



MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION  
Federal state autonomous educational institution  
of higher education  
«Far Eastern Federal University»  
(FEFU)

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**SCHOOL OF BIOMEDICINE**

«AGREED»

Head of education program  
«General medicine»

  
\_\_\_\_\_  
(signature) Khotimchenko Yu.S.  
(Full name)  
«09» of July 2019

«APPROVED»

Director of the Department of Clinical  
Medicine



  
\_\_\_\_\_  
(signature) Geltser B.I.  
(Full name)  
«09» of July 2019

**WORKING PROGRAM OF ACADEMIC DISCIPLINE (WPAD)**

«Traumatology, orthopedics»

Education program

Specialty 31.05.01 «General medicine»

**Form of study: full time**

year 4, semester 7,8  
lectures 36 hours  
practical classes 108 hours  
laboratory works not provided  
total amount of in-classroom works 144 hours  
independent self-work 108 hours  
including preparation to exam 27 hours  
control works ()  
pass-fail exam year 4, semester 7  
exam year 4, semester 8

The working program is drawn up in accordance with the requirements of the Federal state educational standard of higher education (level of training), approved by the order of the Ministry of education and science of the Russian Federation from 09.02.2016 № 95.

The working program of the discipline was discussed at the meeting of the Department of fundamental and clinical medicine. Protocol No. 8, 09 of July 2019

Authors: Professor V. Usov, Associate Professor Kiselev A.Yu.

## ANNOTATION

Academic discipline "Traumatology, orthopedics" is designed for students enrolled in the educational program of higher education 31.05.01 "General medicine", included in the variable part of the curriculum discipline of choice, implemented in the 4th year in the 7, 8<sup>th</sup> semesters. The total complexity of the discipline is 252 hours, 7 credits. Federal state educational standard of higher education in the specialty 31.05.01 "General medicine" (level of training specialty) was used in the development of the working program of this discipline.

The course program is based on the medical knowledge obtained by students:

Ability to abstract thinking, analysis, synthesis (GPC-1);

Readiness to solve standard tasks of professional activity using information, bibliographic resources, biomedical terminology, information and communication technologies and taking into account the basic requirements of information security (GPC-1).

### **Course purpose:**

Clinical training of students, necessary for subsequent independent medical practice, mastering the basics of examination, diagnosis, conservative and surgical treatment, rehabilitation of patients with pathology of the musculoskeletal system.

### **Tasks:**

1. Formation of clinical thinking of a traumatologist-orthopedist.
2. Prepare a specialist in traumatology and orthopedics for independent professional treatment and diagnostic activities, who can conduct a differential diagnostic search, provide full medical care, including emergency conditions, take preventive and rehabilitative measures to preserve life and health all age periods of the patient's life, able to successfully solve their professional tasks.

3. Prepare a specialist in traumatology and orthopedics, possessing the skills and medical manipulations on the profile of the specialty, general medical procedures on the provision of emergency and emergency care.

To successfully study the discipline "Traumatology, orthopedics" the following preliminary competences should be formed for students:

GCC-4 ability to act in unusual situations, to take social and ethical responsibility for the decisions;

GPC-9 the capacity for the assessment of morphological and physiological states and pathological processes in the human body for solving professional tasks;

PC-5 the readiness to collect and to analyze patient complaints, data of its history, the results of laboratory, instrumental, postmortem and other examinations to recognize the incidence or the absence of diseases;

PC-9 the willingness to treat patients with different nosological entities in the outpatient settings and a day hospitals;

As a result of studying this discipline, students form the following universal, general professional and professional competencies:

Code and the wording of competence	Stages of competence	
GCC-7the readiness to use techniques of first aid and techniques of protection in emergency situations	Knows	principles of first aid, methods of protection in emergency situations
	Is able to	knows how to use first aid techniques and apply methods of protection in emergency situations
	Possesses	first aid skills and emergency protection skills
PC-6 the ability of determining the patient's basic pathological conditions , symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and Related Health X review.	Knows	physiological signs of major pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review
	Is able to	to verify and determine the normal basic pathological conditions of the human body, as well as to diagnose the symptoms and syndromes of diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review

Code and the wording of competence	Stages of competence	
	Possesses	basic skills of diagnosing pathological conditions, symptoms, syndromes, diseases, clinical entities
PC-8 the ability to determining the tactics of patient surveillance with different nosological entities.	Knows	Fundamentals of management of patients who need infusion-transfusion therapy
	Is able to	Draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy.
	Possesses	Skills of establishing the diagnosis, prescribing and carrying out the necessary infusion-transfusion therapy in various pathological conditions;
PC-10 the willingness to deliver medical first aid in case of sudden acute diseases and conditions, exacerbation of a chronic disease , which are not life-threatening and do not require emergency medical assistance	Knows	Means of infusion therapy and their mechanism of action for the treatment of sudden acute illness conditions, exacerbations of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care
	Is able to	To apply means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care.
	Possesses	Skills of applying means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care
PC-11 the willingness to assist at the delivering emergency medical care for the patients in the conditions, requiring urgent medical participation;	Knows	Fundamentals of emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy
	Is able to	To provide emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy
	Possesses	Skills of providing emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy

The following methods of active / interactive training are used to form the above competences within the discipline "Traumatology, orthopedics":

1. Provides for practical training using computer-based training programs.
2. For the organization of independent work, the preparation of abstracts and reports is proposed for performance in the group and at the student conference; and also, preparation for practical exercises, work with additional literature, preparation of essays, occupation conference.
3. The share of practical classes conducted in interactive forms is 10% of the classroom time; self-extracurricular work - 33% of the time.



# **I. STRUCTURE AND CONTENT OF THEORETICAL PART OF THE COURSE (36 hrs.)**

## **Module 1. General questions of traumatology and orthopedics (4 hours)**

### **Theme 1. Traumatic illness (2 hours).**

General changes in the body with trauma - the pathophysiology of traumatic disease. Stages of flow. Changes in the nervous system. Excessive nociceptive afferentation. The state of the circulatory system. Vascular disorders. Bleeding. Changes in the composition of the blood. The volume of circulating blood. Microcirculation disorders. Thromboembolic. Fat embolism. Air embolism. DIC syndrome. Respiratory disorders. Gas exchange. Changes in tissue and water-electrolyte metabolism. The impact of injuries on the brain, endocrine system, internal organs. Effect of treatment on the body. The role of the operation. Anesthesia. Local treatment. General treatment. The value of the time factor. The impact of therapeutic methods on the outcome of a traumatic disease. Errors in determining the choice of method, time and scope of treatment.

### **Theme 2. Research methods for trauma and orthopedic patients (2 hours).**

Clinical examination methods. Medical information, documentation and interpretation. Clinical research methods. Determination of range of motion in the joints. Measuring the length of the limbs and the definition of their axes. The study of muscle strength. Study gait. Determination of spinal and chest deformities. Neurological examination. Determination of sensitivity. Tendon jerks. X-ray methods for the study of the skeleton. X-ray tomography. CT scan. Magnetic resonance imaging. Radionuclide research methods. Ultrasonic research methods. Thermal imaging. Electromyographic research methods. Arthroscopy. Biochemical studies. Immunological studies.

## **Module 2. Modern surgical and conservative treatment of fractures and dislocations (12 hours)**

### **Theme 1. Methods of treating fractures and dislocations (2 hours)**

Immobilization treatment method. Extensive treatment. Indications and contraindications to the operational method of treatment. Types of osteosynthesis. Factors affecting fracture healing. Causes of non-union of fractures. Clinic and diagnosis of non-consolidated fracture and false joint. Types of surgical treatment of non-consolidated fractures and false joints.

### **Theme 2. Damage of the chest, shoulder girdle, shoulder (2 hours)**

Rib injuries (isolated, multiple, double, "fenestrated"), acromioclavicular joint rupture, dislocation of the sternal end of the clavicle, fractures of the clavicle and scapula: mechanism, classification, diagnosis and treatment methods. Dislocate the shoulder. Damage to the soft tissues of the shoulder and tendons of the biceps muscle of the shoulder. Fractures of the humerus - classification, clinic, treatment.

### **Theme 3. Damage to the forearm and hand (2 hours)**

Dislocation of the forearm. Fractures of the elbow, coronoid processes, head and neck of the radial bone. Fractures of the diaphysis of the bones of the forearm. Fractures of the radius in the "typical place". Fractures of Monteggia and Galatia. Dislocations and fractures of carpal bones. Fractures of the metacarpal bones and phalanges of the fingers. Clinic. Treatment. Damage to flexor and extensor flexor tendons. Clinic Treatment methods. Principles of surgical treatment for tendon damage.

### **Theme 4. Spinal and pelvic injuries (2 hours)**

Damage to the periosteal and interspinal ligaments. Fractures of the transverse and spinous processes, arches and articular processes. Fractures of the vertebral bodies. Conservative and surgical treatment methods. Treatment of complicated vertebral body fractures - indications for decompressive and stabilizing operations on the spine. Fractures of the pelvic bones. Features of shock and its treatment in patients with pelvic injury. Conservative and surgical treatment of patients with various types of pelvic fractures.

### **Theme 5. Damage to the hip and knee joint (2 hours)**

Fractures of the femoral neck. Features of regeneration, diagnosis, complications. Intertrochanic and intercranial hip fractures. Fractures of the diaphysis and femoral micelles. Fractures of the patella. Options fractures. Clinic, diagnosis, surgical and conservative methods of treatment. Damage to the lateral and cruciate ligaments, meniscus tears, meniscopathy. Mechanism of injury, clinic, diagnosis, treatment methods.

### **Theme 6. Damage to the leg and foot (2 hours)**

Fractures of the condyles of the tibial bone and diaphyseal fractures of the shin bones. Ankle fractures. Fractures of the talus and calcaneus. Mechanism, clinic, diagnostics. Dislocations and fractures in the joints of Chopard and Lisfranc. Fractures of the metatarsal bones and phalanges of the fingers. Clinic, diagnosis, treatment.

### **Module 3. Degenerative-dystrophic diseases of the joints (2 hours)**

Congenital deformities of the musculoskeletal system. Degenerative dystrophic diseases of the joints and spine. Static deformities of the foot. Osteochondropathy, bone tumors.

### **Module 4. Basics of organizing surgical care for the wounded in emergency situations and in the army in the field. Gunshot wounds. Methods and means of anesthesia at the stages of evacuation (4 hours).**

#### **Theme 1. Gunshot wounds (2 hours).**

Modern types of firearms. Wounded ballistics and the mechanism of action of the hurting projectile. Zones of tissue damage during a gunshot wound. The concept of primary and secondary infection of wounds. Methods of closing a gunshot wound after surgical treatment.

#### **Theme 2. Surgical treatment of gunshot wounds (2 hours).**



Indications and contraindications for surgical treatment of wounds. Local anesthesia, general anesthesia. Medical assistance for gunshot wounds on the battlefield and stages of medical evacuation.

**Module 5. Bleeding and blood loss. Traumatic shock. Prolonged crush syndrome (4 hours).**

**Theme 1. Bleeding and blood loss (2 hours).**

Bleeding classification. The clinical picture of bleeding and acute blood loss. The reaction of the body to acute blood loss. Determination of the amount of blood loss in the field. Ways to stop bleeding on the battlefield and the stages of medical evacuation. Finger pressing of the arteries. Applying a pressure bandage. Rules for the use of hemostat. Indications for blood transfusion and blood substitutes.

**Topic 2. Traumatic shock. Prolonged crush syndrome (2 hours).**

The concept of traumatic shock. Etiology and pathogenesis of traumatic shock. Classification. Clinical manifestations of shock, depending on the location of injuries and damage. Modern methods for the correction of disorders of hemodynamics, respiration, metabolism. The content of anti-shock measures at the stages of medical evacuation. Prevention of shock, the role of transfusion therapy. Etiology, pathogenesis and classification of the crush syndrome. Clinic VTS. Modern methods for the diagnosis of crush syndrome. Features of medical care and treatment of victims at the site of the lesion and the stages of medical evacuation

**Module 6. Traumatic damage of peace and wartime (10 hours)**

**Theme 1. Wounds and closed injuries of the head, neck and spine (2 hours).**

Closed damage to the skull and brain, their classification. clinical manifestations. Gunshot wounds to the skull and brain, their classification and clinic. Medical sorting and maintenance of medical care at the stages of medical evacuation. Closed spinal cord injury. Gunshot wounds of the spine and spinal cord. The clinical picture and diagnosis. Medical assistance on the battlefield and stages of medical evacuation.

### **Theme 2. Wounds and closed chest injuries (2 hours)**

Classification of injuries and closed breast damage. Clinical manifestations and diagnosis of various types of injuries and wounds, medical assistance on the battlefield and stages of medical evacuation.

### **Theme 3. Injuries and closed injuries of the abdomen, pelvis and pelvic organs (2 hours)**

Wounds and closed injuries of the abdomen. Symptomatology, diagnostics, medical assistance on the battlefield and stages of medical evacuation. Wounds and closed injuries of the pelvis and pelvic organs. Classification, symptoms and diagnosis of pelvic gunshot fractures with and without damage to the pelvic organs, complications of pelvic gunshot injuries. Medical assistance on the battlefield and stages of medical evacuation.

### **Theme 4. Thermal damage (2 hours)**

The classification of burns by lesion depth. The degree of burns. Determination of the total area of burns and the area of deep damage. Periods of burn disease. The defeat of the radiation of a nuclear explosion, incendiary mixtures. Medical sorting, volume and content of medical care at the stages of medical evacuation.

### **Theme 5. Combined radiation and chemical lesions (2 hours).**

The concept of combined radiation lesions, their combinations. Peculiarities of injury, bone fractures, thermal burns with combined radiation injuries and radioactive substances entering wounds and on burn surfaces, a syndrome of mutual aggravation. Features of the course of radiation burns, medical care and treatment of combined radiation injuries.

## **II. STRUCTURE AND CONTENT OF PRACTICAL COURSE (108 HOURS)**

### **MODULE 1. GENERAL QUESTIONS OF TRAUMATOLOGY AND ORTHOPEDICS (12 HOURS)**

## **THEME 1. TRAUMATIC ILLNESS (4 HOURS).**

General changes in the body with trauma - the pathophysiology of traumatic disease. Stages of flow. Changes in the nervous system. Excessive nociceptive afferentation. The state of the circulatory system. Vascular disorders. Bleeding. Changes in the composition of the blood. The volume of circulating blood. Microcirculation disorders. Thromboembolic. Fat embolism. Air embolism. DIC syndrome. Respiratory disorders. Gas exchange. Changes in tissue and water-electrolyte metabolism. The impact of injuries on the brain, endocrine system, internal organs. Effect of treatment on the body. The role of the operation. Anesthesia. Local treatment. General treatment. The value of the time factor. The impact of therapeutic methods on the outcome of a traumatic disease. Errors in determining the choice of method, time and scope of treatment.

## **Theme 2. Research methods for trauma and orthopedic patients (4 hours).**

Clinical examination methods. Medical information, documentation and interpretation. Clinical research methods. Determination of range of motion in the joints. Measuring the length of the limbs and the definition of their axes. The study of muscle strength. Study gait. Determination of spinal and chest deformities. Neurological examination. Determination of sensitivity. Tendon jerks. X-ray methods for the study of the skeleton. X-ray tomography. CT scan. Magnetic resonance imaging. Radionuclide research methods. Ultrasonic research methods. Thermal imaging. Electromyographic research methods. Arthroscopy. Biochemical studies. Immunological studies.

## **Theme 3. Features of the course of injury and bone tissue regeneration in different age periods (4 hours).**

Changes in the functions of organs and systems in elderly and elderly people with injuries. Age-related changes in the musculoskeletal system. Senile changes in the bones. Senile changes of muscles, tendons and skin. Reparative processes for bone fractures in the elderly and elderly. Features of the course and treatment of damage

in elderly and elderly people. The frequency of fractures and their features. The frequency of fractures by their localization. Fusion fracture and wound healing with open fractures. Surgical treatment. Features of preoperative preparation and postoperative management. Methods of anesthesia. Changes in the functions of organs and systems in children with injuries. Features of the musculoskeletal system in children. Reparative processes for bone fractures in children. The frequency and localization of bone fractures in children. Features of the course and treatment of injuries in children. Methods of conservative treatment. Surgical treatment. Preoperative preparation and postoperative management. Features of anesthesia. Evaluation of the results of conservative and surgical treatment.

## **Module 2. Modern surgical and conservative treatment of fractures and dislocations (24 hours)**

### **Theme 1. Methods of treating fractures and dislocations (4 hours)**

Immobilization treatment method. Extensive treatment. Indications and contraindications to the operational method of treatment. Types of osteosynthesis. Factors affecting fracture healing. Causes of non-union of fractures. Clinic and diagnosis of non-consolidated fracture and false joint. Types of surgical treatment of non-consolidated fractures and false joints.

### **Theme 2. Damage of the chest, shoulder girdle, shoulder (4 hours)**

Rib injuries (isolated, multiple, double, “fenestrated”), acromioclavicular joint rupture, dislocation of the sternal end of the clavicle, fractures of the clavicle and scapula: mechanism, classification, diagnosis and treatment methods. Dislocate the shoulder. Damage to the soft tissues of the shoulder and tendons of the biceps muscle of the shoulder. Fractures of the humerus - classification, clinic, treatment.

### **Theme 3. Damage to the forearm and hand (4 hours)**

Dislocation of the forearm. Fractures of the elbow, coronoid processes, head and neck of the radial bone. Fractures of the diaphysis of the bones of the forearm.

Fractures of the radius in the "typical place". Fractures of Monteggia and Galatia. Dislocations and fractures of carpal bones. Fractures of the metacarpal bones and phalanges of the fingers. Clinic. Treatment. Damage to flexor and extensor flexor tendons. Clinic Treatment methods. Principles of surgical treatment for tendon damage.

#### **Theme 4. Spinal and pelvic injuries (4 hours)**

Damage to the periosteal and interspinal ligaments. Fractures of the transverse and spinous processes, arches and articular processes. Fractures of the vertebral bodies. Conservative and surgical treatment methods. Treatment of complicated vertebral body fractures - indications for decompressive and stabilizing operations on the spine. Fractures of the pelvic bones. Features of shock and its treatment in patients with pelvic injury. Conservative and surgical treatment of patients with various types of pelvic fractures.

#### **Theme 5. Damage to the hip and knee joint (4 hours)**

Fractures of the femoral neck. Features of regeneration, diagnosis, complications. Intertrochanic and intercranial hip fractures. Fractures of the diaphysis and femoral micelles. Fractures of the patella. Options fractures. Clinic, diagnosis, surgical and conservative methods of treatment. Damage to the lateral and cruciate ligaments, meniscus tears, meniscopathy. Mechanism of injury, clinic, diagnosis, treatment methods.

#### **Theme 6. Damage to the leg and foot (4 hours)**

Fractures of the condyles of the tibial bone and diaphyseal fractures of the shin bones. Ankle fractures. Fractures of the talus and calcaneus. Mechanism, clinic, diagnostics. Dislocations and fractures in the joints of Chopard and Lisfranc. Fractures of the metatarsal bones and phalanges of the fingers. Clinic, diagnosis, treatment.

#### **Module 3. Degenerative-dystrophic diseases of the joints (4 hours)**

Congenital deformities of the musculoskeletal system. Degenerative dystrophic diseases of the joints and spine. Static deformities of the foot. Osteochondropathy, bone tumors.

**Module 4. Basics of organizing surgical care for the wounded in emergency situations and in the army in the field. Gunshot wounds. Methods and means of anesthesia at the stages of evacuation (8 hours).**

**Theme 1. Gunshot wounds (4 hours).**

Modern types of firearms. Wounded ballistics and the mechanism of action of the hurting projectile. Zones of tissue damage during a gunshot wound. The concept of primary and secondary infection of wounds. Methods of closing a gunshot wound after surgical treatment.

**Theme 2. Surgical treatment of gunshot wounds (4 hours).**

Indications and contraindications for surgical treatment of wounds. Local anesthesia, general anesthesia. Medical assistance for gunshot wounds on the battlefield and stages of medical evacuation.

**Module 5. Bleeding and blood loss. Traumatic shock. Prolonged crush syndrome (8 hours).**

**Theme 1. Bleeding and blood loss (4 hours).**

Bleeding classification. The clinical picture of bleeding and acute blood loss. The reaction of the body to acute blood loss. Determination of the amount of blood loss in the field. Ways to stop bleeding on the battlefield and the stages of medical evacuation. Finger pressing of the arteries. Applying a pressure bandage. Rules for the use of hemostat. Indications for blood transfusion and blood substitutes.

**Topic 2. Traumatic shock. Prolonged crush syndrome (4 hours).**

The concept of traumatic shock. Etiology and pathogenesis of traumatic shock. Classification. Clinical manifestations of shock, depending on the location of injuries and damage. Modern methods for the correction of disorders of

hemodynamics, respiration, metabolism. The content of anti-shock measures at the stages of medical evacuation. Prevention of shock, the role of transfusion therapy. Etiology, pathogenesis and classification of the crush syndrome. Clinic VTS. Modern methods for the diagnosis of crush syndrome. Features of medical care and treatment of victims at the site of the lesion and the stages of medical evacuation

## **Module 6. Traumatic damage of peace and wartime (20 hours)**

### **Theme 1. Wounds and closed injuries of the head, neck and spine (4 hours).**

Closed damage to the skull and brain, their classification. clinical manifestations. Gunshot wounds to the skull and brain, their classification and clinic. Medical sorting and maintenance of medical care at the stages of medical evacuation. Closed spinal cord injury. Gunshot wounds of the spine and spinal cord. The clinical picture and diagnosis. Medical assistance on the battlefield and stages of medical evacuation.

### **Theme 2. Wounds and closed chest injuries (4 hours)**

Classification of injuries and closed breast damage. Clinical manifestations and diagnosis of various types of injuries and wounds, medical assistance on the battlefield and stages of medical evacuation.

### **Theme 3. Injuries and closed injuries of the abdomen, pelvis and pelvic organs (4 hours)**

Wounds and closed injuries of the abdomen. Symptomatology, diagnostics, medical assistance on the battlefield and stages of medical evacuation. Wounds and closed injuries of the pelvis and pelvic organs. Classification, symptoms and diagnosis of pelvic gunshot fractures with and without damage to the pelvic organs, complications of pelvic gunshot injuries. Medical assistance on the battlefield and stages of medical evacuation.

### **Theme 4. Thermal damage (4 hours)**

The classification of burns by lesion depth. The degree of burns. Determination of the total area of burns and the area of deep damage. Periods of burn disease. The

defeat of the radiation of a nuclear explosion, incendiary mixtures. Medical sorting, volume and content of medical care at the stages of medical evacuation.

#### **Theme 5. Combined radiation and chemical lesions (4 hours).**

The concept of combined radiation lesions, their combinations. Peculiarities of injury, bone fractures, thermal burns with combined radiation injuries and radioactive substances entering wounds and on burn surfaces, a syndrome of mutual aggravation. Features of the course of radiation burns, medical care and treatment of combined radiation injuries.

#### **Module 7. Congenital and acquired diseases of the musculoskeletal system (32 hours).**

##### **Theme 1. Congenital diseases of the neck and chest (4 hours).**

Torticollis. Forms: muscular, pterygoid, neck ribs. Clinic. Diagnostics. Conservative and surgical treatment. Congenital high standing of the scapula (Sprengel disease).

##### **Theme 2. Congenital diseases and spinal deformities (4 hours).**

Spondylolysis, spondylolisthesis. Clinic and diagnosis. Treatment. Forecast. Congenital synostosis of the cervical vertebrae. Clinic. Diagnostics. Treatment. Forecast. Klippel-Feil syndrome. Clinic. Diagnostics. Treatment. Forecast. Sacralization. Clinic. Diagnostics. Treatment. Forecast. Lumbalization. Clinic. Diagnostics. Treatment. Forecast. Tropism: clinic, diagnosis, treatment. Congenital fusion of the vertebral bodies: clinic, diagnosis, treatment. Hidden fusion of the vertebral vertebrae: clinic, diagnosis, treatment. Spinal hernia: clinic, diagnosis, treatment.

##### **Theme 3. Congenital malformations of the upper limb (4 hours).**

Congenital malformations of the hand and fingers: clinic, diagnosis, treatment. Hypoplastic malformations of the hand and fingers. Hyperplastic malformations. Congenital syndromes of the hand: Robin, Poland, Timan, Marfan, Charcot-Marie-Tuta, Maffuchi syndromes. Congenital deformities of the carpal joint, forearm,



shoulder: clinic, diagnosis, treatment. Squint Defect of the radius (one-sided, two-sided). Radiologic synostosis. Dislocation of the radial head. Congenital ankylosis of the elbow joint. Madelung deformation.

#### **Theme 4. Congenital deformities of the lower extremities (4 hours).**

Congenital dislocation of the hip. Etiology. Pathogenesis. Clinical diagnosis of hip dysplasia and congenital hip dislocation in children in the first months of life. Clinical diagnosis of congenital hip dislocation in children older than a year. X-ray diagnosis of congenital hip dislocation in children in the first months of life. X-ray diagnosis of congenital hip dislocation in children older than a year. Conservative treatment of congenital hip dislocation in children. Surgical treatment of congenital hip dislocation. Intra-articular and extra-articular interventions. Mistakes and complications in the treatment of congenital hip dislocation. Congenital hypoplasia of the tibial and fibula bones. Congenital pseudarthrosis of the tibia: clinic, diagnosis, treatment. Arthrogriposis: clinic, diagnosis, treatment. Congenital contracture of the knee: clinic, diagnosis, treatment. Congenital recurvation of the knee: clinical presentation, diagnosis, treatment. Congenital dislocation of the patella: clinic, diagnosis, treatment. Congenital clubfoot: clinic, diagnosis, treatment. Reduced foot: clinic, diagnosis, treatment. Hollow foot: clinic, diagnosis, treatment. Flat, flat-valgus foot: clinic, diagnosis, treatment. Heel foot: clinic, diagnosis, treatment. Horse foot: clinic, diagnosis, treatment.

#### **Theme 5. Acute and chronic inflammatory diseases of the bones and joints (non-specific) (4 hours).**

Hematogenous osteomyelitis: clinical presentation, diagnosis, treatment. Chronic post-traumatic osteomyelitis. Clinic. Diagnostics. Differential diagnosis with Brodie abscess, Garre osteomyelitis. The treatment is conservative and operative. Chronic gunshot osteomyelitis. Clinical picture. X-ray diagnostics in the later stages. Surgical treatment. Neuropathic arthritis (syphilis, syringomyelia, multiple sclerosis). Clinic. Diagnostics. Treatment. Damage to the joints in hemophilia. Clinic. Diagnostics. Treatment. Kashin-Beck disease. Clinic. Diagnostics.

Treatment. Non-accrete fractures. Clinic. Diagnostics. Treatment. False joints and bone defects. Clinic. Diagnostics. Treatment.

**Theme 6. Inflammatory nonspecific diseases of the spine (4 hours).**

Ankylosing spondylitis - ankylosing spondylitis. Clinic. Diagnostics. Treatment. Features of the course of ankylosing spondylitis in women, adolescents, children. Differential diagnosis with degenerative diseases of the spine: rheumatoid arthritis, psoriatic spondyloarthritis, Reiter's syndrome. Spondylitis in psoriasis. Spine lesion in rheumatoid polyarthritis. Tuberculosis of bones and joints. Clinic. Differential diagnosis.

**Theme 7. Dystrophic and atrophic processes in bones (4 hours).**

General data on dystrophic and atrophic processes in bones. Classification. Statistical data. Exogenous osteodystrophy: clinic, diagnosis, differential diagnosis, treatment, prognosis. Endogenous osteodystrophy. Endocrine osteodystrophy. Osteodystrophy in the pathology of internal organs and metabolism. Changes in the bones of the angioneurogenic nature. Bone remodeling. Pathological bone remodeling in skeletal lesions. Reconstruction of the bone at elevated loads.

**Theme 8. Dysplastic processes in the bones (4 hours).**

General information about dysplastic processes in bones. Classification. Statistical and sanitary data. Chondrodysplasia. Dyschondroplasia (Ollie's disease), Maffucci syndrome, achondroplasia, multiple exostose dysplasia, local physical dysplasia, multiple epiphyseal dysplasia (Feyerbank disease, deforming articular chondrodysplasia (Volkov disease)

### **III. TRAINING AND METHODOLOGICAL SUPPORT OF INDEPENDENT WORK OF STUDENTS**

The main content of the topics, evaluation tools are presented in the work program: terms and concepts necessary to master the discipline.

In the course of mastering the course “Hospital surgery, pediatric surgery”, the student will have to do a large amount of independent work, which includes preparation for seminars and writing an essay.

Practical exercises help students to deeper learn the material, to acquire the skills of creative work on documents and primary sources.

Plans for practical classes, their topics, recommended literature, the purpose and objectives of its study are communicated by the teacher at the introductory classes or in the curriculum for the discipline.

Before proceeding to the study of the topic, it is necessary to familiarize yourself with the main questions of the practical training plan and list of recommended literature.

Starting the preparation for the practical lesson, it is necessary first of all to refer to the lecture notes, sections of textbooks and teaching aids in order to get a general idea of the place and importance of the topic in the course being studied. Then work with additional literature, make notes on the recommended sources.

In the process of studying the recommended material, it is necessary to understand the construction of the topic being studied, to highlight the main points, to follow their logic and thereby to get into the essence of the problem being studied.

It is necessary to keep records of the material being studied in the form of an outline, which, along with the visual, includes the motor memory and allows you to accumulate an individual fund of auxiliary materials for a quick repetition of what you read, to mobilize accumulated knowledge. The main forms of record: a plan (simple and detailed), extracts, theses.

In the process of preparation, it is important to compare the sources, think over the material being studied and build an algorithm of actions, carefully consider your oral presentation.

At a practical lesson, each participant should be ready to speak on all the questions posed in the plan, to be as active as possible in their consideration. The speech should be convincing and reasoned, and simple reading of the abstract is not allowed. It is important to show your own attitude to what is being said, express your personal opinion, understanding, substantiate it and draw the right conclusions from what has been said. You can refer to notes of notes and lectures, directly to primary sources, use the knowledge of monographs and publications, facts and observations of modern life, etc.

A student who did not have time to speak at a practical lesson can present a prepared summary to the teacher for verification and, if necessary, answer the teacher's questions on the topic of the practical lesson in order to get a credit score on this topic.

The educational and methodological support of the independent work of students in the discipline "Hospital surgery, pediatric surgery" is presented in Appendix 1 and includes:

- characteristics of tasks for independent work of students and methodological recommendations for their implementation;
- requirements for the presentation and presentation of the results of independent work;
- criteria for assessing the performance of independent work.

#### IV. CONTROL OF ACHIEVEMENT OF COURSE GOALS

Код и формулировка компетенции		Этапы формирования компетенции			
№ п/п	Контролируемые разделы/темы дисциплин	Коды и этапы формирования компетенций	Оценочные средства		
			Текущий контроль	Промежуточная аттестация/экзамен	
1	Module 4. Basics of the organization of surgical care for wounded in emergency situations and in the army Module 5. Bleeding and blood loss. Traumatic shock. Prolonged Crush Syndrome Module 6. Traumatic Damage to peace and war	readiness to use first aid techniques, methods of protection in emergency situations (GCC-7);	Knows	EO-1 Interview	Questions of final control 7 semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
2	Module 1. General questions of traumatology and orthopedics Module 2. Modern operative and conservative treatment of fractures and dislocations Module 3. Degenerative-dystrophic diseases of the joints Module 7. Congenital and acquired diseases of the musculoskeletal system	the ability of determining the patient's basic pathological conditions, symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health, the 10th review. (PC – 6)	Knows	EO-1 Interview	Questions of final control B semester - 39-110
			Is able to	EO-1 Interview	PW-1 Test
			Possesses	PW-1 Test PW-11 Case task	EO2 Colloquium
2	Module 1. General questions of traumatology and orthopedics Module 2. Modern operative and conservative treatment of fractures and dislocations Module 3. Degenerative-dystrophic diseases of the joints Module 7. Congenital and acquired diseases of the musculoskeletal system	ability to determine tactics of management of patients with different nosological forms (PC-8);	Knows	EO-1 Interview	Questions of final control 8 semester – 36-100
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
3	Module 1. General questions of traumatology and orthopedics	willingness to provide medical care for sudden acute diseases,	Knows	EO-1 Interview	Questions of final control 7 semester - 1-36

	Module 2. Modern operative and conservative treatment of fractures and dislocations Module 3. Degenerative-dystrophic diseases of the joints Module 4. Basics of the organization of surgical care for wounded in emergency situations and in the army Module 5. Bleeding and blood loss. Traumatic shock. Prolonged Crush Syndrome Module 6. Traumatic Damage to Peace and War Module 7. Congenital and acquired diseases of the musculoskeletal system	conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care (PC-10)	Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
4	Module 1. General questions of traumatology and orthopedics Module 2. Modern operative and conservative treatment of fractures and dislocations Module 3. Degenerative-dystrophic diseases of the joints Module 4. Basics of the organization of surgical care for wounded in emergency situations and in the army Module 5. Bleeding and blood loss. Traumatic shock. Prolonged Crush Syndrome Module 6. Traumatic Damage to Peace and War Module 7. Congenital and acquired diseases of the musculoskeletal system	willingness to participate in the provision of emergency medical care in conditions requiring urgent medical intervention (PC-11);	Knows	EO-1 Interview	Questions of final control 7 semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium

*примерные виды оценочных средств: собеседование по ситуационным задачам, тестирование письменное или компьютерное, типовые расчеты, индивидуальные задания, реферат, эссе и др.*

Control and methodological materials, as well as criteria and indicators which are necessary for the evaluation of knowledge and skills, and characterizing the stages of the formation of competencies in the process of mastering the educational program are presented in Appendix 2

## V. LIST OF EDUCATIONAL LITERATURE AND INFORMATIONAL-METHODICAL REQUIREMENTS FOR THE DISCIPLINE

### Primary

1. The Lower Limb Tendinopathies / Giannicola Bisciotti, Piero Volpi / Springer International Publishing Switzerland 2016  
<https://link.springer.com/book/10.1007/978-3-319-33234-5#editorsandaffiliations>
2. European Surgical Orthopaedics and Traumatology / George Bentley / EFORT 2014 <https://link.springer.com/referencework/10.1007/978-3-642-34746-7#editorsandaffiliations>

### Additional

1. General Trauma Care and Related Aspects / Hans-Jörg Oestern, Otmar Trentz, Selman Uranues / Springer-Verlag Berlin Heidelberg 2014  
<https://link.springer.com/book/10.1007/978-3-540-88124-7#editorsandaffiliations>

### Электронные ресурсы

1. Russian Society of Surgeons / <http://xn----9sdbdejx7bdduahou3a5d.xn--plai/>
2. School of Modern Surgery / <http://www.websurg.ru/>
3. The main surgical portal / <http://www.operabelno.ru/>
4. Doctor - Surgeon Medical Surgical Portal / <http://xupypr.org/>
5. WebSurg / <http://www.websurg.com/?lng=ru>
6. MED-EDU.ru - Medical portal / <http://www.medvideo.org/surgery/>



## LIST OF INFORMATION TECHNOLOGIES AND SOFTWARE

The location of the computer equipment on which the software is installed, the number of jobs	List of licensed software
Multimedia auditorium Vladivostok Russian island, Ayaks 10, building 25.1, RM. M723 Area of 80.3 m2 (Room for independent work)	Windows Seven enterprise SP3x64 Operating System Microsoft Office Professional Plus 2010 office suite that includes software for working with various types of documents (texts, spreadsheets, databases, etc.); 7Zip 9.20 - free file archiver with a high degree of data compression; ABBYY FineReader 11 - a program for optical character recognition; Adobe Acrobat XI Pro 11.0.00 - software package for creating and viewing electronic publications in PDF; WinDjView 2.0.2 - a program for recognizing and viewing files with the same format DJV and DjVu.

In order to provide special conditions for the education of persons with disabilities all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilet rooms, information and navigation support signs.

### VI. METHODOLOGICAL RECOMMENDATIONS ON THE COMPLETING THE DISCIPLINE

The purpose of the practical classes is to consolidate the knowledge gained by students in lectures, the modeling of practical situations, and also to test the effectiveness of students' independent work.

Practical lesson usually includes interviewing students for seminars. This allows the teacher to recognize the level of students' knowledge of lecture course materials, basic textbooks, knowledge of current problems and the current situation in the modern educational space. Further, the ability of students to apply their theoretical knowledge to solving practical problems is revealed.

It is advisable to begin the preparation for the practical lesson by repeating the material of the lectures. It should be borne in mind that the lecture course is limited in time and does not allow the lecturer to consider in detail all aspects of the issue being studied. Therefore, it is required to independently expand

knowledge of both theoretical and practical nature. At the same time, the lectures provide a good guide for the student to search for additional materials, since they set a certain structure and logic for studying a particular question

When working independently, the student should first of all study the material presented in the recommended literature and / or teacher's educational literature and monographs. It is necessary to draw students' attention to the fact that not only basic textbooks are included in the library list, but also more in-depth sources on each theme of the course. A consistent study of the subject allows the student to form a stable theoretical base.

An important part of the preparation for the practical class is the work of students with scientific and analytical articles that are published in specialized periodicals. They allow you to broaden your horizons and get an idea of current problems, possible ways to solve them and / or trends in the area under study.

The final step of preparing a student for practical training should be the acquaintance with the results of scientific research relevant to each topic.

## **LOGISTICS DISCIPLINE**

For practical work, as well as for the organization of independent work, students have access to the following laboratory equipment and specialized classrooms that meet the current sanitary and fire regulations, as well as safety requirements during training and scientific and industrial works:

<b>Name of the equipped rooms and rooms for independent work</b>	<b>List of main equipment</b>
690922, Primorsky Krai, Vladivostok, island Russian, the Saperny Peninsula, the village of ayaks, 10, RM. M 507	Accreditation and simulation center: Model of the adult to demonstrate and practice removing a foreign body (reception geimlich) (2 PCs.) Defibrillator Schiller Fred mod. Easy Trainer with accessories (1 PC.) Adult simulator with electronic control, training, computerized (1 PC.) AED defibrillator training (1 PC.) Phantom respiratory system, NMS and defibrillation (1 PC.) Dummy for resuscitation and patient care (1 PC.) Pulse oximeter (1 PC.) Yxh-1A6A spinal immobilization shield complete with foldable immobilization head retainer( 1 PC.)

	<p>Splint – collar for adults shtivv-01  Stretchers longitudinally-cross folding NPPS-MM (2 PCs.)  Set of tires transport ladder KSTL-MP-01nosilki medical (1 PC .)  Medical universal goniometer</p>
<p>690922, Primorsky Krai, Vladivostok, island Russian, the Saperny Peninsula, the village of ayaks, 10, RM. M 422  Multimedia audience</p>	<p>Multimedia audience:  AIO PC HP ProOne 400 G1 AiO 19.5" Intel Core i3-4130T 4GB DDR3-1600 SODIMM (1x4GB)500GB; Screen projection Projecta Elpro Electrol, 300x173 cm; Multimedia projector, Mitsubishi FD630U, 4000 ANSI Lumen 1920 x 1080; Flush interface with automatic retracting cables TLS TAM 201 Stan; Avervision CP355AF; lavalier Microphone system UHF band Sennheiser EW 122 G3 composed of a wireless microphone and receiver; Codec of videoconferencing LifeSizeExpress 220 - Codeconly - Non-AES; Network camera Multipix MP-HD718; Two 47 " LCD panels, Full HD, LG M4716CCBA; audio commutation and sound amplification Subsystem; centralized uninterruptible power supply</p>
<p>Reading rooms of the Scientific library of the University open access Fund (building a - 10)</p>	<p>Monoblock HP Loope 400 All-in-One 19.5 in (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/-RW,GigEth,wifi,BT,usb kbd/mse,Win7Pro (64-bit)+Win8.1Pro(64-bit),1-1-1 Wty Speed Internet access 500 Mbps. Jobs for people with disabilities equipped with displays and Braille printers.; equipped with: portable reading devices flatbed texts, scanning and reading machines videovelocitly with adjustable color spectrums; increasing electronic loops and ultrasonic marker</p>
<p>Accreditation-simulation center of the school of Biomedicine</p>	<p>Adult model for demonstration and testing of foreign body removal (reception of Heimlich) (2 pcs.)  Schiller Fred defibrillator mod. Easy trainer with accessories (1 pc.)  Adult simulator with electronic control, training, computerized (1 pc.)  AED educational defibrillator (1 pc.)  Phantom of the respiratory system, NMS and defibrillation (1 pc.)  Dummy for resuscitation and patient care (1 pc.)  Pulse Oximeter (1 pc.)  Immobilization spinal immobilization shield YXH-1A6A complete with immobilization folding head retainer (1 pc.)  Tire - collar for adults SHTIVV-01  Stretcher longitudinal-transverse folding NPPS-MM (2 pcs.)  Set of tires for transport ladder KShTL-MP-01 Medical stretchers (1 pc.)  Protractor medical universal</p>

Practical training is conducted on a clinical basis.

**Clinical bases:**

1. Medical Center of the Federal State Autonomous Educational Institution of Higher Education "Far Eastern Federal University";
2. Regional State Institution "Regional Clinical Hospital №2";
3. Regional State Institution "Vladivostok Clinical Hospital № 4";



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**SCHOOL OF BIOMEDICINE**

**TRAINING AND METHODOLOGICAL SUPPORT**

**INDEPENDENT WORK OF TRAINEES**

in discipline **«Traumatology, orthopedy»**

Educational program  
31.05.01. General Medicine

**Form of training full-time**

**Vladivostok**

**2016**

Independent work includes:

1. Library and homework with educational literature and lecture notes,
2. Preparation for practical exercises,
3. Performance of an individual task
4. Preparation of the essay
5. Preparation for testing and control interview.

The procedure for the performance of independent work by students is determined by the schedule of independent work on the academic discipline.

### **Schedule of independent work on the academic discipline**

<b>N p/p</b>	<b>Date / Deadline</b>	<b>Type of independent work</b>	<b>Estimated time to complete (hour)</b>	<b>Form of control</b>
<b>7 семестр</b>				
1	2-3 week	Essay Individual task	12	EO-3-Report, speaking on the practical class
2	4-15 week	Presentation on the essay Presentation of the results of an individual task	12	EO-3-Report, speaking on the practical class
3	17-18 week	Preparing to exam	12	EO-1-Interview PW-1 - Test
<b>8 семестр</b>				
1	2-3 week	Essay	21	EO-3-Report, speaking on the practical class
2	4-14 week	Presentation on the essay	24	EO-3-Report, speaking on the practical class
3	15-18 week	Preparing to exam	27	EO-1-Interview PW-1 - Test

### **Topics of reports and essays**

There are 108 hours of independent work on the discipline, within the framework of these hours 2 essay is carried out on the proposed topics.

1. Methods of examination of trauma and orthopedic patients. Bone tissue regeneration. General principles of fracture treatment.

2. Fractures of the surgical neck of the humerus. Fractures of the forearm and radius in a typical location. Single reduction. Plaster immobilization.
3. Hip fractures. Diaphyseal fractures of the hip, lower leg, and shoulder. Gradual reposition. Skeletal traction.
4. Intra-articular fractures. Damage to the knee joint. Osteoarthritis.
5. Ankle fractures. Surgical treatment of fractures.
6. Congenital orthopedic diseases in children. Congenital dislocation of the hip, dysplasia of the hip joints.
7. Congenital torticollis, congenital clubfoot.
8. Violation of posture. Scoliotic disease. Osteochondropathy (Legg-Calvet-Perthes disease, Keller II disease, Ostgud-Schlatter disease).
9. Complicated and uncomplicated spinal injuries. Osteochondrosis.
10. Bone tumors.
11. Bleeding, blood loss, methods for temporary and final arrest of bleeding.
12. Features of a gunshot wound, primary surgical treatment of wounds.
13. Closed and open chest damage. Assist victims with chest damage in emergency situations and during hostilities.
14. Closed and open abdominal damage. Assist victims with abdominal damage in emergency situations and during hostilities.
15. Closed and open pelvic damage. Traumatic shock. Assist victims with pelvic damage in emergency situations and during hostilities.
16. Traumatic brain injury, spinal injury. Assistance to victims with craniocerebral and spinal injuries in emergency situations and during hostilities.
17. Combat damage to the limbs. Transport immobilization. Assist victims with injuries of limbs during emergency situations and during hostilities.

### **Guidelines for writing and design of the essay**

Essay - the creative activity of the student, which reproduces in its structure the research activities to solve theoretical and applied problems in a particular branch of scientific knowledge.

The essay is a model of scientific research. It is an independent work in which a student solves a problem of a theoretical or practical nature, applying the scientific principles and methods of this branch of scientific knowledge. The result of this scientific search can have not only subjective, but also objective scientific novelty, and therefore can be presented for discussion by the scientific community in the form of a scientific report or a message at a scientific-practical conference, as well as a scientific article.

The abstract is carried out under the direction of the supervisor and involves the acquisition of skills for building business cooperation based on ethical standards of scientific activity. Purposefulness, initiative, disinterested cognitive interest, responsibility for the results of their actions, conscientiousness, competence - personality traits that characterize the subject of research activities corresponding to the ideals and norms of modern science.

The essay is an independent educational and research activity of the student. The supervisor provides advisory assistance and evaluates the process and results of activities. He provides approximate themes of essay, clarifies with the student the problem and theme of research, helps to plan and organize research activities, assigns time and a minimum number of consultations.

Traditionally there was a certain structure of the abstract, the main elements of which in order of their location are the following:

1. Title page.
2. The task.
3. Table of Contents
4. List of symbols, symbols and terms (if necessary).
5. Introduction.
6. The main part.
7. Conclusion.

## 8. Bibliographic list.

## 9. Appendixes

The title page lists: educational institution, graduating department, author, scientific advisor, research theme, place and year of the essay.

The name of the essay should be as short as possible and fully comply with its content.

The table of contents reflects the names of the structural parts of the essay and the pages on which they are located. The table of contents should be placed at the beginning of work on one page.

The presence of a detailed introduction - an obligatory requirement for the abstract. Despite the small volume of this structural part, its writing causes considerable difficulties. However, a qualitatively executed introduction is the key to understanding the entire work, which testifies to the professionalism of the author.

Thus, the introduction is a very important part of the essay. The introduction should start with a justification of the relevance of the chosen theme. From how the author of the essay can choose a theme and how correctly he understands and evaluates this theme from the point of view of modernity and social significance, it characterizes his scientific maturity and professional preparedness.

In addition, in the introduction it is necessary to isolate the methodological basis of the essay, to name the authors, whose works constituted the theoretical basis of the study. A review of the literature on the theme should show the authors thorough acquaintance with special literature, his ability to systematize sources, critically examine them, highlight the essential, determine the most important in the current state of knowledge.

The introduction reflects the importance and relevance of the chosen topic, defines the object and subject, purpose and objectives, and the chronological framework of the study.



Introduction should be completed by setting out general conclusions about the scientific and practical significance of the theme, its degree of scrutiny and providing with sources, then hypothesis is proposed.

The main part describes the essence of the problem, reveals the theme, determines the author's position, factual material is given as an argument and for illustrations of put forward provisions. The author needs to demonstrate the ability of sequential presentation of material while its analysis. Preference is given to the main facts, rather than small details.

The essay ends with the final part, which is called "conclusion". This part of the essay synthesizes scientific information, which is accumulated in the main part. This synthesis is a consistent, coherent presentation of the results obtained and their relation to a common goal and specific tasks that were set and formulated in the introduction. It is here that contains the so-called "output" knowledge, which is new in relation to the original knowledge. The conclusion may include suggestions of a practical nature, thereby increasing the value of theoretical materials.

So, in conclusion, the student should a) present the findings of the study; b) reflect the theoretical and practical significance, the novelty of the abstract; c) indicate the possibility of applying the results of the study.

After the conclusion it is accepted to place the bibliographic list of the used literature. This list is one of the essential parts of the essay and reflects the independent creative work of the author.

The list of sources used is placed at the end of the work. It is made or in alphabetical order (by the name of the author or the name of the book), or in the order in which the references appear in the text of the written work. In all cases, the full title of the work, the names of the authors or the editor of the publication are indicated if the writing team involved a group of authors, data on the number of volumes, the name of the city and publisher in which the work was published, year of publication, number of pages.

### **Criteria for evaluation of the abstract.**

Evaluation criteria for the abstract: the novelty of the text; the validity of the choice of source; the degree of reveal of the essence of the issue; compliance to the design requirements.

**The novelty of the text:**

- a) the relevance of the research theme;
- b) novelty and independence in the formulation of the problem, the formulation of a new aspect of the well-known problem;
- c) the ability to work with research, critical literature, to systematize and structure the material;
- d) the appearance of the author's position, independence of assessments and judgments;
- e) stylistic unity of the text.

**The degree of disclosure of the essence of the question:**

- a) the plan compliance with the theme of the abstract;
- b) compliance of the content to the theme and plan of the essay;
- c) completeness and depth of knowledge on the theme;
- d) the validity of the methods and methods of working with the material;
- e) the ability to generalize, draw conclusions, compare different points of view on one issue (problem).

**The validity of the choice of sources:** a) evaluation of the used literature: the use of the most famous works on the research topic (including journal publications of recent years, recent statistics, summaries, references, etc.).

**Compliance with the design requirements:**

- a) the correctness of references to the used literature, references;
- b) assessment of literacy and presentation culture (including spelling, punctuation, stylistic culture), knowledge of terminology;
- c) compliance with the requirements for the volume of the abstract.

**The reviewer should clearly state** the remark and questions, preferably with references to the work (possible on specific pages of the work), to research and evidence that the author did not take into account.

**The reviewer can also indicate** whether the student has addressed the theme earlier (essays, written works, creative works, olympiad works, etc.).

**The reviewer can also indicate** whether the student has addressed the theme earlier (essays, written works, creative works, olympiad works, etc.).

**The rating “Excellent”** is set if all the requirements for writing and presenting the abstract are fulfilled: the problem is indicated and its relevance is justified, a brief analysis of various points of view on the problem under consideration is made and own position is logically presented, conclusions are formulated, the theme is fully revealed, the volume is met, the requirements are met to the external design, given the correct answers to additional questions.

**Evaluation of “Good”** - the basic requirements for the essay are met, but there are some shortcomings. In particular, there are inaccuracies in the presentation of the material; there is no logical sequence in the judgments; not sustained volume of the abstract; there are omissions in the design; Additional questions are incomplete answers.

**Assessment “Satisfactory”** - there are significant deviations from the requirements for essay. In particular, the theme is only partially revealed; factual errors in the content of the abstract or when answering additional questions; there is no output.

**The rating of “Unsatisfactory”** - the theme of the essay is not revealed, there is a significant lack of understanding of the problem or the student’s abstract is not presented.



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**SCHOOL OF BIOMEDICINE**

**FUND ASSESSMENT TOOLS**

TRAINING COMPLEX OF DISCIPLINE

**«Traumatology, orthopedy»**

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**2016**

**Passport of the Fund Assessment Tools** is filled in accordance with the Regulations on the Funds of Evaluation Tools of Educational Programs of Higher Education - Bachelor's Programs, Specialties, FEFU Magistrates, approved by order of the Rector on 12/05/2015 No. 12-13-850.

Код и формулировка компетенции	Этапы формирования компетенции	
readiness to use first aid techniques, methods of protection in emergency situations (GPC-7);	Knows	principles of first aid, methods of protection in emergency situations
	Is able to	knows how to use first aid techniques and apply methods of protection in emergency situations
	Possesses	first aid skills and emergency protection skills
ability to determining the patient's basic pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review (PC-6)	Knows	physiological signs of major pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review
	Is able to	to verify and determine the normal basic pathological conditions of the human body, as well as to diagnose the symptoms and syndromes of diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review
	Possesses	basic skills of diagnosing pathological conditions, symptoms, syndromes, diseases, clinical entities
ability to determine tactics of management of patients with different nosological forms (PC-8);	Knows	Fundamentals of management of patients who need infusion-transfusion therapy
	Is able to	Draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy.
	Possesses	Skills of establishing the diagnosis, prescribing and carrying out the necessary infusion-transfusion therapy in various pathological conditions;
willingness to provide medical care for sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care (PC-10)	Knows	Means of infusion therapy and their mechanism of action for the treatment of sudden acute illness conditions, exacerbations of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care
	Is able to	To apply means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care.
	Possesses	Skills of applying means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care
willingness to participate in the provision of emergency medical care in conditions requiring urgent medical intervention (PC-11);	Knows	Fundamentals of emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy
	Is able to	To provide emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy
	Possesses	Skills of providing emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy

#### IV. CONTROL OF ACHIEVEMENT OF COURSE GOALS

№ п/п	Controlled sections / topics of disciplines	Codes and stages of the formation of competencies	Evaluation tools		
			Current control	Intermediate certification / exam	
1	Module 4. Basics of the organization of surgical care for wounded in emergency situations and in the army Module 5. Bleeding and blood loss. Traumatic shock. Prolonged Crush Syndrome Module 6. Traumatic Damage to peace and war	readiness to use first aid techniques, methods of protection in emergency situations (GC-7);	Knows	EO-1 Interview	Questions of final control 7 semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
2	Module 1. General questions of traumatology and orthopedics Module 2. Modern operative and conservative treatment of fractures and dislocations Module 3. Degenerative-dystrophic diseases of the joints Module 7. Congenital and acquired diseases of the musculoskeletal system	the ability of determining the patient's basic pathological conditions, symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health, the 10th review. (PC – 6)	Knows	EO-1 Interview	Questions of final control B semester - 39-110
			Is able to	EO-1 Interview	PW-1 Test
			Possesses	PW-1 Test PW-11 Case task	EO2 Colloquium
2	Module 1. General questions of traumatology and orthopedics Module 2. Modern operative and conservative treatment of fractures and dislocations Module 3. Degenerative-dystrophic diseases of the joints Module 7. Congenital and acquired diseases of the musculoskeletal system	ability to determine tactics of management of patients with different nosological forms (PC-8);	Knows	EO-1 Interview	Questions of final control 8 semester – 36-100
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
3	Module 1. General questions of traumatology and orthopedics Module 2. Modern operative and conservative treatment of fractures and dislocations Module 3. Degenerative-dystrophic diseases of the joints Module 4. Basics of the organization of surgical care for wounded in emergency situations and in the army Module 5. Bleeding and blood loss. Traumatic shock. Prolonged Crush Syndrome Module 6. Traumatic Damage to Peace and War Module 7. Congenital and acquired diseases of the	willingness to provide medical care for sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care (PC-10)	Knows	EO-1 Interview	Questions of final control 7 semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium

	musculoskeletal system				
4	Module 1. General questions of traumatology and orthopedics Module 2. Modern operative and conservative treatment of fractures and dislocations Module 3. Degenerative-dystrophic diseases of the joints Module 4. Basics of the organization of surgical care for wounded in emergency situations and in the army Module 5. Bleeding and blood loss. Traumatic shock. Prolonged Crush Syndrome Module 6. Traumatic Damage to Peace and War Module 7. Congenital and acquired diseases of the musculoskeletal system	willingness to participate in the provision of emergency medical care in conditions requiring urgent medical intervention (PC-11);	Knows	EO-1 Interview	Questions of final control 7 semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium

### The scale of assessment the level of formation of competences

Code and formulation of competence	Stages of the formation of competencies		Criteria	Indicators	Points
readiness to use first aid techniques, methods of protection in emergency situations (GPC-7);	Knows (threshold level)	Principles of first aid, methods of protection in emergency situations	Knowledge of the rules of first aid, methods of protection in emergency situations	Formed structured systematic knowledge of the rules of first aid, methods of protection in emergency situations, the stages of treatment of trauma patients	65-71
	Is able to (advanced)	Able to use first aid techniques and apply methods of protection in emergency situations	Ability to use first aid techniques and apply methods of protection in emergency situations	Able to confidently use first aid techniques and apply methods of protection in emergency situations	71-84
	Possesses (high)	Skills of first aid and skills to apply protection in emergency situations	First-aid skills and emergency protection skills	Formed first aid skill and emergency protection skills	85-100
ability to determining the patients basic pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical	Knows (the threshold level)	The physiological signs of major pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical Classification of	The knowledge of physiological signs of major pathological conditions, symptoms, syndromes, diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related	The capacity and willingness to learn a foreign language at the level of everyday communication, to the written and oral communication in the official language	45-64

Classification of Diseases and Related Health X review (PC-6);		Diseases and Related Health X review	Health X review		
	Is able to (advanced)	to verify and determine the normal basic pathological conditions of the human body, as well as to diagnose the symptoms and syndromes of diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review	The ability to verify and determine the normal basic pathological conditions of the human body, as well as to diagnose the symptoms and syndromes of diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review	The capacity to verify and determine the normal basic pathological conditions of the human body, as well as to diagnose the symptoms and syndromes of diseases, clinical entities, in accordance with the International Statistical Classification of Diseases and Related Health X review	64-85
	Possesses (high)	The basic skills of diagnosing pathological conditions, symptoms, syndromes, diseases, clinical entities	Possession the s basic skills of diagnosing pathological conditions, symptoms, syndromes, diseases, clinical entities	The capacity to basic skills of diagnosing pathological conditions, symptoms, syndromes, diseases, clinical entities	86-100
ability to determine tactics of management of patients with different nosological forms (PC-8);	Knows (threshold level)	Fundamentals of management of patients who need infusion-transfusion therapy	Knowledge of fundamentals of management of patients who need infusion-transfusion therapy	Formed and structured systematic knowledge of the fundamentals of management of patients who need infusion-transfusion therapy	65-71
	Is able to (advanced)	Draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy.	Ability to draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy	Ready and can to draw up a program of infusion-transfusion therapy in various pathological conditions. Determine the indications for infusion-transfusion therapy	71-84
	Possesses (high)	Skills of establishing the diagnosis, prescribing and carrying out the necessary infusion-transfusion therapy in various pathological conditions;	Formed skills of establishing the diagnosis, prescribing and carrying out the necessary infusion-transfusion therapy in various pathological conditions	Skills surely to establish the diagnose, prescribe and conduct the necessary infusion-transfusion therapy in various pathological conditions;	85-100
willingness to	Knows	Means of infusion	Knowledge of the	Formed and	65-71



provide medical care for sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care (PC-10)	(threshold level)	therapy and their mechanism of action for the treatment of sudden acute illness conditions, exacerbations of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care	means of infusion therapy and their mechanism of action for the treatment of sudden acute illness conditions, exacerbations of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care	structured systematic knowledge of the means of infusion therapy and their mechanism of action for the treatment of sudden acute illness conditions, exacerbations of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care	
	Is able to (advanced)	To apply means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care.	Ability to apply means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care.	Ready and can to apply means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care.	71-84
	Possesses (high)	Skills of applying means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care	Formed skills of applying means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care	Ability to use means of infusion-transfusion therapy for the treatment of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care	85-100
willingness to participate in the provision of emergency medical care in conditions requiring urgent medical intervention (PC-11);	Knows (threshold level)	Fundamentals of emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	Knowledge of fundamentals of emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	Formed and structured systematic knowledge of fundamentals of emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	65-71
	Is able to (advanced)	To provide emergency medical	Ability to provide emergency medical	Ready and can to provide emergency	71-84

		care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	
	Possesses (high)	Skills of providing emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	Formed skills of providing emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	Skills surely to provide emergency medical care in conditions requiring urgent medical interventions, including post-transfusion reactions and complications of infusion-transfusion therapy	85-100

### **Questions to evaluate the preliminary competencies**

1. Methods of clinical examination of orthopedic patients.
2. Radiological methods of examination of patients with trauma and orthopedic profile. Rules of.
3. Basic principles of bone fracture treatment.
4. Fractures of the limbs. Classification. Clinic and diagnosis. The main methods of fracture treatment.
5. Local anesthesia in the treatment of fractures (conductive, sheeting, novocainic blockade). Indications for general anesthesia in the treatment of fractures.
6. Open fractures. Definition of the concept. Classification. Clinic and diagnosis. Principles of treatment of open fractures.
7. Post-traumatic osteomyelitis. Etiology, clinic, indications for surgical treatment.
8. Osteosynthesis and its varieties. Modern types of osteosynthesis - osteosynthesis with "blocking", plates with "angular stability", plates with "limited contact", etc. Indications and contraindications.
9. The method of extrafocal compression-distraction osteosynthesis in the treatment of orthopedic and trauma patients. Indications and contraindications.

Technique of application (spoke, rod devices for extrafocal osteosynthesis).

10. Skeletal traction. Indications and contraindications for use. Overlay technique. Errors and complications in the treatment of fractures with skeletal traction.

11. Plaster immobilization in the treatment of fractures. Indications. Gypsum dressing rules. Errors and complications.

12. Skin plastics. Types, indications, technique of operation.

13. Reparative bone regeneration. Stage of fusion. General and local factors affecting fracture fusion.

14. Slow adhesion of fractures. Clinical and radiological characteristics. Prevention and treatment.

15. False joints, definition. Etiology, pathogenesis, clinic, X-ray diagnostics. Principles of treatment.

16. Contracture of the joints, the definition of a concept. Etiology, types of contractures. Principles of treatment.

17. Features of adhesion of bone fractures in children and the elderly. Clinical and radiological diagnosis.

18. Combined, multiple and combined damage. Definition of the concept. The value of the dominant factor in the clinic and treatment of polytrauma.

19. Rehabilitation in traumatology and orthopedics (medical, social, professional).

20. Shoulder fractures. Classification. The mechanism of injury. Diagnostics. Treatment methods.

21. Fractures of the clavicle. Clinic and diagnosis. Conservative and surgical treatment of clavicle fractures.

22. Fractures of the surgical neck of the shoulder. Clinic and diagnosis. Conservative and surgical treatment.

23. Fractures of the diaphysis of the humerus. Clinic, diagnosis. Conservative treatment. Indications for surgical treatment.

24. Fractures of the distal metaepiphysis of the humerus. Clinic and diagnosis. Treatment.

25. Fracture of the olecranon. The mechanism of injury. Clinic and diagnosis.

Conservative treatment. Indications for surgery. Osteosynthesis technique.

26. Fractures of the head and neck of the radial bone. Damage mechanism. Diagnosis and treatment. Indications for surgery.

27. Diaphyseal fractures of the forearm bones. Clinic, diagnosis. Conservative and surgical treatment.

28. Fracture bones of the forearm. Damage to Monteggia and Galeazzi, mechanism of injury. Clinic and diagnosis. Treatment.

29. Fractures of the radius in a typical place. Clinic and diagnosis. Conservative treatment. Indications for surgery. Complications.

30. Fracture of the navicular bone of the hand. The mechanism of injury. Diagnostics. Features of treatment (conservative, operative).

31. Medial fractures of the proximal femur metaepiphysis. Classification. Clinic and diagnosis. Treatment methods.

### **Evaluation tools for current certification**

#### **Control tests are designed for students studying the course "Traumatology, orthopedy"**

Tests are necessary both for the control of knowledge in the learning process, and for the evaluation of knowledge, for setting credits.

When working with tests, the student is invited to choose one option or a combination of answers from the answers given. At the same time, tests are unequal in their complexity. Among the proposed tests there are that contain several options for correct answers. The student must specify all the correct answers.

Tests are designed for both individual and collective decision. They can be used during classroom or independent work.

The results of the test tasks are evaluated by the teacher on a five-point score scale for issuing attestation or according to the system "credit" - "no credit". The mark "excellent" is set with the correct answer to more than 90% of the tests proposed by the teacher. A rating of "good" - with the correct answer to more than 70% of

tests. A rating of "satisfactory" - with the correct answer to 50% of the tests proposed to the student

### **Examples of test tasks.**

#### **1. The coracoid process of the scapula can be palpated:**

- a) in the armpit
- b) not palpable
- c) in the subclavian fossa
- d) in the supraclavicular region
- e) through the pectoralis major muscle

#### **2. A large tubercle of the humerus can be palpated:**

- a) below acromion and posterior
- b) below acromion and outside
- c) below acromion and in front
- d) below acromion and inside
- e) you cannot feel

#### **3. The subclavian artery is pressed by the finger:**

- a) to the II edge
- b) to the coracoid process
- c) to the I edge in the supraclavicular fossa
- d) to acromion
- e) to the transverse process of the IV cervical vertebra

#### **4. The short hip rotators include:**

- a) pear muscle
- b) gluteal muscles
- c) ileal terminal muscle
- d) twin muscles
- e) internal locking muscles.

#### **5. With a slight flexion in the hip joint, the tip of the greater trochanter is located on the line:**

- a) Guthrie
- b) Marx
- c) Roser-Nelaton
- d) Ombredan-Perkins
- e) Shenton

**6. At which closed head injury can infection of the subarachnoid space occur?**

- a) there is no such injury
- b) contusion of the brain with cracks in the parietal bones
- c) fracture of the frontal bones
- d) fractures of scaly bones
- e) fracture of the bones of the skull base

**7. For which of the following craniocerebral injuries often occur macroscopically determined changes in the cerebrospinal fluid?**

- a) concussion
- b) brain contusion
- c) constricted brain

**8. Which of the following options for fractures of the cranial vault are not subject to surgical treatment?**

- a) linear fracture without displacement and intracranial hematoma
- b) the crack continuing on the basis of a skull
- c) comminuted fracture with displacement of the inner lamina by 1 cm or more
- d) depressed fractures with neurological symptoms
- e) depressed fractures without neurological symptoms

**9. For which variant of a fracture of the bones of the skull are characteristic: the flow of blood and cerebrospinal fluid from the ear, nose or throat, increasing bruising in the orbits and the mastoid process?**

- a) fracture of the frontal bones
- b) fracture of the middle and anterior cranial fossa
- c) fracture of the bones of the middle cranial fossa
- d) fracture of the bones of the anterior cranial fossa

e) bone fracture of the posterior cranial fossa

**10. Note the symptoms of brain compression characteristic of an epidural hematoma from a damaged middle sheath artery:**

a) transient loss of consciousness

b) loss of consciousness after the "bright gap"

c) tachycardia with arrhythmia

d) bradycardia

e) progressive pupil dilation on the affected side.

**11. Which of the following methods are used to treat fractures of the cervical spine without damaging the spinal cord?**

a) unloading on the shield in a horizontal position

b) Glisson loop application

c) LFK for muscles in the tree-gorein

d) skeletal traction for the skull

e) using a trench collar and thoracocranial plaster cast

**12. The wedge-shaped compression fracture of the vertebral bodies is:**

a) stable

b) unstable

**13. The divergence of the tops of the spinous processes palpation in a patient in the area of spinal injury indicates:**

a) unstable fracture

b) a stable break

c) is not a sign of stability or instability of a vertebral fracture

**14. Intercostal blockade is carried out by injection of anesthetics into the intercostal spaces:**

a) in the mid-clavicular line

b) on the anterior axillary line

c) along the middle axillary line

d) on the posterior axillary line

e) on the scapular line

**15. With a closed injury of the chest with floating chest wall syndrome - the main goal of treatment:**

- a) relieve pain when breathing
- b) to ensure the drainage function of the bronchi
- c) restore the skeleton of the breast skeleton
- d) reduce pneumo - and hemothorax
- e) prevent possible damage to the lungs by the rib fragments.

**16. In the early diagnosis of internal bleeding into the pleural cavity in the first place it is better to navigate:**

- a) tachycardia, tachypnea. thirst
- b) according to the percussion and auscultation of the lungs
- c) on radiological data
- d) according to pleural puncture

**17. With open pneumothorax, the main goal of treatment is:**

- a) prevention of the effects of pleuropulmonary shock
- b) sealing of the damaged pleural cavity
- c) the fight against hypoxia
- d) fight against respiratory acidosis

**18. Continuing bleeding into the pleural cavity indicates:**

- a) the closure of punctate when conducting a sample of Ruvilua-Gregoire
- b) blood clots obtained by puncture of the pleural cavity
- c) the absence of clots in the blood obtained during a diagnostic puncture from the pleural cavity

**19. Note the best of the following methods for the treatment of acetabular fractures with a stable position of the adjusted femoral head:**

- a) plaster coxite dressing
- b) open fixation with screws
- c) transosseous osteosynthesis
- d) skeletal traction followed by functional treatment



**20. In case of a double fracture of the pelvic ring of Malgrena type, the following are determined:**

- a) a decrease in the relative length of the lower limb on the side of damage
- b) the displacement of the wing of the injured ilium up
- c) change in the absolute length of the lower limb on the side of damage
- d) the displacement of the wing of the injured ilium down

**21. Note the symptoms characteristic of a pelvic fracture with a violation of the pelvic ring in the back section:**

- a) pain when attempting to move the lower limbs
- b) the patient tends to lie on the healthy side
- c) the patient tends to lie on the sick side
- d) pseudo abdominal syndrome
- e) hematomas in the groin areas

**22. The system for permanent extension for the treatment of pelvic bone fractures includes:**

- a) 1 Balkan frame with blocks, 2 Brown-Beler tires with a load of up to 6 kg, anti-stubs
- b) 2 Balkan frames, 2 Brown-Beler tires, a stop, a hammock with a load of up to 24 kg, 2 stands for counter-tensioning, a shield, 2 Kirschner brackets and knitting needles
- c) 2 Brown-Beler tires with a load of up to 20 kg, 2 Kirchner brackets and spokes, a shield

**23. The most effective treatment for the rupture of the symphysis is:**

- a) coxite dressing
- b) hammock treatment
- c) transosseous extra focal osteosynthesis

**24. The best ways to treat a false joint of the clavicle are:**

- a) bone posteous osteosynthesis
- b) intramedullary osteosynthesis
- c) intraosseous osteosynthesis with bone grafting of the fracture site

- d) transosseous extra focal osteosynthesis
- e) long-term immobilization with a Smirnov-Weinstein plaster cast

**25. The best fixation of the bone fragments of the clavicle during osteosynthesis is achieved:**

- a) intraosseous stem
- b) fine needle
- c) fixation of fragments with catgut or silk sutures
- d) fixation of fragments with wire
- e) transosseous extrafocal method (such as G.Sushko)
- f). bone osteolysis

**26. With the conservative treatment of clavicle fractures, the splint is removed:**

- a) after 1 week
- b) after 2 weeks
- c) after 3 weeks
- d) after 4 weeks
- e) more than 5 weeks
- f). after X-ray monitoring of the callus condition

**27. When chronic dislocation of the sternal end of the clavicle is permissible following operations:**

- a) reposition and fixation without removing the modified disk
- b) resection of the medial part of the clavicle
- c) reposition and fixation after removing a modified disk.

**28. After the reduction of the shoulder dislocation, they apply a fixing bandage for a period of:**

- a) for 1 week
- b) for 2-3 weeks
- c) for 4-5 weeks
- d) for 6-7 weeks
- e) for 8 weeks

**29. The cause of a painful "scapular crunch" can most often be:**

- a) body dysplasia of the scapula
- b) subscapular bursitis
- c) blade angle deformations
- d) osteophytes
- e) exostoses

**30. The cause of the "traumatic pterygoid scapula" is:**

- a) injury of subscapularis muscle
- b) rupture of the trapezius muscle
- c) rupture of the latissimus dorsi muscle
- d) trauma of the axillary nerve
- d) contusion, stretching of the long nerve of the chest

**Questions for the exam in the discipline "Traumatology, orthopedics" - 7, 8 semesters**

1. The concept of traumatology and orthopedics.
2. The role of Russian scientists in the development of traumatology and orthopedics. Sitenko, N.N.Priorov, L.I. Shulutko, G.A. Ilizarov).
3. Damage to the hip joint.
4. Aseptic necrosis of the femoral condyle (König disease).
5. Structure of orthopedic and trauma care in the Russian Federation.
6. Fracture of the radius in a typical place (fracture of the Wheel and Smith).
7. Deforming arthrosis of large joints.
8. Injury, its types.
9. Damage to the brush.
10. Orthopedic effects of polio.
11. Closed fractures of the humerus.
12. Volkmann's contracture.
13. Hyperparathyroid dystrophy (Recklinghausen's disease).

14. Outpatient orthopedic and trauma care.
15. Closed fractures of the humeral diaphysis. Complications.
16. Deforming osteodystrophy (Paget's disease).
17. Damage to the clavicle.
18. Congenital clubfoot.
19. Stationary orthopedic and trauma care.
20. Wound tendons. Bennel seam.
21. Subcutaneous tendon tears (“stealing tears”).
22. Congenital torticollis.
23. Osteoporosis. Prevention and treatment.
24. Ankle fractures (supination and pronation).
25. Aseptic necrosis of the lunate and navicular bone (Kinbek and Pryzer disease).
26. Fractures of the diaphysis of the bones of the forearm. The fracture of Montage and Galecia.
27. Syndromes of osteochondrosis: vertebral, radicular and vegetative.
28. The concept of rehabilitation. Medical, social and vocational rehabilitation.
29. Medial femoral neck fractures.
30. Post-traumatic deformities (contractures, ankylosis, etc.).
31. Complications of fractures of the pelvic bones.
32. Epicondylitis (Thomson’s disease).
33. Compression fractures of the spine.
34. Functional treatment method according to Dreving-Gornevskaya.
35. Surgical treatment. Kummel's disease.
36. Ankylosing spondyloarthritis (Stryumpel-Marie-Bekhterev disease).
37. Skin grafting in injuries.
38. False joints and non-accrete fractures.
39. The basic principles of treatment of fractures.
40. Dislocations of large joints.
41. Syndactyly.

42. Arthro-influenza.
43. Fractures of the pelvic bones.
44. Methods of examination of patients.
45. Tendon rupture with supraspinatus and 2-headed muscles.
46. Damage to the chest. Complications and treatment of them.
47. Shoulder-scapular periarthrosis.
48. Traumatic brain injury.
49. Scoliotic disease.
50. Amputation and prosthetics. The role of domestic scientists.
51. Modern tactics in the treatment of open fractures.
52. Infectious polyarthrititis and arthritis.
53. Damage to the shoulder joint. Fracture-dislocations in the shoulder joint.
54. Malignant tumors: fibrosarcoma, chondrosarcoma, osteogenic sarcoma, Ewing's sarcoma, myeloma, etc.
55. Damage to the scapula.
56. Diseases stump.
57. Fractures of the hip diaphysis.
58. Fibrous dysplasia.
59. Lateral femoral neck fractures.
60. Stenosing ligamentitis (De Quervain's disease, Nott, etc.).
61. The basic principles of anesthesia and resuscitation in an orthopedic-trauma group of patients.
62. Damage to the elbow joint.
63. Dupuytren's contracture.
64. Conservative treatment methods in traumatology and orthopedics.
65. Damage to the meniscus of the knee joint.
66. Benign skeletal tumors.
67. Surgical treatment.
68. Features of the treatment of intraarticular fractures in the hip joint and knee joint.

69. Little disease. Tribal paralysis.
70. The concept of combined and combined injuries.
71. Polytrauma.
72. Damage to the ligaments of the knee joint.
73. Flat feet, abduce contracture of the I-finger of the foot, hammer-shaped finger.
74. Classification of orthopedic diseases.
75. Tuberculosis of large joints.
76. Damage to the foot.
77. Shin bones fractures.
78. Aseptic necrosis of the femoral head (Legg-Calve-Perthes disease).
79. The main types of gypsum dressings and the principles of their imposition.
80. Trauma to the abdominal organs. Differential diagnosis with retroperitoneal hematoma in fractures of the spine and pelvis.
81. Aseptic necrosis of the apophysis and vertebral body (Scheuerman-Mau-Calve disease).
82. Damage to blood vessels and nerves in fractures.
83. Aseptic necrosis of tibial tuberosity (Osgut-Shlatter disease).
84. Features of the treatment of fractures in children and the elderly.
85. Congenital dislocation of the hip, early signs of it.
86. The main pathophysiological and physiological processes in bone tissue. Phosphoric calcium metabolism. Reparative regeneration.
87. Complicated spinal fractures.
88. Endoprosthetics.
89. Arthroscopy in traumatology and orthopedics.
90. Aseptic necrosis of the navicular bone of the foot and the heads of the metatarsal bones (Keller disease I and II).
91. Local and general factors affecting the healing of fractures. Primary accretion of fractures.
92. Purulent complications of damage to bones and joints.

93. Transplantation of organs and tissues in traumatology and orthopedics.
94. Alloplasty.
95. Thermal lesions: etiology, clinic, treatment. Features determine the area of damage in children.
96. Local treatment of purulent wounds, depending on the phase of the wound process. Features of the treatment of anaerobic non-productive infection.
97. Gas gangrene: etiology, pathogenesis, clinic, treatment. Prevention.
98. Tetanus: etiology, pathogenesis, clinic. Prevention. Treatment.
99. Classification of infectious complications of wounds.
100. Role, place of novocaine blockades in the treatment of injuries of the extremities, chest, pelvis (case, fracture site, vagosympathetic, according to Shkolnikov-Selivanov).
101. Prolonged compression syndrome: etiology, pathogenesis, doses, degree.
102. Features of blood transfusion in military field conditions. Blood reinfusion: indications, contraindications, technique.
103. Injuries to the pelvis and pelvic organs: bladder, urethra. Clinic, diagnosis, treatment.
104. Closed abdominal damage: clinic, diagnosis, treatment
105. Classification of bleeding. Blood loss clinic, determination of its volume and severity.
106. Classification of abdominal damage.
107. Wounds of the heart: diagnosis, clinic, treatment. Indications for emergency thoracotomy for injuries of the chest.
108. Traumatic asphyxia: etiology, pathogenesis, clinic, treatment
109. Closed chest injuries: etiology, diagnosis, clinic. Treatment
110. Closed chest injuries: etiology, diagnosis, clinic. Treatment
111. Pneumothorax: etiology, clinic. Treatment at the stages of medavacuation. Bulau drainage.
112. Hemothorax: etiology, diagnosis, clinic. Classification by AP Kupriyanov. Treatment. Bulau drainage.

113. Respiratory tract burns: etiology, clinical presentation, treatment at the stages of upper airway medevacuation: etiology, clinical presentation, treatment.
114. Transport immobilization. Its principles, means.
115. Principles of surgical care for the wounded. Self and mutual aid. First aid.

### **Situational tasks (examples)**

#### **Task 1.**

Patient M, 50 years old, fell from a ladder at home, having hit his left hip joint. He was unable to stand up, notes pain in the hip joint. The limb is rotated outwards.

*Your preliminary diagnosis? What clinical symptoms should be tested to clarify the diagnosis? Provide the patient with pre-hospital care. How will you examine him and treat him in the hospital?*

#### **Task 2.**

Patient A., 36 years old, fell on the hand, pains in the wrist joint appeared, was treated in the clinic for 3 weeks. Was on the sick-list. During examination, a fracture was not found. The patient was discharged to work. Can't work, during physical activity notes increased pain in the joint. Asked for advice. With pressure in the anatomical snuffbox increases pain.

*Make a diagnosis. Schedule treatment. Find the mistake made in the clinic.*

#### **Task 3.**



A teenager is 14 years old, when walking the feet of both legs are deflected outwards, the tip of the medial ankle tends to approach the floor.

*Examine, make a diagnosis. How to treat?*

#### **Task 4.**

The patient is 60 years old, with constant pain, pain in the left hip joint, restriction of movement in the joint. When viewed limb bent, reduced, with passive movement there is a crunch. Pains calm down with prolonged rest. Radiographically, the joint space narrowed, along the edges of the joint-forming surfaces bone overgrowth is noted.

*Your diagnosis and treatment plan.*

#### **Task 5.**

Patient M., 66 years old, falling from a ladder, hit the right side. There were severe pains in the hip joint and the upper third of the thigh. I could not rely on my right leg. With active-passive movements, the pain intensifies, pathological mobility is noted in B / 3 of the thigh.

*What is pathological mobility? Your diagnosis? Determine the tactics of treatment.*

#### **Task 6.**

A 12-year-old child complains about not fatigue and moderate pain in the right hip joint. Can't play with peers for long. With a long load, it is slightly lame.

*Examine, make a diagnosis. How to treat?*

#### **Task 7.**

As a result of a car accident, two people received closed damage to the bones of the middle third of the leg on the right. Both are 24 years old. List the clinical symptoms encountered in shin fractures. Help at the scene. When examining radiographically in a hospital, the following picture was found: "Patient S. has an oblique fracture without mixing fragments, and in patient H, a transverse fracture with mixing fragments.

*Give help. Choose a treatment method for both, explain the reason for choosing a treatment method.*

### **Task 8.**

Patient N. 50 years old, 3 years ago received a closed fracture of the middle third of the left shoulder. A cortical one was operated on, i.e. periosteal osteosynthesis with the "Lena" plate, the plaster cast was in place for 3 weeks. The fracture did not grow together. After 8 months the plate is removed. During the examination, atrophy of the shoulder muscles and pathological painless mobility at the fracture site are noted.

*Make a diagnosis. Find the mistakes made. How will you treat the patient?*

### **Task 9.**

Sergeant S. Wounded in the right half of the chest with a fragment of an artillery shell. Two hours after the injury, he was delivered to the PMP with a loose bandage in a serious condition, pale, cyanotic, and short of breath. In the right subscapularis region, a wound with a bandage of 4 × 3 cm is visible, through which air passes during breathing. Pulse 124 beats / min.

*Formulate a preliminary diagnosis. What activities, in what sequence and in which subdivision of the PMP, should be performed? Solve evacuation issues.*

### **Task 10.**

A 22-year-old patient at work fell to his feet from the 2nd floor, pains in the heel bones appeared. The clinic is examined radiographically. There is an impacted fracture of both heel bones.

*How will you treat the patient? What is the treatment method developed in our clinic? Terms of immobilization. What will you recommend to the patient after treatment?*

### **Evaluation tools for current certification**

**Control tests are designed for students studying the course "General Medicine".**

Tests are necessary both for the control of knowledge in the process of the current intermediate certification, and for the assessment of knowledge, the result of which can be the setting of credit.

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The results of the test tasks are assessed by the teacher on a five-point scale for issuing attestation or according to the "test" system - "no test". The mark "excellent" is set with the correct answer to more than 90% of the tests proposed by the teacher. A rating of "good" - with the correct answer to more than 70% of tests. A rating of "satisfactory" - with the correct answer to 50% of the tests proposed by the undergraduate.