

SCI-CONF.COM.UA

INTERNATIONAL SCIENTIFIC INNOVATIONS IN HUMAN LIFE



**PROCEEDINGS OF IV INTERNATIONAL
SCIENTIFIC AND PRACTICAL CONFERENCE
OCTOBER 20-22, 2021**

**MANCHESTER
2021**

INTERNATIONAL SCIENTIFIC INNOVATIONS IN HUMAN LIFE

Proceedings of IV International Scientific and Practical Conference

Manchester, United Kingdom

20-22 October 2021

Manchester, United Kingdom

2021

UDC 001.1

The 4th International scientific and practical conference “International scientific innovations in human life” (October 20-22, 2021) Cognum Publishing House, Manchester, United Kingdom. 2021. 633 p.

ISBN 978-92-9472-195-2

The recommended citation for this publication is:

Ivanov I. Analysis of the phaunistic composition of Ukraine // International scientific innovations in human life. Proceedings of the 4th International scientific and practical conference. Cognum Publishing House. Manchester, United Kingdom. 2021. Pp. 21-27. URL: <https://sci-conf.com.ua/iv-mezhdunarodnaya-nauchno-prakticheskaya-konferentsiya-international-scientific-innovations-in-human-life-20-22-oktyabrya-2021-goda-manchester-velikobritaniya-arhiv/>.

Editor

Komarytskyy M.L.

Ph.D. in Economics, Associate Professor

Collection of scientific articles published is the scientific and practical publication, which contains scientific articles of students, graduate students, Candidates and Doctors of Sciences, research workers and practitioners from Europe, Ukraine, Russia and from neighbouring countries and beyond. The articles contain the study, reflecting the processes and changes in the structure of modern science. The collection of scientific articles is for students, postgraduate students, doctoral candidates, teachers, researchers, practitioners and people interested in the trends of modern science development.

e-mail: manchester@sci-conf.com.ua

homepage: <https://sci-conf.com.ua>

©2021 Scientific Publishing Center “Sci-conf.com.ua” ®

©2021 Cognum Publishing House ®

©2021 Authors of the articles

TABLE OF CONTENTS

AGRICULTURAL SCIENCES

1. *Горбась С. М., Колодченко А. В.* 13
ОСОБЛИВОСТІ ВИРОЩУВАННЯ ТРОЯНДИ.
2. *Горбась С. М., Колодченко А. В.* 15
ОСОБЛИВОСТІ ВИРОЩУВАННЯ АКТИНІДІЇ.
3. *Марковська О. Є.* 17
ВПЛИВ ЕЛЕМЕНТІВ АГРОТЕХНІКИ У СІВОЗМІНІ НА
ФОРМУВАННЯ МІКРОБНОГО ЦЕНОЗУ ҐРУНТУ ПІД
ПОСІВАМИ СОЇ.
4. *Юркевич Є. О., Валентюк Н. О., Горішний Д. П.* 21
АГРОБІОЛОГІЧНЕ ОБҐРУНТУВАННЯ НОРМИ ВИСІВУ ГРЕЧКИ
В УМОВАХ СТЕПУ УКРАЇНИ.

VETERINARY SCIENCES

5. *Яценко І. В., Казанцев Р. Г.* 26
СУДОВО-ВЕТЕРИНАРНА ОЦІНКА СТУПЕНЯ ТЯЖКОСТІ
ТІЛЕСНИХ УШКОДЖЕНЬ, ВИЯВЛЕНИХ В ТРУПІ ТВАРИНИ.

BIOLOGICAL SCIENCES

6. *Бондар В. В., Максименко Ю. В.* 38
МОЖЛИВІСТЬ І ДОЦІЛЬНІСТЬ ВИКОРИСТАННЯ
БІОТЕХНОЛОГІЧНИХ РОЗРОБОК В РОБОТОТЕХНІЦІ.
7. *Максименко Ю. В., Вискушенко Д. А., Філінська А. О.* 42
БІОЛОГІЧНІ АСПЕКТИ ТОКСИЧНОГО ВПЛИВУ НА
ГІДРОБІОНТІВ РІЧКИ ТЕТЕРІВ.

MEDICAL SCIENCES

8. *Abrahamovych O., Abrahamovych U., Tsyhanyk L.* 47
THE ASSESSMENT OF BONE MINERAL DENSITY IN PATIENTS
WITH SYSTEMIC LUPUS ERYTHEMATOSUS AND SYNTROPIC
COMORBID LESIONS OF DIGESTIVE SYSTEM.
9. *Bakun O., Mykhalchuk Ju.* 50
PECULIARITIES OF HORMONAL STATUS IN THE BLOOD
WOMEN WITH ENDOMETRIOSIS ASSOCIATED WITH
INFERTILITY.
10. *Bakun O., Terekhovska A.* 55
IMPLEMENTATION OF PLASMAPHERESIS IN WOMEN WITH
INFERTILITY ASSOCIATED WITH ENDOMETRIOSIS BEFORE IN
VITRO FERTILIZATION.
11. *Bakun O., Tkachuk A.* 60
IMPLEMENTATION OF SOME PHYTO MEDICATIONS IN
WOMEN WITH HYPOGALACTIA IN POSTNATAL PERIOD.

12. *Bekenov N., Kaldygozova K., Berdikulova K., Baizhan B., Tursynbayeva A.* 65
COMPUTER TECHNOLOGIES IN THE TRAINING OF INTERN DOCTORS.
13. *Kamilova I. A.* 70
EVALUATION OF POLYMORPHIC VARIANTS OF THE ARG72PRO LOCUS OF THE TP53 GENE IN THE DEVELOPMENT OF CERVICAL INTRAEPITHELIAL NEOPLASIA IN UZBEK WOMEN.
14. *Kyrychenko M. P., Shenher S. V., Dunaeva O. V., Goncharova A. V.* 75
PHYSIOLOGICAL ADEQUACY OF MENTAL WORK IN STUDENTS.
15. *Mandryk O. E., Blashchuk A. O.* 83
CHANGES IN CYTOLYSATE OF CHOLESTASIS IN PATIENTS WITH NONALCOHOLIC STEATOHEPATITIS WITH CONCOMITANT ASTHMA AND OBESITY.
16. *Najmutdinova D. K., Kamilova I. A.* 85
ASSESSMENT OF THE SULT 1A1 GENE IN PATIENTS WITH CERVICAL INTRAEPITHELIAL NEOPLASIA.
17. *Narizhnaya A. V., Olkhovsky D. V., Skorokhod V. S., Tkachenko S. V., Hermasheva E. V.* 89
DIAGNOSTIC AND TREATMENT OF OBSTRUCTIVE SLEEP APNEA SYNDROME.
18. *Shukurova U. A., Yakhyoyeva Mokhinur* 93
COMPARATIVE EVALUATION OF THE CLINICAL EFFICACY OF PHYTOPREPARATIONS IN THE LOCAL TREATMENT OF CHRONIC GENERALIZED PERIODONTITIS OF MODERATE SEVERITY.
19. *Аскаръянц В. П., Крайнова Д. Р., Ходжаева Бонухон Хасан кизи, Музафаров Отабек Гайрат угли* 97
К ВОПРОСУ О РЕГУЛЯЦИИ СЕКРЕЦИИ ГОРМОНОВ.
20. *Аскаръянц В. П., Махмудова Умида Бахром кизи, Тошмаматова Маржона Сарвар кизи, Абдувахидова Севара Талъатбек кизи* 104
К ВОПРОСУ ОБ ЭНДОКРИННЫХ И ЭНДОКРИННО-НЕРВНЫХ ВЗАИМООТНОШЕНИЯХ.
21. *Аскаръянц В. П., Фомина К. А., Фаизова А. З., Ким Е. В.* 109
К ВОПРОСУ ОБ ИЗМЕНЕНИИ ВНЕШНЕСЕКРЕТОРНОЙ ПАНКРЕАТИЧЕСКОЙ СЕКРЕЦИИ КРЫС ПОД ДЕЙСТВИЕМ ПЕСТИЦИДА.
22. *Гаевская М. Ю., Онохина Я. К., Климук А. В., Славская Ю. И.* 116
ОСОБЕННОСТИ ТЕЧЕНИЯ ЧЕСОТКИ У ВЗРОСЛЫХ.

PHYSIOLOGICAL ADEQUACY OF MENTAL WORK IN STUDENTS

Kyrychenko Mikhailo Petrovich

Candidate of medical sciences, docent, associate professor,

Shenher Svitlana Volodymyrivna,

Senior teacher,

Dunaeva Olga Viktorivna,

Candidate of biological sciences, associate professor, docent

Goncharova Alina Valeriivna,

Candidate of biological sciences, associate professor

Kharkiv National Medical University, Kharkiv, Ukraine

Summary Physiological adequacy of the students' mental work Physical and mental work requires energy from the body. The harder physical labor is, the more energy is required by the body, which is interpreted by changes in respiratory rate, heart rate, blood pressure, body temperature, etc. These parameters and indices are not always suitable for assessing mental performance. This is especially true for junior students (1-2 courses), who have not yet developed sufficient resistance to prolonged (10-12 hours a day) intense mental loading.

Key words: students, educational process, stimuli of the first and second signal systems, excitation and inhibition reactions

Purpose of the research: identification and studying physiological changes in young students caused by prolonged intense mental work.

Material and methods. 33 students of the 2nd year, aged from 18 to 20 years old, were under observation, which made up 3 groups: the main group (excellent students, 3-4 hours a day of extracurricular time), the comparative group (good students, up to 2 hours a day of extracurricular time) and the control group (less than 2 hours a day of work at home). The study was carried out in three stages and included the determination of the range of responses to stimuli of the first signal system (light, color and sound) and the second signal system (exposure to words).

The 1st stage - active stimulation of the first signal system, the 2nd stage (after a month) - stimulation of the first signal system was replaced by the second signal system; the 3rd stage – determination of the restoration rate of the response reactions by mean of replacing visual color stimuli on hearing (the second signal system).

Results. The students of the main group under the influence of a prolonged (4 hour) of active mental work, changed the nature of conditioned reflexes to sound and light stimuli. In the students of the 2nd group the character of reaction on stimuli of the first and second signaling systems changed by the end of the lesson but not so expressed in comparison with excellent students. The students of the third group, usually having less knowledge prepared by careful homework and passive (mostly) staying in class demonstrated relatively fast quality and durable consolidation of conditioned reflex skills, which was clearly manifested as in the beginning of the lesson, and at the end of it.

Conclusion

1. Decrease in the mobility of the processes of excitation and inhibition in students in the process of practical training determines the quality of acquired knowledge and development of individual characteristics of mental fatigue.

2. Duration, volume and quality of the studied material can affect the speed and strength of reflex responses of the central nervous system, associated with the processes of excitement and inhibition among students.

Introduction. Any work activity determines various changes in the physiological functions of the body. The physical and mental works require certain energy providing and psycho-emotional efforts for their high-quality implementation [1, p. 410–417]. At the end of the performed work, fatigue reactions appear that have a wide range of manifestations and various durations [2, p. 2375–2393, 3, p. 1-15, 4, p. 2-11]. The natural changes occurring in the body in the process of physical labor, obey the general rule - the harder is the physical labor, the more energy consumption of the body it requires: the increases of number of respiratory movements, pulse rate, circulating blood volume, the volume of cardiac output of blood by the heart in one contraction and in one minute, blood pressure, body temperature, etc. But for the

monitoring and evaluating the mental activity, for example, memorizing and analytical, these parameters and indices are not always suitable, since the creative, educational and neuropsychic work almost does not cause the body changes of additional energy demands and meanwhile, the tense mental work requires concentration of attention, some efforts of memory, creative analysis for making the right decisions, conclusions and a certain psychological resistance [5, p. 82-96]. For many people, this process is not easy and can cause long-term, deep fatigue, and sometimes in some of them depression. In particular, it concerns to students, especially for junior students who have not yet developed a sufficient preliminary resistance for the long-term (10-12 hours a day) intensive mental loading, usually associated with psycho-emotional tension on the background of a lack of physical efforts (so necessary for the young developing organism) [6, p. S60-79, 7, p. 1-18]. Of particular interest is the prolonged functional stress of the visual analyzer. Such mental stress cannot be unrelated to certain volitional efforts.

The purpose of the study. Identification and studying of the physiological changes in the body of young students, caused by intensive mental work.

Materials and research methods. The studying was conducted in KhNMU on the basis of the Department of Physiology. The study involved 33 of the 2nd year students at the age of 18-20 years (15 boys and 18 girls), who were divided into 3 groups: main, comparative and control. The first group consisted of 8 students (3 males and 5 females) who study with "Excellent" mark and spend at least 3-4 hours of home and extracurricular studying every day. The second group included 14 students (9 females and 5 males) students studying mainly with "good" marks and spending on study up to 2 hours of extracurricular time of regular preparation. The third a group of 11 people (7 males and 4 females) consisted of students who spend less than 2 hours of daily extracurricular time for home preparation, mostly irregular. These groups were formed on the basis of the real studying progress of students and their questionnaire results. The research was carried out in three stages. At the first stage on the base of active stimulation of the first signaling system through the visual and auditory analyzer in the form of flashing lamps of two colors (green and red) and

a bell. It was formed movement reflex. A month later, the second stage of the study began. The irritation of the first signaling system has been replaced by irritation the second signaling system, for the formation of an adequate response reflex reactions. The third stage was carried out in order to determine the speed of restoration of response reflex reactions by replacing visual color stimuli.

At the beginning, the examined students of the three groups developed a certain motor reflex to sound and light, that is, to stimuli the first signaling system. As soon as the bell rang or flashed a light bulb, the subject should immediately give one or two (depending on the type of stimulus, and this was discussed in advance) of the response signal - to press a certain button. The sequence of action of both stimuli (flashing of red and green lamps) and the rate of response signals (produced by pressing the button by the student) was brought to information of the participants immediately before the experiment. Lag, failures, violations of the timing of response signals were noted by the inspector (responsible teacher). Such an impact and response formed a reflex stereotype of the first reaction signaling system in students. A month later the formed stereotype was changed: bulbs did not flash, calls did not ring. but were heard only clearly the words of the experimenters: "the color is green!", "The color is red!", "Bell!", Which should have been perceived by the subjects as impact signals. The word is the only irritant of the second signaling system inherent only to humans and a component of the physiological basis of a conscious, mentally meaningful activities. The research was carried out at the beginning of a 4 hour practical class and at the end of it, during the initial and final level knowledge. We also compared the results of the study among students, engaged in the morning classes and afternoon classes.

Results. The students of the main group under the influence of a prolonged (4 hour) of active mental work, changed the nature of conditioned reflexes to sound and light stimuli, more expressed during experiment in the afternoon. First of all, it should be noted the slowing down the speed of the necessary responses reactions to stimuli, the accuracy of differentiation worsened, more than half of the examined students made mistakes in proper responses reactions it became worse the ability to

the distinguish and distinguish between sound and light signals. 82% of the investigated students of this group showed varying degrees of disturbances of the normal relationship between a specific signal and frequency, as well as the strength of the response reaction (error with the frequency of pressing the button, insufficient pressing force, as a result of which the response does not counted). The negative shifts in the response reactions were greater expressed in the sphere of the second signaling system in comparison with the first. In the afternoon, students of this group (especially female students) noted the presence of various elements of moderate expressed fatigue and the real need for some rest, but not related to reading, work on the computer and ideas for next day. In the students of the second group the character of reaction on stimuli of the first and second signaling systems changed by the end of the lesson but not so expressed in comparison with excellent students. They demonstrated resistance to fatigue reactions. It should be noted that the excellent students of this group noted the phenomena when the second signaling system experienced "overload", like the first.

For a comparative description of the rate of reflex rearrangement another experimental technique was applied. The students are accustomed to press the buttons when the green lamp flashed and do not press when lit red. After that when these skills are established, the conditions of experiment were changed (1 month): a red lamp was lit, on which a signal students had to press a button (one or more times) and lit green, the signal of which should be ignored. In the students of the second group, such a restructuring of reflexes occurred in the same way both at the beginning and in end of the lesson.

At the beginning of the lesson, for the students of the first group it was enough one repetition, and at the end of the practical lesson they got lost and needed 6-8 repetitions. Two students failed to achieve fast and qualitative restructuring of conditioned reflexes. The students of the third group, usually having less knowledge prepared by careful homework and passive (mostly) staying in class demonstrated relatively fast quality and durable consolidation of conditioned reflex skills, which was clearly manifested as in the beginning of the lesson, and at the end of it. These

same students did not differ in the presence of various elements of fatigue and need in rest. Some of them differed in the expressiveness of easy fatigue. Their behavior was ease and they did not suffer from the obtained results, mostly bad ones.

Discussion. The educational and cognitive process begins with assimilation necessary information through the sensory organs (vision and hearing) and forms ideas, concepts, and (finally) knowledge itself. For this process is very important the abstract-generalized reflection of the external world, expressed in logical thinking in the form of concepts, judgments and reasoning. Therefore, sensations and perceptions are the necessary starting point for all our knowledge. This is based on the sensorimotor reflex principle, explaining the influence of external and internal impulses for reflex and automatic movements it is. Need to take into consideration that sensory impulses regulate the various combined movements, including the typical voluntary movements and motor reflexes, which are largely subject to will, i.e. individual psychological characteristics of the personality.

It is necessary to point out two important factors influencing the reflex-sensory response in our experiment: this is a reflex movement and reflex time. Reflex movement is characterized, firstly, by correct (required at the moment) muscles coordination, i.e. simultaneous and systematic contraction of individual muscle groups. Secondly, these muscle contractions occur in the correct sequences. Reflex time - the period of time from the moment actions of the stimulus before the start of the response of motor act, characterized by a certain speed, amplitude and quality. Both reflex movement and reflex time are interdependent and are under the influence of both favorable and unfavorable factors of external and the internal environment. In recent years, more and more attention has been paid to identifying the features of the influence of the main properties of the central nervous system on the student efficiency, speed, accuracy and completeness of the acquired knowledge. For this work, the central nervous system is concentrated and has one motivation. The peculiarities of the relationship the interdependence of the development of motor-physical and neuropsychic properties and qualities of students, which can be strong and weak have great importance for this process. The principle of learning

determinant can be explained to some extent by individual degree of personal (extracurricular) and environmental (classroom) conditionality of educational achievements in the form of an indicator academic performance. In case of non-compliance or violation of extracurricular or classroom, or combinatorial activity, in which all CNS is included the academic performance will decline. The characteristic sensory-motor status and specificity of functional manifestations in each individual student is formed by a kind of complex of individual characteristics that provide high (excellent), sufficient (good) or poor educational performance. Although the specific features of this sensory-reflex students' status is not always enough clearly delineated due to possible individual compensations and personal work of the teacher, the quality of learning and development of natural adaptive signs of fatigue.

Conclusions.

1. Decrease in the mobility of the processes of excitation and inhibition in students in the process of practical training determines the quality of acquired knowledge and development of individual characteristics of mental fatigue.

2. Duration, volume and quality of the studied material can affect the speed and strength of reflex responses of the central nervous system, associated with the processes of excitement and inhibition among students.

REFERENCES

1. Pontzer H., Durazo-Arvizu R., Dugas L. R., Plange-Rhule J., Bovet P., Forrester T. E., Lambert E. V., Cooper R. S., Schoeller D. A., Luke A. Constrained Total Energy Expenditure and Metabolic Adaptation to Physical Activity in Adult Humans // *Current biology*. - 2016. - 26(3). – P. 410–417. <https://doi.org/10.1016/j.cub.2015.12.046>.

2. Micklewright D., St Clair Gibson A., Gladwell V., Al Salman A. Development and Validity of the Rating-of-Fatigue Scale // *Sports medicine (Auckland, N.Z.)*. - 2017. - 47(11). – P. 2375–2393. <https://doi.org/10.1007/s40279-017-0711-5>.

3. Hogan P.S., Chen S.X., Teh W.W., Chib V.S. Neural mechanisms

underlying the effects of physical fatigue on effort-based choice // *Nature communications*. - 2020. - 11(1), 4026. – P.1-15. <https://doi.org/10.1038/s41467-020-17855-5> .

4. Wan J.J., Qin Z., Wang P.Y., Sun Y., Liu X. Muscle fatigue: general understanding and treatment / *Experimental & molecular medicine*. – 2017. - 49(10), e384. – P.2-11. <https://doi.org/10.1038/emm.2017.194>

5. Thomson D.R., Besner D., Smilek D. A resource-control account of sustained attention: evidence from mind-wandering and vigilance paradigms // *Perspect Psychol Sci*. – 2015. - Jan; 10(1). – P. 82-96. doi: 10.1177/1745691614556681. PMID: 25910383.

6. Faigenbaum A.D., Kraemer W.J., Blimkie C.J., Jeffreys I., Micheli L.J., Nitka M., Rowland T.W. Youth resistance training: updated position statement paper from the national strength and conditioning association / *J Strength Cond Res*. – 2009. - Aug;23(5 Suppl). – P.S60-79. doi: 10.1519/JSC.0b013e31819df407. PMID: 19620931.

7. Pullen B.J., Oliver J.L., Lloyd R.S., Knight C.J. The effects of strength and conditioning in physical education on athletic motor skill competencies and psychological attributes of secondary school children: a pilot study / *Sports (Basel)*. – 2020. - Oct 17;8(10):138. - P.1-18. doi: 10.3390/sports8100138. PMID: 33080924; PMCID: PMC7603223.