

**ВИКЛАДАННЯ АНАТОМІЇ ЯК МИСТЕЦТВО ЯКІСНОГО  
ЗАПАМ'ЯТОВУВАННЯ, КЛІНІЧНОГО ВІДТВОРЕННЯ І  
ПРАКТИЧНОГО ЗАСТОСУВАННЯ**

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**ANATOMY TEACHING AS AN ART OF HIGH-QUALITY  
MEMORIZATION, CLINICAL REPRESENTATION AND  
PRACTICAL USE**

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**Наварчук Наталія, Гузик Александра. Преподавание анатомии как искусство качественного запоминания, клинического отображения и практического применения. Целью статьи является анализ подбора методов эффективного изучения анатомии человека и лучшего обеспечения их возможностей и эффективности для студентов в условиях учебного процесса в медицинском университете. Материалом для изучения послужили особенности взаимодействия студентов и преподавателей в учебном процессе. Научная новизна. Впервые описано использование различных методов, основанных на образном мышлении, что позволяет улучшить качество знаний студентов, осознание информации в рамках других дисциплин для качественного запоминания, клинического воспроизведения и практического применения. Выводы. Опыт проведения занятий по анатомии человека без применения и с непосредственным применением мнемоники позволяет сделать вывод, что использование различных методов и приемов, основанных на образном мышлении, дает возможность повысить качество знаний студентов, а также для усвоения информации в рамках других дисциплин.**

**Ключевые слова:** анатомия, мнемотехнические методы, память, обучение, воспроизведение.

**Introduction.** It is considered today, that memory mechanisms have been investigated quite well. But when conversation turns to its development, the problem arises invariably: which type of memory should be developed — logical, image or eidetic one? In this regard scientists do not have common opinion, because each memory type has its own specific peculiarities, correlating with tasks, which a human faces in the moment<sup>1</sup>.

According to duration of information consolidation and retention memory processes are divided to three categories: sensory memory (which ensures retention of the large information volume, received from sense receptors for 1-4 seconds), short-term memory (servicing operational processes of imprinting, retention and conversion of information, coming from sense receptors and lasting for several minutes) and long-term memory (continuous retention of information)<sup>2</sup>. Most students often take strategy of superficial studying in anatomic units due to large volume of presented information. Superficial study strategies influence anatomy information retention negatively<sup>3</sup>. Really, retention of fundamental knowledge if the sphere of science is best of all described by «forgetting curve with negative (logarithmic) acceleration»<sup>4</sup>. About 25% of knowledge is lost in a year<sup>5</sup>. In devising anatomy courses, account should

be taken of individual student learning styles in anatomy teaching and learning as this will enhance the student experience and facilitate deeper learning. Students learn in different ways: some individually but more often in collaboration. Assessment drives learning, though whether this always encourages deep learning may depend on the student. Design of anatomy curricula ought to take account of learning style so that the optimum learning environment is offered, as well as the opportunity for students to try out different styles, as their style may change over the duration of their studies.

**The purpose** of the recent article is to analyze the selection of the methods of anatomy teaching and to ensure their opportunities and efficiency for mentoring students to the terms and conditions of the educational process in a medical university.

**The material, results and discussion.** The peculiarities of interaction between students and teachers during the educational process served the material for the studying.

Improvement of pedagogic skill in high school is one of the most important tasks of the modern education modernization. Schooling of future doctors supposes reliable digestion and retention in memory of the large information volume, which is necessary for their further professional

<sup>1</sup> Klement BJ, Paulsen DF, Wineski LE. “Anatomy as the backbone of an integrated first year medical curriculum: design and implementation”, *Anat Sci Educ*, 2011, vol.4, P.157–169.

<sup>2</sup> Krych AJ, March CN, Bryan RE, Peake BJ, Pawlina W, Carmichael SW. “Reciprocal peer teaching: students teaching students in the gross anatomy laboratory”, *Clin Anat.*, 2005, vol. 18, P. 296–301.

<sup>3</sup> Ward P.J. “First Year Medical Students’ approaches to study and their outcomes in a gross anatomy course”, *Clinical Anatomy*, 2011, vol. 24 (1), P. 120-127.

<sup>4</sup> Lasic, E., Dujmovic J., Hren D. “Retention of basic sciences knowledge at clinical years of medical curriculum”, *Croatian Medical Journal*, 2006, vol. 47 (6), P. 882–887.

<sup>5</sup> Custers E.J.F.M. “Long-term retention of basic science knowledge: a review study”, *Advances in Health Sciences Education*, 2010, vol. 15, P. 109–128.

activity. One of the routes of this aim achieving may be use in the educational process of mnemonics – the set of methods and techniques, facilitating memorizing and increasing memory volume by creation of artificial associations. Mnemonics use permits to transfer information to forms, easily retained in the long-term memory.

Complicacy of anatomic material learning is determined by the large number of special terms taken from foreign languages (Latin, Greek and others). Peculiarity of human anatomy studying is the fact, that only small percentage of required information may be remembered with logic links assistance. The most part of it does not lend itself to logical systematization. Just to remember such information blocks in the process of human anatomy studying we've offered various mnemonic methods and interactive methods of teaching, based mostly on imaginative thinking. Among them there are: 1. Transformation of memorized information into bright concrete images (teacher's demonstration of the structural parts of the organ with analogy in human body structures (the teacher says: «I am uterus» - shows arms as uterine tubes analogues, body – as uterine body, and the waist is uterine neck). 2. Rhymed lines use memorizing, such as, for example:

Жировая клетка – страшная кокетка,  
В мыслях о приданом красится суданом,  
В профиль перстневидна, а нутром липидна.  
Вот ведь что обидно. . .

Adipose cell is enormous coquette  
Dreaming of the dowry makes up herself with Sudan  
In profile it is signet ring, and inside it is lipidic  
And it is a pity...

3. Mnemonic abbreviations (for example, liver port composition parts – DVA, where D - ductus hepaticus communis, V – vena portae, A – arteria hepatica propria). 4. Position of memorized terms letters (composition parts of roots of lung in the right side BAVV, in the left side – ABVV, where A – pulmonary artery, B – primary bronchus, V – pulmonary veins); upper extremity skin innervation «UMRU» - U – n. ulnaris, M – n. medianus, R - radialis). 5) Associative visual and auditory methods. Use of anatomic “tales” and animated cartoons. 6) Role-playing games method – Imitation of in-hospital and resuscitation conditions with use of anatomy and topology knowledge and skills. 7) Artistic – students with developed visual memory, so called visuals, may be advised to draw pictured, because 80% of information they receive due to vision. Anatomic sketch method may be an effective way of students anatomy teaching, which stimulates to participate actively in the study process, and, as the result, to get pleasure for both sides, students and teachers. This method use requires time, planning, devotion to the study process and conviction, that received in the result education would be more pleasant and productive. It should be mentioned, that simple and schematic sketch must be chosen, and all stages of sketches drawing must be executed with obligatory anatomic explanation. At studies Netter's Anatomy Flash Cards (anatomic drawings with figure symbols in one side and correct answers in another one) may be used for game form and students' knowledge control.

Due to these methods emotional memory is developed,

which preserves sensations, feelings, emotional coloring of events, and determines ability to experience again situations which seem to have sunk into oblivion. It is formed very quickly, sometimes at first attempt, and does not require recurrence. Also, image memory is not arranged in words and consists of ideas and images (visual, auditory, tactile, olfactory, gustatory). It is, as a rule, well-developed in children and people of creative professions. Eidetic memory is considered to be its variant, which correct use is the basis of good memorizing. Eidetic person does not recall, but seems to continue seeing in young age something, which has already disappeared from the field of view. Pictures, appearing in his mind's eye, are so distinct, that he may move sight from one detail to another. He may continue seeing of rows of words, signs, figures or convert dictated data into visual images.

**Conclusions.** Today in the process of human anatomy study teaching is widely used, which is not based on associative thinking, but accentuates on mechanical learning of material, read by the student in the study book or written during the lecture in the form of the summary. Experience of lessons conduct in human anatomy without and with immediate mnemonics use permits to resume, that different mnemotechnics methods and skills use, based on image thinking, gives possibility to raise quality of students' knowledge in human anatomy, and to learn information in other studied disciplines. Teachers' mastering of mnemonic methods, undoubtedly, increases their pedagogical mastery. It is reasonable to realize teaching of mnemotechnics methods and skills within the limits of the teachers' professional training.

**Наварчук Наталія, Гузік Олександра. Викладання анатомії як мистецтво якісного запам'ятовування, клінічного відтворення і практичного застосування. Метою статті є аналіз підбору методів ефективного вивчення анатомії людини та кращого забезпечення можливостей та ефективності для студентів в умовах навчального процесу в медичному університеті. Матеріалом для вивчення слугували особливості взаємодії студентів та викладачів у навчальному процесі. Наукова новизна.** Уперше описано використання різних методів, заснованих на образному мисленні, що дає можливість покращити якість знань студентів, усвідомлення інформації в рамках інших дисциплін для якісного запам'ятовування, клінічного відтворення і практичного застосування. **Висновки.** Досвід проведення занять з анатомії людини без застосування і з безпосереднім застосуванням мнемоніки дозволяє зробити висновок, що використання різних методів і прийомів, заснованих на образному мисленні, дає можливість підвищити якість знань студентів, а також для засвоєння інформації в рамках інших дисциплін.

**Ключові слова:** анатомія, мнемотехнічні методи, пам'ять, навчання, відтворення.

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<sup>6</sup> Young T. “How valid and useful is the notion of learning style? A multicultural investigation”, *Procedia Soc Behav Sci*, 2010, vol. 2, P.427–433.

<sup>7</sup> Peluso MJ, Hafner JP. “Medical students as medical educators: opportunities for skill development in the absence of formal training programs”, *Yale J Biol Med*, 2011, vol. 84, P. 205–209.

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