The measurement of anxiety as a property of personality is especially important, since this property largely conditions the behavior of the subject. A certain level of anxiety is a natural and obligatory feature of an active active personality. Each person has his own optimal, or desirable, level of anxiety – this is the so-called useful anxiety. A person's assessment of his state in this respect is an essential component of self-control and self-education [4].

Anxiety levels in athletes of different sports have been described in the literature, but descriptions of reactive and personality anxiety specifically in female synchronized swimming athletes have not been investigated. Anxiety can affect their performance. Anxiety control and support from coaches and psychologists can help athletes to achieve better performance and overcome emotional barriers.

When analyzing existing research on anxiety levels in professional ice hockey athletes, a high level of reactive anxiety was found. These results help to conclude that in team sports the level of reactive anxiety will be increased [5].

### **CONCLUSION**

Comparison of the results of both subscales makes it possible to assess the individual significance of the stressful situation for the subject. Due to its relative simplicity and effectiveness, the Spielberger scale is widely used in the clinic for various purposes: to determine the severity of anxiety, to assess the state in the dynamics, etc. The Spielberger scale is also used in the clinic.

The obtained results allow us to make some conclusions. Female athletes with a high level of personal and situational anxiety should form a sense of confidence and success in sports activities.

Synchronists with a moderate and low level of personal anxiety should also continue to try to maintain it at this level, to develop their own methods and ways of regulating competitive anxiety.

Personality anxiety is of great importance for the athlete. The level of its expression has a significant impact on the result of sports activity. The optimal level of anxiety will help a synchronous swimming athlete to concentrate on the upcoming activity and mobilize forces for the fight [6].

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# ВЛИЯНИЕ ПРОДОЛЖИТЕЛЬНОСТИ И КАЧЕСТВА СНА НА АКАДЕМИЧЕСКУЮ УСПЕВАЕМОСТЬ СТУДЕНТОВ УГМУ МИНЗДРАВА РОССИИ

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#### Аннотация

Введение. Статья посвящена проблеме влияния качества сна на академическую успеваемость студентов УГМУ Минздрава России. В ходе исследования изучена и проанализирована продолжительность сна студентов-медиков 1-2 курса в будни и выходные, качество сна, а также влияние искомых показателей на результаты их учебной деятельности, сдачу экзаменов. Цель исследования — определить взаимосвязь между качеством сна студентов и академической успеваемостью, включая ежедневные отметки и результаты экзаменов. Материал и методы. В исследовании был использован метод анкетирования. Опрос велся у студентов 1-2 курсов УГМУ отбираемых в рандомном порядке. Критериями включения были приняты уровень образования и отсутствие принятия снотворных. Критериями невключения были приняты прием снотворных и лекарств, влияющих на когнитивные способности и наличие хронических заболеваний. Полученные данные были преобразованы в процентном соотношении. Результаты. У большинства студентов выявлены нарушения режима сна: 85% студентов испытывают в течение дня недосып, усталость и раздражительность, проблемы с концентрацией внимания. 68% респондентов признались, что спят в дневное время. Выводы. Студентам следует обратить внимание на свой режим сна. Ученые рекомендуют спать минимум 7 часов, так как недосып приводит к дневной сонливости, влияет на физическое и когнитивное здоровье обучающихся и их академическую успеваемость, и, как следствие, на качество жизни.

Ключевые слова: студент-медик, качество сна, недосып, академическая успеваемость, режим сна.

# INFLUENCE OF DURATION AND QUALITY OF SLEEP ON THE ACADEMIC PERFORMANCE OF STUDENTS OF USMU OF THE MINISTRY OF HEALTH OF THE RUSSIAN

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#### **Abstract**

Introduction. The article is devoted to the problem of the influence of sleep quality on the academic performance of students of the UGMU of the Ministry of Health of Russia. The study examined and analyzed the sleep duration of medical students 1-2 courses on weekdays and weekends, the quality of sleep, as well as the impact of the desired indicators on the results of their academic activities, exams. The aim of the study is to determine the relationship between the students' sleep quality and academic performance including everyday marks and exam results. Material and methods. The survey method was used in the study. The survey was conducted among 1st and 2nd year students of USMU, selected randomly. The inclusion criteria were the level of education and the absence of taking sleeping pills. Non-inclusion criteria included the use of sleeping pills and medications that affect cognitive abilities and the presence of chronic diseases. The obtained data were converted into percentages. Results. Sleep disorders were detected in most students: 85% of students experience sleep deprivation, fatigue and irritability, and problems with concentration during the day. 68% of respondents admitted that they sleep during the daytime. Conclusion. Students should pay attention to their sleep patterns. Scientists recommend sleeping at least 7 hours, as lack of sleep leads to daytime sleepiness, affects the physical and cognitive health of students and their academic performance, and, as a result, the quality of life.

Keywords: medical student, sleep quality, lack of sleep, academic performance, sleep regime.

#### INTRODUCTION

Sleep is one of the most important physiological processes affecting our health and overall functioning. The quality and duration of sleep have a direct impact on a person's physical and mental well-being, as well as their cognitive abilities and functioning. Students' academic performance is an important criterion for assessing their educational achievements. Research in this area allows us to establish a connection between the quality and duration of sleep and the level of academic performance of students. There are many factors that can affect the quality and duration of sleep in students, such as stress, lifestyle, use of electronic devices before bed, etc. Research in this area is helping to identify these factors and develop recommendations for students to improve their sleep and, as a result, improve their academic performance. Thus, studying the influence of sleep quality and duration on students' academic performance is a relevant and important area of research that can have practical significance and a positive impact on student life.

Sleep is a functional state of the central nervous system and somatic sphere, characterized by the presence of active interaction of the body with the preservation and incomplete continuation of recognizable mental activity. This is inhibition of the main parts of the cerebral cortex, due to which the functionality of neurons is restored. Healthy sleep is necessary for a person and is a condition for

physical and mental health, and is a description of the conditions for a healthy lifestyle. Sleep is one of the main mechanisms of the body, in which a person lives one third of his life [1].

The relationship between sleep and cognitive processes such as memory and learning remains one of the most interesting and confusing theories. First-year medical students are particularly susceptible to sleep disturbances. Academic success and learning are related to sleep rhythms, which include the quantity and quality of sleep, but also the timing of sleep in relation to natural sleep stages [2]. The sleep quality of students is significantly worse than the rest of the population. Sleep problems are associated with increased health problems, irritability, depression, fatigue, attention and concentration difficulties, and poor academic performance. Studies have shown that sleep disorders are sometimes caused by psychosocial stressors, and psychosocial stressors also culminate in insufficient sleep [3]. Disturbed and insufficient sleep causes impaired judgment, restlessness, irritability and inability to process information in the short term, and in the long term can contribute to cardiometabolic disorders and even increased mortality. Sufficient, high-quality and optimal sleep facilitates memory processing and learning [4]. It helps maintain concentration, cognitive function, sensorimotor integration and memory processing. Sleep patterns and habits vary depending on a person's age, work demands, social responsibilities, psychiatric and somatic conditions, and individual physiological characteristics [5], [6].

**The aim of the study** is to determine the relationship between the students' sleep quality and academic performance including everyday marks and exam results.

## MATERIAL AND METHODS

The study used a questionnaire method. The obtained data were converted into percentages.

To determine the level of sleep the survey was conducted using Google Forms. Questionnaire included a number of the following questions:

- 1. How many hours do you sleep on weekdays?
- 2. How many hours do you sleep on weekends?
- 3. What time do you usually go to bed?
- 4. Do you often feel lack of sleep?
- 5. Do you remember class material more easily if you get enough sleep?
- 6. Have you noticed that the result of an exam depends on the amount of sleep before it?
- 7. How would you rate your sleep?
- 8. How do you feel during the day?
- 9. Do you sleep during the day after studying?

The survey was conducted on the basis of USMU during the period September 2023 – January 2024. The selection of students to participate in the study was conducted randomly, taking into account the inclusion and non-inclusion criteria.

Inclusion criteria:

- full-time undergraduate studies of 1-2 years
- absence of taking sleeping pills
- voluntary agreement to take part in the study

Non-inclusion criteria:

- training at more senior courses
- taking sleeping pills
- taking pills that can affect cognitive abilities
- chronic diseases that cause poor academic performance compared to other students

Due to the categorical nature of the potential results, only the absolute level of error was assessed.

Analysis of the results obtained using Microsoft Excel 2016.

### **RESULTS**

The final cohort consisted of 100 USMU students. The age of the participants is 18-20 years (average  $-19.5 \pm 0.5$  years).

So, about 46% go to bed between 2:00 am. and 3:00 am., 39% go to bed between 11:00 pm - 1:00 am, 9% go to bed later than 3:00 am, 6% go to bed between 7:00 pm and 8:00 pm. Of the

respondents, 68% sleep 4-6 hours on weekdays, 23% - 7-9 hours, 8.5% - 1-3 hours, 0.5% - more than 9 hours. At the same time, they rate their sleep as: 49% long and sound sleep, 21% shallow and short sleep, 17% restless and interrupted sleep, 13% long and unsound sleep.

As a result, respondents feel during the day: 40% daytime sleepiness, 28% problems concentrating, 21% fatigue and irritability, 11% don't feel any of it.

Consequently, 68% of students resort to daytime sleep after studying. Therefore, on weekends, 49% of students sleep more than 9 hours, 43% 7-9 hours, 9% 4-6 hours.

The majority of students (94%) are confident that the material in classes is remembered better if you get enough sleep, and 64% noticed that the exam result depends on the amount of sleep before it.

#### **DISCUSSION**

Several studies support the view that during sleep, namely during the four stages of sleep, a process occurs in which memory is transferred from the temporary storage (hippocampus) to the cerebral cortex. Therefore, a person cannot fully restore the function of the cerebral cortex when the duration of sleep is shortened [1]. According to theoretical means, the optimal bedtime is between 20:00-23:00 and the duration of sleep is 7-9 hours.

Based on the results obtained, it can be concluded that sleep quality affects the academic performance of first-year students. The majority of respondents with low sleep quality note increased daytime sleepiness and a decreased ability to remember new material. As already mentioned, this may be due to the fact that during sleep, information is transferred from short-term memory to long-term memory. In addition, this phenomenon can be explained by the work of the glymphatic system, which is responsible for cleansing the nervous tissue of toxic metabolites that can potentially reduce the activity of neurons, including in the cerebral cortex [7].

However, the study also has its limitations. Is not take into account or exclude other factors such as exam stress, exam difficulty, etc. that may contribute to poor academic performance. It was also conducted among students at only one medical university and cannot be generalized to the entire population. This is a cross-sectional study that only shows association and in no way determines causation.

#### **CONCLUSION**

Thus, the analysis of baseline data provided evidence for the hypothesis that there is a strong relationship between the quantity, quality and performance of students. Balanced sleep patterns improve academic performance.

Analysis of the relationship between sleep quality/quantity and academic performance clearly demonstrated a correlation. For this reason, students should understand the importance of adequate sleep for their academic performance and health. Thus, if a student gets enough sleep, then

his mental functioning improves. For high results in educational activities, students need to pay due attention to sleep, namely, to build the correct sleep pattern. This will not only improve the quality and quantity of sleep, but and generally structures life.

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#### ОСОБЕННОСТИ БОЛЕВОГО СИНДРОМА

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#### Аннотация

Введение. Боль – причина частых медицинских консультаций, и поэтому она является предметом многочисленных исследований, относящихся как к фундаментальной, так и к клинической науке. Многие патологии сопровождаются болевыми ощущениями, однако в редких случаях болевой синдром имеет неясный или блуждающий характер. Цель исследования - изучить различные виды и особенности болевого синдрома, выделить общие методы лечения рекомендации к лечению. Материал и методы. В ходе исследования был проведен анализ зарубежной и отечественной литературы и полученных результатов исследования в поликлиниках №, 37, № 56 и № 102 Департамента здравоохранения г. Москвы и в поликлинике № 3 Центральной клинической больницы Российской академии наук., обобщены понятия болевого синдрома. Результаты. Анализ литературы позволил выявить, что боль представляет собой феномен, включающий в себя множество уникальных переживаний, которые обусловлены различными причинами и обладают определенными качествами. Эти качества проявляются в различной изменчивости в зависимости от таких критериев, как: соматосенсорный, висцеральный, эмоциональный и когнитивный. Анализ исследования показал, что для устранения болевого синдрома эффективно использовать кетерол и кетопрофен. Выводы. Болевой синдром по своему происхождению и развитию отличается большим разнообразием. Это явление усложняет задачу достижения удовлетворительного определения боли. Современный профессиональный подход к лечению болевых синдромов должен предусматривать знание патофизиологии, психофизиологии, систематическое обследование пациента и дифференцированное индивидуализированное лечение.

**Ключевые слова:** болевой синдром, Комплексный регионарный болевой синдром, боль, синдром, медикаменты, пациенты, лечение.

#### FEATURES OF THE PAIN SYNDROME

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#### **Abstract**

Introduction. Pain is the cause of frequent medical consultations, and therefore it is the subject of numerous studies. Many pathologies are accompanied by pain, but in rare cases, the pain syndrome has an unclear or wandering character. The aim of the study is to research the various types and features of pain syndrome, to identify common methods of treatment and treatment recommendations. Material and methods. In the course of the study, an analysis of foreign and national literature was carried out and the analysis of the obtained research results in polyclinics No. 37, No. 56 and No. 102 of the Moscow Department of Health and in Polyclinic No. 3 of the Central Clinical Hospital of the Russian Academy of Sciences., the concepts of pain syndrome are generalized. Results. In the course of studying the relevant material of foreign and domestic literature, an analysis of this topic was carried out. He revealed that pain is a phenomenon that includes many unique experiences that are caused by various causes and have certain qualities that manifest themselves depending on criteria such as somatosensory, visceral, emotional and cognitive. The analysis of the study showed that ketorolac and ketoprofen are effectively used to eliminate pain syndrome. Conclusion. Pain syndrome has a wide variety of origins and development. This phenomenon has complicated the task of achieving a satisfactory definition of pain. A modern professional approach to the treatment of pain syndromes should include knowledge of pathophysiology, psychophysiology, systematic examination of the patient and differentiated individual treatment.

**Keywords:** pain syndrome, complex regional pain syndrome, pain, syndrome, drugs, patients, treatment.