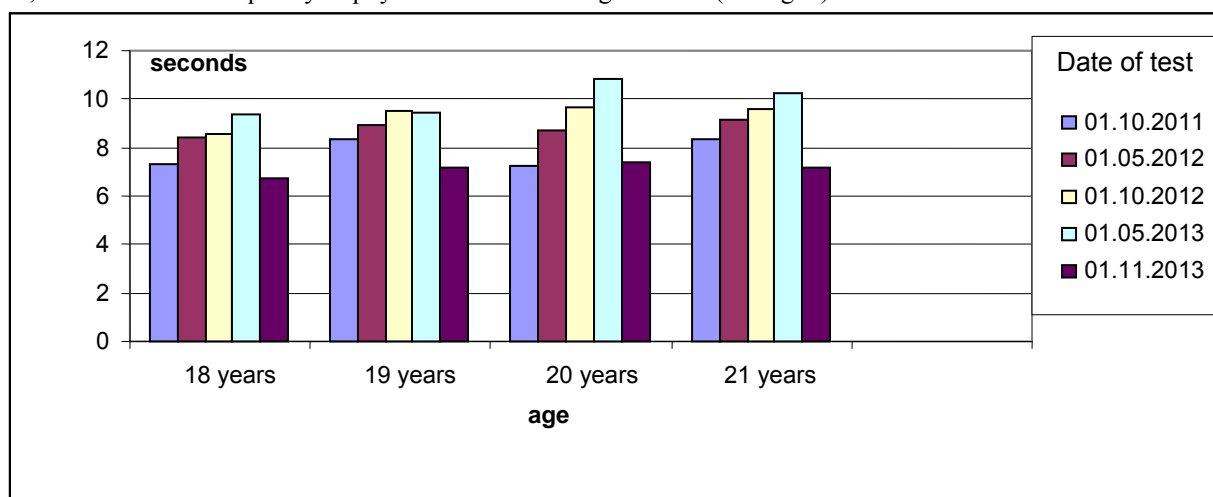


Fig.3. Dynamic of indicators in test "hanging on bent arms"

As it is seen in the figure in all tested age groups there was increment of indicator by May 2013, when girls were 2nd year students and attended physical culture lessons twice a week. With passing to "once a week" trainings and after summer vacations (testing in November 2013) we registered confident reduction of test results in all age groups.

Approximately the same dynamic of indicators was registered in other power test - pressing ups (see fig.4).

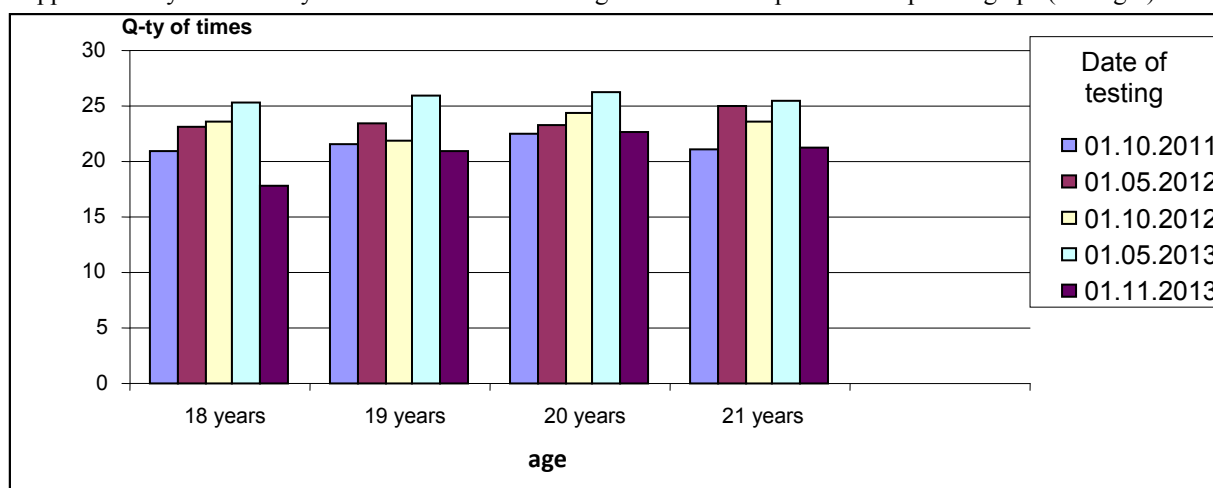


Fig.4. Dynamic of indicators in test "pressing ups"

In this test we registered confident increment of indicator in all tested ages, providing physical lessons were twice a week and reduction of results with passing to "once a week" lessons ($P < 0.05$), (for third year students). Worsening of characteristics was registered by 41.9 % in age of 18 years old (from 25.31 ± 0.54 to 17.83 ± 0.58 times) and by 18.8 % in 19 years old age (from 24.94 ± 0.65 to 20.99 ± 0.65 times). In other ages reduction was not so significant - 9.6-10.8 %.

In test "torso rising" during 30 seconds (see fig.5) we did not register positive dynamic in indicators. In our opinion the reason is weak condition of abdomen muscles, connected with insufficient using of appropriate exercises in discipline "physical culture".

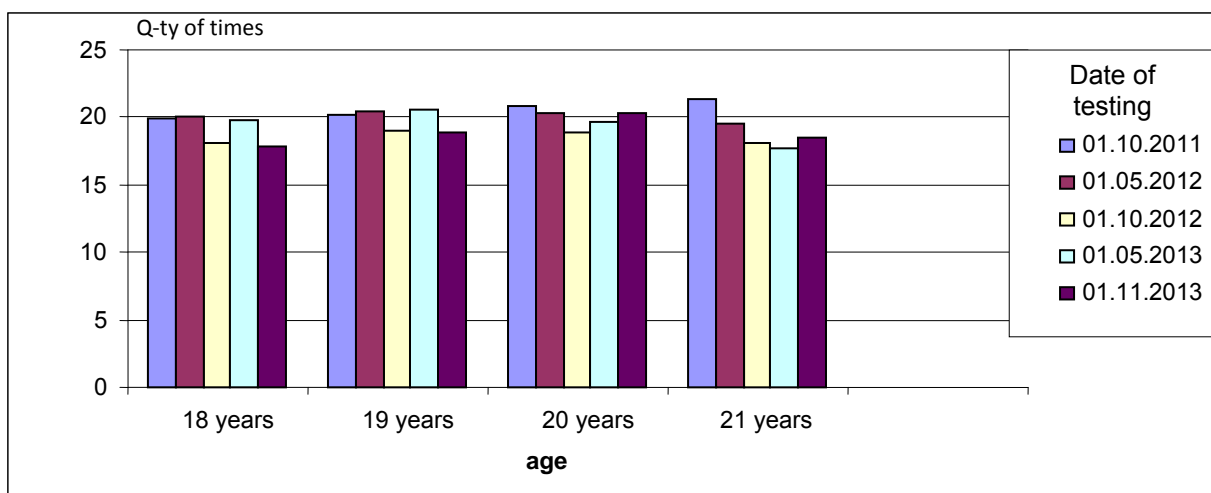


Fig.5. Dynamic of indicators in test "Torso rising during 30 seconds"

Graphs, illustrating flexibility are given in fig. 6 and 7.

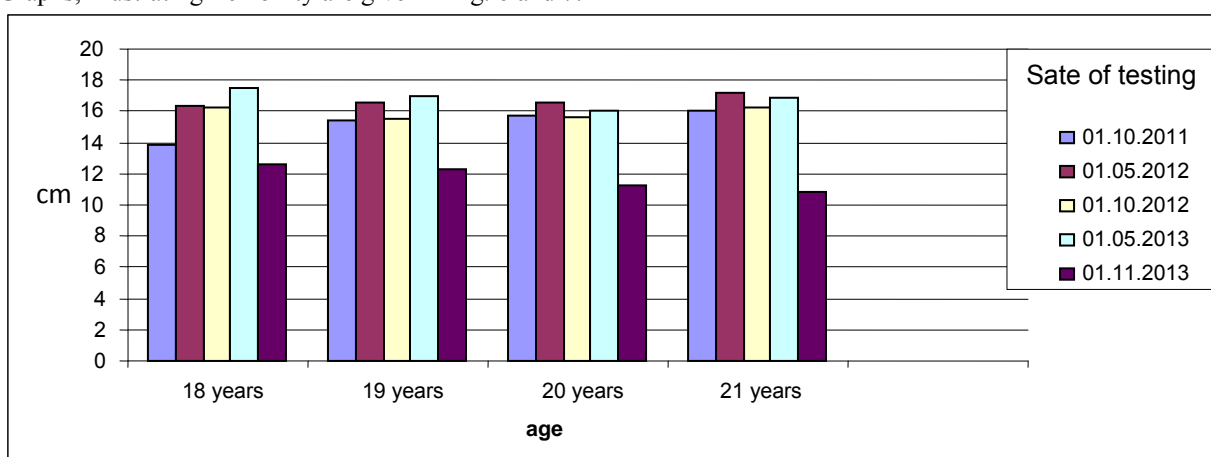


Fig.6. Dynamic of indicators in test "Forward bending"

In these figures it is seen that in every age group there is confident dynamic: from first testing (October 2001) to May 2013 (when there were "twice a week" lessons. With passing to "once a week" lessons flexibility shows expressive dynamic of worsening in all age groups. With it, the highest reduction was registered in age 20 and 21 years old. It confidently reduced ($P < 0.05$) in test "forward bending" in age 20 years old by 26.2 %, and in 21 years old age – 35.9%. In test "backward bending" from lying on abdomen position – by 19.5 and 24.4 % (accordingly).

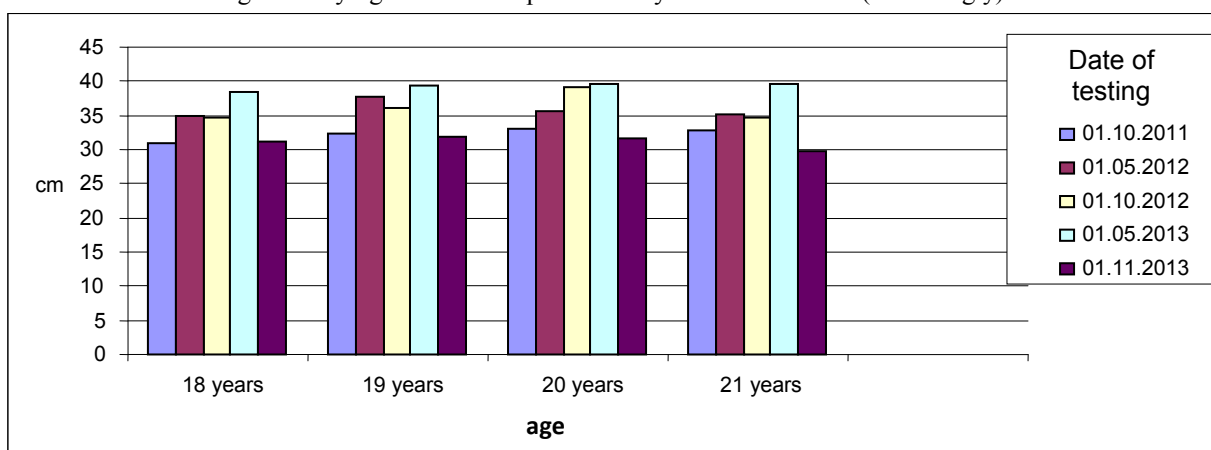


Fig.7. Dynamic of indicators in test "Backward bending from lying on abdomen position".

Dynamic of strength of lower limbs' muscles in test "long jump from the spot" is given in fig.8.

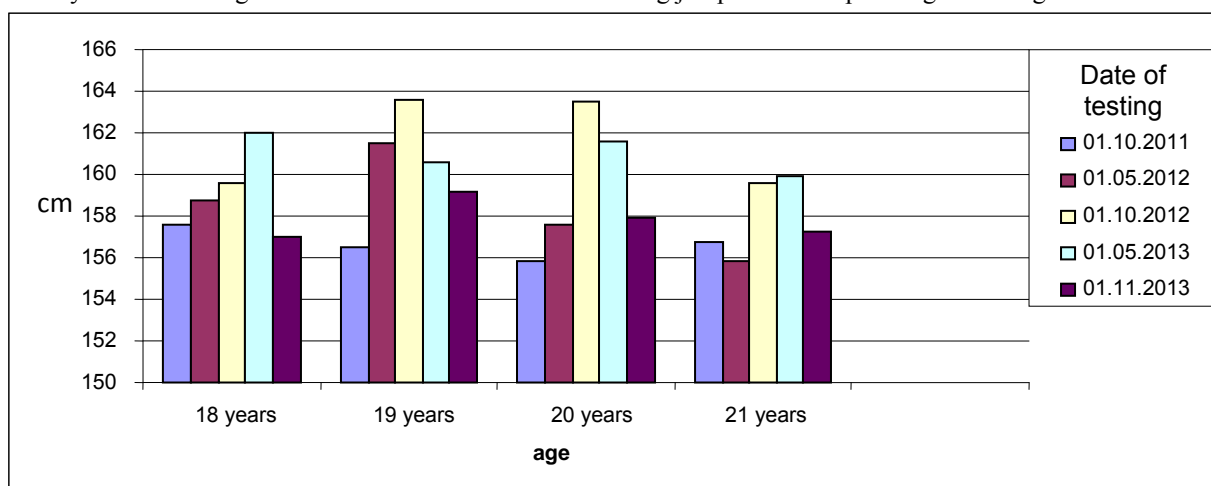


Fig.8. Dynamic of indicators in test "Long jump from the spot"

We did not determine confident differences between indicators of all age girls with their testing in different dates. It can witness about insufficient effectiveness of used motion loads on lower limbs' muscles.

Conclusions:

1. Observation over age dynamic of physical fitness of special health group's girl students during 5 semesters permitted to determine positive dynamic in 5 from 8 motion tests by 5th semester (with "twice a week" physical culture lessons). We did not register positive changes in general endurance of organism (100 meters' run), torso muscles' strength (test "torso rising during 30 seconds" and lower limbs (test "long jump from the spot").

2. With passing to "once a week" physical culture lessons (from 5th semester) in all 8 tests we registered confident worsening of motion characteristics.

3. Monitoring of girl students' physical fitness can be regarded as a factor of increase of youth physical education's pedagogical orientation. The received results permitted to correct academic process; in particular to pay special attention to development of weak motion qualities with the help of appropriate physical exercises. Besides, with passing to "once a week" lessons it is recommended to use controlled independent trainings for maintaining of required physical condition with compulsory records in diary of self-control.

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