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INSECT NEUROPEPTIDES – AN OVERVIEW OF BIOLOGICAL
EFFECTS IN MAMMALS

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Introduction. Since 50 years several peptides were discovered in insect body. Their amino acid sequence of peptide chain was determined, as well as they were synthesized. They play an essential role in regulation of insect behavior and metabolism. Soon were initiated and carried out studies of biological effects of synthetic insect neuropeptides in mammal experimental animals.

Aim. In this report a summary of main biological effects of several, synthetic insect neuropeptides in mammals is presented.

Material and methods. This report is based on the results of the studies published in several, mainly our papers.

Results. Synthetic insect neuropeptides exert a broad spectrum biological effects in mammal experimental animals mainly rats and mice. Either intracerebral or peripheral administrations of those peptides (mainly octapeptide leucopyrokinin and its synthetic analogs) induced in rats prominent antinociceptive effect mediated by central opioid receptors. Moreover behavioral and endocrinological effects of synthetic insect neuropeptides were determined in mammals. It was found antagonistic effect of some, insect-derived neuropeptides like pentapeptide Any-GS, isolated from silkworm on analgesia induced by other insect neuropeptides.

Conclusion. The present status of the knowledge on biological action in mammals of insect-derived peptides appeared a broad spectrum their biological effects and different mechanisms of these effects.

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Andrzej Plech, Marcin J. Plech*

A REVIEW OF THE RISK OF CANCER IN DIABETIC PATIENTS

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Introduction. Diabetes is a worldwide disease with increasing tendency of its prevalence in both developed and developing countries. Metabolic disturbances in diabetic patients including hyperglycemia and lipid metabolism abnormalities cause serious clinical consequences, especially in cardiovascular system. Worldwide prevalence of the type 2 diabetes and obesity are evident risk factors of increased mortality in many countries.

Aim. In this report we present an actual knowledge on the role of the obesity and the type 2 diabetes in cancer incidence.

Results. It was shown in epidemiological study that type 1 diabetes is not linked with an increased of cancer incidence, while type 2 diabetes, prediabetes with obesity induced increased risk of incidence of different cancers: colorectal, lung, liver, cervical, endometrial, ovarian, pancreatic and prostate cancers. The treatment diabetes with oral hypoglycemic drugs (metformin, sulfonylureas) may reduce the risk of cancer incidence). It was shown in vitro study anti – proliferative effect of the next oral antidiabetic drugs thiazolidinediones (Troglitazone). However this potential beneficial effect was not demonstrated in the phase II clinical trial.

Conclusions: 1/ Type 2 diabetes and obesity are risk factors of the development of different cancers

2/ It is probable that cancer

Andrijets W.I.

WOLONTARIAT W ŻYCIU STUDENTA MEDYCYNY

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Wolontariat jest dobrowolną, nieprzydatną pomocą społeczną, która rozpoczęła się w połowie XIX wieku. W naszych czasach idea pomagania ludziom nie tylko w medycynie i pieniądzech, ale także w komunikacji, zrozumieniu i pragnieniu wyjaśnienia tego świata stała się bardzo popularna w różnych częściach świata. Ruch wolontariuszy jest częścią każdego społeczeństwa. Działalność ta może przybierać różne formy: od zwykłych form wzajemnej pomocy do wspólnych działań podczas kryzysu. Dziś działania społeczne i publiczne stają się coraz ważniejsze wśród studentów.

Studenci są wiarygodnym potencjałem społecznym, co prowadzi do pozytywnych zmian, dlatego aktywność wolontariuszy jest szczególnie ważna dla młodzieży studenckiej. Jest to okazja do zaspokojenia podstawowych potrzeb studentów: samopotwierdzenia i samorealizacji osoby za pomocą społeczeństwa lub jednostki, zdobywania cennych doświadczeń życiowych, kształtowania postawy obywatelskiej, poczucia własnej ważności i przydatności, umiejętności pracy w zespole, edukacji cech przywódczych, zdobywania profesjonalnej wiedzy o przyszłym zawodzie.

Przy obecnych reformach zdrowotnych zachodzących na Ukrainie istnieje zapotrzebowanie na wykwalifikowanych specjalistów, którzy posiadają nie tylko głęboką wiedzę zawodową, ale również być współczujący, w stanie wczuć się w

innych, aby być dobrymi obywatelami państwa. W związku z tym, można by argumentować, że cel i cele wolontariatu w wyższej szkole medycznej powinny obejmować działania w takich dziedzinach, jak: praca w schroniskach; pomoc dla osób starszych, pacjentów, inwalidów, imigrantów z Krymu lub strefy działań bojowych, żołnierzy ATO; świadczenie pomocy psychologicznej; pomoc w krytycznych sytuacjach; poradnictwo zawodowe; promocje edukacyjne.

Motywacja do uczestnictwa w wolontariacie studentów medycyny są profesjonalne problemy: zdobywania wiedzy zawodowej przyszłego zawodu, rozwijać umiejętności komunikacyjne, znajomość nowych technik, technologii i wynalazków rozwoju zawodowego.

Dlatego studenci medycyny, rozumiejąc potrzebę osobistego zaangażowania w rozwiązywanie problemów stojących przed społeczeństwem, a państwo musi rozwijać cechy, takie jak aktywność społeczna, odpowiedzialność, samodzielność, wiary we własne siły, zdolność do świadomego rozwiązać swoje problemy i być twórcą własnego, co jest możliwe przy uczestnictwie w ruchu wolontariuszy.

Andriyets M.M., Andriyets V.I., Skoropatsky V.V.
**THE PROBLEM OF PHYSICAL CULTURE DEVELOPMENT OF
STUDENT YOUTH IN UKRAINE.**

*Higher State Educational Establishment of Ukraine "Bukovinian State Medical
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The present of higher education is focused on effective learning, effective improvement of the chosen profession. This problem, to a large extent, depends on the student's ability to work. However, the increase of students' ability to work is possible through the introduction of various forms of recreation, leisure and physical education into the educational process. The formation of future specialists of the chosen specialty is the last stage in independent life, and this imposes a great responsibility on them for the state of health and the level of physical preparedness of students.

Despite the difficult financial situation in high school, everything possible is made to preserve the staff at the departments of physical education, and in many higher educational institutions (HEIs) continues the construction and restoration of the educational and sports base, which is the center of physical and sports activity of young people.

From the practice we can make a statement that in higher educational institution (HEIs) with medical character - Bukovinian State Medical University (BDMU) the number of students of city, regional and all-Ukrainian sports competitions (team and individual) increases every year. The increase does not happen at the expense of the same athletes, but annually students take an initiative to certain types of sports and continue the training which had begun even from school years.

According to the results of the last academic year, the number of students of first (1) and second (2) courses who study at the BDMU was 2,235. Of these, the number of students engaged in sports sections (teams) and physical-health groups (in% relative to the total contingent of full-time education) - 405 - 6%, the number

of students who were covered by various forms of physical culture and health work in sports-health camps (in% relative to the total contingent of full-time education) - 415 - 7%. On the basis of the sport club of the BDMU, there are 28 teams from 17 sports, in which 405 students are involved, 3 sports and health groups for students and 3 groups - for the university staff, which employs 79 people.

Consequently, the planning and organization of competitions is carried out by a sport club of the university in close cooperation with student self-government. Particularly, at the student council of each faculty is responsible for the sport-mass work who organizes the work of the professors of academic groups at the faculty. The university's student council has a Physical Education and Sports Commission. Among the teachers of the course of physical education are intended responsible for each faculty, which collaborate with the philosophers of the courses of the relevant faculties.

In this academic year, teachers of physical education and sport club felt active assistance from the student's self-government in planning, organizing and holding competitions.

Sports-mass work is carried out according to the plan of work of the Bukovinian State Medical University sport club. The training of teams and wellness sections took place twice, and from separate sports - three times a week.

Anilkumar Karthik Madhav, Kushniryk Olga

MEDICAL IMPORTANCE OF NEUROCYSTICERCOSIS DESEASE

Higher State Educational Establishment of Ukraine

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Neurocysticercosis is a type of parasitic infection of the central nervous system and is caused by the larval stage of pork tapeworm *Taenia solium*. Humans become infected after consuming undercooked food, particularly pork, or water contaminated with tapeworm eggs, or through poor hygiene practice. Cysticercosis is found worldwide. When larvae build up in the central nervous system, muscles, skin and eyes, it leads to neurocysticercosis. *T. solium* is the cause of 30% of epilepsy cases in many endemic areas where people and roaming pigs live in close proximity. Due to that, the aim of our review was to figure out the peculiarities of infection by *T. solium* larvae.

Symptoms of neurocysticercosis depend upon where and how many cysts are found in the brain. Seizures and headaches are the most common symptoms. However, confusion, lack of attention to people and surroundings, difficulty with balance, excess fluid around the brain (hydrocephalus) may also occur. The disease can result in death. Symptoms can occur months to years after infection, usually when the cysts start dying. When cysts die, the brain or other tissue around the cyst may swell. The pressure of the swelling is what usually causes the symptoms of the infection. According to the literature data, a total of 391 patient samples (either serum or cerebrospinal fluid or urine) for 5 years from January 2011 to December 2015 were taken into the study. The overall seropositive cases of NCC in the study population were found to be 32.5% of which positive men cases (59.1%) exceeding

women (40.9%). The frequency of adult positive cases (77.2%) was more than that of children cases (22.8%) with an average of 30.9 years of age.

Thus, antiparasitic medications are effective in eliminating viable cysticerci, though they may cause reactive localized inflammation.

Andriyets M.M., Andriyets V.I., Skoropatsky V.V.

TEAM FORMATION ON THE EXAMPLE OF THE VOLLEYBALL TEAM OF STUDENTS

Higher state educational institution of Ukraine "Bukovinian State Medical University", Chernivtsi

Introduction: Team building is a term often used in the context of business, sports, politics, applied to a wide range of activities, to create and improve the team's performance. The idea of team methods was borrowed from the world of sport and began to implement actively in the practice of management in the 1960-1970's. In psychology, team formation means the process of purposeful formation of a special way of interaction of people in an organized group that allows to realize effectively their energy, intellectual and creative potential according to the strategic goals of the organization.

Purpose: The purpose of research was determination and theoretical substantiation of the team development level in the students volleyball team, their features and influence on the life of young people.

Material and methods of research: The research of psychological peculiarities of interpersonal relationships was carried out in a team of volleyball players (12 athletes) aged 20-24, trained in the sports club "Medic" of the Bukovinian State Medical University. In order to study interpersonal relationships in the volleyball team, the following techniques were used: 1) Method F. Fiedler - "Atmosphere in the group". 2) Assessment of the moral and psychological climate in the team (according to Lutoshkin L.M.).

Results: F.Fidler's methodology - "Atmosphere in a group" showed that in general the atmosphere in the volleyball team of medical students is favorable. In questionnaire, athletes were offered variants of answers from the most positive (from 1) to the most negative (up to 7). It was found that in the sum of all the team members answered 1 to 39 times, 2 to 37 times, 3 to 19 times, 4 to 16 times, 5 to 7 times, 6 to 1 time and 7 to 1 time. On the basis of this, it was found that the atmosphere in the team for the majority of team members is positive.

Due to the methodology "Assessment of the moral and psychological climate in the team (according to L.M. Lutoshkin)," it was discovered that, in the opinion of many members of the team, in collective prevails cheerful atmosphere, the team members like to train together, the successes or failures of their mates cause empathy and so on. Thanks to this research it was found that positive points (answers) - 4, and negative - 232. That is: $232 - 4 = 228$; $228/10 = 22.8$. Based on this it can be argued that in general, in the group of students volleyball team, the moral and psychological climate is at a rather high positive level.

Conclusions: Based on the research and experimental work we can draw conclusions that in the collective of volleyball team of adolescents prevails favorable atmosphere, cheerful mood, the members of the team like to train together, the successes or failures of friends cause empathy, that is, the moral and psychological climate and interpersonal relations in the group are at a rather high positive level.

Antoniuk O.P.

FEATURES OF THE ATRESION OF ILIUM IN NEWBORN

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To systematize the results of the study, changes in the area of atresia, preathertic and postretrathic segments of the ileum gut were studied. At atresia, the muscle of the ileum gut was subjected to complete fibrotic transformation. A significant number of fibroblasts, lymphocytic and polymoronic infiltration are observed in the ball's muscle layer. The kernels of smooth myositis are enlightened, eosinophilia of the cytoplasm is reduced. When atresia with fibrous strata, the preathertic region of the ileum ends blindly, in certain areas there is a gut segment or two or more such segments on either side. Blindly closed segments of the intestine are joined by the erythema and its fibrous strands (type II by classification), which are thin striated formations, originating from one blindly closed segment of the intestine to another.

These cords form a free edge of the erythema and in fact are a thickened free edge of the dysplasia of the visceral peritoneum. In cases of complete type of atresia (type III by classification), the segments of the intestine are completely separated from each other, not only by the length of the intestinal tube, but also by the length of the ripple. In this case, there is not only a violation of angiogenesis of the intestine, but also the most dorsal ripple. In the preatectic segment of the ileum from the side of the mucous membrane, there is a shortening of the villi and expansion of the crypt. In some areas of the mucous membrane there is no epithelium.

The cells become cubic, the height of the epithelial cells decreases. In the muscular envelope of the preatrician segment of the ileum, significant hypertrophy of the muscular layer is observed. Gut from the mucous membrane is marked by shortening of the villi and expansion of the crypts.

Antoniuk O.P.

FORMATION OF PHYSIOLOGICAL ATTRESS OF ESOPHAGUS

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The emergence atresia of the esophagus and trachea-esophageal fistulas are the result of physiological feedback delay atresia - the recanalization of the esophagus lumen. However, mechanisms of violation of the processes of

embryogenesis, which lead to the appearance of atresia of the esophagus and tracheo-esophageal fistula, have not yet been clarified.

Along with esophagus atresia, other defects occur: 1) esophagus agenesis - complete absence of the esophagus, a rare anomaly, which is combined with other severe defects. Instead of the esophagus there is a connective tissue lobe; 2) hypoplasia of the esophagus (or mikroezofagus) - short esophagus. At this time, the stomach may be pushed into the chest cavity; 3) macroezofagus (megaezofagus) - an increase in the length and diameter of the esophagus as a result of its hypertrophy; 4) double esophagus (diisophagia). Tuber forms occur very rarely. Sometimes diverticulas and cysts are found which are more often located in the posterior mediastinum, at the level of the upper third of the esophagus, and 5) congenital esophageal stenosis - as a rule, the stenosis is located at the level of aortic constriction. The esophagus wall is represented by a single-layer cubic epithelium on the basement membrane. From the outside of the basement membrane a layer of undifferentiated mesenchyma is found to be 145-150 μm thick. The height of the epithelium is 10-12 μm .

The oval cell nuclei are located at different levels: the individual nuclei are apical, part of the nuclei is closer to the base, and most of the cells are in the middle of the cells. Enlargement of the esophagus on transverse sections reaches 7-8 microns.

The nuclei of mesenchymal cells are stacked around the rudiment of the esophagus, and the nuclei of the cubic epithelium, which extend its lumen, are localized at different levels.

Bambuliak A.V., Boichuk O.M.*, Lopushniak L.Ya.*

ANATOMO-PHYSIOLOGICAL FEATURES OF PRUSE-PASSENGER

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All the sinuses have quite variable volumes. From the linear indexes, the greatest variability is characteristic of the height and length of the grid labyrinth, the latitude and height of the maxillary and frontal sinuses, and the longitudinal dimensions of the wedge-shaped sinus. The most common alternative-variable sign for all the sinuses is the presence of complete and additional partitions that determine the relief of the walls and the shape of the sinus.

Acne sinuses are important for the physiological functions of the nasal cavity and its organs and form a single functional system with them. They are bordered by vital organs and surrounded by them, with the last common bone walls. Through the holes in them pass the nerves, vessels, connective tissue bonds. The holes can serve as a gateway for penetration of pathogenic flora, manure, toxins, cancer cells into the cranial cavity, ophthalmic and frontal fossa from the adrenal sinuses, which can lead to serious complications, even with common sinus infections.

Paranasal sinuses role in the act of nasal breathing is rather conditional. Classical studies of the physiology of the sinuses, indicating that there is no clinically significant gas exchange between the sinuses and the nasal cavity, are now confirmed by modern high-precision methods.

The main functions of these acne sinuses are protective and resonator. The protective role, firstly, lies in the protection of deeper and more vital facial and brain structures of the skull. Secondly, these tanks sinus is warmed, moistened and purified air. The mucous membrane of the sinuses provides protection against the occurrence of inflammatory processes in them.

Banul B.Yu.

THE DEVELOPMENT OF THE UTERUS AND FALLOPIAN TUBES AT THE END OF THE PRE-FETAL PERIOD OF HUMAN ONTOGENESIS.

Higher State Educational Establishment of Ukraine "Bukovinian State Medical University", Chernivtsi, Ukraine

In preplanned 60.0-65.0 mm TKD, the upper vertical sections of the urogenital cavity contain paramazonefric ducts, from which the wards are formed. The oblique sections of the para-mesophore ducts are transformed into the intrauterine parts of the fallopian tubes. The lower caudal parts of the peremazonephrine ducts are transformed into the uterus and the upper two thirds of the vagina. The lower third of the vagina develops from the urogenital sinus. Between the cranial part of the fallopian tubes and ovaries Diaphragmatic bundles of the primary kidneys are located. Joint utero-vaginal canal connects with the urogenital sinus cavity. In prenatal 70,0-76,0 mm TKD there are intense processes of formation of internal female genital organs. Cranial ends of the fallopian tubes are expanding, becoming salty-shaped. The outer edge of the tubing is similar to the zigzag line, which indicates the beginning of the formation of the throat of the uterine tube. Fallopian tubes are connected to the inner surface of the pelvic ligaments. Within the uterus, the paramazonefric ducts are placed in identical planes: right - in front, left - behind. Mesonheptic ducts are located in the thickness of the erythema of the fallopian tubes. In prenatal 78,0-79,0 mm TKD right and left uterine tubes are located in the abdominal cavity vertically. The length of the right uterine tube reaches 4.5-0.03 mm, the length of its ripple - 3.1-0.02 mm. The tube gaps have the appearance of slightly pronounced tubercles adjacent to the tubular ends of the ovaries and separated from them by a crack. Medium from the fallopian tube vertically placed ovaries. The length of the left fallopian tube is 4.2-0.03 mm, the length of her ripple is 3.0-0.02 mm. Behind the tubes are arranged vessels. The uterus is flattened, pear-shaped. Within the bottom of the uterus, the depth is determined, which indicates the unfinished development of derivatives of para-neonate ducts.

Batig V.M.

INFLUENCE OF PARASYMPATHY NERVOUS SYSTEM BLOCKERS ON THE STATE OF EXPERIMENTAL ANIMAL'S PERIODONTAL TISSUE

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Neuroblokators of the autonomic nervous system attract attention to the fact that they regulate almost all metabolic processes in the body. The purpose of our study was to identify the effect on the state of periodontal tissues of parasympathetic system blockers.

Materials and methods of research. As a blocker of the parasympathetic system was used Atropine (at a dose of 1 mg / kg) in the form of a gel at 4% CMC-Na salt (0.2 mg / ml). The blocker was applied as an application on the mucous membrane of the oral cavity of rats in the gel composition for 30 days. Atropine (atropine orotate) produced by "HNTSLS Pilot Plant" (Ukraine).

Experiments were performed on white rats of the Vistar line, divided into two groups of levels: 1-a-control, received daily applications of 0.3 ml per mucosa of the oral cavity of the gel, which did not contain atropine; 2-a - received applications of 0.3 ml gel with atropine (dose atropine 1 mg / kg).

After 30 days biochemical studies were performed. In homogenate gums found the level of biochemical markers of inflammation: the activity of elastase and the content of malodialdehyde (MDA), the index of microbial contamination, the activity of the bacterial enzyme of the urease, the activity of lysozyme (the level of nonspecific immunity), and the activity of the antioxidant enzyme catalase.

In bone marrow homogenate was found the activity of alkaline and acidic phosphatase, calcium and protein content by Lowry. The activity of phosphatase was based on the mineralization index (MI), and on the ratio of calcium and protein content – the degree of mineralization (SM).

In the preparation of the mandible the degree of atrophy of the alveolar appendix under AV Nikolaev and the defeat of the teeth were carried out.

Results and discussion. In the anti-inflammatory effect of the blocker indicated a significant increase in the level of both markers: elastase by 35% and MDA by 25%.

Atropine does not significantly affect on the activity of the urease but it tends to increase. At the same time, significantly increases the activity of lysozyme (111%). As a result, oral applications of atropine significantly reduce the degree of dysbiosis.

The effect of the blocker practically does not affect on the activity of catalase, but significantly increases the activity of both phosphatases. As more alkaline phosphatase is activated, the MI index increases significantly after application of blockers.

The degree of mineralization of periodontal bone tissue under the action of atropine has not significantly changed and has little affect on the tooth decay by caries.

Consequently, our studies have shown that atropine increases the level of inflammation markers, lysozyme activity in the gums, and increases the mineralizing activity in bone tissue, significantly reducing the degree of periodontal atrophy.

Conclusion. Atropine exhibits anti-inflammatory and anti-dysbiotic effects, increases the mineralizing activity of periodontal bone tissue and reduces the degree of atrophy of the alveolar appendix.

Besplitnik M.G.

CONGENITAL CHILDREN'S DEFORMATION OF THE VERTEBRAL COLLUMN

Higher State Educational Establishment of Ukraine "Bukovinian State Medical University", Chernivtsi, Ukraine

By congenital spine deformities group includes distortions in the formation of which the leading role belongs anomalies vertebrae. This period has historically appeared due to the fact that from the general group of vertebrates, which are improperly developed, the so-called dysplasia, the most rude variants of developmental defects were identified - violation of the formation, segmentation and merging of paired bookmarks of bodies.

Information on the prevalence of malformations of the spine in the population almost absent and is usually mentioned only in assessing skeletal structure of congenital anomalies, or in determining the proportion of congenital deformities in the structure of scoliosis. Many neutral and so-called small axial skeleton defects in children (tropizmu anomalies, violations merger vertebral arches options assimilation Atlanta odontoid bone, etc.) often not detected. The manifestation of this pathology usually manifests itself clinically only in adulthood secondary degenerative-dystrophic, neurological or vascular disorders, within which and analyzed. The incidental inborn changes of vertebrae were not detected at the same time in a separate statistical group.

With a relatively symmetrical development of all parts of the spine, located at a distance of no more than 2-3 segments from each other, there is a so-called neutral movement with a slight progressive deformation.

Asymmetric defects necessarily lead to the formation of deformation rate of progression depends on the specific details anomalies.

The most difficult is to recognize hidden defects, accompanied by only a small deformation. In such cases, the diagnosis helps to put special care of the doctor, who has to explain the cause of the body asymmetry and the long back muscles, folded folds, slight pelvic displacement, cranial, body imbalance and limbs, the tendency of the child to come back to one side.

Besplitnik M.G.

INFRINGEMENTS OF WRAPPERS FORMATION IN THE HIGH-PERFORMANCE DEPARTMENT OF THE VERTEBRAL COLLUMN

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Congenital scoliosis, caused by anomalies of the vertebrae development often lead to severe spinal deformities in children of childhood, causing a gross cosmetic defect and violation of biomechanics. Curvature of the vertebral column as a result of disturbance of the formation of vertebrate bodies is the most common cause leading to the early appearance of deformation and its further progression in the development of the child. Often congenital curvature of the spine leads to dysfunction not only of the musculoskeletal system, but also the cardiovascular and respiratory systems.

Violation of the lumbar vertebrae forming localization are attributed to the most severe congenital pathology of the axial skeleton, since the latter have no possibility of compensation in the lower departments and lead to gross violation of biomechanics in the system of "spine pelvis".

Complete correction of congenital deformation, restoration of body balance and creation of conditions for the formation of physiological profiles of the spine, when the vertebral column and pelvic bones are only formed as interrelated structures of the musculoskeletal system at early age, swallowing the correct and harmonious development and growth of the child. Only full correction of congenital deformity in pediatric patients creates conditions for the formation of the correct frontal and sagittal profile of the spine, preventing serious distortions rigid and neurological disorders.

Bharti Tomar, Olga Kushniryk

DIABETES – ONE OF THE MOST PREVAILING DISEASES

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Diabetes is a genetic disorder, characterized by hyperglycemia or elevated blood glucose (blood sugar). Diabetes is the name of the condition where the blood sugar level consistently runs too high. WHO (World Health Organization) projects that diabetes will be the seventh leading cause of death in 2030. In this regard, the prevalence rate of diabetes mellitus (DM) is found to be interesting.

There are three main types of diabetes mellitus: type 1, type 2 and gestational type. DM results from the pancreas's failure to produce enough insulin. This form was previously referred to as “insulin-dependent diabetes mellitus” (IDDM) or “juvenile diabetes”, the cause of what is unknown. Type 2 DM begins with insulin resistance, a condition in which cells fail to respond to insulin properly. As the disease progresses a lack of insulin may also develop. This form was previously referred to as “non insulin-dependent diabetes mellitus” (NIDDM) or “adult-onset diabetes”. The most common cause is excessive body weight and insufficient exercise. Gestational diabetes is the third main form, and occurs when pregnant women without a previous history of diabetes develop high blood sugar levels.

The number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014. The global prevalence of diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. Diabetes prevalence has been rising more rapidly in middle- and low-income countries. Diabetes is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation. In

2015, an estimated 1.6 million deaths were directly caused by diabetes. Another 2.2 million deaths were attributable to high blood glucose in 2012. Almost half of all deaths attributable to high blood glucose occur before the age of 70 years.

Thus, healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use are ways to prevent or delay the onset of type 2 diabetes as it is mostly depends on the life style.

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GUNSHOT WOUNDS OF MAXILLOFACIAL REGION

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The prevalence of gunshot wounds (GW) in the maxillofacial region in the modern world is associated with the criminalization of society, terrorist threats, an increase in the number of local military conflicts and civil unrest. Gunshot wounds of the maxillofacial region, in addition, are observed as a result of hunting accidents, in the careless and inept handling of firearms, suicide attempts etc. Over the past 1.5 years, Ukraine has witnessed a sharp increase in the number of GW during the revolutionary events in January-February of 2014, military operations in the East of the country and as a result of an increase of guns per capita (mostly illegal).

Damage to the maxillofacial region occurs after shots from all kinds of firearms, explosions of ammunition and various explosives and is characterized by significant damage to tissues and organs, the complexity of surgical treatment and the high risk of complications that endanger the life of the patient and cause the disability. In the XIV century, when faced with this type of trauma, surgeons explained the special nature of injuries, their severity and tendency to develop complications with the presence of specific poisonous substances in powder gases. The generally accepted method of treating such "poisonous" wounds was burning with hot iron and pouring the wound with boiling oil.

This malpractice was stopped only by the prominent French surgeon Ambroise Pare, who published the first book on this problem "The method of treatment of gunshot wounds" in 1545. Thus, within the Second World War, the number of maxillofacial region injuries in the structure of sanitary losses made up 3.5-5%, during the war in Afghanistan and Chechnya - 8.5-9%. In the conflict in the East of Ukraine, the frequency of head and neck injuries was 39-40%, and in the fights in Palestine and Lebanon, conducted by the Israeli special forces, exceeded 54%. Timely, complete and high-quality surgical care is one of the main conditions for the preservation of life and the prevention of serious complications in the wounded in the conduct of hostilities. The conditions for fighting, especially the firearms used in eastern Ukraine, are fundamentally different from known in previous armed conflicts. The frequency of gunshot injuries during the World War II made up 5.2-7%, nowadays it makes up almost 19%.

Consequently, the primary surgical treatment of a gunshot wound of the maxillofacial area, which should be final in terms of the volume and nature of the intervention, is considered as a complex operation with a profound revision of the destroyed tissues and organs, including the bones of the facial skull, but also adjacent areas that were struck and powerfully shook. The authors point out that early aggressive surgical tactics with primary reconstructions provide the best aesthetic and functional results, and the level of infectious complications in the conditions of the use of modern antibacterial drugs in remote and immediate reconstruction after gunshot wounds is unlikely to be different.

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TOPOGRAPHO-ANATOMIC FEATURES OF LATTICE LABYRINTH LOCATION

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The lattice labyrinth, located in the lattice bone, is formed by a combination of airborne components, the magnitude, number, and location of which has many variants. Depending on the degree and characteristics of the cell's development, the lattice labyrinth can penetrate into other sinuses. The lattice labyrinths are formed by the airborne cells of the lattice bone located between the frontal and wedge-shaped sinuses. Outside, they border with the paper plate of the facial fossa, and their medial wall is the lateral surface of the nasal cavity. The number, volume and placement of cells of the lattice labyrinth has significant individual variations, usually 8-10 on each side. Frequent variants of their placement are the distribution of lattice cells in the front or rear sections of the orbit. In this case, they also border the front cranial fossa. Often cells of a lattice labyrinth are placed laterally on a hole plate from both sides. In this case, the boundary between the cavities of the skull and the nose is both a hole plate and a socket of the lattice bone.

Chubatenko S.Yu.

INFLUENCE OF PHYSICAL CULTURE ON THE LEVEL OF MEDICAL STUDENTS HEALTHY LIFESTYLE

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In all aspects of life, in large measure, affects the level of health. This includes the material structure (physical health), and the spiritual and practical, manifested in the creative abilities of man (mental health), its general integral development (the social aspect of health). So that, the level and quality of personal life depends on the level and state of human health.

Unfortunately, the problem of the development of a physically active, harmoniously developed young generation with a healthy lifestyle, the response to

harmful habits, lack of motor activity, and the reduction of immunity, and as a result a large number of chronic diseases, remains a huge problem.

Therefore, in today's educational system, there is a global challenge to influence all means for the formation of healthy lifestyles among students of higher education institutions.

Physical education is precisely the best example that can easily reduce the incidence, improve the immune system, physical and psychological state. A well-constructed teacher classes, taking into account the age-specific characteristics of students and their preferences will enable "without coercion" to perform tasks and be healthy.

David Alexander, Kushniryk Olga
VECTOR CONTROL AND PERSONAL PROPHYLACTIC MEASURES
FOR LEISHMANIASIS

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The genus *Leishmania* consist of obligate intracellular flagellate protozoa. The organism is widely distributed in the tropics and subtropics extending through central and south-east Asia, India, China, Africa, South America, Mediterranean region etc. Mainly there are three different diseases caused by this organism namely visceral, cutaneous and mucocutaneous leishmaniasis, transmitted by sandfly of genera *Phlebotomus*, *Lutzomyia* and *Psychodopygus*. According to World Health Organization (WHO), an estimated 700.000 to 1 mln new cases and 20.000 to 30.000 deaths occur annually. In this regard, the purpose of our review is to evaluate the vector control measures and the personal prophylactic measures.

Vector measures include spraying of residual insecticide clubbed with sanitation measures for better results. In a densely populated country with prevalent leishmaniasis like India, DDT is used as the first choice as a residual insecticide and BHC is used for DDT resistant organism. If the organism shows any evidence of developing resistance to the chemical used, it is immediately replaced. Personal prophylaxis has no drugs so far, but depends mainly on health education and use of individual protective measures. Preventive measures to reduce the risk of getting bitten by the infected sandfly – avoiding sleeping on floor, using fine mesh insecticide sprayed bed nets, minimizing the amount of exposed skin, use of insect repellents in the form of lotions, creams or sticks.

On reviewing the measures for vector control and personal prophylaxis it is evident that these are cost effective, easy to undertake, and most importantly, are effective in controlling the disease. Therefore by regularly undertaking these simple measures of spraying insecticide, sanitation measures, using insect repellents, it is possible to reduce the number of leishmaniasis cases even in low socio-economic communities.

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AGE PECULIARITIES OF ANTIOXIDANT, PROTEOLITIC AND FIBRINOLITIC SYSTEMS OF YASEN IN RATS

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Our studies have shown that in healthy intact rats in the gum tissues of mature animals the content of MDA is 21.86% higher, the oxidized proteins are less (the neutral character is 42.85%, the main one is 25.96%) with the same activity of SOD and less on 16.80% of catalase activity. Accordingly, the ratio of enzymatic antioxidant system SOD and catalase activities in mature males was higher by 10.95%, while the index of AO / PO for less than 57.84% of immature males. We interpret these indicators as follows. In mature males, the enzymatic antioxidant system of gum tissues well controls the accumulation of oxidized proteins (OBs) and is worse than the accumulation of oxidative lipids (MDAs) and that the activity of SOD plays a leading role in this system. SOD is known to be a key enzyme antiradical defense utilizes ROS to form less toxic hydrogen peroxide (H₂O₂), which restores the catalase to water. The results of our studies show that in healthy intact mature males, in the balance of SOD activity and SOD catalase, the activity of catalase is almost 2.5 times higher. High activity of SOD without proper activity of catalase is a situation that is toxic to gum cells. Perhaps this is a reflection of our established high level of MDA in the gums mature males compared to immature males.

We have studied in healthy male intact immature age there was significant compared with mature males accumulation in the tissues of the gums OMB. It is known that in the cytosol the main target AFK are proteins. The accumulation of oxidized protein is an early criterion for the generation of AFC tissues. OMB also reflects the level of equilibrium between the level of oxidized proteins and their rate of decay. OMB destruction occurs by proteolysis.

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HISTOLOGIST AT 7-14 DAYS OF MAXILLOFACIAL LESIONS IN EXPERIMENTAL ANIMALS

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At day 7-14, we found a number of differences from the normal structure of the bone marrow, which was expressed as a significant expansion and fullness of vascular sinuses. In some places, the cells of diapedetic hemorrhages were determined. Cells of the myeloid sprout of the bone marrow are uneven, among them young forms predominate, in the location of which there is a significant homogeneity, there are no visible changes in them. In the preparations noted an increase in the number of fatty cells, especially it was expressed on the fourteenth day. In the period from 28 to 42 days of research revealed extinction of inflammatory reaction, narrowing of venous sinuses and enlargement of the arterial lumen. The hemopoietic region is evenly filled with cells of all the blood-forming bristles, although the prevalence of mature myeloid cells over the younger forms is noted. At 56th day of the study of visible differences from the norms we have not been found.

In the study of histological drugs under the influence of infrared in all groups for 1-2 days after corticotomy in the wound area, hemorrhages and unorganized blood clot were determined. In the space between the fragments, in the thrombotic masses, the fibrin fibers, macrophages, and large clumps of leukocytes with well-stained nuclei. In the cortical layer at the ends of the fragments of the nucleus, the osteogenic elements are not determined. In the periosteum, in the region of the lumbar lobe, a moderate proliferation of fibroblast cells was observed.

Periosteal and endosteal corns are represented by loose strains of connective tissue and immature bone. It is morphologically established that up to 28 days, based on the cartilaginous and coarse fibrous connective tissue filling the bone defect, intensive osteogenesis occurs in the form of the appearance of a network of very mature bone beams located at the ends of the debris along the periosteum and endosteal surface of the cortical plate.

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PERIODONTAL MICROSTRUCTURE AFTER SIX WEEKS OF OPIOID EFFECT

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A toxic action caused by opioid effect is of a considerable value among numerous metabolic disorders provoking the development of morphological signs in the periodontal tissue. The progress of clinical medicine and advanced methods of treatment promote increasing quality of life of drug addicts, although the frequency of complications of dental semiotics increases considerably. Due to this fact to understand pathogenesis and morphological changes in the dynamics in the periodontal tissue under opioid effect, there is a necessity to examine these processes in the experiment, since it cannot be performed in clinics.

The objective of the work was to examine pathomorphological peculiarities of the periodontal tissue in case of six-week opioid effect in the experiment.

Materials and methods. The study was conducted on 16 male rats, with the body weight of 200 g, aged 4,5 months. Every day during 42 days the animals were intramuscularly injected with the opioid analgesic "Nalbuphine". The initial dose of the drug was 0,212 mg/kg, increasing to 0,260 mg/kg at the end of 42 day. The experimental animals were kept in the vivarium, and all the work concerning the questions of keeping, care, marking and all other manipulations were performed according to the principles of "The European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes" (Strasbourg, 1985). The jaw segments were used for microstructural examination followed by the application of decalcification and stains.

Therefore, a long action of opioid analgesic in small doses during 42 days resulted in progressing tissue injuries of a generalized inflammatory character in all the periodontal structures. Manifestation of inflammatory reaction was found in the epithelium and in the proper plate of the gingival mucosa. Epithelial injuries referred

to the oral, sulcus, and connective portions leading to the formation of a periodontal pocket. Periodontal pocket formation is a precondition of spreading the process into the deeper tissues. Connective tissue fibrosis found in case of progressing can result in disorders of the tissue function. As a result, structural and metabolic changes are found in the connective tissues, manifested by mucoid swelling with desquamation of the periodontal fibers from the cellular process of the jaw. In the majority of rats the signs of vacuolization of the intercellular substance in the point of fibers attachment and their local proliferation into the osseous tissue are found. Hypercalcification and preliminary signs of resorption of the osseous tissue were found in the periodontal tissues. It should be noted that due to the development of generalized inflammatory process we determined the signs of epithelium neoplasms in the area of periodontal pocket and newly formed capillaries of the connective tissue.

The investigations conducted enable to study pathomorphological changes in the periodontal tissue under opioid effect in the dynamics and make differential characteristics of the changes found at different terms.

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THE MECHANISM OF GIARDIA LAMBLIA RESISTANCE AND IT'S TREATMENT

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Giardia lamblia (*Lamblia intestinalis*) is one of the most common parasitic human diseases globally. Despite The World Health Organization classified it as a neglected disease, giardiasis infects 7% of the population in the developed world and 30% in the developing world. Thus, effective methods of its treatment are still required.

In 2014, 17.278 confirmed giardiasis cases were reported in the EU/EEA. The notification rate was 5.4 confirmed cases per 100.000 population. The highest notification rate was observed in the age group 0-4 (16.2 for men and 8.6 for women). The trend for 2010-2014 remained relatively stable. The ratio was increased by 690 cases in 2016 compared to 471 cases in 2015. When signs and symptoms are severe or the infection persists, doctors usually treat giardiasis with medications such as metronidazole and tinidazole. Metronidazole is the most commonly used antibiotic for Giardia infection. Side effects may include nausea, metallic taste in the mouth, weight loss, abdominal cramps, fatigue, foul smelling diarrhea that may alternate with soft, greasy stools. The new recently research, found in 2017, states that the cellular machinery involved in RNAi squelches most of the RNA in Giardia codes for surface antigen. At any given time, in fact, only the RNA for a single type of antigen is left untouched, the rest is destroyed. Giardia parasite can change the protein on their surface, which help them to evade the immune system, but only one protein is on the surface at any one time.

In this regard, the recent data will help to understand the peculiarities of G. lamblia resistance mechanism and provide medicine with new effective methods in it's therapy.

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CARBON DIOXIDE: ENVIRONMENTAL, BIOLOGICAL AND PHARMACOTHERAPEUTICAL ASPECTS

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Carbon dioxide (CO₂) is a natural component of the Earth's atmosphere. Over the past 120 years, the content of CO₂ in the air has increased by 17%. In 2009, the concentration of carbon dioxide in the atmosphere amounted to 0.0387% in 2013. - 0,0397%. A significant cause of the emission of anthropogenic carbon dioxide is the combustion of coal, oil, natural gas, deforestation. Carbon dioxide is constantly formed in nature when oxidizing organic matter (rotting plant and animal residues, respiration). In large quantities it is released from volcanic cracks and water mineral springs. In a terrestrial atmosphere, like a greenhouse glass, it freely passes the sun's rays to Earth, keeping its heat, which contributes to warming up the atmosphere (greenhouse effect). According to calculations of scientists in the coming decades due to the greenhouse effect, the average annual temperature of the Earth can increase by 1.5 - 2 C. Atmospheric carbon dioxide is the main source of carbon for plants.

Under normal circumstances, carbon dioxide - colorless gas, which is 1.5 times heavier than air. At a pressure of about 60 atmospheres, carbon dioxide at room temperature is converted into a liquid stored in steel cylinders. With the rapid evaporation and the release of a large amount of heat, carbon dioxide turns into a solid white snow-mass ("dry snow"), which is used to cool perishable products, production and storage of ice cream, gazing of fruit mineral water, as well as in medical practice. Carbon dioxide - a stable chemical compound, the final product of carbon oxidation, refers to harmful gaseous substances entering the atmosphere.

The toxic effect of carbon dioxide is detected when its content in the air is 3-4%, and at 10% and more - deadly. With a slight increase in the level of carbon dioxide, a person feels weakness, drowsiness, and with excessive concentration there is suffocation, dizziness, hearing impairment, loss of consciousness.

Carbon dioxide, which is constantly formed in the tissues of the body in the process of metabolism, has long been regarded as a harmful product, from which it is necessary to completely get rid. On the other hand, carbon dioxide is an important final metabolism product necessary for normal functioning of the body and as an information factor that, through neurohumoral mechanisms, manages many processes to provide homeostasis when adapted to different conditions. From a physiological point of view, carbon dioxide - a physiological stimulator of the respiratory center, stimulates the vascular and motor center, promotes the expansion of the vessels of the brain. When applied inside it increases the secretion of gastric

juice, improves the motility of the digestive canal and suction processes. Carbonic baths have a stimulating effect on the cardiovascular system. Carbon dioxide regulates the excitability of nerve cells, the activity of enzymes, hormones, and the like. The normal level of carbon dioxide in the body is 6,0-6,5%, a smaller amount, or its excess in the body leads to hypo or hypercapnia.

The use of carbon dioxide in medical practice for therapeutic purposes is known as carboxytherapy (COT). The use of carbon dioxide injectively or non-invasively due to its high efficiency and long-term clinical experience is widely used in the world for therapeutic purposes, sports medicine, spa therapy (Zelenkova H., 2008; Zenker S., 2010; De Yoursae C., 2010; Sinozic T., 2013, Дроговоз С. М., 2016). It is successfully used by COT in degenerative diseases of the spine and joints, in neurological disorders, blood supply disorders, obesity, baldness, in dermatological practice, and others. High efficiency, safety, affordable pricing ensure the leadership of the COT also in the market for correction cosmetology services. The introduction of a dose of carbon dioxide is perceived by the body as a hypoxia, which causes the body to work in an enhanced mode. COT is a natural method of treatment that increases the level of energy metabolism of the body. Subcutaneous dose injection of carbon dioxide improves blood circulation of the brain, heart and blood vessels, reduces tension and muscle spasm, causes anti-pain and anti-inflammatory effects, increases resistance to harmful factors. Due to the good tolerance of patients, the wide range of actions, the ability to achieve maximum results without the risk of side effects, the COT is successfully used in the world and in Ukraine as an alternative method of medical therapy, or in combination with other methods of treatment.

Gorodinsky Sergey Ilyich

THE ROLE OF PHYSICAL CULTURE IN PREPARATION OF A HIGHLY QUALIFIED MEDICAL EMPLOYEE

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According to the I.Yu. Nikolaichuk scientific observations, the professional training of a highly qualified medical staff member implies the symbiosis of physical, spiritual, moral, spiritual and aesthetic qualities development. According to the author, for the specialists who practice medicine, there is a task not only of professional training, but also the formation of spiritual and physical qualities, the core of which is high culture, humanism, the ability to communicate with sick people, appearance, behavior, which should be optimistic, organization, vivacity, courage. Thus, physical education plays an important role not only in the process of preserving the health of student youth, but also in the process of professional development of the individual, particularly, the doctor.

Physical education is a pedagogical process aimed at physical development, functional improvement of an organism, training of basic life-saving motor skills, habits.

Therefore, the presence in the medical plan of medical institutions due to the fact that the profession of a doctor is considered one of the most difficult and requires a lot of efforts both physical and psychological, should be without fail.

The use of means of physical culture not only allows medical students to improve their physical condition, but also helps to overcome adaptation moments. It is worth to recall that the health-saving component of physical culture which makes young people think about themselves in the future.

Guranych S.P.

CHANGES IN THE PROOXIDANT-ANTIOXIDANT HOMEOSTASIS OF BLOOD SERUM IN RATS WITH INSULIN RESISTANCE AND INSULIN RESISTANCE, ACCOMPANIED BY IODINE DEFICIENCY

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Diabetes mellitus and insulin resistance (IR), as a predictor of its development, lead to disruption of many biochemical reactions of the body. In particular, it gives rise to hyperglycemia unbalance of energy biosubstrates and activation of peroxidation processes, which is a result of auto-oxidation of glucose, and nonenzymatic glycosylation and overproduction of ROI, which under physiological conditions are neutralized by antioxidant system (AOS) (Gnatush AR et al., 2011). The damaging effect of free radicals on the phospholipid bilayer of the cell membrane is explained by the inactivation of numerous membrane enzymes and the disruption in the course of oxidation-reduction reactions, which also change under conditions of thyroid dysfunction (Panishina N. et al., 2008). Therefore, the aim of the work was to study the changes in the processes of lipid peroxidation (LPO) and the activity of antioxidant serum enzymes in rats with IR and IR, accompanied by iodine deficiency (ID). Studies were carried out on 60 rats weighing 150-180 g, which were divided into two research groups: animals with IP (n = 30) and IP accompanied by ID (n = 30). IR was modeled by adding 10% fructose solution to drinking water for 8 weeks (Shuprovich AA, 2011). To achieve the state of ID, rats were on iodine deficiency diet for two months (Voronich-Semchenko NM, 2014). LPO processes were evaluated for the content of diene conjugates (DC) and active products, which react to thiobarbituric acid (TBA-AP) (Pushkarev VM et al., 2016). AOS characterized by catalase activity (C), ceruloplasmin (CP), superoxide dismutase (SOD), glutathione peroxidase (GP), glutathione reductase (GR) and transferrin saturation (TS) serum (EN Vinogradova, 2015). For comparison, similar parameters were determined in 30 intact animals kept under the conditions of a standard diet. It was found that the development of IR led to the activation of LPO, mainly due to an increase in the content of the final product. Thus, the level of TBA-AP in the animals of the 1st test group increased by 70.0% (p <0.05) relative to baseline values. Such changes were accompanied by a predominant decrease in the activity of antiradical enzymes by 33.2-67.7% (p <0.05). It is worth noting that the condition of IR on the background of ID was

accompanied by more pronounced changes in prooxidant-antioxidant homeostasis. In particular, in rats of the 2nd test group there was a marked increase in the content of TBA-AP and DC in serum were 77.8% ($r_{1-2} < 0.05$) and 2.6 times ($r_{1-2} < 0.001$) compared with data in animals with IR. Activation of lipoperoxidation in animals with combined endocrinopathies led to depletion of AOS, which manifested a decrease in SOD activity, GR, the CP and the TS in rats of group 2 on 19,9-47,0% ($r_{1-2} < 0.05$) as compared with such same indicators of animals with isolated IR. Thus, IR leads to activation of LPO processes against the background of depletion of AOS blood serum reserves, which is especially evident in conditions of combined endocrine pathology.

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COMPLICATIONS OF MULTIPLE WOMEN GESTATION

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Relevance. A large number of births and pregnancies may be inappropriate for both the mother and the fetus, which is caused by a significant incidence of complications during pregnancy, childbirth, postpartum and neonatal periods. The number of women giving birth (3 or more delivery) every year only increases.

Aim: to evaluate the incidence of complications of childbirth in many-birth women in comparison with the first and second birth (second birth).

Materials and methods. The statistical analysis of the birth stories of 80 women is carried out. The main group consisted of 48 many-birth, the control group consisted of 32 first and re-births. All women gave birth in maternity hospital №2 in Chernivtsi. Mathematical processing of the obtained data was performed using standard computer programs.

Results of the research. It is found that with the increasing number of births increases the rate of complications. It was analyzed that in the main group of women were recorded significantly more gestational complications and complications in childbirth than in the comparison group. Early discharge of amniotic fluid was encountered in 1.2 times more frequent than women in the control group, anomalies of labor activity (primary, secondary weakness, disordered labor) in 1.6 times, hypotonic and atonic bleeding in 1.8 times. Sexual resolution by urgent cesarean section was performed in 22.6% (fetal distress during labor, ineffectiveness of gout and clinically narrow pelvis). However, despite the high frequency of the weakness development of labor activity, it was noted that 15.6% of women in the main group experienced rapid childbirth. The volume of blood loss in childbirth through the natural delivery pathways in many-born was approximately 323 ± 41 ml, in the first and again births - 272 ± 47 ml ($p < 0,05$). Pathological blood loss is diagnosed in 13.6% of women in the main group.

Conclusion. As a result of our research, it was found that the incidence of complications of childbirth in women who often give birth is likely to prevail over the incidence of complications in the first and reborn. This is due to the exhaustion of adaptation mechanisms, lack of rehabilitation of the body after previous births. Thus, women who have in their history 2 or more births need to take measures to improve the quality of pre-bladder training and develop an effective system for the prevention of complications and rational delivery of many-birth pregnant women.

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**MORPHOLOGICAL FEATURES OF REGENERATION OF
MAXILLOFACIAL INJURIES**

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The accumulation of scientific data on the presentation of the mechanisms of regulation of anatomical and physiological changes at the epigenetic levels-cell, tissue, organ and organism levels and their participation in the pathogenic changes of the early post-traumatic period of maxillofacial lesions allows for further in-depth study of this problem (L.G.Karpenko and others , 1999; S. Kh. Kalamkarova, 2003; Yu.T. Akhtemiychuk, 2012; V.V.Samsonov with co-authors, 2012; I.Mayborodin et al., 2012).

Holistic analysis of reparative osteogenesis seems promising in studying the dynamics of regeneration of serial sections of histological preparations. The need for such an approach is due to the depth of studying the processes of formation of bone regenerate, the identification of structural components involved in the formation of bone callus. Understanding the processes of regeneration of bone tissue against the background of injury allowed us, for the first time in veterinary traumatology, to make an attempt to implement purposeful correction and control over processes that help accelerate the remodeling of injured bone.

Genetically determined proximity of bone tissue and hematopoietic regions of bone marrow gives reason to assume that there is a need for a detailed analysis of processes induced by damage to structural components.

Ibragimov E., Yu.

**INFLUENCE OF PHYSICAL CULTURE ON FORMING PHYSICAL
QUALITIES OF MEDICAL STUDENTS**

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The main task of the medical educational institutions is to train highly qualified specialists who will be ready to apply skills acquired during the learning process in any situation.

Not the last place among educational subjects is given to the subject "Physical Culture". During the classes students can not only improve their physical condition, but also improve their mental and physical capacity. After all, under the influence of physical training methods, medical students develop general and strength endurance, speed and speed-strength abilities, flexibility, improvement of the functional state of the cardiovascular and respiratory systems, which contribute to the prevention and correction of disorders of the support-and-motor apparatus myopia.

All of the above mentioned qualities will make possible for a future doctor to work out a day easily , perform complex manipulations, or interfere with surgery.

However, reviewing the requirements of modern society to doctors it can be argued that their main task is not only medical treatment, but also work on the prevention of healthy lifestyles among the Ukrainian population. And therefore, on their own example, from the learning outcomes of knowledge and skills, medical students can be a good example and share their experience and provide expert advice easily.

Ibragimova L.S.

FORMING THE BASIS OF THE HEALTHY LIFESTYLE IN MEDICAL STUDENTS BY PHYSICAL CULTURE

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Rapid economic development in the world dictates its own requirements for society. The increased number of harmful substances in the environment was seriously reduced the level of the planet health. The person makes a contribution: bad nutrition, absence of the regime, bad habits, low level of motor activity.

As a consequence of the formation of a healthy lifestyle depends, first of all, not only on our outlook, but also on changing the lifestyle, its recovery through the use of hygienic knowledge in overcoming the same bad habits, and the adverse aspects of life, associated with various situations.

That's why, the health of all segments of the population, and particularly of young people, should be the main property of society, for which the maximum effort is being strengthened. And the lion's share of it falls on the specialists of medicine, pedagogy.

The problem of the student's youth health becomes a priority area for the development of vocational education institutions, called for the preparation of competitive specialists.

In the future, the work of medical students involves not only unfavorable working conditions, but also dangerous factors in the production environment. Therefore, they need not only to monitor their own health, but also get the appropriate knowledge and skills to work in the health sector.

In physical education classes, students have the opportunity, through various techniques and tools, to gain knowledge and skills that will help them lead a healthy lifestyle and share their skills with their patients in the future.

Ibragimova L.S., Gorodinsky S.I., Andriets M.M.

INFLUENCE OF PHYSICAL CULTURE ON THE FORMING PROCESS OF MEDICAL INDUSTRY SPECIALIST

Higher state educational institution “Bukovinian State Medical University”,

Chernivtsi, Ukraine

Changes in the global economy dictate their demands to medical professionals. According to new standards (adopted in 2017, medical reform) a

highly qualified doctor is a trained specialist whose competence and social position should be in line with the general tendency of medical care development.

That is why scientists focused attention on the problem of professionally important qualities of the individual professionals who can master students during training.

Before medical schools toward presents a new challenge: to prepare competitive capable specialist ready to survive in the hard competition that could withstand the harsh conditions of work, be resistant to stress, endurance, mental stress, monotony of labor poses, certain limitations movements.

Among the qualities that should have a qualified physician and physical qualities are: low fatigue, high efficiency, large power quality, strength of will and neuro-psychological stability. In physical education classes, students have the opportunity to acquire the necessary knowledge and skills for further preventive and curative activities. Due to systematic exercise physical activity maintains proper physical and mental condition, the process of adaptation to the new educational process is better.

It is necessary to understand that the employees of the medical institution should not only promote the idea of a healthy lifestyle among the population, but also act as a model of careful attitude to their own health.

Isak AI, Tymchuk KYu.

**SPIDERS, AS REGULATORS OF THE NUMBER OF ARTHROPODS,
CONTAMINATED WITH OPPORTUNISTIC BACTERIA**

Higher State Educational Establishment of Ukraine “Bukovinian State Medical University”, Chernivtsi, Ukraine

It is known that many species of bacteria can be found on the surface of arthropods, which pose a risk in the spread of various types of bacterioses.

We collected and determined 88 specimens of invertebrate animals - victims of spiders in the premises of various purposes – ZAO “Chernivtsi Poultry Factory”. It is established that representatives of the insect class predominate in the diet of spiders, and also there are crustaceans, centipedes and arachnids, and representatives of the Diptera series (flies, psychodes, serfids, etc.), Coleoptera (beetles), Lepidoptera (butterflies).

As a result of microbiological studies on all arthropods, the following bacterial species were identified: *Escherichia coli*, *Streptococcus agalactiae*, *Staphylococcus saprophyticus*, *Enterococcus faecalis*, *Staphylococcus aureus*, *Enterobacter cloacae*, *Proteus mirabilis*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa*. All bacteria are conditionally pathogenic, which, with a decrease in the resistance of the organism, can cause the development of the infectious process and have the ability to resist when exposed to antimicrobial agents.

So, in the investigated premises spiders eat a wide range of victims, among which insects predominate. A significant quantitative predominance among the victims of spiders of Diptera, coleoptera, lice, centipedes and spiders has been established. It should be noted that as a result of microbiological studies, no high contamination of spiders has been detected.

Thus, spiders, destroying arthropods, are important regulators of their numbers and restrain the spread of bacterial diseases.

Ivancheskul AI, Karavan YuV.

EUROPEAN REQUIREMENTS FOR ESTIMATION OF ENVIRONMENTAL STATE OF RIVER FOOTHILLS

Higher State Educational Establishment of Ukraine “Bukovinian State Medical University”, Chernivtsi, Ukraine

The problem of pollution of surface water is one of the most serious environmental problems, therefore scientists of many industries and different countries join their efforts and find new methods for improving and monitoring the state of water bodies. The main ones are hydrochemical and hydrobiological methods of control. Hydrochemical methods include the determination of various compounds, pollutants of the environment, and hydrobiological methods include methods of bioindication and biotesting.

Our studies show a comprehensive indicator of the ecological quality of the river ecosystem, which includes chemical, hydromorphological and biological indicators for assessing the state of the water body. A comprehensive assessment was carried out on the river Siret and in the basin. The basis of the methodological apparatus for the conduct and analysis of water samples was the EU Water Framework Directive 2000, ISO and CEN methodologies and methodological manuals, methods adopted in Ukraine, as well as own developments. The studies were conducted in 2008-2012 and resulted in the determination of 31 chemical indicators, including nutrients, heavy metals, pesticides, basic cations and anions; The species composition of phytoperiphyton microalgae was also determined, which is an indicator of the conditions of the aquatic environment. Due to the definition of these indicators, it became possible to establish a class and category of water quality of Siret river, saprobity of the hydrobiont and assessment of the degree of contamination of the river basin by 9 control lines, that is, practically along the entire length of the river in the territory of the region. According to our research, downstream water quality of Siret river is deteriorating: from “excellent” to “satisfactory” ecological status (rationing according to EU WFD and CEN standards).

Such an assessment in modern conditions is extremely relevant, including for the diagnosis of many diseases associated with drinking water from water sources of inferior environmental quality.

Kaprosh A.Yu., Tovkach Yu.V.

MORPHOLOGICAL FEATURES OF RESTORATION OF MAXILLOFACIAL LESIONS

Higher State Educational Establishment of Ukraine “Bukovinian State Medical University”, Chernivtsi, Ukraine

In the morphological study of bone marrow, it was noted that the structure of the vascular and hematopoietic compartments did not show dystrophic and aplastic changes, although a number of features, in comparison with the norm, were expressed. At 1 day after the trauma in the control group, significant changes in the vascular compartment characterized by the expansion of vascular sinuses (Fig. 74), represented by thin-walled veins, which show areas of swelling of the endothelium and its detachment from the basement membrane, are revealed.

Cytoplasm of adventitial cells is swollen, in some cells, the nucleus acquires an elongated form. The space of the arterioles is narrowed. The cells of all bone marrow sprouts at different stages of proliferation and differentiation are easily recognized (Fig. 75), do not have dystrophic and aplastic changes. In the preparations of this group, cells of the granulocyte series predominate. Myeloid cells do not exhibit deviations from the correct structure. Many of them are in a state of karyokinetic distribution. The cells of the erythroblast sprout of the bone marrow also did not have morphologically expressed disorders in the stages of proliferation and differentiation. The most differentiated erythroid precursors and mature erythrocytes adhere directly to the endothelial cells of the vascular sinuses. The cells of the megakaryocytic sprout in this region are determined in considerable numbers.

Thus, the obtained results allow us to conclude that in all experimental groups the reparative processes in the bone wound, as well as the hemopoietic structures of the bone marrow, were carried out in accordance with the biological laws of reparative regeneration. Differences are established only in the velocity of the course of rebound reactions that change each other but lead to a single, morphologically deterministic structure.

Karim Mohamed Ragaey, Olga Kushniryk

REVIEW ON THE CASES OF SCHISTOSOMA MANSONI INFECTION

Higher State Educational Establishment of Ukraine "Bukovinian State Medical University", Chernivtsi, Ukraine

Schistosoma mansoni is a water-borne parasite of humans and belongs to the group of blood flukes, it causes an intestinal schistosomiasis. The geographical distribution of the parasite is Africa, the Middle East, Brazil. *S. mansoni* as usual causes glomerulonephritis, leading to nephrotic syndrome, also it is the most common cause of schistosomal myeloradiculopathy. In this regard, the purpose of our review was to evaluate the cases of *S. mansoni* infection on distribution areas.

In 1986 an estimated 28% of the population was infected by schistosomiasis and the most recent estimate suggests country-wide prevalence of 23%. In Egypt *S. mansoni* infected 60% of the population in the Northern and Eastern parts of the Nile Delta and only 6% in the southern part. In 1997 the National Schistosomiasis Control Program (NSCP) adopted the morbidity control strategy with Praziquantel mass treatment as the main component. A national survey of Brazil in 1953 estimates 8-12 million infected Brazilians at that time. In the 1960's there were a number of small experimental programs performed in various endemic locations, by 1968 it was estimated that 46 million were exposed to schistosomiasis and 6 millions were infected, in 1975 they found that praziquantel mass can treat this disease. In Mali at

2013 20% were infected by schistosomiasis, they had already undergone a computerized tomography (CT) scan.

Thus, the decrease in the cases of *S. mansoni* infection was noted after successful treatment, but the most effective is prophylaxis, that includes avoid bathing in water reservoirs in endemic regions, treatment of infected persons, protection of water contamination and its periodic purification, sanitary education of people.

Kavun M.P.

LIVER VESSELS IN THE FETUS 6-7 MONTHS OF INTRAUTERINE DEVELOPMENT

Department of human anatomy named after M.H. Turkevych, Higher State Educational Establishment of Ukraine "Bukovinian State Medical University", Chernivtsi, Ukraine

In the middle of the fetal period (6-7 months of intrauterine development) entering the liver, the main trunk of the portal vein of the liver is divided into the right and left partial branches. Attention is drawn to the fact that the diameters of partial branches exceed the diameter of the main barrel of the vessel. Right partial vein is divided into the right paramedian and right lateral branches. The left partial branch was sent to the left lobe of the liver and connected with the umbilical vein.

The interconnection of variants of the portal vein branching and the own hepatic artery has been investigated. It is established that variants of the branching of the own hepatic artery do not depend on the branching of the portal vein of the liver. Only 6 fruits coincidence noted in the aforementioned branching vessels. When bifurcation of the portal vein of the liver, the own hepatic artery was directed to the lower surface of the right partial vein, where it branched out. In three cases, the location of the artery to the partial branches was located below the site of the vein.

The right side of the own hepatic artery in the vast majority of cases was divided into the right paramedian and lateral branches. In 50% of cases this coincided with the division of the right-hand partial branch of the portal vein of the liver into the same vessel. The left branch of the own hepatic artery was placed parallel to the left partial vein, or at an angle to the last.

Umbilical vein enters the left lobe of the liver and the square, giving side branches: left, right and top. To the right branches are the vessels of the square particle of the liver, the largest of them is the oblique branch, which reaches the anterior margin of the fossa of the gallbladder.

Kavun M.P.

PORTAL VEIN OF LIVER IN FETUSES 8-10 MONTHS OF FETAL DEVELOPMENT

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The development and formation of topography of venous vessels of the liver during the late fetal period was investigated on 15 preparations of fruits 8-10 months 270.0-375.0 mm TDP.

In the gates of the liver, the main trunk of the portal vein of the liver is located behind and to the left of the common liver duct. Place of the division is left vein and cranial confluence of the right and left hepatic ducts. Right and left hepatic ducts are often located on the ventral surface of the corresponding partial branches of the portal vein of the liver. In only three cases, the ducts were found on the anterior-top, or upper surface of the vessel.

The segmental branches of the portal vein of the liver are located below the same bile ducts of the same name, in five cases - on the anterior-lower surface of the duct.

In fetus of 9-10 months, an increase in the diameter of the branches of the portal vein of the liver is 3-4 fold to 220.0 μm (from 111.0 to 330.0 μm). These vessels in the bi- or trifunctional form branch out into further branches whose diameter is 2.5-4 times smaller than the parent trunk.

Branches of 3 to 4 orders give the terminal branches in the diameter from 18,0 to 30,0 microns. Thus the ratio of maternal and daughter vessels is 1: 10-13.

Large interstitial branches of the portal vein of the liver with a diameter of 79.0-100.0 μm (an average of 91.0 μm) are from two to four lobules of the liver, giving small interstitial veins or precapillaries at intervals between them.

Kavun M.P.

PORTAL VEIN OF LIVER IN FETUSES 8-10 MONTHS OF FETAL DEVELOPMENT

Higher State Educational Establishment of Ukraine " Bukovinsky State Medical University ", Chernivtsi, Ukraine

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Kokanovsky R.V., Tovkach Yu.V., Kovalchuk V.O., Kuz A.I.

ENDEMIC GOITER

Higher State Educational Establishment of Ukraine " Bukovinsky State Medical University ", Chernivtsi, Ukraine

The problem of prevention of iodine deficiency diseases (IDD) among the population of Ukraine, as in many countries of the world, remains relevant. The implementation of the "State program for the prevention of iodine deficiency in the population for 2002-2005" did not lead to the expected results, and the prevalence of thyroid disease among the population increased only in the last 10 years in 3,7 times, from 0,9 to 3,3 thousand cases per 100 thousand population, reaching, according to official statistics, 1.7 million cases.

Most clearly this pattern manifests itself in the prevalence of diffuse nontoxic goiter and arts. among children 7-14 and 15-17 years old. This type of thyroid disease accounts for up to 99% of cases of thyroid gland among children under 6 years of age, 80-95% of cases among children

A total of 2675 children aged 6 to 17 years, who live in various climatic-geographical tiers of the Carpathian region: high (872 children), middle-high (987 children) and low-altitude (816) were surveyed. The size of the thyroid gland and its structure and evaluated palpation (according to the WHO classification) and by means of ultrasound.

A comprehensive analysis of the survey results of the children of different climatic-geographical tiers of the Ukrainian Carpathians suggests the presence of a mild degree of iodine deficiency in the low-lying tier and the middle one in the middle-highlands.

In 77.5% of the surveyed schoolchildren living in the highlands of the Carpathians, and 72.5% of schoolchildren living in languages of the middle tier, the endemic Euthyroid goiter was diagnosed.

The scientific methodological approaches to the prevention of IDD among the population living in different conditions of natural iodine maintenance are needed. Our country is significantly different from the regional levels of iodine protection - from significant eastern regions and light iodine deficits in the central regions and sufficient iodine coverage in certain eastern black soil regions.

Kondratova A., Tovkach Yu.

ULTRASOUND ANATOMY OF THE ESOPHAGEAL-GASTRIC TRANSITION IN CHILDREN

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The abdominal part of the esophagus is visualized during an ultrasound examination of the epigastric region, both in transverse and longitudinal scanning.

The received image is displayed on the monitor screen or on the paper in the form of bright spots. Bright white colour denotes a reflected echo signal of the abdominal part of the esophagus or the upper part of the fundus, which is above the angle of His opposite the corresponding lateral part of the abdominal part of the esophagus, and the black colour – the absence of a reflected signal arising from parenchymal organs and fluid.

The transverse scanning in newborns and infants revealed such peculiarity: in some children the esophagus was at a certain distance from the fundus of the stomach on the horizontal sections of the esophageal-gastric transition in the place where the esophagus enters the stomach. In other children only the esophagus was observed, and the fundus of the stomach was not visualized or only a small part of it could be seen. The transverse scanning showed the abdominal part of the esophagus as a round structure with a hyperechogenic center – the mucous membrane of the esophagus, a thin hypoechoic – submucosal, a thin external hyperechogenic layer is a reflection of the adventitia of the abdominal part of the esophagus.

In the result of conducted ultrasonographic studies of the esophageal-gastric transition, it has been established that in some children the esophagus was at a certain distance from the fundus of the stomach on the horizontal sections of the esophageal-gastric transition in the place where the esophagus enters the stomach. In other children the fundus of the stomach was not visualized or only a small part of the stomach could be seen. The distance from the fundus to the esophagus indicates the magnitude of the angle of His and the risk of cardiac orifice failure development in newborns.

Kosan D.A., Tymofieva M. P.

WOMAN AND CAREER: THE CRITERIA OF SUCCESS IN EDUCATION

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Topicality. The choice of career is a complicated and responsible issue in life. Not only financial wellbeing, but personal life, psychological health, and level of structural components of self-conception, etc. will depend on its proper solution. The way chosen by the man will stipulate his/her surroundings as well: friends and enemies, tastes and preferences, values and interests. Therefore career choice is one of the crucial factors of success and happiness in life.

Objective of the study is theoretical-methodological analysis of success criteria of a professional career and professional development of a woman in the field of science.

The mechanisms of relations between social behavior and profession, so-called professional role behavior, have been studied by the representatives of different psychological schools. The ideas of the role analysis of professional behavior are discussed in the works of the scientists of our country and from abroad (B. Ananyev, R. Belbin, R. Darendorf, Ye. Kuzmin, N. Krutikov, R. Linton, R. Merton, T. Parsons, N. Fedotova). The issues of professional and career development are investigated in foreign and home psychology (D. Super,

D.Tiedeman, R. O`Hara, J. Holland, E. Bordin, , A. Mitchell, T.Yu. Bazarov, R. Berezovska, G. Zaytsev, etc.).

The notions «woman» and «career» have become inseparable recently. A cause should be found in the changed social-political and economic situation, and the desire of a woman to release from a number of duties contradicting her individual requirements. In a wide sense career is a general sequence of stages of human development in the main spheres of life activity including occupational, social, leisure, etc.

Nowadays in Ukraine a woman has certain difficulties in making decisions concerning her career due to a number of reasons in the form of various barriers which are considerably complicated to be overcome. Having analyzed scientific literature we distinguished and substantiated a chain of such barriers: cultural-historical, political-legal, individual-psychological, and social-demographic.

This choice should be made very carefully in spite of the pressure of the surroundings or following "path of least effort", otherwise the man would live the whole life with the least efficiency factor. Erich Fromm wrote on this matter: «The man is an active creature by nature; inertness brings the man closer to death». To avoid it the situation should be carefully analyzed, all the pros and cons should be estimated, and a number of mental operations should be made.

There may be an impression that a woman experiences certain difficulties to make a career due to many prohibitions and restrictions. As a matter of fact well-educated committed women can achieve much in career prospects. From year to year due to contemporary transformation of the society the number of women who managed to build a successful career has become bigger and bigger. These women have adapted to new life standards and managed to solve the problem of holding family duties together with following career ladder.

A modern young woman is purposeful and confident in herself. Thus, 99% of respondents are confident in achieving their life goals, and every fourth is ready to accept a leading post. Contemporary women have a lot of chances for it, since contrary to their mothers and grandmothers they have better education and are able to take a risk.

There are certain gender differences in understanding and estimating the career. Since for men career means prestigious positions, and they correlate the work performed with their career conception exclusively, that is they consider it as career development. Women realize their career as personal growth and self-realization. They differentiate two notions: the work performed and career. The work for women is realized "here and now", and career is exclusively individual goal.

The investigation demonstrated that in spite of all the difficulties of everyday life 80 % of women are satisfied with everything they have achieved, and nine out of ten women are confident that they will be satisfied no later than in ten years.

Therefore, a woman who wants to combine career and family in her life first of all should consider everything well and understand what she is expecting. Then she can act according to her expectations and wishes. The majority of psychological problems in the family occur because they are not clarified well. Moreover, stereotypes interfere much and contribute to the issue.

Kotlyarenko L.T.

SANOGENIC ASPECTS OF THE HUMAN LOCOMOTION SYSTEM

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The level of human health depends on many factors, in particular, on the modus vivendi, the ecology of the region, socio-economic and sanitary-hygienic conditions, culture and education, and also on the degree and volume of the motor activity of the organism. The new direction of biomedicine, sanocreatology, provides the possibility of purposefully maintaining and strengthening the morphofunctional status of some functional systems of the organism due to changes in the functions of its other systems. The phenomenon of consolidation of functions is present at all levels of the organization of the body: cellular, tissue, organ, system of organs. Thus, changes in the functions of one cell can lead to modifications of neighboring cells of the same tissue; any tissue organ may cause changes in the functions of a certain organ, any organ changes causes the modifications of the functions of the physiological system, and one of the functional systems may change this or that system of the body.

Purposeful use of motor activity and its consolidation with the activities of other functional systems provides for the maintenance and strengthening of the health of the organism, including the morphofunctional status of the musculoskeletal system in health improvement. The main active part of the musculoskeletal system is the skeletal muscles (striated muscles) with which the person performs movement or exercises at a certain rate, supports the necessary position of the organism in space at the given moment. When performing muscle work, there is an increase in metabolism and the formation of thermal energy. Performing their functions, the muscles simultaneously improve the functions of other organs and systems, including cardiovascular and respiratory.

The work of the musculoskeletal system triggers various physiological and biochemical processes: the circulation of blood through the blood vessels, the transport of nutrients and oxygen to the tissues and the excretion of metabolic products, the secretion of glands, etc. In the process of motor activity, labor, and increased physical exercise, temporary connections (cortico-muscular, cortical and vascular, etc.) develop, and effect the regulation and coordination of cortical and subcortical centers, as well as the endocrine system on the functional state of the cardiovascular and respiratory systems. Between the intensity of muscular activity, the level of pulmonary ventilation and blood circulation, there are certain interrelations that ensure the creation of adequate conditions for the transport of oxygen to the muscles. The establishment of connections between these three systems leads to the consolidation of their functions by using physical dynamic loads with the functions of the cardiovascular and respiratory systems, which leads to the formation of interrelations between them, and according to literature, it is necessary to perform them at a heart rate of 120-130 beats / min. Simultaneously, under the influence of a physical dynamic load, pulmonary ventilation increases, which is manifested by deeper breathing (maximum 40-70 respiratory movements per

minute). It should be noted that with an increase in the use of oxygen in the muscles per 100 ml, under the action of a physical dynamic load, the minute volume of the heart's blood increases by 800 ml.

Thus, from the point of view of sanocreatology, the problem of purposeful supporting and strengthening the health of the organism in health-improving limits, through the consolidation of the functions of the musculoskeletal system with the functions of the cardiovascular and respiratory systems is of fundamental importance for the development of scientific bases for the initiation, development, stabilization and support of these interrelations with other functional systems, which will help identify and establish support mechanisms and improve the physical health of a particular body as well as of the organism as a whole.

Kozariichuk N.Ya., Telenga S.O., Smandych V.S.
**PECULIARITIES OF THE ORBIT MORPHOGENESIS IN THE FETAL
PERIOD OF HUMAN ONTOGENESIS**

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Creation of the scientific morphological underground to elaborate measures of prophylaxis, ways of treatment and improvement of the diagnostics methods of the organ of vision diseases is a topical direction of anatomical investigations. Numerous human eye diseases (glaucoma, cataract, strabismus, amblyopia, myopia, astigmatism, etc.) are commonly congenital or acquired in the early children's age (Yamaguchi K., 2014; Belle M. et al, 2017). Timely detection of the congenital defects and variants of the human ocular fossa formation and its structures requires distinct morphological and morphometric criteria of the specific characteristics of its development in the dynamics of ontogenesis prenatal period. Object of the research – to elucidate the dynamics of the spatially-hours changes of orbit in the fetal period of human ontogenesis.

Methods of investigation. Research has been conducted on 30 computed tomograms of the human fetal specimens aged 4-9 months of antenatal development measured 160.0-450.0 mm of the parietal-calcanal length (PCL). Complex of morphological methods have been used: anthropometry, three-dimensional computer reconstruction, morphometry, craniometrics study of the orbit according to Goncharuk V.V. et al method (2011).

It has been established that deceleration of the growth rates of the basic craniometrics parameters of ocular fossa and, correspondingly, its volume occurs at the beginning of the 7th month of the development (fetuses 310.0-340.0 mm PCL). The rate of the depth increase of the orbit slows down in the middle of the 5th month of the development (fetuses 200.0-220 mm PCL), and then - even increase is continued, as along the previous, the 4-th month of the development. Conclusions. 1. The middle of the 5th and beginning of the 7th month of intrauterine development of the human fetuses, when uneven rates of size orbit are observed, are crucial from the point of view of possible origin of the structure variants and defects of the human organ of vision development. 2. The obtained morphometric data of

orbit in the dynamics of the fetal period of prenatal development may be diagnostic criteria of the normal human organ of vision morphogenesis.

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**MANAGMENT AND TREATMENT OF THE ENDOCRINE
OPHTHALMOPATHY**

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Endocrine ophthalmopathy is a complex orbital disease of unknown cause characterized by round-cell infiltration, edema, and proliferation of connective tissue. Endocrine ophthalmopathy is one of a triad of features including hyperthyroidism and pretibial dermopathy which characterize Graves' (Parry's, Basedow's) disease. These changes affect predominantly the extraocular muscles and to a lesser degree the lacrimal glands and retrobulbar fat. Endocrine ophthalmopathy may occur alone, in association with diffuse thyrotoxic or pretibial myxedema or with both conditions. The condition is more common in woman. Endocrine ophthalmopathy, or endocrine exophthalmos, the latter term coined by Brain in 1959, is a useful but somewhat misleading appellation because the orbital changes may occur without endocrine abnormalities. Ocular symptoms can range from mild to severe; but only 10-20% of patients have sight threatening disease. Another tissue that can also be involved in the immune attack of Graves' eye disease is the skin of the shins.

12 patients of both sexes (22 orbits) with endocrine ophthalmopathy in the active phase were included in the study. The average age – 43.6 ± 10.5 years. The duration of the disease ranged from 3 to 12 months. The activity of disease was evaluated according to a scale of clinical activity of endocrine ophthalmopathy and thickening of the extraocular muscles based on MSCT of the orbits. One month after the start of pulse therapy there was a significant reduction of endocrine ophthalmopathy activity and severity in all patients, which was confirmed by an increase in vision, a decrease in the level of intraocular pressure, reduction in the amount exophthalmus at 0.8 ± 0.02 mm ($P < 0.05$) and the frequency of diplopia. Immunosuppressive treatment was efficient on early stage of compressive optic neuropathy. 3 months after the start of glucocorticoid therapy in 68% of cases a transition to the inactive phase of the disease was determined. Reccurrence of the disease after 12 months was diagnosed in 3 patients. Treatment for thyroid eye disease generally occurs in two phases. The first phase involves treating the active eye disease. This active period usually lasts two to three years and requires careful monitoring until stable. Treatment during the active phase of the disease focuses on preserving sight and the integrity of the cornea as well as providing treatment for double vision when it interferes with daily functioning and becomes bothersome.

Patients with endocrine ophthtalmopathy should be evaluated by both an endocrinologist and an ophthalmologist with expertise in this disorder. Immunosuppressive therapy of endocrine ophthtalmopathy should began in preclinical phase of process and be initiated by the ophthalmologist. Intravenous

pulse therapy with high doses of methylprednisolon followed by oral administration in prolonged regime is effective and safe; it contributes to the rapid achievement of clinical effect and stable remission of the disease. A thickening of the extraocular muscles is the criteria for the start of glucocorticoid therapy. Smoking is associated with increased risk of progression of endocrine ophthalmopathy and the patient should be urged to quit. Artificial tears should be prescribed.

Kushnir A., Karavan M., Kashperuk-Karpiuk I.S.
**THE TOPOGRAPHO-ANATOMICAL FEATURES OF THE BUCCAL
REGION OF HUMAN FETUSES**

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Introduction. Buccal region is a complex of structures of soft tissues, anatomic components of which are in close mutual relations, while its shape is maintained of the external muscular-aponeurotic system. There are numerous anatomic structures located on relatively small area, including terminal segment (portion) of parotid duct, buccal fat pad, blood vessels, lymphatics and nerves. The lack of knowledge about the peculiarities of the structures of buccal region induce us to carry out new researches, which allows to improve the methods of diagnostics and surgical correction of congenital and acquired diseases of human face.

The aim of this research is to find out topographo-anatomical features of the structures of buccal region of human fetuses.

Materials and methods. There was the 74 specimens of the buccal region of human fetuses aged from 4 to 9 months of the intrauterine development measuring 90,0-410,0 mm of parietal-coccygeal length (PCL) (35- man's and 39 - woman's) studied using complex of morphological methods which included morphometry, anthropometry, identification of body type, preparation, 3D-reconstruction and statistic analysis. Digital camera with remote control, optical attachments and stand for attachment on a microtome's holder is used for sections' digitizing. According to our method a surface of the specimen block after its superficial cutting of microtome's knife is shooted. It provides the series of sections, which is difficult to achieve while shooting the prepared histological micropreparations. For vessels' differentiation, the cardiovascular system is injected with colorants before the fixation of fetus. The next stage is a selection of files for reconstruction (no more than 100 files are downloaded to the program for reconstruction). Calibration is conducted (the size of pixel and voxel is calculated). The contours of anatomical structures are passed round with different colors. Graphic tablet with a stylus for manipulations with computer or tablet-PC with the capability of drawing on a screen is used for this.

Results. We have developed the scheme of topographo-anatomical coordinates of boundaries of lateral and buccal regions of the face and imaginary projectional line of the parotid duct. We have researched the relationship between parotid duct and buccal muscle on macro- and microscopic levels. We suggest that

peculiarities of these structures' syntopy provides sphincteric function, which prevents regurgitation of saliva. The direction of the parotide duct is arched, with the convexity up, due to well developed buccal fat pad. The additional parotide duct is detected in 22% of cases. Having come a long the external surface of the buccal muscle, parotide duct is getting smaller at the level of superior border of the buccal fat pad and penetrates through the buccal muscle. Parotic duct opens into the mouth as a papilla. An oblique direction of the parotide duct through the lower mandibular part of masseter detected at all of specimens (in particular, on this 3D-reconstruction of the buccal region). We have researched a variety of anatomical variants of syntopic interactions between the buccal fat pad and parotid duct and its shape variants. Duct either pierces the corpus buccal fat pad or passes it superiorly. Among all variants of buccal fat pad of the human features we observed oval, two-fraction, three-fraction shapes and pyramidal with the serried bases.

Conclusion. The structures of buccal region are singled out by the considerable anatomical variability. We take it for granted to find out spatiotemporal dynamics of their syntopy and special features of their spatial structure in the future researches.

Labil Shaikh, Olga Kushniryk

PECULIARITIES OF FASCIOLA HEPATICA INFECTION IN HUMAN ORGANISM

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Fasciola hepatica, a parasitic flatworm of the class Trematoda, that infects the livers of various mammals, including humans. This infection is exceptionally rare in the United States, however, it is commonly observed in developing countries. The incidence has been increasing since the year 1980. Food-borne trematodiasis are a group of neglected tropical diseases. The parasite has a complex lifecycle that includes a hepatic phase as well as a biliary phase. In the hepatic phase, the parasite is reported to remain within the liver for 6-9 weeks. The triad of fever, right upper quadrant pain, and absolute peripheral blood eosinophilia should raise suspicion of hepatic fascioliasis.

In accordance with the literature, many cases of infected persons were found of which in a hospital 37 patients were included (23 men and 14 women), aged 19 to 71 years. Ingestion of watercress was confirmed in 27. Seven cases occurred as part of familiar outbreaks. Thirty-two were in the liver invasive stage and in 5 the biliary tree was invaded. The most common features were eosinophilia (91.8%), malaise and weight loss (75.6%), elevated alkaline phosphatase (74.2%), and abdominal pain (72.9%). Adult worms in the biliary ducts were observed in 3 patients and ova in faeces were observed in 6. In 13 of 27 patients indirect hemagglutination test was performed. Data significant to confirmation of liver involvement were provided by laparoscopy in 12 of 13 patients and by imaging techniques in 13 of 31 patients.

Therefore, most of the patients in these series reported consumption of watercress and all patients showed the symptoms typical of parasite disease. Imaging

techniques proved to be of great utility in confirming the diagnosis of hepato-biliary disease. In most of the patients therapy with dehydroemetine and/or bithionol (in one or several cycles) was followed by complete remission.

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DEVELOPMENT OF CERTAIN CERVICAL ORGANS IN THE EMBRYOS OF THE 4-5TH WEEKS OF GESTATION

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In embryos of 4,0-4,5 mm of the parietal-coccygeal length (PCL) the rudiments of the esophagus, larynx and trachea are detected as nasal pharynx derivatives on the level of the first cervical vertebra. Although it should be noted that any morphological structures that could be used to determine the borders between the rudiments of the respiratory and digestive tubes are nor found on this level. Only the single layer columnar epithelium lining the lumen of these rudiments attracts our attention: the epithelial cells of the esophageal rudiment are a little higher than the cells of the rudiment of the respiratory tube. In front of the rudiments of the respiratory and digestive systems there are big rudiments of the liver and heart, and posteriorly the rudiments of the cardinal veins, dorsal aorta and vertebral column are located.

In the embryos of 5,0-5,5 mm of PCL the esophageal rudiment is in the shape of a little oblate tube in the anterior-posterior direction, the tracheopulmonary rudiment is located in the ventral part of it, and the rudiment of the vertebral column – in the dorsal part. The longitudinal esophageal axis is located in the middle section and is a little dislocated ventrally and coincides with the longitudinal axis of the embryo. Further the esophagus, especially its cranial part is dislocated into the side of the axial skeleton. The lumen of the esophageal rudiment on the transverse sections is of an oval shape. At the same time, in the embryo of 6,0 mm of PCL the esophageal lumen on the level of the tracheal splitting is practically absent due to intensive epithelial development, which should be considered as the stage of formation of the epithelial “plug”. In the cranial and caudal direction from the epithelial “plug” the lumen of the esophageal rudiment is lined with two-layer columnar epithelium, which nuclei are located on different levels. The cells forming epithelial “plug” are less than those of the two-layer columnar epithelium, therefore the epithelial “plug” consists of the nuclei with inconsiderable cytoplasm content.

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REFLUX ESOPHAGITIS

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Nowadays diseases connected with the insolvency of the esophageal sphincter is a rather burning problem. Actuality of the given problem is lies in constant growth of patient number with the violation of the function of the esophagus eating late

adiposity and high physio – emotional load. Disease is more common for men and severity of damage increases with the age.

Surgical intervention in the esophagus area of the gastrointestinal transition with insufficiency can be divided into four groups:

- 1) subdiaphragmatic (gastocardiopepsia, Gis angle recovery, fundoplication, esophagocardiotomy, esophagogastronomy)
- 2) surgery of the esophagus of the diaphragm (chyloplastics)
- 3) superdiaphragmatic operations (with regard to esophageal atresia)
- 4) combinations of operations

Subdiaphragmatic surgical intervention is performed when reflux oesophagitis, cardiac achalasia, peptic structures of the esophagus ulcers, dysphagitis, cardiac and abdominal cancers of the esophagus occur. While performing surgical intervention on the abdominal part of the esophagus and the cardiac part of the stomach the esophagus is mobilized to 5-7cm due to the dissection of diaphragmatic esophageal and gastric diaphragmatic bond with their subsequent denervation. These surgical interventions are complicated with hernia of the esophagus of the diaphragm, violation of the general mechanism of cardia.

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POLYMERIZATION SHRINKAGE. BASIC METHODS OF ITS PREVENTION.

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Composite materials during the process of polymerization undergo polymerization shrinkage, resulting from interdependence of Van der Waals forces.

In the composites of chemical induration, polymerization begins and passes relatively evenly throughout the thickness of the material. Therefore, its shrinkage is most pronounced on the surface of the applied composite layer and is compensated by the introduction of excess material into the carious cavity. The amount of shrinkage depends on the type of used material and the methods of application.

In order to compensate the polymerization shrinkage of photocomposite materials, it is recommended to put them layer-by-layer in the carious cavity, with the thickness of the layer no more than 2 mm.

In large carious cavities, the polymerization of the first layer of the composite located on the bottom or on gingival wall is more complicated. As a result of the polymerization shrinkage, pores are formed between the material and the solid tissues of the tooth.

Despite the great achievements in the field of creating adhesive dental materials, the consequences of polymerization shrinkage are: weakening of the bonds of the organic matrix; the formation of internal cracks in the material, followed by cleavage and fracture; violation of the marginal fit and the formation of a chink as a result of micro leakage; increasing the porosity of the material and the oxidized surface.

Flowable composites have a large module of elasticity, therefore, despite the significant polymerization shrinkage, the stress on the walls of the cavity upon

solidification of the material is minimal. In chemical congealed composites, polymerization takes place throughout the entire thickness of the material. In this case, material shrinkage occurs mainly on its surface and is easily compensated by subsequent portions of material introduced into the cavity with some excess.

When the composite material adheres to the walls of the cavity during the solidification of the material, the polymerization shrinkage causes the occurrence of an internal stress that extends to the walls of the cavity. Filling material is held in the cavity by the force of adhesion to its walls. This force can be sufficient to break the connection along the interface and all the advantages of the adhesion system will be lost. Especially, this is characterized for a bond with dentin, which is less strong than that obtained with etched enamel and as a result, shrinkage tends to be directed towards the interface. The etched enamel is adhesive, when the bond with the dentin destroys. The gap that forms between the filling and dentin can cause increasing the sensitivity. If either of edge is in the dentin, the breakage of the bond will cause marginal permeability

If the composite seal is located below the gingival level in the proximal cavities, this will cause a special problem.

Factors that cause the emergence of these tensions are:

- The cavity shape, which is often referred as the “configuration factor” or “K- factor”
- Composition of the composite material
- Percentage of monomer conversion, e.i more or less complete polymerization reaction.
- Light irradiation

Another important point in the technique of filling using light-hardening composites is an inhibited layer (surface layer of a solidified composite). The process of polymerization in it is determined by the decrease of oxygen of the air. In compositions it resembles an uncompleted defective system and consists of free radicals of a polymer matrix. Outwardly, this layer looks like a brilliant, "moisture", sticky film on a hardened surface of the material that can be easily removed by the tool or the damp roller. If this layer is isolated from oxygen and light polymerization, it hardens.

Being a side effect of the process of composite solidification, the inhibited layer creates conditions for qualitative connection of new portion of the material with previously polymerized one. When each next portion of composite is introduced and condensed, the inhibited layer is integrated into this batch of material and losing the contact with the air oxygen and fully polymerized. As a result, a new portion of the material is glued to the already hardened surface by the inhibited layer. The inhibited layer, left on the surface of the composite seal has an increased permeability for food dyes, is subject to increased abrasion, easily damaged by the tool and in accordance with the requirements of the standard application technique for composites, must be destroyed. With this aim, all external layers of filling are processed by grinding and polishing tools until the exposure of strong, well-polymerized material. The main methods of prevention polymerization

shrinkage include correct direction of the light rays of polymerization lamp; layered insertion of material into the cavity; the amount of filler in the material.

During introducing and condensing each subsequent portion of composite, the inhibited layer is integrated into this portion of the material and having lost contact with the oxygen air, is fully polymerized. As a result, a new portion of material at the expense of inhibited layer is glued to a more solid surface.

The main methods of avoiding polymerization shrinkage include the correct direction of light of a polymerization lamp rays; layer insertion of material into the cavity; the amount of filler in the material.

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ANOMALIES OF TEETH

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In nature, abnormalities in the growth of teeth are quite common - non-standard shape, size, color and quantity. This is a congenital or acquired violation of individual teeth, a tooth row or a whole bite. Different dental anomalies are found today in 50% of children and adolescents, and 30% of adults. Hyperdomenia occurs only in 2% of the inhabitants of our planet. So to speak, "extra" teeth, differing in their small size and conical. Studies of different years conducted on the territory of Ukraine, testify to the stable high level of prevalence of tooth-jaw abnormal anomalies and deformations in children and adolescents. According to various authors, prevalence ranges from 30% to 97%. Thus, in children aged 3-17 years, the prevalence of tooth-jaw abnormalities is about 11%, in Chernihiv region - 20%, in Ternopil and Ivano-Frankivsk regions - 58.6% , in Luhansk region - 54.2%; in the cities: Nikolaev - 40%, Kyiv - 31.7%, Donetsk - 46.1%, Kharkiv - 50-63.6%, Poltava - 88%, Odesa - 58.81%. In general, the prevalence of anomalies among children and adolescents aged 3 to 17 years in Ukraine averages 42.5%. The prevalence of the anomalies of the zebra-jaw machine is associated with both the processes of urbanization and the deterioration in the nutritional status of the population, which, through a number of generations, caused a violation of physical development, processes of formation and eruption of teeth

In the 19th century, the wrong placement of the front teeth was first described; Sternfeld suggested such terms as physiological and pathological bites. He called the normal bite an orthognathic, characterized the physiological and pathological prognathy and progeny depending on the depth of the overlapping of the front teeth and the presence of sagittal gaps between them. The proposed terms "orthognathy, prognathion and progeny" are used today.

In 1939, A. J. Katz proposed the classification of dental ankles. As a basis, the Engle classification was adopted. All anomalies by Katz are divided into 3 groups.

The first group includes all abnormalities with functional norm disturbance only in the area of frontal teeth. The second group of bite anomalies is characterized by such a deviation from the functional norm: the central occlusion in the area of the lateral teeth is a nodal contact, and in the more pronounced anomaly - contact with

inappropriate and non-identical antagonists. The third group of anomalies include the following deviations from the functional norm: for central occlusion for lateral occlusion. Thus, the prevalence of dental anomalies is high in all age groups. At the same time, the number of tooth-abdominal anomalies with age increases, which requires timely diagnosis, a complex of preventive measures and treatment of orthodontic pathology.

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OBSTRUCTIVE SLEEP APNOEA SYNDROME AND RHEUMATOID ARTHRITIS

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Cardiovascular complications in rheumatoid arthritis (RA), according to some authors, are associated with atherosclerotic vascular disorders, such as myocardial infarction, congestive heart failure, and others. According to literature, rheumatic diseases are accompanied by sleep disorders, with RA in 54-70% of patients have problems with sleep, which complicate the course of the disease.

Objective: To investigate the frequency of obstructive sleep apnea syndrome (OSAS) in patients with rheumatoid arthritis.

Materials and methods. The investigation was attended by 89 patients. The diagnosis is verified according to the criteria proposed by the ARA/EULAR (1987/2010), the Ministry of Health of Ukraine Order No. 263 dated April 11, 2014. Most of the patients were women (89.9%) and with positive rheumatoid factor (58.4%), as well as patients with moderate and high DAS28 (78.7%) disease. Patients received: methotrexate (10 mg to 15 mg/week) - 52%, oral corticosteroids (5 mg to 20 mg/day), all patients received nonsteroidal anti-inflammatory drugs (NSAIDs). Patients performed general-clinical, laboratory and instrumental (echocardiography, carotid artery duplex scan, pulse oximetry) research. Conducted determination of OSAS severity indexes - apnea-hypopnea index (AHI) and desaturation index (ID). OSAS was detected at $IAG \geq 5/g$. Statistical processing of the data was performed using the PAST program.

Results. At determination of risk factors of cardiovascular diseases it was found: 26% of patients smoke, burdened hereditary anamnesis of cardiovascular disease - 71.9%, median blood pressure - 127/84 mm Hg, total cholesterol level – 5.3 mmol/l, body mass index (BMI) - 25.9 kg/m². The risk of death from cardiovascular diseases on the scale SCORE – 0,57 (from 0,04 to 4,23%). In the course of cardiorespiratory monitoring 61.8% was detected OSAS. The analysis of CVD risk factors showed that they did not differ between groups (in the group with and without OSAS, $p < 0,05$); exception was only BMI ($p = 0,037$). In patients with OSAS, there was a tendency to increase the left ventricular myocardial mass index (46.3 ± 0.7 g/m²) versus 41.0 ± 0.5 g/m² in the non-OSAS group. The thickness of the intima-media complex was higher in the group of patients with RA with OSAS (0.73 ± 0.07 mm) and 0.55 ± 0.04 mm in the group without OSAS ($p < 0.05$). In the analysis of the number of atherosclerotic plaques between groups of differences were not found. Analyzing the correlations between the indicators of the severity of

OSAS and the subclinical signs of CVD, the correlation of AHI with the thickness of the intima-media complex ($R=0.43$, $p=0.019$), ID with LVMI ($R=0.45$, $p<0.05$) was found. Positive correlation relationships were also established for the number of swollen joints, the number of pain joints and DAS28 with ID ($R=0.41$ and $R=0.32$ respectively, $p<0.05$).

Conclusions. In patients with rheumatoid arthritis with a low overall risk of cardiovascular disease, the incidence of OSAS was 61.8%. The presence of OSAS is associated with the preclinical stages of CVD - subclinical carotid atherosclerosis and left ventricular hypertrophy. The desaturation index and the index of intermittent hypoxia correlate with the activity of the rheumatoid process.

Nahirnyak V. M.

STUDY OF THE REDUCTION IN BLOOD PRESSURE AFTER EXPOSURE OF LOW EXTREMITIES TO THE AUTOMATIC MASSAGE

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Our previous studies showed an increase in the systolic and diastolic blood pressure after the whole body exposure of a patient to high frequency periodical mechanical vibrations. We explained this by the increased stroke volume (SV) of a heart as a result of action of the automatic massage. In our model, we use the Hagen–Poiseuille equation for analysis of the received results. It shows a linear dependence between a stroke volumes and a pressure. Also, according to the Hagen–Poiseuille formula, the increased effective radius of vessels may significantly reduce the blood pressure:

$$\Delta p = \frac{8\eta \cdot L \cdot SV}{\pi \cdot \Delta R^4},$$

where ΔR a change in effective radius of blood vessels, L an effective length of blood vessels, SV – a stroke volume, η – viscosity of blood.

In order to verify this assumption, we tried to eliminate the direct influence of vibrations on a heart in our experimental set-up. Only the blood vessels of low extremities were affected by the automatic vibrational massage. A woman, 64 years of age, participated in experiment. She was sitting in a chare with her feet soles positioned on the vibrating platform of the automatic massager SCEK S-780 Tiens (Tianjin, China). The blood pressure was monitored with the personal blood pressure meter Rossmax MS60 (Taipei, Taiwan). The blood pressure and a heart rate were measured twice, before a massage and right after it. Our study's results demonstrate the reduction of blood pressure of the female patient after 10 minute exposure of low extremities to the vibrational massage.

Initial systolic and diastolic pressures were 155 and 104 mmHg, correspondingly. After the 10 minute massage of feet, we observed reduction of both, systolic and diastolic pressure. The systolic pressure was 139 and the diastolic one was 92 mmHg. The heart rate changed insignificantly.



Figure. Position of the patient's feet on the vibrational platform during the automatic massage.

We explain the observed results by the increased effective radius of blood vessels in feet after their exposure to the automatic vibrational massage. Recovery of tissues or organs depends on the fresh blood supply to them. Our study demonstrates the potential of a high frequency vibrational massage in improving a peripheral blood circulation and in a recovery process of injured areas (hematomas).

Olaru E.V., Sorokhan M.M.

FEATURES OF ULTRASONOGRAPHIC ANATOMY IN NEWBORNS

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The disorder of the sphincter function of the gastroesophageal junction is of special urgency in newborns. Congenital or acquired malfunction of the lower esophageal sphincter leads to the development of oesofagitis, stricture, decrease of body mass, laryngospasm, and increased risk of sudden death. In male newborns, the outer diameter of the abdominal part of the esophagus is 6.61 ± 0.26 mm, in female ones - 5.45 ± 0.31 mm, the diameter of the lumen of the abdominal part of the esophagus in the male makes up 4.36 ± 0.17 mm, female - from 3.25 ± 0.44 mm, the thickness of the wall of the abdominal part of the esophagus in male children is about 2.17 ± 0.16 mm, female - 2.24 ± 0.16 mm.

With the aid of ultrasonographic studies, we have established that the outer diameter of the abdominal part of the esophagus in newborns, aged up to five days of the postnatal period, varies from 5.8 to 7.0 mm. In newborns, aged up to fourteen days outer diameter of the abdominal part of the esophagus makes up about 6 and 8.5 mm. During the third and fourth weeks of a postnatal period, the diameter does not change significantly. The data of ultrasound examination of newborns show that the diameter of the abdominal part of the esophagus in newborns during the first month of life shows the most intensive growth within the first week after birth.

In male newborns, the parameters of the abdominal part of the esophagus are larger than the ones in female newborns, but statistically significant difference concerns only the outer diameter and the thickness of the wall of the abdominal part of the esophagus.

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**PATHOMORPHOLOGICAL CHANGES IN THE RETINA LAYER AT
THE END OF THE FOURTH WEEK OF OPIOID EFFECT**

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A number of scientists estimate about 52 million of people in the world who are systematic drug users – it is 1% of the world population. A real number of individuals who abuse drugs cannot be calculated exactly due to latent pathology. Ukrainian and foreign publications contain certain works partially reporting about separate aspects of ophthalmologic pathology in case of opioid effect, but at the same time they are isolated and unsystematized.

Therefore, this study is considered to be topical from the point of view of the experimental pathomorphological investigation and from the practical one as well.

15 mature outbred albino male rats with the body weight of 160-200 g, aged 5,5 months, were used as the material for the study. Every day the animals were given intramuscular injections of nalbuphine at the same period of time (10-11 a.m.) during 28 days. The initial dose of nalbuphine was 0,212 mg / kg. Every following two weeks of the experiment the dose of the drug increased gradually within the limits of a permissible therapeutic dose. Since the 14th day and till the end of the 28th day nalbuphine was injected in the dose of 0,225 mg / kg. In this way chronic opioid effect was simulated in experimental animals including injection of opioid narcotic analgesic in increasing doses. The animals were divided into two groups. The 1st group of animals was injected with nalbuphine during 28 days followed by taking the material for investigation (the end of the 4th week of the experimental opioid effect); the 2nd group was a control one given intramuscular injections of physiological solution during 28 days at the same period of time (10-11 a.m.). All the animals were kept in vivarium, and all the work concerning the questions of keeping, care, marking and all other manipulations were performed according to the principles of “The European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes” (Strasbourg, 1985); “Ethical Principles and Guidelines for Experiments on Animals”, approved by the First National Congress on Bioethics [Kyiv, 2001]; the Law of Ukraine № 3447 – IV “On protection of animals from cruelty”. Board of Bioethics, Danylo Halytsky Lviv National Medical University, has established that the performed scientific investigations correspond to the ethical requirements according to the Order of the Ministry of Public Health of Ukraine № 231 dated 01. 11. 2000 (minutes № 10 dated 26.12. 2011; minutes №2 dated 20.02.2012). Before taking the material for autopsy an animal was put down by means of intraperitoneal administration of thiopental (25 mg/1kg). The eyeballs of rats obtained by means of postmortem enucleation were used as the material for the microstructural examination considering further maintenance of topographic ratio of the eye membranes on the histological sections 5-7 mcm thick. Histological specimens were prepared according to the common

methods with hematoxylin, eosin and azan by Heidenhain's method of staining. The specimens were examined and photos were taken by means of the microscope МБІ-1 and a digital camera Nikon D 3100.

Experimental opioid effect during four weeks resulted in a number of pathomorphological changes characterized by single necrotic changes in nerve cells in the thickness of the nuclear layers, maintenance and intensification of the signs of the intravascular, vascular and extravascular rebuilding (hyperemia, stasis, perivascular and pericellular of swelling) in the internal layers of the retina. The determined pathomorphological signs in the retina layers during the experimental opioid effect at the end of the 4th week can further be a pathomorphological basis in order to study the manifestation of opioid angio- and neuroretinopathy in the experiment. The results obtained can be further applied to conduct comparative characteristics concerning the dynamics of increasing pathomorphological changes in the retina layers in case of short and long action of small opioid doses.

Pearly Rathore, Olga Kushniryk
RECENT APPROACHES IN THE TREATMENT OF AFRICAN
SLEEPING SICKNESS

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Trypanosoma causes African sleeping sickness. The causative agent and vector of transmission tse-tse fly were identified in 1903 by David Bruce. This disease has been present in Africa for thousands of years, but treatment was started only at the beginning of XX century. The first effective treatment, atoxyl, an arsenic-based drug developed by Paul Ehrlich and Kiyoshi Shiga, was introduced in 1910, but blindness was a serious side effect. Without treatment it typically results in death. According to the listed above, the development of new approaches in the treatment of sleeping sickness is a question of present interest.

Using a genetically modified form of a bacterium that occurs naturally in the gut of the vectors is being studied as a method of controlling the disease. Three serological tests are available for detection of the parasite: the micro-CATT, wb-CATT, and wb-LATEX. Therapy of the first stage includes the medications pentamidine or suramin. Treatment of the second stage involves eflornithine or a combination of nifurtimox and eflornithine for TbG, while melarsoprol works for both stages. Recent findings indicate that the parasite is unable to survive in the bloodstream without its flagellum. This insight gives researchers a new angle with which to attack the parasite. Additionally, the Drugs for Neglected Disease Initiative has contributed to the African sleeping sickness research effort by developing a compound called fexinidazole. This project was originally started in April 2007 and is currently in a pivotal study in clinical phase II/III. The goal is to have the drug succeed and be proven effective against T. b. gambiense.

In this regard, treatment is easier when the disease is detected early and before neurological symptoms occur. Trypanosomiasis vaccines are undergoing research.

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LATERAL VENTRICLES IN EARLY HUMAN ONTOGENESIS

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Any biomedical research requires objective morphological and morphometric data, which allows to reliably estimate the morphofunctional state of various human organs and systems.

The purpose of the study was to establish patterns of morphogenesis, features of variant anatomy and morphometric characteristics of the lateral ventricles of the brain in prenatal ontogenesis of a human.

Within the research it was found out that the lateral ventricles of the human brain develop unevenly and consistently. Starting with 11 mm of crown rump length (CRL), the gradual, moderate increase in the lateral ventricle due to the length, width and height associated with the processes of formation and transformation of the hemispheres, the laying of the striatum and the development of the wall of the derivatives of the anterior cerebral vesicle. Only by the end of the second month from 21 mm of CRL, an increase in the size of the anterior horn with a predominance of length over the width and height of the cavity was detected. The onset of the fetal period with 33 mm of CRL is characterized by an intensive increase in the size of the lateral ventricles. This period can be identified as a period of increase in the intensity of growth of the lateral ventricles. Starting with the 4th month of antenatal development, with the formation of the lateral fossa, the lateral ventricles change shape (the period of "physiological hydrocephalus"), since the lower horn, which looks like a slit-shaped cavity, is prominent.

Thus, the period of depression of growth is replaced by a period of the growth intensity, which coincides with the onset of the fetal period. The main regularity of the morphogenesis of the lateral ventricles of the brain is genetically determined.

Prodanchuk A.I.

DEVELOPMENT OF THE PALATINE

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Human 14 embryos and 19 pre-fetuses have been investigated with modern adequate anatomic methods use. Peculiarities of hard palate structure anlage and formation in the first trimester of intrauterine development have been specified. It was established that during 6-7 weeks of intrauterine development there on lateral walls of mouth cavity small evaginations of mesenchyme layer appear, which are palatine processes of maxilla primordiums. The above mentioned islands are Meckel's cartilage primordiums. By the end of 8th week of intrauterine development palatine processes move from oblique (almost vertical) to horizontal position. An availability of epithelial plug in the nasal cavity creates morphologic preconditions of hard palate horizontal position. By the end of pre-fetus period hard palate obtains

definitive structure and is presented by palatine processes of maxilla anlage and horizontal plate of palatine bone anlage.

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PERINATAL ANATOMY OF THE ILEOCECAL SEGMENT

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The form, measurements, structure and an interrelation of the ileocecal segment (ICS) components among themselves and the adjacent organs change during the fetal period. The absence of a functional load and the functional immaturity of tissues do not enable to structurally differentiate its constituent parts. The initial segment of the large intestine represents an elongated, uniformly narrowed cone which is convoluted in the form of a vortex at the beginning of the fetal period (4-5 months), in the middle of the fetal period (6-7 months) – in the form of a loop, at the end of the prenatal development (8-10 months) it has the form of a hook.

The cecum in fetuses is bend, uniformly narrowed in the form of a cone. The obturative incompetence of the ileal papilla (IP), the absence of an anatomical boundary between the vermiform appendix and the blind gut is indicative of the absence in fetuses of the cecum as a separately formed organ. The vermiform appendix in fetuses represents the apex of the cone with a relatively large length, it is characterized by a variability of the form and position. Thus, it is necessary to regard the cecum and the vermiform appendix as one anatomical structure. A narrowing of both the lumen and the external diameter of the cecum near the base of the appendix in newborns that is a sign of the formation of an anatomical border between them. Folds of the mucous coat are observed in the region of the narrowing.

It has been found out that the IP of an oval and round forms as well as a bilabial IP are the successive stages of its structure. Accordingly, the ileocecal valvulosphincter apparatus in the process of its morphogenesis passes through the stages of the papilla (the sphincter structure) and the fold of the mucous membrane (the valvular structure).

Thus, such names as “Bauhin’s valve”, the “ileocecal valve” or the “ileal papilla” do not reproduce a complex of the morphophysiological characteristics of this particular structure. As our investigations have demonstrated IP is part of the ileum which invaginates into the lumen of the large intestine. These anatomical facts are indicative of V.N.Vataman at all’s groundlessness assertion (1985) about the formation of IP only at the expense of the large intestine and its final formation at the early stages of the fetal period.

Proniaiev D.V., Miskiv U.V.

ANATOMY OF THE ILEOCECAL SEGMENT IN THE EARLY FETUSES

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Anatomical changes of the ICS proceed after the type of “intussusception” during the fetal period. Its lumen closes partially in the IP region in the 4th month which is evidenced by its form and the form of the ileal ostium. At the beginning of the fetal period (4-5 month) the IP has a round form with a pinhole orifice. In the

7th month maximal amount of meconium accumulates in the afferent loop (it's the terminal position of the ilium), resulting in the formation of an ampula-like expansion of the ilium.

Over the period from month 5 through month 7 we can observe an accelerated increase of the diameter of the terminal portion of the ilium which coincides with the period of a slowed down increase of the large intestine. In the middle of the fetal period (the 7th month) the diameter of the ampula-like dilated terminal segment of the ilium exceeds the diameter of the initial portion of the large intestine. A subsequent increase of the meconium quantity results in a distension of the "neck of the invaginate" (the ileal papilla). In the 7th-8th months of the intrauterine development the width of the IP wall decreases, whereas it's diameter increases, the form changes from a round one to an oval one (along the axis of the ascending colon), and the pinhole form of the ileal orifice changes to an oval one. These processes lead to a restoration of intestinal patency. Starting from the 8th month these occurs a filling of the large intestine with meconium that is evidenced by it's increased diameter that starts exceeding over the diameter of the small one.

The "head of the invaginates" (IP) partially restrains reflux. At the same time, an intestive increase of the diameter of the large intestine is observed, coinciding in time with an increase of the diameter of the small intestine. A more intensive dilatation occurs opposite and below the IP, an anatomical boundary is formed between the cecum and the vermiform appendix. A distension of the walls of the large intestine brings about a distension of the IP. At the beginning it acquires an oval form perpendicular to the axis of the ascending colon. The ileal orifice at that is slit-like, whereas with the beginning of an active filling with meconium – of a labelloid form. Thus during an early stage of ontogenesis the IP form changes gradually. In the process of its development it goes through five successtive stages.

The dynamics of changes of the morphometric parameters of the fetal ICS is presented in the table. The skeletopy of the ICS alters from the level of the body of the 1st lumbar vertebra (at the beginning of the fetal period) to the level of the inferior border of the Vth lumbar vertebra (at the end of the fetal period). The skeletopic projection of ICS changes within the range of the height of the body of the Vth lumbar vertebra.

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VARIANT OF THE OVARIES ANATOMY

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While investigating a fetus, measuring 260 mm of the parietococcygeal length (PCL) a rare variant of the topography of the internal female genital organs was detected by us. Thus, the right ovary was located in the cavity of the large pelvis close to the right inguinal ligament, whereas the left ovary is lower than the right one, at the level of the terminal line. The circumference of the pelvis at the level of the iliac crest made up 190.0 mm. The right ovary of an elongated trihedral form is located obliquely. One could identify the following structures in the ovary: the posterior, anterosuperior and posteroinferior surfaces; the superior, inferior (free), and anterior (the mesovarial) margins; the tubal and uterine extremities. The uterine

(pointed) extremity closely adjoined the posterior surface of the uterine body in front and the rectum behind. The tubal end of the ovary in form of a hook adjoined the fimbriae of the infundibulum of the uterine tube. The right external iliac artery and the ureter extend behind the uterine end. The ovarian length made up 15.0 mm, the width – 5.0 mm, the thickness (in the middle part) – 3.5 mm. The suspensory ligament of the ovary was attached to the inferiormargin of the ovary at a distance of 4 mm from the apex of its tubal end. The ligamentum ovarii proprium, 2 mm in length was attached to the posterior surface of the uterine body below the uterine tube. The length of the mesovarium – 10.0 mm, the width – 1.5 mm. The ampulla of the uterine tube adjoined the anterosuperior surface of the ovary. The total length of the right uterine tube constituted 21.0 mm: the isthmus – 5 mm, the ampulla – 10.0 mm, the infundibulum – 5 mm. the ampulla of the uterine tube in the form of three loops abutted on the right umbilical artery whose external diameter made up 4.1 mm. The isthmus of the uterine tube is to be found over the superior margin of the ovary. The parietal peritoneum passes on from the greater transverse muscle to the right uterine tube, covering it on all sides and continues into the mesovarium.

The left ovary of an elongated irregular trihedral form was located horizontally. One could differentiate the following structures in the ovary: superior, anterior and posterior surfaces; the superior inferior and anterior (mesovarial) margins; the uterine and tubal ends. The uterine (rounded) ends of the ovary were identified below the terminal line behind the uterine body, whereas its apex touched the lateral wall of the rectum. The tubal end of the ovary (rounded) was located at the level of the spinal line adjoined the fimbriae of the infundibulum of the left uterine tube. The left external iliac artery was located behind the ovary, whereas the left ureter was to be found more medially from the latter. The suspensory ligament of the ovary was attached to the lateral margin of the mesovarium. The ligamentum ovarii proprium, 2.9 mm in length, was attached to the posterior surface of the uterine body below the uterine tube. The length of the left ovary makes up 9 mm, the width – 2.0 mm; the ovarian length is 14.5 mm the width is 5 mm, the thickness is 2.1 mm.

Proniaiev D.V.Tsapovska M.P.

VARIANT OF THE INTERNAL FEMALE GENITAL ORGANS

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The examination of fetuses of 4-6 months of development found certain peculiarities of the structure, syntopy and topography of the uterus. 5 out of 30 fetuses had insignificant deviation of the uterine vertical axis in the frontal plane to the right. The degree of this deviation is likely to depend on the interrelation of lengths of the uterine round ligaments. Thus, in 5 cases the right uterine round ligament in fetuses of 4-6 months was shorter than the left one. An average length of the right uterine round ligament was 6,5 mm, of the left one – 7,1 mm. As to the deviation in the sagittal plane, the positions anteflexio or retroflexio were difficult to identify. In all the cases the uterus was in the intermediate position. Syntopically,

in all the cases the uterus touched the anterior wall of the rectum with its posterior surface, and the posterior surface of the urinary bladder – with its anterior surface. Umbilical arteries passed from the sides at 1 mm distance. The ovaries were characterized by the biggest variety of syntopic interrelations with the uterus. In the majority of early fetuses – 8 out of 10 fetuses of the 4th month of development – the ovaries were in high position and touched the posterior surface of the uterus with their lower extremities. The high position was characterized by the ovarian localization either longitudinally the lateral walls of the rectum or in the femoral regions. In 2 cases in 4-month fetuses the ovaries were located behind the uterus by their bigger part. This position was characteristic for the majority of fetuses of the 6th month of development. The uterus shape, or to be more exact, the shape of the uterine floor was characterized by the biggest variety of morphological signs. In 26 fetuses out of 30 the uterus was flat from 1 to 2,5 mm thick. In 4 fetuses the uterus was of the shape close to the triangle. The uterine floor of 4-month fetuses was characterized by the following shapes: flat – 2 cases, convex – 1 case, channel – 5, tuberoso – 2. In half of the cases of 4-month fetuses (5 out of 10) the uterine floor was of a channel shape. This shape was characterized by the presence of sulcus along the centre of the uterine floor as of separating it into two parts. In our opinion, such a structure can be qualified as a normal one for the given period of development, and it is the sign of continuation of embryonic morphogenesis. In 2 cases the uterine floor was tuberoso characterized by the presence of tubers in the mouth area of the uterine tubes. We consider this variant is the result of flattening of the sulcus which presence is characteristic for the majority of fetuses of the given age period and descending of the uterine tubes. In two cases the uterine floor was flat which is indicative of disappearing of its sulcus. In one case the uterine floor was convex which is indicative of accelerated development. In 5-month fetuses a regular distribution of uterine shapes was found. In 3 cases the shape was tuberoso, in 3 more cases – channel, in 2 cases – flat, and in 2 more cases – convex. In 6-month fetuses flat shape of the uterine floor prevailed (7 out of 10). There was one case of a channel shape, one tuberoso, and one convex. The peculiarities of the uterine morphology found are indicative of characteristic belonging of a certain shape to the period of development. The regulations of morphogenesis of the uterine floor shape from channel to flat can be accordingly observed. Finding a channel uterine shape in 6-month fetuses may be indicative of a retarded development and possibility to form congenital defects.

Protsak T.V., Matviichuk S.M.

**PROSPECT OF STUDYING MORPHOLOGICAL AND FUNCTIONAL
VALUE OF INTERSTITIAL CELLS OF CAJAL IN HUMAN ORGANISM**

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In 1911, Santiago Ramón y Cajal described some gastrointestinal (GI) cells, which later became known as "interstitial cells of Cajal" (ICC). There are two

versions of the origin of these cells: the first one - they are derivatives of mesenchyma, the second one – they are derivatives of the ventral part of the neural tube. The cells of Cajal are located in the smooth muscles. They have been best studied in the gastrointestinal tract, but they are also found in the bladder, prostate gland, myometrium of the uterus, mammary glands, fallopian tubes, gallbladder and bile ducts, liver, in the walls of the blood and lymph vessels. Depending on the location, these cells have structural differences, but their ultrastructure has common construction principles. The cells of Cajal are called rhythm drivers, that generate slow waves and may serve as the leading link between neurons and muscle cells, however, all functions of these cells have not been studied.

In order to control and summarize studying these cells in different tissues and organs a special International Society of the cells of Cajal was created.

Therefore, studying the interstitial cells of of Cajal, whose structure, origin and functions have not been studied enough is very important as they are one of the puzzles of the human body. Further research in this issue in the future will open new horizons and possibilities of the human body.

Reshetilova N.B., Kulish N.M.*

**CERTAIN ASPECTS OF THE CEREBRAL VENTRICULAR
MORPHOLOGY DURING 2-3 MONTHS OF THE PRENATAL PERIOD
OF HUMAN ONTOGENESIS**

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The collateral fissure separating the parahippocampal gyrus from the lower temporal ones, and the lateral fissure are clearly seen in 2-3rd month fetuses. It explains a complicated geometric shape of the lateral ventricles contrary to the simpler shape of the third ventricle. During the 8th week in the place of location of the corpus callosum spherical cells appear – the elements of the commissural plate. At the beginning of the 3rd month the protrusion with a forked apex is visualized in the cavity of the anterior cerebral vesicle from which the vascular plexus of the lateral and third ventricles will develop. The length of the third ventricle at the end of the 3rd month is $3,7 \pm 0,65$ mm, and its width – $0,59 \pm 0,10$ mm. At the beginning of the 3rd months the nuclei of the hindbrain and midbrain. The caudate nucleus is the biggest. The rudiment of the lenticular nucleus is from its lateral sides, paraventricular nucleus is located in the anterior portion of the hypothalamus, and supraoptic nuclei – in front of it. The rudiment of the papillary bodies is seen in the posterior portion of the hypothalamic area.

Therefore, the 2-3rd month of the intrauterine development is characterized by a quick and complicated development of the cerebral cavities, formation of nuclei which are constituents of the ventricular walls.

Rusnak V.F.

PECULIARITIES OF THE PHARYNGEAL MORPHOGENESIS DURING THE 6-10TH MONTHS OF THE HUMAN FETAL PERIOD

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Age sizes of the fetal structures during the 6-10th months (186,0 - 270,0 mm of PCL) are the following: cranial-caudal size is from 8,09 to 8,22 mm, the length of the nasal pharyngeal part is from 1,11 to 1,15 mm, oral - from 1,42 to 1,47 mm, laryngeal – from 5,74 to 5,82 mm. The transverse size of the pharynx in the cranial portion is 8,91 - 9,06 mm, in the caudal one - 3,16 - 3,32 mm. The distance between the choana and posterior pharyngeal wall is 9,74 - 10,49 mm. At the end of the 7th month of the intrauterine development the length of the palatine-lingual arches is from 5,27 to 5,50 mm, palatine-pharyngeal - from 5,71 to 5,93 mm, the distance between arches is 3,34 - 3,56 mm.

During the 8-10th months of the intrauterine development (fetuses of 271,0 - 378,0 mm of PCL) the longitudinal size of the pharynx becomes longer – from 11,21 to 11,61 mm. The length of the nasal part of the pharynx is from 2,06 to 2,25 mm, oral - from 2,23 to 2,31 mm, laryngeal - from 7,04 to 7,21 mm. At the end of the fetal period (fetuses 359,0 - 378,0 mm of PCL) the cranial-caudal size of the pharynx is 22,91 - 23,43 mm – including the nasal part from 3,90 to 4,04 mm, oral - from 6,08 to 6,25 mm, laryngeal - from 12,91 to 13,12 mm. The transverse size of the pharynx in the cranial part is from 10,72 to 10,93 mm, in the caudal part - from 4,64 to 4,84 mm. The pharyngeal opening of the auditory tubes in the majority of cases are of a slit-like shape with anterior-posterior size during the 10th month of the intrauterine development from 3,66 to 3,81 mm.

Rusnak V.F.

PECULIARITIES OF THE PHARYNGEAL MORPHOGENESIS AT THE BEGINNING OF THE HUMAN FETAL PERIOD

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Macroscopic examination of the fetuses (83,0 – 94,0 mm of the parietal-coccygeal length (PCL)) determined that longitudinal size of the pharynx is from 5,07 to 5,40 mm, and cranial-caudal sizes are: nasal – from 0,58 to 0,59 mm, oral – from 0,84 to 0,85 mm, laryngeal - from 3,46 to 3,62 mm.

In fetuses of 83,0 mm of PCL the length of the pharynx is the following: the nasal part – from 0,59 to 0,60 mm, oral part – from 0,83 to 0,84 mm, laryngeal part – from 3,44 to 3,48 mm. In the fetuses 94,0 mm of PCL there are the following parameters: nasal – from 0,63 to 0,64 mm, oral – from 0,88 to 0,89 mm, laryngeal – from 3,58 to 3,61 mm.

The anterior-posterior size of the laryngeal part of the pharynx on the level of the upper border of the epiglottis is 3,62 - 3,67 mm, and on the level of the arytenoid cartilages of the larynx - 2,35 - 2,41 mm.

Palatine-lingual and palatine-pharyngeal arches in fetuses at the end of the fourth month of the intrauterine development are clearly seen. Depressions of the mucous membrane of the lateral pharyngeal walls are found between them in the shape of tonsil fossa from 2,81 to 2,92 mm long.

At the end of the 5th month of the intrauterine development in fetuses with 173 - 184 mm of PCL the cranial-caudal size of the pharynx is 5,83 - 5,96 mm, including the nasal part - from 0,69 to 0,71 mm, oral - from 1,09 to 1,13 mm, laryngeal - from 4,01 to 4,10 mm. The length of the pharyngeal tonsil is 8,43 - 8,65 mm. The shape of pharyngeal openings of the auditory tubes is slot-like. The distance from choana (posterior nostrils) to the anterior lips is from 4,09 to 4,18 mm, from the surface of the pharyngeal tonsil to the middle of the pharyngeal openings of the auditory tubes – from 3,42 to 3,52 mm, from the posterior pharyngeal wall to the middle of the pharyngeal openings – from 5,27 to 5,41 mm, from the middle of the pharyngeal openings to the posterior end of the hard palate – from 3,40 to 3,51 mm and above it – from 1,24 to 1,52 mm. The length of the palatine-lingual arches ranges from 4,59 to 4,90 mm, and palatine-pharyngeal ones – from 5,47 to 6,13 mm. They are located at the distance from 3,00 to 3,31 mm one from another.

Savytski I.I., Kryvchanska M.I.

**ELECTRON MICROSCOPIC CHANGES IN KIDNEYS UNDER
CONDITIONS OF BETA-ADRENOCEPTORS BLOCKADE ON THE
BACKGROUND OF PINEAL GLAND HYPERFUNCTION SIMULATION**

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Electron microscopic studies of the epiphysis of animals under the action of propranolol under conditions of organ hyperfunction (0 illumination: 24 darkness) showed that at 2 am and 2 pm many light pinealocytes are present in the organ body. In such cells, euchromatin predominates in the nuclei, and there are invaginations of the karyolemma. Some nuclei have large nucleoli and ribosomal granules are located both in the nucleolus and in the karyoplasm. As part of the karyolemma, the nuclear membranes are clearly contoured, the perinuclear space is relatively uniform, not wide, and the nuclear envelope has many nuclear pores.

The cytoplasm of pinealocytes contains well-developed organelles, there are tubules of the granular endoplasmic reticulum with moderate lumens, and many ribosomes on the membrane surface. Mitochondria have a moderately osmiophilic matrix and distinct cristae. There are hormonal granules of different sizes and densities.

In moderately dilated blood capillary of the renal corpuscles, endothelial cells are swollen, clarification of the cytoplasm and damage to the organelles are found only in certain areas. In endothelial cells, there are round-oval or oblong nuclei with distinct contours of the membranes of the karyolemma. The perinuclear zone of the cytoplasm contains many ribosomes, moderately dilated tubules of the granular endoplasmic reticulum.

Mitochondria are small, filled with a light matrix and well-contoured cristae. In the thin cytoplasmic region of the endotheliocytes, there is a lot of fenestration.

On the basement membrane a three-layered structure is well pronounced. In the podocytes, the membrane organelles are well contoured. In the karyoplasm, nuclei with euchromatin are observed. In moderately thickened cytotubes, there are clear cytopodia closely contacting the basal membrane.

In the nuclei of epithelial cells, especially the proximal tubules, there is a hypertrophy of the nucleoli with well-defined granular and fibrillar components. The nuclear envelope has a relatively uniform perinuclear space, clear nuclear pores.

On the apical surface of the proximal epithelial cells there are clear, densely located microvilli. Well-structured mitochondria are revealed in the cytoplasm. On the basal areas of the cells of the proximal and distal parts of the nephron, the mitochondria are arranged in an orderly fashion parallel to the plasmalemma folds. In the basal parts of epithelial cells, especially the distal part of nephron, deep membrane folds arise. The structure of the tubules of the granular endoplasmic reticulum and the cistern of the Golgi complex is similar to that of the intact animals.

Shcherbina I.M., Skorbach O.I., Dynnik O.O.

**INFLUENCE OF SURGICAL TREATMENT OF OVARIAN
ENDOMETRIOSIS ON THE OVARIAN RESERVE**

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Currently, the problem of women's reproductive health is relevant all over the world. According to statistics, 25-40% of women who suffer from infertility have endometriosis.

The aim of this study was to determine the influence of surgical treatment of ovarian endometriosis on the ovarian reserve.

Materials and methods. The study included 44 women with pelvic pain and/or infertility at the age of 20-35 years. All patients underwent medical and diagnostic laparoscopy. Based on the results of the surgical intervention, all patients were divided into two groups: I gr. consisted of 26 women who were diagnosed with peritoneal endometriosis; II gr. included of 18 patients with tubal peritoneal infertility.

The study of the level of Anti-Müllerian hormone (AMH) in the blood serum was determined by the method of enzyme immunoassay using the UltraSensitive AMH / MIS kit (ELISA), Germany. The ovarian reserve was compared before the operation, 1 and 6 months after the operation.

In the course of work, it was revealed that before the operative treatment, the level of AMH in women of I gr. was 1.9 ± 0.3 ng/ml and was significantly lower by almost 1.5 times than in patients of II gr. (3.7 ± 0.3 ng/ml, $p < 0.05$).

After 1 month in patients of I gr. observed a significant reduction in the level of ovarian reserve and AMH was 1.2 ± 0.1 ng/ml ($p < 0.05$). 6 months after the operation, there was a tendency to further decrease in the level of AMH. The frequency of AMH decrease correlated with the initial preoperative values and the size of the endometrioma which was removed.

Thus, it can be concluded that at the beginning of the study, patients with endometriomas had significantly lower values of AMH compared with women

without endometriosis. After the surgical treatment, the ovarian reserve was reduced in 80% patients. This should be taken into account when planning the volume of surgical treatment, especially in patients with an initially low level of ovarian reserve.

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OPERATIVE TREATMENT OF GASTROESOPHAGIC REFLUX

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Gastroesophageal failure is the main reason of rapid increase in esophageal cancer incidence. The main manifestation of esophageal-gastric transition insolvency is the disease of gastroesophageal reflux which in its turn is complicated by the strictures, adenocarcinomas of esophageal-gastric transition. Cancer of esophagus is the most frequent form of malignant neoplasms of digestive tract. The most frequently are affected the middle part (50-60%) and the bottom part of the esophagus.

V. V. Sumyn and other consider antireflux surgery with varying angle of transition esophagus to the stomach and partial fundoplication of the lower esophagus contributes to better remote results than Nissen's operation. Subtotal resection of the proximal part of the stomach and lower third of the esophagus with the formation of intra-pleural anastomosis is recommended when there is cancer of the lower third of the esophagus.

Despite the advantages Nissen's fundoplication can lead to different complications that appear in postoperative period. Early complications include necrosis of the bottom of the stomach wall which is used for plastics with the further formation of the gastric fist. Hyperfunction cardia syndrome, described by H. Willahegar belongs to the similar complications. It is clinically shown with the feeling of pressure and pain in the infrascapular region, especially after eating. Increase in stomach gas bubble is detected at radiography, which sometimes (10-20%) compresses part of esophagus which is wrapped up by the stomach mangle. If the distal department of the esophagus and the bottom of the stomach slide in relation to the intact cuff, a phenomenon of the 'telescope' arises as a result of eruption of the seams on the esophagus in case of fundoplications. The result of the nerve Laterjet injury during the mobilization of the cardinal part of the stomach is the gastric denervation symptom. Late complications of fundoplication include stomach ulcers (2,2 %), hernias of hiatus esophagus of the diaphragm (3,7%).

Sorokhan M.M., Bileichuk I.I.

DEVELOPMENT OF IMPLANTOLOGY

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When and who invented the implants? Apparently, nobody will answer this question. Indeed, even archaeological excavations revealed the fact that replacing lost teeth, using various materials of animal and mineral origin, have already been

tried in ancient times. Practiced even transplantation of a tooth from one person to another. For example, a fragment of the lower jaw of the Inca (VIth century BC) was found, in which the implants of the shell of sea mussels were preserved; In France, a woman's skull was found, which lived in the 1st century BC. AD, with a metallic implant in the hole of the jaw of the upper jaw. In ancient Egypt mummies were found, whose missing teeth were restored before mummification.

Returned to the idea of implanting teeth at the end of the 18th century, when antiseptics and implantation materials were opened to prevent rejection. Gold was used as the first implant material. At the end of the 19th century, the doctor MM Znamensky came to the conclusion that for the installation of the implant the best place is not the well of the removed tooth, but the restoration of the bone. In addition, the implant material should not respond to physiological processes in the bone. At the same time, such properties were best suited for titanium, which is also characterized by its ease and corrosion resistance. Later, various biological materials began to be used for the manufacture of both implants and prostheses. The second half of the 20 th century - the time of active development of various designs of implants: in 1963. L.Linkow created a screw implant; in 1964, IASmall developed an implant that was a plate of retention rods for an atrophied mandible, and Dutch surgeons H. Bosker and L.VanDijk proposed a collapsible version of this design, in 1965. P.Branemark created a collapsible design of a screw implant; in the 80's a large number of designs for two-stage screw implants were proposed; in the 90s, based on experimental studies, the possibility of osteointegration with the use of one-stage screw implants was proven, and in the last decade, dental implantation became commonplace , an affordable and effective treatment for a large number of people on the planet.

To date, there are practically no complete contraindications for implantation. Correct knowledge of specialists will help to correctly plan the medical support as well as the type of dental implants required for implantation.

Sorokhan M.M., Bozhesku V.I.

ANATOMICAL FEATURES OF FRACTURES OF MAXILLOFACIAL REGION

Higher State Educational Establishment of Ukraine "Bukovinian State Medical University"

Fractures of the maxillofacial region are characterized by significant destruction of the bone and tissue surrounding it. Muscle ruptures are often accompanied by damage to large vessels and nerves. These fractures are mostly multicellular, often causing significant bone defects. Fractures of the bones of the skull are often complicated by damage to the organs. Types of displacement of the chips are associated with the mechanism of injury and muscle contraction.

According to the number of fragments the fractures are divided into single and multiple. Clinical signs of fractures are divided into relative and absolute.

Relative signs of a fracture are the ones, the presence of which allows the victim to suspect a fracture. However, it should be remembered that they can be observed in the case of other contusions of soft tissues, and therefore, are not differentiated. These include local pain, swelling and hemorrhage into tissues, impaired function. Changing the function occurs due to a violation of bone integrity and damage to nerves. The pain occurs immediately after the fracture due to damage to the nerve fibers and sharply increases during motion and decreases at rest. Absolute are the signs that ensure making an accurate and correct diagnosis without diagnostic errors.

Consequently, the following practical conclusions follow from the patterns of reparative regeneration of osseous tissue: 1) the ideal repositioning and fixation of bone fragments should be achieved as soon as possible, moreover, not later than the stage of cells differentiation begins; 2) late repositioning, as any intervention for the purpose of correction of the fragments, leads to the destruction of newly formed capillaries of the regenerate and the violation of reparative osteogenesis; 3) stimulator of the formation of the lamellar bone during the restructuring of the primary regenerate is a functional load, which should be remembered in the treatment of patients.

Stasyuk N. O.

**EFFECTIVENESS OF THE USE OF COMPLEX IMMUNTROPIC
THERAPY IN PATIENTS WITH GENERALIZED PARODONTITIS WITH
COPDULAR ISCHEMIC HEART DISEASE**

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The data obtained during the performance show generalized periodontitis (GP) as an independent risk factor for progression of atherosclerosis and destabilizing course of coronary heart disease (CHD). Statistically reliable associations have been established between the clinical manifestation of GP and the formation and progression of severe cardiovascular diseases. Oral infection in this case serves as a potential source of systemic inflammatory response and stress. In accordance with the objectives of the study, was conducted search of medical agents that could impact to these pathogenetic links of the disease.

We have included in the list of medicines recommended by the GP with concomitant CHD complex immunotropic herbal preparation and phytoconcentrate.

Therapeutic efficacy was determined by their effect on the subjective and objective clinical signs of progress GP (oral hygiene index by Green-Vermillion, PMA inflammation of the gums, bleeding gums RVI, periodontal status PDI, the depth of periodontal pockets (defined by direct method) and mobility of teeth by Entin). The effectiveness of the treatment was carried out immediately after the proposed treatment and at 3, 6 and 12 months of observation.

All patients with GP I and II degrees and with concomitant coronary artery disease received a full range of therapeutic measures: Treatment was conducted in accordance with current protocols (standards) and included etiotropic, pathogenetic and symptomatic therapy using local and general measures.

All patients and control group were representative of age and sex. Measures to control and maintain the proper hygienic level of the oral cavity were carried out regularly in both groups after 1, 3, 6 and 12 months follow-up.

The criteria for determining the positive effect of the treatment were the subjective sensations of the patient, as well as the objective examination data (presence of hyperemia, edema, bleeding of the gums, the degree of exudation from the PC, the level of mobility of the teeth). It is established that the use Immunotropic drug in subgroups of patients with GP I and II stages of development without concomitant coronary artery disease and combined its use with phytoconcentrate in subgroups of patients with GP I and II stages of development with concomitant coronary artery disease (study group) significantly increases the effectiveness of treatment and provides more stable and long lasting result compared to subgroups of patients with GP of I and II stages of development and with concomitant coronary artery disease, which used only the traditional approach (the comparison group).

Stoliar D.B.,* Lavriv L.P.**

**FEATURES OF THE STRUCTURE OF THE HUMAN
TEMPOROMANDIBULAR JOINT IN THE SECOND TRIMESTER OF
THE INTRAUTERINE GROWTH**

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Despite the progress and intensive development of dental technology, there are still many unexplained issues regarding the structure of the dentition elements. One of its important structures is the temporomandibular joint (TMJ).

The goal of the research was to study the features of the structure of TMJ in the second trimester of the human intrauterine growth. The study of TMJ was carried out on 20 specimens (4-6 month old fetuses) sized from 161.0 to 259.0 mm of crown-rump length (CRL). The following methods were used in the course of the study: morphometry, craniometry, macro- and microdissection, computed tomography.

The glenoid fossa in fetuses aged 4-6 months was found to be flat. The bone substance in the glenoid fossa is thin. There are no pronounced prominences on the basis of the malar eminence of the temporal bone which confirms the absence of the articular tubercle in this period. One can see the development of the elements of the synovial membrane in the articular capsule. In the lower and upper parts of the articular cavity, the folds and ligaments of the connective tissue plate are identified, and the capillaries grow into the synovial membrane. In some places there are connective tissue membranes between the surfaces of the temporal bone and the articular disk, the articular disk and the head of mandible. Macroscopically, the articular disk has a dense structure, it is arranged between the articular surfaces, from the back surface (dorsal part) of the articular disk to the inner surface of the articular capsule the taenia of the connective tissue is identified. Anteriorly, the articular disk is attached in the area of the future articular tubercle. The fibers of the lateral wing muscle grow into the taenia of the the connective tissue anteriorly. In the middle part and in the front the lateral wing muscle adjoins to the TMJ, and the parotid gland from the outside and in the upper part. The right and left sTMJ are of the same size. The morphometric indices of the outer structures of the TMJ in the dynamics of the second trimester are gradually increasing.

Therefore, in the dynamics of the second trimester of intrauterine development, the temporomandibular joint is characterized by the presence of a flat glenoid fossa and the absence of an articular tubercle. An increase in all craniometric indices is observed, indicating an increase in the total bone mass of the skull and an increase in the size of the temporomandibular joint.

Synytska T.V., Tovkach Y.V.

LAPAROSCOPIC ENDORHANIC SURGERY

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With the development of the endoscopic surgery the possibility to perform laparoscopic endorhanic surgery appeared.

The fast laparoscopic gravure with fundopocination by Nissen was performed by B. Dalemagne in 1991. The important aspect is the convenience of manipulation in left subfragmental space including overweight patients. Postoperative complications were reduced to 2-9%, the mortality is practically absent (0,3-0,8%). The patients carry out the operation much better, the period of temporary disability was reduced and there is minor cosmetic defect on the body. The single specific contraindication for laparoscopic surgery is the massive adhesive process in the left subfragmental space, that is the consequeme of several open surgical intervention.

During the recount years the greater number of laparoscopic endorhanic surgery methods were developed and introduced practically. The most successful are laparoscopic funoloplactation by Nissen, Nissen-Rosseti, Toup, Door. Despite the great success of given methods several disadvantages are singled out, such as complex surgery technigues, significal changes of topografic anatomical relationships in the surgery zone, the necesserity of additional mobilization of the

stomach bottom. To avoid topographic anatomical changes in the place of surgical intervention the additional mobilization of the stomach bottom is used.

Phedorov and others developed the operative laparoscopic treatment of gastroesophageal reflux method with the use of mesh implant with partial anterior fundoplication.

Endoscopic recanalization of the esophagus lumen in tumorous walls proved itself. It is performed by means of tumor extracoagulation.

So, the analysis of the given literature concerning surgical interventions in the place of esophagus transition testifies about the absence of adequate methods which would suit the surgeons completely which would be safe and wouldn't give side effects.

Tarnovetska I.I., Tovkach Yu.V., Kipen N.

PERINATAL FEATURES OF THE GASTROESOPHAGEAL JUNCTION

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Nowadays, the diseases related to the disorders of sphincter function of the gastroesophageal junction are fairly widespread both in adults and children. Anomalies of the digestive system account 17.8% and are one of the causes of perinatal mortality. At present, more and more people suffer from the pathology of the esophagus and stomach segments, which commands a particular attention to this problem.

Length of the abdominal part of the esophagus in the fetuses is rather variable. From the 4th to the 6th month of a prenatal period, an increase of the length of the abdominal part of the esophagus is observed. In the majority of fetuses, we have observed a peculiar feature: the shorter is the abdominal part of esophagus, and the larger is the diameters. Starting from the 7th month, the length of the abdominal part of the esophagus decreases. When analyzing the results we obtained, it was found that the length of the abdominal part of the esophagus in newborns ($1,17 + 0,19$ mm) is smaller than that of fetuses ($1,17 + 0,21$ mm). We believe that this anatomical fact is due to an increase of the angle of His in newborns compared to the fetal period.

The change in the length of the abdominal part of the esophagus is apparently associated with the formation of the gastroesophageal sphincter, the formation of a well-defined circular and longitudinal layer, the development of the venous network in the mucous layer of the esophagus. In newborns, the gastroesophageal sphincter is unformed, the final formation of the lower sphincter of the esophagus occurs in adolescence.

Tovkach Yu.V., Protsyuk D.I., Bohdan N.
FEATURES OF THE TEETH OF WISDOM

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At the present time, there is a problem that is very relevant and is whether to remove the teeth of wisdom. Most Ukrainian dentists adhere to the principle: "If the

tooth does not affect the development of other teeth in bite, then you can not remove the tooth." However, in Europe and the United States they are removed immediately as soon as they are visible above the gums, in the proper sense this procedure is included in the health insurance of a citizen. Wisdom teeth are third molars or eight. They creep up to an average of 27 years.

According to a researcher from the University of Priston, Alan Mann, a mutation arose a few millennia that suppressed the formation of the wisdom teeth. This mutation has spread and has led to the fact that nowadays not all modern people have third molars. The earliest evidence of the absence of third molars is fossils from China. In the study, Mann also found that the genes that control the number of molars developed independently of the genes that control the development of the brain. According to the literature, 10-25% of white-skinned people lack one-third of the molar and more. In the Asian and African peoples, this figure is 11-40%. In the Eskimos, the least wisdom teeth – 45% have one or more teeth of wisdom. It is assumed that the Eskimos and Inuit are more flat faces with a narrow jaw and no space for extra teeth. The mutation in this case is more advantageous for this population group. This is due to the fact that during the evolution and transition to a softer food, the jaw decreased.

The data of literary sources regarding the removal of wisdom teeth are contradictory and not systematized. As a result of the analysis of literature, one can conclude that removing wisdom teeth can only be decided by a qualified dentist after a thorough anamnesis of the oral cavity.

Velychko V., Towkacz J.W., Rudyak J.W.

CECHY PRZYWRACANIA ZŁAMAŃ KOŚCI OBSZARU SZCZĘKOWO-TWARZOWEGO

VDNZ Ukrainy " Państwowy Uniwersytet Medyczny Bukovina "

Złamania strzałów charakteryzują się znacznym zniszczeniem otaczającej je kości i tkanki. Zerwaniom mięśni często towarzyszy uszkodzenie dużych naczyń i nerwów. Te złamania są przeważnie wielokomórkowe, często powodując znaczne uszkodzenia kości. Złamania kości czaszki są często komplikowane przez uszkodzenie narządów wewnętrznych. Rodzaje przemieszczania się żetonów są związane z mechanizmem urazu i skurczem mięśni. Liczba złamań jest pojedyncza i wielokrotna. Aby rozwiązać główne zadania w leczeniu pacjentów ze złamaniami obszaru szczękowo-twarzowego, konieczne jest przeprowadzenie następujących głównych działań: repozycjonowanie - porównywanie lub przesuwanie żetonów do prawidłowej pozycji; unieruchomienie - ustalenie pozycji żetonów we właściwej pozycji na okres niezbędny do ich konsolidacji (konsolidacji) za pomocą metod konserwatywnych i operacyjnych; leczenie lekami ma na celu zapobieganie powikłaniom podczas leczenia; Fizyczne metody leczenia - w celu poprawy trofiki tkankowej i zapobiegania powikłaniom.

Istnieją dwa rodzaje regeneracji: fizjologiczne i reparacyjne. Rehabilitacja fizjologiczna odnosi się do przywrócenia tkankowych struktur zdrowego ciała, gdy stają się stabilne i umierają. Wyraźnym tego przykładem jest skóra - trwałe

oderwanie i wytrysk naskórka. Regeneracja fizjologiczna jest ciągłym i bardzo powolnym procesem, który nie powoduje stresującej sytuacji w ciele.

Reparatywna regeneracja polega na odzyskaniu uszkodzonej lub utraconej tkanki. Stopień i jakość procesu regeneracji w różnych tkankach są różne. Im wyższa jest fermentacja tkanki (nerwowa, mięśniowa), tym mniej ma ona zdolność przywrócenia jej struktury. Dlatego anatomiczna naprawa uszkodzonego obszaru następuje z powodu zastąpienia ubytku tkanką łączną - blizna.

Uszkodzona tkanka kostna może przejść przez wiele etapów procesu reparatywnego i powiązać jej anatomiczną formę, strukturę histologiczną i przydatność funkcjonalną.

Złamaniu kości towarzyszy uszkodzenie łagodnych tkanek miękkich i powoduje stresującą sytuację, której towarzyszą lokalne i ogólne reakcje organizmu. Podczas odbudowy tkanki kostnej dochodzi do złożonych ogólnych i lokalnych zmian biologicznych i biochemicznych w zależności od dopływu krwi do kości, wieku pacjenta, ogólnego stanu organizmu i jakości leczenia.

W ten sposób prawa do regeneracji tkanki kostnej przepływu szcękowo następujące praktyczne wnioski: 1) idealnym repozycji i zatrzymywania odłamków kości powinna dążyć tak szybko, jak to możliwe, a ponadto przynajmniej na początku etapu różnicowania komórek; 2) późno położenie żadnej interwencji w celu skorygowania zegara Kiv doprowadzić do zniszczenia nowo utworzonego naczyń włosowatych Rehe neratu i łamania reparacyjnej osteogenezy; 3) tworzenie mulatoryrom je z płytką kostną w początkowej korekty regeneracji działa obciążenie, które należy pamiętać w hv óryh leczenia.

Tovkach Y.V., Humeniuk O.P., Karnas N.O.

ANATOMOPHYSIOLOGICAL FEATURES OF MAXILLOFACIAL LESIONS

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At present, the proportion of maxillofacial lesions is 21-40 % with an increase in the number of bone resorption and damage to the bone and muscle apparatus by 10-15%, which should be taken into account when choosing therapeutic tactics. On the need to study the anatomical features of violations and reactive disorders in the system of extra- and intraorganic vascular bed and efferent innervation of the muscles of the jaw apparatus of people of various constitutional peculiarities of animals with scientific justification based on the comparison of the maxima of electromyography maximally arbitrary reduction, stimulation electromyography and functional electromyography development and their the introduction into the clinic was emphasized on the following etiologies and scientific-practical conferences: V edema of anatomy, histologist Ukrainian embryologists and topographers of Ukraine (Vinnytsia, 2010); III Republican Scientific-Practical Conference with International Participation (Gomel, 2011); International conference "Morphology at the Contemporary Stage of Science Development" Ternopil 2012); VII All-Russian Congress of Anatomists, Histologists and Embryologists with International Participation (Kazan, 2012).

In literary sources, it is a question of the features of the mechano-traumatogenesis of fractures of the bones of the face and damage to the musculoskeletal system, as well as the anatomophysiological traumatic characteristics of muscle fibers of various types, aimed at the choice of methods of therapeutic tactics for accelerating the musculoskeletal development of the early post-traumatic period of maxillofacial lesions and subsequent introduction of the results into practice (E.K. Ailamazyan, 1999; V.I. Kulakov and others., 2002; A.D. Schwartz, 2003; K.A. Zaborovsky with co-author., 2012; A.G. Farman, W.C. Scarfe, 2009; I. Maiborodin et al., 2011).

On the basis of the obtained results, gender-age characteristics of the musculoskeletal system of the maxillofacial area and the patterns of spatial and temporal changes in the post-traumatic period will be determined.

Shumko B.I., Kovalchuk A.V.

MORPHOGENESIS OF GASTRO-ESOPHAGUS TRANSITION

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Diseases associated with disturbance of the closure function of the gastrointestinal transition are common in both adults and children. There are more than 50 methods of surgical correction of the pathology of the esophagus, but due to neglect of the anatomical features of the esophagus and gastric segment during surgical interventions mortality after operations in this area reaches 10-20%. In 31% of operated patients there is an inoperability of the esophageal sphincter.

According to I.E. Zinovieva, there is a dependence of the length of the abdominal part of the esophagus on the size of the GIS angle, the constitutional type of the body builder and the sex. In people of asthenic type of body structure, the length of the abdominal part of the esophagus is on average 4.1 cm, the angle of the GIS – 34°, in normostenics – 2.7 cm and 32°, hyperstenics – 2.9 cm and 28.8°, respectively. Men and women also vary in size. In people of asthenic constitution, the length of the abdominal part of the esophagus is less in men, and the angle of the GIS, in contrast, is lower in women.

According to O.V. Volkova, Y.K. Eletsy, the esophagus in the early period of ontogenesis from the inside is covered with a multi-row ciliated epithelium, which in the future goes into a multi-layered uncrowned epithelium. Under the epithelium there is a proper submucosal muscle plate of the esophagus mucosa. On the verge of the transition of the esophagus to the stomach, there are sharp changes in the structural organization of the mucous membrane of the esophagus. In the own plate of the mucous membrane of the esophagus, glands appear, similar to the cardiac glands of the stomach. In the transition of the esophagus in the stomach an additional layer of smooth myocytes appears in the muscular layer. Submucosal basis in the area of the esophagus in the stomach without any significant changes. The muscular layer in the region of the esophagus is more thicker than in other parts of the esophagus.

Tovkach Yu.V., Lesko Yu.O.

ELECTRONIC MICROSCOPY OF MAXILLOFACIAL LESIONS

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During the electron microscopy study in the ultrastructural organization of osteoblasts there were dystrophic changes with cellular destruction of the membrane and intracellular structures.

A significant number of osteoblasts contained nuclei that had somewhat elongated round shape. The nucleus matrix in most osteoblasts acquires low electron density. The chromatin pellets were concentrated on the inner membrane of these cells in the form of osmophilic depths.

Nuclear membrane is substantially swollen. She lost a well-structured structure. Sometimes there was a rather deep invagination of the nuclear shell. Quite often it was possible to observe numerous cells of the lysis of the nuclear membrane. Osteoblastic cytoplasm contained a small amount of organelles. Mitochondria were located predominantly in the perinuclear zone of the cytoplasm. They were swollen and contained an electron-transparent matrix. The number of criss in them is significantly reduced, quite often there was a lysis of external membranes and mitochondria crust. Granular endoplasmic reticulum tanks in the vast majority of cells were expanded and contained an electron-transparent substance. On the membranes of granular endoplasmic reticulum only isolated ribosomes were detected. In separate osteoblasts, the membranes of the granuloid endoplasmic reticulum had cells of destruction. Platelet cytoplasmic Golgi complex was subjected to reduction. It was a smooth membrane that was individually located in the cytoplasm and large enough electron-transparent vacuoles of irregular shape. Primary and secondary lysosomes were detected in the area of the localization of the lumbar cytoplasmic Golgi complex. There was a decrease in the number of ribosomes and polysubs freely located in the cytoplasm. Thus, as a result of the electronic-microscopic study, pronounced dystrophic and destructive processes of various degrees that occur at the submicroscopic level during the entire observation period are revealed.

Vepriuk Y., Tovkach Y.V., Rykhlo I.

CHANGES IN INDICES OF RENAL FUNCTIONS IN COMPARISON GROUPS OF ANIMALS UNDER THE INFLUENCE OF PINEAL GLAND

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For the last few years, more and more scientists are involved in the study of renal activity. Kidneys maintain water- salt homeostasis by complex interconnected mechanisms, regulated by hormonal systems. This provides high efficiency of preservation of body balance resistance, the derangements of which develops during

failure in regulatory systems and can be caused either by extrarenal factors or renal disturbances.

Melatonin is a hormone of pineal gland, which possesses unique adaptive capabilities and is a strong antioxidant that protects protein molecules from oxidative damages. Also, this hormone is one of the major molecules in the body's protection system from oxidative stress, that can exhibit protective properties on the renal glomerulus at the same time.

The aim of the study was to investigate changes in indices of excretory and acid-regulating functions in animal comparison groups against the background of pineal gland activity.

The assessment of the excretory and acid-regulating renal functions in intact mature and immature rats, has shown that the level of diuresis in immature rats was lower in comparison with mature rats $p < 0,001$. Moreover, the indices of excretion and concentration of potassium ions in urine, was lower in immature rats $p < 0,05$. Interestingly, the assessment of ammonium excretion and ammonio ratio was higher in immature rats $p < 0,001$.

The analysis of excretory and acid-regulating renal functions values in mature and immature rats, under the conditions of water induced diuresis against the background of pineal gland hypofunction, has shown that the level of diuresis was lower in immature animals, as compared with mature animals $p < 0,05$. Also, the values of concentration and excretion of potassium ions in urine was lower in immature rats. Concentration of kreatinine and protein in urine was higher in immature rats, in comparison with mature rats $p < 0,05$.

Thus, the indicated changes of excretory and acid-regulating renal functions in intact immature animals in comparison with mature animals were lower in values of diuresis, glomerulus filtration, excretion of kreatinine, potassium ions and protein in urine. Also, it was detected the same consistent pattern against the background of pineal gland hypofunction. An explanation of this lies in the lack maturity of nephron glomerulus in ontogenesis of immature rats.

Veresotska M., Tovkach Yu.

MICROSCOPY OF MAXILLOFACIAL LESIONS

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A share of maxillofacial lesions is 21-40%, indicating the need of further studying this problem.

The electron microscopy study found some dystrophic changes with cellular destruction of the membrane and intracellular structures in the ultrastructural organization of osteoblasts. 14 days after injuring the jaw of rats, an electron microscopic examination of the ultrastructure of osteoblasts still shows the condensation of chromatin in the nucleus and clarification of its matrix. The nuclear membrane had cells of destruction. The mitochondria had a well-defined external membrane and crystals. The matrix of mitochondria acquired a finely granular structure. At the same time, the concentrations of destruction of both membranes and cristae are common.

The cisterns of the granular endoplasmic reticulum are dilated, their content is electron-transparent with cells of its membrane lysis. The number of ribosomes connected with the membranes of the endoplasmic reticulum, as well as the ribosomes and polysomes, located freely in the cell cytoplasm, is significantly greater than in the previous observation period. In the osteoblastic cytoplasm hyperplasia of the granular endoplasmic reticulum is observed. Numerous ribosomes were found on the membranes of the granular endoplasmic reticulum. They acquired a typical structure. Compared to the previous term, the number of free ribosomes and polysomes increases.

Volkova Yu., Lantukhova N., Chepeliuk O.

PROBLEMS OF HEART BRUISE DIAGNOSIS IN PATIENTS WITH COMBINED INJURY

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Topicality. Today there are difficulties in the diagnosis of heart bruise in terms of closed chest trauma in patients with combined trauma. This is primarily due to the complicated, almost impossible instrumental, such as ultrasound, diagnosis of heart bruise, due to pneumatosis, lung damage, which is a barrier to the passage of ultrasound diagnosis and verification of heart bruise.

Aim of work. Estimate the levels of existing available biochemical signs of heart muscle damage in patients with thoracic trauma in conditions of combined trauma.

Materials and methods. A series of clinical cases (N = 12) was selected for the study with the following criteria: signs of chest trauma (rib fractures, haemo-, pneumothorax, pneumodestynum, etc.), injuries in other anatomical areas. Myoglobin, troponin I, T, CF KFK, and KFK were evaluated in 12 hours, 2 and 5 days after the injury.

Results. In 12 hours, CPK-MB levels were higher than normal (14.5 to 36 ng / ml), levels of troponins also (for troponin I 0.16 to 0.32 ng / ml, for troponin T 0.24 to 0,44 ng / ml). Subsequently, on the 2nd and 5th day of the study, the levels of CPK-MB were significantly overestimated (2 days 70 ± 20 ng / ml, 5 days 60 ± 12 ng / ml), and levels of troponins fit into the parameters characteristic for the lesion itself cardiac tissue (for troponin I on 2nd day from 0.21 to 0.42 ng / ml, for troponin T at 2nd day from 0.29 to 0.54 ng / ml).

Conclusions. It was determined that due to the typical additional damage to skeletal muscle in a patient with combined trauma, CPK-MB, CPK levels were strongly overestimated and did not correlate with the severity of clinical and instrumental heart function indicators. And levels of troponin I and T were typical for heart muscle damage, and their rates clearly reflected the severity of cardiac contusions.

Volkova Yu.V., Lantuhova N.D., Ivakhnenko D.A.

**ANALYSIS OF TRAUMATIC PATHOLOGY STRUCTURE AT THE
DEPARTMENT OF ANESTHESIOLOGY AND INTENSIVE CARE OF
COMBINED TRAUMA**

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Today, the problem of increasing the proportion of combined trauma is urgent. By 2017 as a result of an accident in Ukraine, 2564 people were killed, and 483 persons died in the anti-terrorist operation area during the fighting. That is, the mortality rate on the roads of Ukraine is almost three times greater than in the conflict zone. A special place is occupied by cases when a person remains alive after an accident, but suffers injuries requiring emergency medical care. Usually it is a combined trauma that requires a full diagnostic, anesthesia and surgical support followed by intensive therapy and repeated invasive interventions.

The task of our scientific work was to conduct a retrospective analysis of the structure of pathology by the profile of the Department of Anaesthesiology and Intensive Care from 2017. This analysis would help to determine the cases in which it is necessary to be especially prepared for employees of such departments working with a combined trauma.

The study was carried out on the basis of the intensive care department of Kharkiv City Clinical Hospital of Emergency Medical Care № 4 named after prof. A.A. Meshchaninov for patients with polytrauma (12 beds). In the course of the study, we had analyzed 482 patients medical records. The SPSS program has generated a number of statistical data, which are reflected in our conclusions and recommendations. The conducted research is ethical in relation to patients, as only their clinical data but not personal information appear.

As a result of the analysis, we determined the following pathology structure, which most often sounds in the case histories of the patients of the above department as the dominant one: craniocerebral trauma – 20.3% (open injury 36.6%, closed injury 66.4%), skeletal trauma – 39,7%; A) injuries to the upper and lower limbs – 45,6%; B) pelvic injury – 8,1%; C) spine trauma 16% D) fractures of the ribs, clavicles and sternum 30.3%, closed chest trauma – 13.9%, closed abdominal injury – 21% (namely rupture of the spleen, liver, mesentery), penetrating injuries 3.4%, the rest – 1.7%.

In the course of the study, a clinical portrait of the patient at the department of anesthesiology and intensive care for patients with combined trauma was obtained. This is a person with a loss of awareness, shock phenomena in combination with a skeletal trauma and damage to the thoracoabdominal organs. We determined a set of medical specialties in accordance with the most common pathology, which are necessary for round-the-clock work at the department, namely anesthesiologist-resuscitator, surgeon, traumatologist, neurosurgeon. If possible, there must be a urologist.

Voitzenko K.I.

THE ANATOMICAL COMPOSITION OF THE COMPONENTS OF THE KNEE JOINT OF THE POSTERIOR LIMB OF THE RAT IN THE NORM

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Relevance. The study of anatomical features of the structural elements of knee joint of experimental animals, namely rats, is extremely relevant for today because their use in experimental studies [1,2,3]. There are a number of works in which the authors detail the morphological norm of various organs of rats in norm [4,5]. In the domestic and foreign sources processed by us, isolated data on the structure of the knee joint of rat were found.

Based on the foregoing, we believe that this study is relevant from the point of view of experimental morphology.

Purpose. The purpose of our work was a careful study of the totality of the structural components of the hindlimb of rats in the norm, in particular, the totality of the morphological components of knee joint.

Materials and methods. The material of the study was 15 mature outbred rats, weighing 80 g, at the age of 4.5 months. All animals were in vivarium conditions and work related to issues of maintenance, care, labeling and all other manipulations was carried out in compliance with the provisions of the “European Convention for the Protection of Vertebrates used for experimental and other scientific purposes” [Strasbourg, 1985], “General ethical principles of animal experiments” adopted by the First National Congress on Bioethics [Kiev, 2001], Law of Ukraine No. 3447-IV “On the Protection of Animals from Cruel Treatment”. The Commission on Bioethics of Danylo Halytsky Lviv National University established that the conducted scientific research corresponds to ethical requirements according to the order of the Ministry of Health of Ukraine No. 231 of 01. 11. 2000 (Record No. 10 of 26.12.2011), (Record No. 2 of February 20, 2012). The animals were euthanized by intraperitoneal administration of thiopental (at a rate of 25 mg / 1 kg) .The skeletonized bones of rats were used as a material for carrying out a macroanatomical study of the structural components of the hindlimb. After euthanasia, a hip joint was prepared, followed by an exarticulation of the hindlimb, after skin removal. After the manipulations, the hindlimb was boiled off for four hours, followed by careful separation of soft tissue remains. The obtained bones were treated with a solution of perhydrol followed by photography in different projections in order to establish the anatomical elements of each participating in the formation of the totality of the components of knee joint. Photographing the specimens was carried out with a Nikon D 3100digital camera.

Results. As a result of the study on 15 specimens of the hindlimb of rats, we found that the tibia of rat is represented by the tibial and fibular bones that are separated in the region of the proximal end of the tibia, and in the region of the distal end of the tibia they coalesce. The site of the proximal epiphysis of the tibia contains the medial and lateral condyles, which are delimited by the intercondylar fossa. This portion of the tibia, articulating with the distal end of the femur, participates in the formation of knee joint of the hindlimb of rat.

Conclusion: As a result of our study, a set of bone morphological components was established, the totality of which forms the hindlimb of the rat, and the components of knee joint were also thoroughly studied.

Voytsenko K.I.

ORGANIZATION OF THE CARTILAGINOUS LAYER STRUCTURAL COMPONENTS IN THE KNEE JOINT CAVITY OF A RAT IN NORMAL STATE

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Ukrainian and foreign scientific literature contains many publications dealing with the issues concerning pathomorphological signs of different nosologies artificially simulated in the experiment. Such an approach creates a wide range for a careful and comprehensive investigation of the dynamics of pathomorphological signs using the groups of experimental animals. Conduction of such investigations should be basically substantiated morphologically concerning the initial parameters of the morphological norms of the object being studied.

On the basis of it we consider the investigation concerning morphological norm of the cartilaginous layer structural organization in the knee joint of rats to be rather reasonable and timely for experimental morphology. It will enable to establish morphological basis of the norm that in future will be a starting point for comparison of changes at different terms of simulated pathology.

15 mature outbred albino male rats with the body weight of 80 g, aged 4,5 months, were used as the material for the study. All the animals were kept in vivarium, and all the work concerning the questions of keeping, care, marking and all other manipulations were performed according to the principles of “The European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes” (Strasbourg, 1985); “Ethical Principles and Guidelines for Experiments on Animals”, approved by the First National Congress on Bioethics [Kyiv, 2001]. Board of Bioethics, Danylo Halytsky Lviv National Medical University, has established that the performed scientific investigations correspond to the ethical requirements according to the Order of the Ministry of Public Health of Ukraine № 231 dated 01. 11. 2000 (minutes № 10 dated 26.12. 2011).

Before taking the material for autopsy an animal was put down by means of intraperitoneal administration of thiopental (25 mg/1kg). The distal epiphysis of the femoral bone and the proximal epiphysis of the tibia were used as the material for the microstructural examination considering the maintenance of topographic ratio of the knee joint structural components. Histological specimens were prepared according to the common methods with preliminary decalcification followed by further application of hematoxylin, eosin and azan by Heidenhain’s method of staining.

The following results were obtained after the conducted microscopic examination of the cartilaginous layer of the knee joint cavity in the norm. The external surface of the cartilaginous layer was smooth without injuries on the histological section of the knee joint cavity. The articular cartilage consists of three

indistinctly separated cellular layers: tangential (superficial), transitional (intermediate) and radial (basal). From both ends the epiphyseal cartilage contacts with the osseous tissue and is divided into the areas of rest (unchanged or indifferent cartilage), proliferation (column cartilage), hypertrophy (mature or definite cartilage), erosion (destruction), calcification and ossification (osteogenesis). The knee joint articular capsule is presented by two layers: fibrous and synovial. The majority of capillaries are located under synovial cells of the covering layer. It should be noted that vessels are not located homogeneously both in the deep and superficial collagen-elastic layers. The deep collagen-elastic layer contains the bundles of collagen and elastic fibers and fibroblasts. The two types of the synovial membrane were found in the experimental animals: fibrous or adipose (a considerable amount of adipose cells was located in the synovial membrane of the adipose type).

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DIABETES, CATARACT AND ANTIOXIDANTS

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Diabetes mellitus is a chronic metabolic disorder. It is characterized by long-term hyperglycemia and may lead to many severe complications. Among them, there are ocular complications such as diabetic retinopathy, glaucoma, dry eye disease and cataract. Diabetic patients are 2-5 times more susceptible to cataract formation than healthy people. Even though the cataract may develop in elderly people as an effect of natural aging process, the diabetic patients are at higher risk of premature cataract onset.

Diabetic cataractogenesis is a complex process. Several mechanisms are proposed to be responsible for cataract formation: glycation of the proteins, enhanced polyol pathway and oxidative stress. Even though cataract removal surgery is a rather safe procedure, in patients with diabetes there is higher complication rates from such surgery.

As hyperglycemia is the main trigger for cataract formation, the best method to prevent or delay this process is to control blood glucose level. However, blood glucose fluctuations are inevitable during daily regimen in diabetic patients. Thus, natural substances, such as flavonoids or other polyphenols, which reveal antioxidative properties, could be helpful agents in prophylaxis, delaying or treatment of diabetic cataract.

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MALFORMATIONS OF THE UPPER LIP

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At the beginning of the XX century. children with congenital malformations in Ukraine appeared in the ratio of 1: 2000; in 1960-1970 – 1: 1000; in 2000-2002 –

1: 800-1: 900. In most European countries, this ratio is now 1: 600. In 2000, 9222 children with non-transplantation were born in 28 countries of Europe and made 7605 primary surgical interventions on the lips and palate. Gorges of the upper lip and palate in the structure of antenatal pathology occupy the second place - in frequency among other congenital malformations. They can occur as an isolated developmental defect and be one of the symptoms of congenital syndromes (Van der Woods syndrome, Pierre Roben, etc.).

In diagnostics of galls of the upper lip in the clinic use the following clinical and anatomical classification; congenital latent gorge of the upper lip, congenital incomplete gorge of the upper lip: a) without deformation of the skin and cartilage of the nose; b) with deformation of the skin and cartilage of the nose; congenital full gorge of the upper lip.

Early plaster of the upper lip is made in maternity homes or specialized surgical departments for newborns on day 2-4, or after the 11-14th day of a child's life. Contraindications to early plastic lips in the baby are concomitant birth defects, trauma in childbirth, asphyxia, postpartum inflammation in the mother. The results of early operations are worse than after the plastic lips, carried out at a later age. At present, the optimum for plastic lips are considered age 4-6 months. Newborns operate only on special indications.

Plastics of the upper lip in one-sided gorges. To correct the anatomical form and the full function of the lip, it is necessary: 1) to remove the split, 2) to extend the upper lip, and 3) to correct the shape of the nose. The methods of plastic lips, which are used by dentists in the present, can be conventionally divided into three groups, depending on the shape of the incisions on the skin of the lips. These methods are distinguished by the method of forming a nasal septum in the full gorge of the lips.

The second group combines the methods proposed by Tennyson (1952) and Obuhova (1955), which are based on the movement of the lips of the triangular skin scraps with different angles in the lower third of the skin. They give an opportunity to get the necessary elongation of the tissues of the lip, which depends on the magnitude of the triangular flap borrowed from the small part of the lips; allow you to match the tissues of the lips and get the symmetrical form of "Cupid's bow." The anatomy of the methods allows you to clearly plan the operation. It is recommended to use the indicated methods in incomplete gorges of the upper lip in the absence of deformation of the nose. The third group includes the methods of Hagetourn (1884) and Le Mezurier (1962), in which the extension of the lip is achieved by moving the quadrilateral flap, and lining up on a small fragment of the lips. However, the quadrangular piece is slow and inconvenient when plastering incomplete unilateral gaps, when it does not require a large extension of the lips.

However, these methods do not allow to obtain sufficient elongation of the lips, which is necessary at wide wide gorges which predetermines further research of this pathology.

Yemelyanenko N.R.

**FORMATION OF THE NASAL SEPTUM IN THE PRE-FETAL PERIOD
OF HUMAN DEVELOPMENT**

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The rudiment of the nasal septum is in the form of mesenchyme externally covered with high columnar epithelium which nuclei are of a spherical or oval shape and distributed in 4-6 lines. The thickness of the epithelium ranges from $36\pm 2,0$ mcm (in its upper portion). In the central part of the nasal septum rudiment mesenchymal cells are located more compact forming a conglomerate in the form of a wedge on the frontal sections with its apex turned downward. Its transverse size close to the basis (upwards) is $220\pm 10,0$ mcm, and in the middle part – $110\pm 6,0$ mcm, in the apical area – $80\pm 5,0$ mcm, the vertical size is $880\pm 25,0$ mcm. The above mentioned conglomerate of the mesenchymal cells passes in the anterior-posterior direction along the whole nasal septum. In the middle third its distal conglomerate extremity forms club-like dilation. As far as it approaches closer to the posterior part of the nasal septum parallel to the decrease of the nasal septum height the conglomerate height decreases as well. Between the epithelial layer and the above mentioned formation there is a layer of loosely located mesenchymal cells which thickness is no more than $240\pm 5,0$ mcm. At the distance of $220\pm 4,0$ mcm from the inferior border of the nasal septum there is the rudiment of Jacobson's organ. The thickness of the nasal septum is no more than $836\pm 20,0$ mcm. Its largest vertical size is 990 mcm. The posterior extremity of the septum gradually decreasing passes into the upper wall of the primary oral cavity.

Yemelyanenko N.R.

**PECULIARITIES OF BLOOD SUPPLY AND INNERVATION OF THE
NASAL SEPTUM AT TEEN-AGE**

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The mucous membrane lining the nasal cavity is covered with the high multinuclear columnar epithelium with well expressed villi. The nuclei of its cells form 3-4 lines in the respiratory area and 4-5 lines in the olfactory area. The epithelial thickness compared to the previous age period is not changed. The outline of the glands becomes clearer. The vascular diameter of the anterior and posterior ethmoidal arteries ranges from 0,28 to 0,38 mm. The number of branches of the second order is 2 (lateral and medial), the branches of the third order – from 5 to 7. The diameter of the latter is 0,08-0,1mm. Meckel's artery in 6 cases (20%) divides

into 4 branches, in 2 cases (5%) – 3 and in 5 cases (15%) – 2 posterior lateral nasal branches. Their diameter ranges from 0,36 to 0,4 mm. The branches forks mainly in the area of the lower and middle nasal conchae and appropriate nasal passages where they form loops of different shape and size.

The diameter of the posterior artery of the nasal septum is 0,3–0,6 mm. It is divided into the branches of the second order (upper and lower).

The middle upper posterior nasal branches originating from the pterygopalatine node and found in its mucous membrane enter the posterior portions of the nasal septum. The nasopalatine nerve descends, divides into small branches in the mucous membrane of the nasal septum. All the major nerve trunks 0,46-0,5 mm in diameter are located in the deep layer of the mucous membrane where they are divided into the secondary and tertiary branches. In the places of thickness of the mucous membrane the nerve fibers practically perpendicularly are directed to the epithelial layer.

Topographically the glands and the minor vascular network are located most superficially, then the nerves and vessels of the middle diameter

Yemelyanenko N.R.

**DORMATION OF THE NASAL SEPTUM AT THE 9th WEEK OF THE
INTRAUTERINE DEVELOPMENT**

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The central part of the nasal septum thickness is the plate of immature cartilage which in the anterior third is $1,7\pm 0,2$ mm high and $110\pm 4,0$ mcm thick. In the middle part of the nasal cavity a vertical size of the cartilaginous plate increases considerably ($2,4\pm 0,5$ mm high), and its cranial part projects into the cranial cavity forming cock's comb. As far as it approaches to the posterior border the plate height decreases to $1,7\pm 0,3$ mm, and its thickness increases to $50\pm 20,0$ mcm. From the side of the nasal cavity the septum is lined with the high columnar epithelium which nuclei are located in 4-6 lines. The epithelial thickness in the inferior portion of the septum is $20\pm 1,0$ mcm, gradually increasing and reaching $40\pm 2,0$ mcm in the cranial region.

Between the epithelial layer of the nasal septum and its cartilaginous basis there is the mesenchymal layer $80\pm 3,0$ mcm thick. In the middle and posterior third of the septum the rudiment of the vomer is well expressed which is presented by two plates. Their upper extremities involve the distal extremity of the nasal septum cartilage, and the lower ones are connected between themselves. Their vertical size ranges $330\pm 10,0$ mcm, and the thickness is no more than $88\pm 2,0$ mcm. The longest vertical size of the nasal septum is in the whole $1,9\pm 0,1$ mm, and thickness – $550\pm 10,0$ mcm. The anterior-posterior size is $3,3\pm 0,1$ mm.

The distance between the nasal septum and free edge of the upper nasal concha is $264\pm 8,0$ mcm, the middle one – $396\pm 9,0$ and the lower one – $308\pm 10,0$ mcm.

Yemelyanenko N. R.

DEVELOPMENT OF THE NASAL SEPTUM ARTERIAL VESSELS AT THE EARLY PERIOD OF HUMAN ONTOGENESIS

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Investigation of the arterial vessels of the nasal cavity on a series of sections of pre-fetuses 31,0-38,0 mm long has determined that the anterior and posterior ethmoidal arteries $24 \pm 0,2$ mcm in diameter pass through the openings of the same name and then in the thickness of the connective tissue of the nasal cavity upper wall, where they are divided into the branches of the second order (lateral and medial). The first one passes in the ascending direction along the lateral wall (closer to the rudiment of the cartilaginous tissue), another one passes to the nasal septum practically horizontally, and then it descends. Their diameter is no more than $12 \pm 0,5$ mcm. Each of the mentioned branches in the upper third of the lateral wall and nasal septum is divided into 5-6 smaller branches of the third order radiating in the form of a fan, and becoming thinner they are lost in the mesenchymal layer. The rudiment of the Meckel's artery in the posterior portion of the lateral wall of the nasal cavity gives 3-4 posterior lateral nasal branches $24 \pm 0,5$ mcm in diameter, which pass forward and enter the thickness of conchae. One of them $32 \pm 1,0$ mcm in diameter enters the posterior portion of the nasal septum where it is divided into the branches of the second order. The described branches pass forward and are located close to the cartilaginous plate. The wall of the ethmoidal and Meckel's arteries is little differentiated and is presented by the endothelium, externally from which there are 3-4 lines of compact located cells with the nuclei of a prolate shape. Cellular orientation is circular. The cells of the connective tissue directly attaching to the described ones are of a circular orientation as well.

Yemelyanenko N.R.

FORMATION OF THE NASAL SEPTUM AT THE 8th WEEK OF INTRAUTERINE DEVELOPMENT

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At the beginning of the 8th week the subcartilaginous tissue on the frontal sections is in the shape of a plate, which vertical size is 1,6 mm, and thickness – $176 \pm 5,0$ mm. As far as it approaches to the posterior border of the septum a vertical size of the subcartilaginous tissue deceases and it passes into the rudiment of the sphenoid bone body. At the same time in the posterior third of the nasal septum mesenchymal cells are concentrated directly close to its inferior part in the shape of a pair formation having a form of plates – vomer rudiment. These plates are oblique on the frontal sections. Their upper extremities are located at the distance of $440 \pm 5,0$ mcm one from another, and the lower ones – $220 \pm 3,0$ mcm. At the end of the 8th week the subcartilaginous tissue of the nasal septum is transformed into immature

cartilaginous tissue. A vertical size of the cartilaginous plate of the nasal septum is no longer than $1,9 \pm 0,1$ mm, and its thickness – $110 \pm 10,0$ mcm. A maximal height of the nasal septum is $1,4 \pm 0,1$ mm, and thickness – $80 \pm 10,0$ mm. Its anterior-posterior size increases from $1,2 \pm 0,05$ mm (pre-fetuses 22,0 mm long) to $1,8 \pm 0,05$ mm (pre-fetuses 29,0 mm long). The distance between the nasal septum and a free edge of the upper nasal concha is no longer than $220 \pm 7,0$ mcm, the middle one – $242 \pm 6,0$ mcm and the lower one – $154 \pm 5,0$ mcm.

The branches of the major vessels supplying blood to the walls of the primary nasal cavity pass in the mesenchymal layer (closer to the rudiment of the cartilaginous tissue) forming anastomoses with the network of their own vessels. The diameter of the anterior and posterior ethmoid artery is $24 \pm 1,0$ mcm.

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PROTEZING OF TEETH

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On March 9, 1822, the American physician Charles Graham became the owner of the patent for artificial teeth, which caused a real sensation. But the first dentures were invented in ancient Egypt – in those days they were created exclusively from ivory and fixed with gold wire. At all times, prosthetics were a peculiar indicator of human prosperity. Since 1882, artificial teeth began to be manufactured mainly from plastics, which unfortunately did not show good quality. It was in ancient Rome that the first scientific records appeared in which there was information on the treatment of teeth. Until the middle of the XVIII century. dentures were made from animal bones, and they were fastened to neighboring teeth with the help of a wire of silver or silver. Human teeth, also used for prosthetics, their bunch in - a very interesting and necessary service in dentistry. In case when "repaired" the destroyed tooth is impossible, artificial dentures are used to restore the dentition. The procedure for their manufacture involves the first removal of a cork from the client's jaw, and then, within two weeks, the design of the laboratory is made. Innovative technologies, such as 3D modeling, make the dentures as comfortable as possible and anatomically correct.

Over the past few years, modern dentistry has taken a step forward. There are more and more new innovative technologies on restoration of teeth, their restoration. Orthopedic dentistry is able to give the flawless look to your smile, even if nature does not award you. With modest financial capabilities, the ideal solution will be the installation of dentures, which distinguish two main groups: removable, non-removable.

Today, there are several types of detachable dentures: 1. Cheapest acrylic plate prostheses are dental prostheses, which are plaster plates, which usually contain standard artificial plastic teeth that replace a certain defect in the dentition. These constructions have several drawbacks. a. Overall brittleness. b. Ability to cause allergic reactions of the mucous membrane. v. universal distribution of

chewing load. 2. Dentures are considered progressive. In bellogel dentures, the loading of chewing is as close as possible to the real and evenly distributed on the supporting teeth, to which this prosthesis is attached. They are convenient to use, are securely fixed in the mouth with the help of special castle fasteners or arc-clamers. 3. Nylon or thermoplastic prostheses, which are more plastic, aesthetic and elegance compared with other removable dentures, they can be installed both with partial, and with complete loss of teeth. They are comfortable and do not cause any allergies. For the cost, they are slightly more expensive than acrylic dentures, but are much cheaper than bulge.

Non-removable dentures: Varieties of dentures that a person can not remove independently without a visit to a dentist. In dental practice, removable dentures are taken to distinguish between the design and the material from which they are made. Concerning the same designs, for today the most popular in orthopedic stomatology are the following types of non-removable dentures: tabs, dental crowns, bridge dentures.

Thus, the choice among the many kinds of dentures and bridges represented is complicated and responsible. For this reason, you do not need to save on the quality and professional advice of an experienced orthopedic doctor.

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X-RAY ANATOMY OF MAXILLOFACIAL LESIONS

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Changes in the area of the damaged bone and in the process of its reparative regeneration were evaluated radiologically. In all series of experiments, the degree of bone wound was determined by the development of the corn, filling the intermucosal zone with bone tissue and the state of the bone marrow canal (X-ray data).

On radiographs of rats withdrawn from the trial for 7 days, no significant changes in all series were detected. The edges of the defect were clearly traced, the periosteal reaction was not determined, the intercellular zone was not filled. At day 56 in X-ray studies in control, the border of the former defect is determined by the thickened cortical layer, the newly formed bone tissue is denser than the maternal bone.

Thus, X-ray diffraction does not have significant differences when comparing different groups. At the same time, the rate of bone marrow budding is significantly different and correlates with histopreparations for the same period of study. In the group up to 42 days the structure of the bookmark area of the regenerate does not differ from the parent and is in the stage of complete remodeling. In group 2, the remodeling process of bone only enters its active phase. The structure of the bone is restored to 56 days.

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FEATURES OF STRUCTURAL REARRANGEMENT OF THE TEMPORAL MUSCLE IN EXPERIMENTAL DIABETES MELLITUS

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The most acute medical and social problem of the national health-care system of all countries of the world is diabetes mellitus (DM), which is caused by a sharp increase in the incidence of the disease, severe complications and high mortality. WHO states that diabetes leads to an increase in mortality of 2-3 times and a decrease in life expectancy by 10-30%. It is often enough that diabetes is associated with specific morphological and metabolic disorders of skeletal muscles. Negative effects of hyperglycemia on skeletal muscles are realized in several ways: non-enzymatic glycosylation of proteins, polyol way of glucose metabolism, direct glucose toxicity.

In view of the foregoing, the purpose of our study was to establish the morphological features of the structural rearrangement of the temporal muscle of rats on day 42 of the course of streptozotocin DM.

Materials and methods of research. Six mature male rats weighing 180-200 g were used in the study. The animals were divided equally into 2 groups: control and experimental. To the research group, streptozotocin SD was modeled by a single intraperitoneal injection of streptozotocin (dissolved in 0.1 M citrate buffer solution with pH 4.5) at a dose of 6 mg per 100 g of body weight. The control group of animals in an equivalent dose was injected intraperitoneally with 0.1 M citrate buffer pH 4.5. Euthanization of animals was performed under thiopental anesthesia by decapitation and subsequent collection of blood in a test tube for biochemical studies. The glucose level was determined by a blood drop of tail vein using a test strip on a Assu-Schec glucose meter (Germany). The level of glycosylated hemoglobin (HbA1C) in the blood was determined in the certified laboratory "Diameb". Histological (stained with hematoxylin and eosin, according to Heart-Van Gieson), electron microscopic methods of investigation were used. Histological specimens were examined under MS 300 light microscope (TXR) and photographed with a digital CCD camera (Industrial digital camera UHCCD05100KPA-U-NA-N-C-SQ-NA). Morphometry was performed on this photographic material with the help of the NIH USA "Image J" program in manual mode, taking into account the increments. Computer processing of data was carried out with the statistical package Stat.Soft.Inc; Tulsa, OK, USA; Statistica 6.

Results. On the 42nd day from the start of modeling of streptozotocin SD, the glucose level and HbA1c increase from 15.98 ± 0.13 mmol / l (control - 5.19 ± 0.14 mmol / l, $p < 0.001$) and $9.26 \pm 0.23\%$ (control - $2.43 \pm 0.08\%$, $p < 0.01$). Such biochemical changes in carbohydrate metabolism indicate the development of decompensated diabetes mellitus.

In the transverse histological sections of the temporal muscle of the rats of the experimental group, we observe different shapes and diameters of the muscle fibers between which the phenomena of interstitial edema can be traced. Histolympocytic infiltration is often perivascularly visualized. The area of the muscle fibers of the research group of rats was not significantly different from the control

indices, whereas the area of the nuclei was 11.2% larger ($p < 0.05$). Hemorheological abnormalities are observed in the microvessels of the arterioles and the exchange (capillaries) of the hemocirculatory channel of the research group of animals. They are characterized by: erythrocytic sludge in the form of “coin pillars”, platelet aggregation, erythrocyte adhesion to the luminal plasmolemus of endotheliocytes. Morphometrically in the links of the hemocirculatory channel, we established a significant increase in the area of arterioles and capillaries due to a significant thickening of their walls by 30.3-29.8% ($p < 0.05$), an increase in the Vogenvort's index by 38.7-38.8% ($p < 0.05$).

At the ultrastructural level, changes in endotheliocytes are most pronounced in the hemocirculatory system. Their nuclei are swollen, enlightened, karyolemma forms significant incaginations, the membrane organelles of the cell are destroyed. The luminal plasmolemma of endotheliocytes forms significant invaginations and protrusions into the lumen of microhemosis. Desquamation of individual endotheliocytes into the lumen of microhemosis vessels is noted with exposure of the basal membrane. The latter is thickened, it contains branches of pericytes whose cytoplasm is electronically light due to a large number of vacuoles and micropinocytosis vesicles. In the myocytes of arterioles, small vacuoles are visualized. Due to severe hemocirculation disorders in the muscle fibers of the temporal muscle, there are observed: subsarcolemmic edema, dilated tubule and T-tubules of the sarcoplasmic reticulum. Mitochondria have an electron-light matrix with disorganized and partially destroyed cristaes. The mitochondria are placed chaotically, many of them are partially or completely destroyed. There are giant mitochondria, in which not only the inner but also the outer membranes are destroyed. Throughout the sarcoplasm various sizes of vacuoles are noted. In sarcomeres, the Z-lines are thickened, the myofibrils are broken down, sometimes their destruction, myolysis, is observed. Between the myofilament myofibrils there are separate granules of glycogen.

Conclusions. On day 42 of streptozotocin DM, hyperglycemia and high levels of HbA1c lead to the development of diabetic microangiopathy of the temporal muscle, which is characterized by: destructive changes in endotheliocytes and myocytes; thickening of capillary walls, arterioles and basal membrane; desquamation of individual endotheliocytes; pronounced hemorheological abnormalities, an increase in the Vogenvort's index. Against the background of diabetic microangiopathy, changes in muscle fibers are observed in the type of vacuolar and hydropic dystrophy.

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MARKETING MANAGEMENT OF MEDICAL ORGANIZATION

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Marketing management of a medical organization is a modern tool for improving the system of work with personnel, which coordinates the interaction of three subsystems of management: marketing, general management and quality management of medical services. The marketing of medical services is intended to identify the needs of the population in health services, identify the best ways to meet

them in the process of competitive struggle for the consumer in order to achieve the main goals. The main objectives are realized through intermediate ones, for example, for the line of goods and quality of services, pricing methods, places and methods of their sale, systems of promotion, staff contacting with customers. In fact, the staff acts as an intangible component of the medical product, which greatly affects the perception of the consumer / client during the service (service, attention, atmosphere, culture, complicity, responsiveness, etc.). In addition, a system of so-called internal marketing of a medical organization is formed - providing interaction of participants in the process of providing services, motivating employees for meaningful customer / client service, optimizing processes within the organization through the implementation of methods of personnel and marketing management.

The medical reform in Ukraine envisages the autonomy of health care institutions, which means independent economic activity, the autonomy of decision-making in resource allocation, budgeting, and the responsibility of the hospital leadership for its effective functioning. The implementation of these initiatives requires specially trained management and marketing specialists with advanced knowledge of economics, financial management, marketing, as well as basic knowledge of the fundamentals of public health. Unfortunately, today the medical industry is extremely restricted, and does not allow "foreign" specialists, and it prevents the health care situation from changing for the better. The reform of the medical industry in Ukraine takes place without careful planning, clear planning, including financial, and poor public awareness. Today, in addition to medical issues, the chief physicians are engaged in economics, management, advertising, interaction with local authorities and communal structures. Such a wide range of responsibilities cannot be performed by one person. It is necessary to introduce the positions of managers and marketers in the health care system and directly within the medical institutions. The experience of economically developed countries proves that this is effective when the chief physician of the medical organization deals with purely medical issues, and the manager of the medical organization - managerial and organizational and economic issues, the marketing specialist works on the effective promotion and functioning of the medical organization, attracting profitable suppliers and consumers of medical services.

Consequently, the priority direction of the modern integrated policy of the medical organization in the market should be the introduction and implementation of marketing management, which combines management and marketing as special activities that mutually penetrate each other, complement each other and require the adoption of all managerial decisions, taking into account the requirements of the target market.

CONTENT

Andrzej Plech, Monika Rykaczewska-Czerwińska, Danuta Konopińska INSECT NEUROPEPTIDES – AN OVERVIEW OF BIOLOGICAL EFFECTS IN MAMMALS	3
Andrzej Plech, Marcin J. Plech A REVIEW OF THE RISK OF CANCER IN DIABETIC PATIENTS	3
Andrijets W.I. WOLONTARIAT W ŻYCIU STUDENTA MEDYCYNY.....	4
Andriyets M.M., Andriyets V.I., Skoropatsky V.V. THE PROBLEM OF PHYSICAL CULTURE DEVELOPMENT OF STUDENT YOUTH IN UKRAINE.	5
Anilkumar Karthik Madhav, Kushniryk Olga MEDICAL IMPORTANCE OF NEUROCYSTICERCOSIS DESEASE	6
Andriyets M.M., Andriyets V.I., Skoropatsky V.V. TEAM FORMATION ON THE EXAMPLE OF THE VOLLEYBALL TEAM OF STUDENTS	7
Antoniuk O.P. FEATURES OF THE ATRESION OF ILIUM IN NEWBORN	8
Antoniuk O.P. FORMATION OF PHYSIOLOGICAL ATTRESS OF ESOPHAGUS.....	8
Bambuliak A.V., Boichuk O.M., Lopushniak L.Ya. ANATOMO-PHYSIOLOGICAL FEATURES OF PRUSE-PASSENGER.....	99
Banul B.Yu. THE DEVELOPMENT OF THE UTERUS AND FALLOPIAN TUBES AT THE END OF THE PRE-FETAL PERIOD OF HUMAN ONTOGENESIS.....	100
Batig V.M. INFLUENCE OF PARASYMPATHY NERVOUS SYSTEM BLOCKERS ON THE STATE OF EXPERIMENTAL ANIMAL’S PERIODONTAL TISSUE.....	11
Besplitnik M.G. CONGENITAL CHILDREN’S DEFORMATION OF THE VERTEBRAL COLLUMN.....	122
Besplitnik M.G. INFRINGEMENTS OF WRAPPERS FORMATION IN THE HIGH-PERFORMANCE DEPARTMENT OF THE VERTEBRAL COLLUMN.....	122
Bharti Tomar, Olga Kushniryk DIABETES – ONE OF THE MOST PREVAILING DISEASES.....	133
Borishkevich V.S., Bambuliak A.V. GUNSHOT WOUNDS OF MAXILLOFACIAL REGION	144
BoichukO.M., BambuliakA.V., LopushniakL.Ya. TOPOGRAPHO-ANATOMIC FEATURES OF LATTICE LABYRINTH LOCATION.....	155
Chubatenko S.Yu. INFLUENCE OF PHYSICAL CULTURE ON THE LEVEL OF MEDICAL STUDENTS HEALTHY LIFESTYLE	155
David Alexander, Kushniryk Olga VECTOR CONTROL AND PERSONAL PROPHYLACTIC MEASURES FOR LEISHMANIASIS.....	166
Dmytrenko R.R., Boichuk O.M. AGE PECULIARITIES OF ANTIOXIDANT, PROTELOLITICAL AND FIBRINOLITICAL SYSTEMS OF YASEN IN RATS.....	177
Frasyniuk A.B., Tovkach Yu.V. HISTOLOGIST AT 7-14 DAYS OF MAXILLOFACIAL LESIONS IN EXPERIMENTAL ANIMALS	177
Fik V.B., Paltov E.V., Masna Z.Z., Kryvko Y.Y. PERIODONTAL MICROSTRUCTURE AFTER SIX WEEKS OF OPIOID EFFECT	188
Gaurav Jetawat, Olga Kushniryk THE MECHANISM OF GIARDIA LAMBLIA RESISTANCE AND IT’S TREATMENT.....	1919
Gordienko V.V., Kosuba R.B., Bohdan N.V. CARBON DIOXIDE: ENVIRONMENTAL, BIOLOGICAL AND PHARMACOTHERAPEUTICAL ASPECTS	200

Natural Science Readings (May 18, 2018, Sosnoviets- Bratislava)

Gorodinsky Sergey Ilyich THE ROLE OF PHYSICAL CULTURE IN PREPARATION OF A HIGHLY QUALIFIED MEDICAL EMPLOYEE	211
Guranych S.P. CHANGES IN THE PROOXIDANT-ANTIOXIDANT HOMEOSTASIS OF BLOOD SERUM IN RATS WITH INSULIN RESISTANCE AND INSULIN RESISTANCE, ACCOMPANIED BY IODINE DEFICIENCY	222
Hoshovska A.V., Hoshovskyi V.M. COMPLICATIONS OF MULTIPLE WOMEN GESTATION.....	23
Holota A.A., Hladii L., Shulgina V. MORPHOLOGICAL FEATURES OF REGENERATION OF MAXILLOFACIAL INJURIES	24
Ibragimov E.,Yu. INFLUENCE OF PHYSICAL CULTURE ON FORMING PHYSICAL QUALITIES OF MEDICAL STUDENTS.....	24
Ibragimova L.S. FORMING THE BASIS OF THE HEALTHY LIFESTYLE IN MEDICAL STUDENTS BY PHYSICAL CULTURE.....	25
Ibragimova L.S., Gorodinsky S.I., Andriets M.M. INFLUENCE OF PHYSICAL CULTURE ON THE FORMING PROCESS OF MEDICAL INDUSTRY SPECIALIST	25
Isak AI, Tymchuk KYu. SPIDERS, AS REGULATORS OF THE NUMBER OF ARTHROPODS, CONTAMINATED WITH OPPORTUNISTIC BACTERIA	26
Ivancheskul AI, Karavan YuV. EUROPEAN REQUIREMENTS FOR ESTIMATION OF ENVIRONMENTAL STATE OF RIVER FOOTHILLS	27
Kaprosch A.Yu., Tovkach Yu.V. MORPHOLOGICAL FEATURES OF RESTORATION OF MAXILLOFACIAL LESIONS	27
Karim Mohamed Ragaey, Olga Kushniryk REVIEW ON THE CASES OF SCHISTOSOMA MANSONI INFECTION	28
Kavun M.P. LIVER VESSELS IN THE FETUS 6-7 MONTHS OF INTRAUTERINE DEVELOPMENT	29
Kavun M.P. PORTAL VEIN OF LIVER IN FETUSES 8-10 MONTHS OF FETAL DEVELOPMENT.....	29
Kavun M.P. PORTAL VEIN OF LIVER IN FETUSES 8-10 MONTHS OF FETAL DEVELOPMENT.....	30
Kokanovsky R.V., Tovkach Yu.V., Kovalchuk V.O., Kuz A.I. ENDEMIC GOITER	31
Kondratova A., Tovkach Yu. ULTRASOUND ANATOMY OF THE ESOPHAGEAL-GASTRIC TRANSITION IN CHILDREN	31
Kosan D.A., Tymofieva M. P. WOMAN AND CAREER: THE CRITERIA OF SUCCESS IN EDUCATION.....	32
Kotlyarenko L.T. SANOGENIC ASPECTS OF THE HUMAN LOCOMOTION SYSTEM	34
Kozariichuk N.Ya., Telenga S.O., Smandych V.S. PECULIARITIES OF THE ORBIT MORPHOGENESIS IN THE FETAL PERIOD OF HUMAN ONTOGENESIS.....	35
Kozariichuk N.Ya., Romanskui A.O. MANAGMENT AND TREATMENT OF THE ENDOCRINE OPHTHALMOPATHY	36
Kushnir A., Karavan M., Kashperuk-Karpiuk I.S. THE TOPOGRAPHO-ANATOMICAL FEATURES OF THE BUCCAL REGION OF HUMAN FETUSES.....	37
Labil Shaikh, Olga Kushniryk PECULIARITIES OF FASCIOLA HEPATICA INFECTION IN HUMAN ORGANISM	38
Lopushniak L.Ya., Marchuk F.D., Bambuliak A.V. DEVELOPMENT OF CERTAIN CERVICAL ORGANS IN THE EMBRYOS OF THE 4-5TH WEEKS OF GESTATION	39
Mataleha I., Tovkach Yu.V. REFLUX ESOPHAGITIS	39

Natural Science Readings (May 18, 2018, Sosnoviets-Bratislava)

Maxymiv O.O., Chepishko S.I. POLYMEZIMATION SHRINKE. BASIC METHODS OF ITS PREVENTION.	40
Maxymiv O.O., Gavaleshko Yu.V. ANOMALIES OF TEETH	42
Mikulets L.V., Volianiuk A.V., Rusnak D.A. OBSTRUCTIVE SLEEP APNOEA SYNDROME AND RHEUMATOID ARTHRITIS	43
Nahirnyak V. M. STUDY OF THE REDUCTION IN BLOOD PRESSURE AFTER EXPOSURE OF LOW EXTREMITIES TO THE AUTOMATIC MASSAGE	44
Olaru E.V., Sorokhan M.M. FEATURES OF ULTRASONOGRAPHIC ANATOMY IN NEWBORNS.....	45
Paltov E.V., Fik V.B., Kryvko Y.Y. PATHOMORPHOLOGICAL CHANGES IN THE RETINA LAYER AT THE END OF THE FOURTH WEEK OF OPIOID EFFECT	46
Pearly Rathore, Olga Kushniryk RECENT APPROACHES IN THE TREATMENT OF AFRICAN SLEEPING SICKNESS.....	47
Popelyuk O.-M.V., Reshetilova N.B. LATERAL VENTRICLES IN EARLY HUMAN ONTOGENESIS	48
Prodanchuk A.I. DEVELOPMENT OF THE PALATINE	48
Proniaiev D.V., Strus Yu.A. PERINATAL ANATOMY OF THE ILEOCECAL SEGMENT	49
Proniaiev D.V., Miskiv U.V. ANATOMY OF THE ILEOCECAL SEGMENT IN THE EARLY FETUSES.....	49
Proniaiev D.V., Vinichuk Yu.O. VARIANT OF THE OVARIES ANATOMY.....	50
Proniaiev D.V.Tsapovska M.P. VARIANT OF THE INTERNAL FEMALE GENITAL ORGANS	51
Protsak T.V., Matviichuk S.M. PROSPECT OF STUDYING MORPHOLOGICAL AND FUNCTIONAL VALUE OF INTERSTITIAL CELLS OF CAJAL IN HUMAN ORGANISM.....	52
Reshetilova N.B., Kulish N.M. CERTAIN ASPECTS OF THE CEREBRAL VENTRICULAR MORPHOLOGY DURING 2-3 MONTHS OF THE PRENATAL PERIOD OF HUMAN ONTOGENESIS	53
Rusnak V.F. PECULIARITIES OF THE PHARYNGEAL MORPHOGENESIS DURING THE 6-10TH MONTHS OF THE HUMAN FETAL PERIOD.....	54
Rusnak V.F. PECULIARITIES OF THE PHARYNGEAL MORPHOGENESIS AT THE BEGINNING OF THE HUMAN FETAL PERIOD	54
Savytski I.I., Kryvchanska M.I. ELECTRON MICROSCOPIC CHANGES IN KIDNEYS UNDER CONDITIONS OF BETA-ADRENOCEPTORS BLOCKADE ON THE BACKGROUND OF PINEAL GLAND HYPERFUNCTION SIMULATION	55
Shcherbina I.M., Skorbach O.I., Dynnik O.O. INFLUENCE OF SURGICAL TREATMENT OF OVARIAN ENDOMETRIOSIS ON THE OVARIAN RESERVE	56
Skrynchuk A.V., Shumko B., Bivolarim O. OPERATIVE TREATMENT OF GASTROESOPHAGIC REFLUX	57
Sorokhan M.M., Bileichuk I.I. DEVELOPMENT OF IMPLANTOLOGY	57
Sorokhan M.M., Bozhesku V.I. ANATOMICAL FEATURES OF FRACTURES OF MAXILLOFACIAL REGION....	58
Stasyuk N. O. EFFECTIVENESS OF THE USE OF COMPLEX IMMUNTROPIC THERAPY IN PATIENTS WITH GENERALIZED PARODONTITIS WITH COPDULAR ISCHEMIC HEART DISEASE.....	59
Stoliar D.B., Lavriv L.P. FEATURES OF THE STRUCTURE OF THE HUMAN TEMPOROMANDIBULAR JOINT IN THE SECOND TRIMESTER OF THE INTRAUTERINE GROWTH	60
Synytska T.V., Tovkach Y.V. LAPAROSCOPIC ENDORHANIC SURGERY	61

Natural Science Readings (May 18, 2018, Sosnoviets- Bratislava)

Tarnovetska I.I., Tovkach Yu.V., Kipen N. PERINATAL FEATURES OF THE GASTROESOPHAGEAL JUNCTION	62
Tovkach Yu.V., Protsyuk D.I., Bohdan N. FEATURES OF THE TEETH OF WISDOM.....	62
Velychko V., Towkacz J.W., Rudyak J.W. CECHY PRZYWRACANIA ZŁAMAŃ KOŚCI OBSZARU SZCZĘKOWO-TWARZOWEGO.....	63
Tovkach Y.V., Humeniuk O.P., Karnas N.O. ANATOMOPHYSIOLOGICAL FEATURES OF MAXILLOFACIAL LESIONS	64
Shumko B.I., Kovalchuk A.V. MORPHOGENESIS OF GASTRO-ESOPHAGUS TRANSITION	65
Tovkach Yu.V., Lesko Yu.O. ELECTRONIC MICROSCOPY OF MAXILLOFACIAL LESIONS	66
Vepriuk Y., Tovkach Y.V., Rykhlo I. CHANGES IN INDICES OF RENAL FUNCTIONS IN COMPARISON GROUPS OF ANIMALS UNDER THE INFLUENCE OF PINEAL GLAND	66
Veresotska M., Tovkach Yu. MICROSCOPY OF MAXILLOFACIAL LESIONS.....	67
Volkova Yu., Lantukhova N., Chepeliuk O. PROBLEMS OF HEART BRUISE DIAGNOSIS IN PATIENTS WITH COMBINED INJURY	68
Volkova Yu.V., Lantuhova N.D., Ivakhnenko D.A. ANALYSIS OF TRAUMATIC PATHOLOGY STRUCTURE AT THE DEPARTMENT OF ANESTHESIOLOGY AND INTENSIVE CARE OF COMBINED TRAUMA	69
Voitzenko K.I. THE ANATOMICAL COMPOSITION OF THE COMPONENTS OF THE KNEE JOINT OF THE POSTERIOR LIMB OF THE RAT IN THE NORM.....	70
Voytsenko K.I. ORGANIZATION OF THE CARTILAGINOUS LAYER STRUCTURAL COMPONENTS IN THE KNEE JOINT CAVITY OF A RAT IN NORMAL STATE	71
Weronika Wojnar ¹ , Ilona Kaczmarczyk-Sedlak DIABETES, CATARACT AND ANTIOXIDANTS	72
Yakoviets K.I., Petrunyk N.Yu., Sulgina V. MALFORMATIONS OF THE UPPER LIP	72
Yemelyanenko N.R. FORMATION OF THE NASAL SEPTUM IN THE PRE-FETAL PERIOD OF HUMAN DEVELOPMENT.....	74
Yemelyanenko N.R. PECULIARITIES OF BLOOD SUPPLY AND INNERVATION OF THE NASAL SEPTUM AT TEEN-AGE	73
Yemelyanenko N.R. DORMATION OF THE NASAL SEPTUM AT THE 9th WEEK OF THE INTRAUTERINE DEVELOPMENT.....	74
Yemelyanenko N. R. DEVELOPMENT OF THE NASAL SEPTUM ARTERIAL VESSELS AT THE EARLY PERIOD OF HUMAN ONTOGENESIS.....	75
Yemelyanenko N.R. FORMATION OF THE NASAL SEPTUM AT THE 8th WEEK OF INTRAUTERINE DEVELOPMENT.....	7676
Zabyaryachna P.A., Bocharov A.V. PROTEZING OF TEETH	77
Zhalba K.V., Tovkach Yu.V. X-RAY ANATOMY OF MAXILLOFACIAL LESIONS.....	78
Zhurakivska O.Y., Koshkin O.Y., FEATURES OF STRUCTURAL REARRANGEMENT OF THE TEMPORAL MUSCLE IN EXPERIMENTAL DIABETES MELLITUS	79
Zrybnieva I., Zavolichna T. MARKETING MANAGEMENT OF MEDICAL ORGANIZATION.....	80

Natural Science Readings

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