

MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
EDUCATIONAL INSTITUTION
BELARUSIAN STATE MEDICAL UNIVERSITY

Контрольный
экземпляр



APPROVED

by First Vice-Rector, Professor

I.N.Moroz

12.08. 2023

Reg. # UD- 6.13/2324 /edu. sub.

TRAUMATOLOGY AND ORTHOPEDICS

**Curriculum of educational institution in the educational discipline for the
specialty 1-79 01 01 «General Medicine»
Sub-Residency «General Clinical Practice»**

Minsk 2023

Curriculum is based on the standard educational program «Traumatology and orthopedics», approved 29.06.2018, registration # УД - Л.13/2324/уч. сур.

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RECOMMENDED FOR APPROVAL:

by the Department of Traumatology and Orthopedics of the Educational Institution «Belarusian State Medical University»
(protocol # 39 of 30.06.2023);

by the Scientific and Methodological Council of the Educational Institution «Belarusian State Medical University»
(protocol # 7 of 10.08.2023)

EXPLANATORY NOTE

«Traumatology and orthopedics» is the educational discipline containing systematized scientific knowledge and techniques about the etiology, pathogenesis, mechanism of injury, clinical manifestations, methods of diagnostics, differential diagnostics, treatment, rehabilitation and medical prevention of diseases and injuries of the musculoskeletal system, about the medical rehabilitation of patients.

The aim of the teaching the educational discipline «Traumatology and Orthopedics» for the sub-residency «General Clinical Practice (for foreign citizens)» consists of formation of academic, social, personal and professional competencies for providing medical care to patients with injuries, congenital and posttraumatic deformities of the musculoskeletal system.

The tasks of teaching the educational discipline are to form students' scientific knowledge about the causes of injuries and possible ways of its prevention, methods of non-surgical and surgical treatment of injuries of the musculoskeletal system and orthopedic diseases, skills and abilities necessary for:

- clinical examination of patients with injuries and diseases of the musculoskeletal system;

- diagnostics of injuries and diseases of the musculoskeletal system;

- providing of medical care for injured on the prehospital stage;

- treatment of fractures of the bones of the limbs, pelvis and spine using immobilization and extension methods;

- non-surgical treatment of congenital orthopedic diseases;

- medical rehabilitation of patients.

Teaching and successful learning of the discipline «Traumatology and Orthopedics» for the sub-residency «General Clinical Practice (for foreign citizens)» is carried out on the basis of students' knowledge and skills previously acquired by the students in the following disciplines:

Propedeutics of Internal Diseases. Physical examination of the patient and the basic principles of diagnostics. The clinic, diagnostics and emergency care to patients with life-threatening conditions.

General Surgery. Clinical examination of the patient with surgical pathology. Principles and rules of transport immobilization. Methods of temporary stop of external bleeding. Terms of blood transfusion and blood substitute infusion. The course of wound healing. Principles of surgical treatment of purulent wounds.

Radiodiagnosis and Radiotherapy. Radiological diagnostics of injuries and diseases of the musculoskeletal system and of their complications. Differential diagnostics based on radiological methods. Radiological semiotics. Basic principles of radiotherapy.

Topographic anatomy and operative surgery. Topography of large arteries (the projection on the skin), joints; particular topography of the pelvis, chest and limbs. Surgical treatment of patients with injuries and diseases of the musculoskeletal system.

Urology. Clinical presentation and diagnostics of intra- and extraperitoneal lesions of the bladder, urethra, ureter, renal damage.

Neurology and Neurosurgery. The clinical signs, diagnostics and treatment principles of open and closed injuries of the brain and spinal cord, peripheral nerves, spastic and flaccid paralysis.

Oncology. Etiology, epidemiology, clinical signs, diagnostics and principles of treatment of benign and malignant bone tumors.

As a result of studying the discipline «Traumatology and Orthopedics» for the sub-residency «General Clinical Practice (for foreign citizens)» the student should

know:

etiology, pathogenesis, clinical signs of orthopedic diseases and injuries of musculoskeletal system in children and adults;

modern methods of diagnostics, non-surgical and surgical treatment of injuries and diseases of the musculoskeletal system;

the volume of primary and specialized medical care for injuries of the musculoskeletal system;

methods of prevention of diseases and injuries of the musculoskeletal system in children and adults;

types of accidents (industrial, household, children, and others), their characteristics and methods of prevention;

principles of medical rehabilitation of patients with multiple injuries and frequent orthopedic diseases;

medical ethics and deontology;

be able to:

identify the mechanism of injury and detect typical lesions of the musculoskeletal system;

carry out a clinical examination of patients with injuries and diseases of the musculoskeletal system;

diagnose typical injuries of the skeleton;

provide emergency medical care for injuries of the musculoskeletal system;

carry out temporary stop of external bleeding and bandage on open fractures;

perform transport immobilization in injuries of the musculoskeletal system;

perform novocaine blockade of the fracture site;

treat fractures with non-surgical methods;

identify common congenital diseases and deformations of the musculoskeletal system and to make a referral to a specialized health care organization;

master:

methods of clinical examination of the musculoskeletal system;

methods of diagnostics of soft tissue injuries, fractures, dislocations, and ways of providing primary health care, including in children;

methods of diagnostics of senile and pathological fractures and methods of primary health care;

methods of examination of patients with multiple and associated injuries;

methods of determining the degree of condition severity of the patient with multiple injuries;

ways to identify the dominant damage in multiple and associated trauma;

ways of providing emergency medical care for polytrauma (typical novocaine blockade, transport immobilization, a temporary stop of bleeding, blood transfusion, oxygen with nitrous oxide mixture inhalation);

the method of drawing up an action plan for the prevention and treatment of possible complications (acute renal failure, thrombosis, fat embolism, wound infection, osteomyelitis, etc.) in the early period after polytrauma;

methods of diagnostics of injuries, degenerative, inflammatory and metabolic diseases of the joints;

the method of drawing up a plan of treatment and methods of non-surgical treatment of patients with osteoarthritis, methods of revealing of indication for in-hospital treatment;

methods of diagnostics by clinical signs of typical congenital diseases and deformations of the musculoskeletal system in children: torticollis, chest wall deformity, developmental hip dysplasia, scoliosis, foot deformity;

the method of determining the indications for referral to rehabilitation treatment.

Total number of hours for the study of the discipline is 56 academic hours. Classroom hours according to the types of studies: practical classes - 35 hours, student independent work (self-study) - 21 hours.

Current assessment is carried out according to the syllabus of the specialty in the form of a credit (12th semester).

Form of higher education – full-time.

THEMATIC PLAN

Section (topic) name	Number of practical class hours
1. Traumatology	21
1.1. Injuries of the upper extremity. Birth injury to the musculoskeletal system	7
1.2. Injuries of the lower extremity	7
1.3. Polytrauma. Injuries of the pelvis and spine	7
2. Orthopaedics	14
2.1. Congenital diseases of the musculoskeletal system	7
2.2. Posture disorders. Scoliosis. Pathological kyphosis. Degenerative diseases of the spine. Osteoarthritis of large joints	7
Total hours	35

CONTENT OF THE EDUCATIONAL MATERIAL

1. Traumatology

1.1. Injuries of the upper extremity. Birth injury to the musculoskeletal system

Shoulder dislocations: classification, treatment methods, complications. Traumatic rotator cuff injuries, diagnostics, treatment. Clavicle fractures: diagnostics, treatment methods. Clavicle dislocations: classification, diagnostics, treatment. Classification of proximal humerus metaepiphyseal injuries: classification, diagnostics, treatment. Fractures of the humerus diaphysis: diagnostics, types of displacement of bone fragments, complications, treatment. Condylar and supracondylar humerus fractures: diagnostics, treatment methods. Volkmann's ischemic contracture: clinical signs, diagnostics, treatment, prevention. Olecranon fractures: diagnostics, treatment. Fractures of the head and neck of the radius: clinical signs, diagnostics, treatment. Fracture-dislocation of the forearm bones (Monteggia and Galeazzi injuries): clinical signs, diagnostics, and treatment. Fractures of the diaphysis of the forearm bones: displacement features, diagnostics, treatment. Fracture of the radial bone in a «typical place» (Kolles and Smith fractures): mechanism of injury, diagnostics, and treatment. Injuries of finger's flexors and extensors tendons: diagnostics, treatment methods. Fractures of the metacarpal bones and phalanges: diagnostics, treatment methods. Traumatic dislocation of the forearm: diagnostics, treatment.

Birth injury to the musculoskeletal system in the newborn (fractures of the clavicle, femur, birth trauma of the spine).

Examination of patients with injuries of the upper extremity: complaints and medical history; objective examination; drawing up a survey plan; interpretation of the results of instrumental methods of examination; establishing the diagnostics; justification of the treatment plan and the indications for surgical treatment.

1.2. Injuries of the lower extremity

Classification of fractures of the femur. Medial proximal femur fractures: classification, features of bone regeneration, clinical signs, diagnostics, complications, treatment principles (method of early mobilization, osteosynthesis, arthroplasty). Lateral proximal femur fractures (intertrochanteric and transtrochanteric): diagnostics, non-surgical and surgical methods of treatment. Diaphyseal fractures of the femur, clinical signs, diagnostics, and treatment.

Traumatic dislocation of the hip: classification, clinical signs, diagnostics, complications, principles of treatment and medical rehabilitation. Bruising and hemarthrosis of the knee: clinical signs, diagnostics, treatment. Patella fractures: clinical signs, diagnostics, treatment. Menisci injuries: mechanism of trauma, clinical signs, diagnostics, treatment. Role of arthroscopy in the diagnostics and treatment of injuries of the knee. Injuries of the ligaments of the knee: clinical signs, diagnostics, treatment principles.

Fractures of the proximal part of the tibia (tibial condyles, intercondylar eminence): clinical signs, diagnostics, treatment. Diaphyseal fractures of the tibia and fibula: mechanisms of fractures, clinical signs, diagnostics, treatment. Fractures of the distal tibia and ankle fractures: clinical signs, diagnostics, treatment principles. Injuries of the ligaments of the ankle joint: clinical signs, differential diagnostics, treatment. Fractures of the talus and calcaneus bones: mechanisms of injury, clinical signs diagnostics, treatment. Knee dislocations: classification, diagnostics, complications, principles of treatment.

Examination of patients with injuries of the lower extremity: complaints and medical history; objective examination; drawing up a survey plan; interpretation of the results of instrumental methods of examination; establishing the diagnostics; justification of the treatment plan and the indications for surgical treatment.

1.3. Polytrauma. Injuries of the pelvis and spine

Definition of «combined trauma (polytrauma)», «traumatic disease». Clinical features of polytrauma (mutual burdening syndrome, revealing the dominant damage). Emergency medical care for patients with polytrauma at prehospital stage of treatment. Transport immobilization of patients with polytrauma, transportation. Features of in-hospital treatment of patients with polytrauma. Features of resuscitation treatment. Surgical treatment, its optimal timing. Principles of complex treatment of patients with polytrauma. Tactics of programmed multistage surgical treatment («damage control») of patients with severe injuries. Features of postresuscitative treatment period in patients with polytrauma, its tasks. Features of the rehabilitation period in patients with polytrauma in inpatient and outpatient departments.

Diagnostics of pelvic fractures. Differential diagnostics of cavity bleeding, retroperitoneal hematoma, injuries of the urogenital system. The volume of primary health care at the pelvic injuries. Antishock measures in the prehospital and hospital stages of care. Basic methods of non-surgical treatment, depending on the type of pelvic injuries. Indications for surgical treatment of uncomplicated injuries of the pelvic bones. Transport immobilization of patients with pelvic injuries. Features of the treatment of patients with pelvic injuries in an outpatient department.

Diagnostics of complicated and uncomplicated spinal injuries. The volume of emergency medical care for patients with complicated spinal injuries. Transport immobilization in patients with spine injuries. Methods of treatment of uncomplicated and complicated spine injuries: non-surgical and surgical. Medical rehabilitation of patients with spinal injuries.

Examination of patients with polytrauma, spinal and pelvis injuries: complaints and medical history; objective examination; drawing up a survey plan; interpretation of the results of instrumental methods of examination; establishing of the diagnostics; justification of the treatment plan and the indications for surgical treatment.

2. Orthopaedics

2.1. Congenital diseases of the musculoskeletal system

Congenital dislocation of the hip (developmental hip dysplasia): clinical diagnostics in the early neonatal period, reliable and suggestive symptoms, features of diagnostics at the age of 3-4 and 10-12 months, the differential diagnostics. The value of early diagnostics of developmental hip dysplasia and non-surgical treatment in the prevention of hip osteoarthritis. General principles of surgical treatment of congenital dislocation of the hip, its timing.

Congenital clubfoot: the main components of the deformity, non-surgical treatment, staged deformity correction. Timing, principles and methods of surgical treatment of congenital clubfoot. Orthopedic shoes.

Congenital muscular torticollis: clinical signs and early diagnostics. Formation of secondary deformities of the facial skull and spine: differential diagnostics, principles of non-surgical and surgical treatment.

Syndactyly, polydactyly: classification, timing and methods of surgical correction.

Prophylactic medical examination of patients with congenital diseases of the musculoskeletal system.

Examination of patients with congenital diseases of the musculoskeletal system: complaints and medical history; objective examination; drawing up a survey plan; interpretation of the results of instrumental methods of examination; establishing the diagnostics; justification of the treatment plan and the indications for surgical treatment.

2.2. Posture disorders. Scoliosis. Pathological kyphosis. Degenerative diseases of the spine. Osteoarthritis of large joints

Scoliosis: etiology, pathogenesis, classification according to the severity and location, clinical diagnostics, differential diagnostics with congenital anomalies of the spine, various kinds of posture disorders. X-ray examination of patients with impaired posture. Clinical and radiographic principles of prognosis of scoliosis. Risser sign. Non-surgical treatment, brace treatment of spinal deformities. Indications for surgical treatment of scoliosis, types and principles of surgery.

Pathological kyphosis, Scheuermann-Mau disease: clinical signs, radiological diagnostics, the principles of non-surgical and surgical treatment.

Spondylosis, spondylarthritis, intervertebral osteochondrosis: differential diagnostics, principles of treatment.

Osteoarthritis. The concept of primary, secondary osteoarthritis. Etiology, pathogenesis, classification of osteoarthritis in the degree of severity of the process and the X-ray manifestation. The clinical diagnostics of osteoarthritis. The most common localization of osteoarthritis: coxarthrosis, gonarthrosis. Differential diagnostics of osteoarthritis with spinal diseases.

Non-surgical treatment of osteoarthritis: indications, the main groups of medications, symptom-modifying and structural modifying therapy; orthopedic treatment (joint unloading, prevention and elimination of contractures). The role of physiotherapy in the treatment of osteoarthritis. Spa treatment for osteoarthritis. Indications for surgical treatment of osteoarthritis and principles of surgery: corrective osteotomy, arthrodesis, arthroplasty. Medical rehabilitation of patients with osteoarthritis.

Examination of patients with posture disorders, osteoarthritis: complaints and medical history; objective examination; drawing up a survey plan; interpretation of the results of instrumental methods of examination; establishing the diagnostics; justification of the treatment plan and the indications for surgical treatment.

EDUCATIONAL METHODOLOGICAL CARD OF EDUCATIONAL DISCIPLINE «PEDIATRIC INFECTIOUS DISEASES» FOR THE SUB-RESIDENCY «GENERAL CLINICAL PRACTICE (FOR FOREIGN CITIZENS)»

Номер раздела, темы	Название раздела, темы	Number of in-class hours		Self-studies	Means of training	Literature	Form of control
		practical					
1.	Traumatology	21	12				
1.1.	Injuries of the upper extremity. Birth injury to the musculoskeletal system	7	4	1-4	1-2	1, 4	
1.2.	Injuries of the lower extremity	7	4	1-4	1-2	1-3, 5, 7	
1.3.	Polytrauma. Injuries of the pelvis and spine	7	4	1-4	1-2	1-5	
2.	Orthopaedics	14	9				
2.1.	Congenital diseases of the musculoskeletal system	7	5	1, 3-4	1-2	1-3, 5, 7	
2.2.	Posture disorders. Scoliosis. Pathological kyphosis. Degenerative diseases of the spine. Osteoarthritis of large joints	7	4	1, 3-4	1-2	1, 4, 6, 7	
	Total hours	35	21				

INFORMATION AND INSTRUCTIONAL UNIT

LITERATURE

Basic:

1. Traumatology and orthopedics : textbook for students of higher medical schools IV level of accreditation / O. A. Burianov [и др.]. - Vinnytsia : Nova Knyha, 2018. - 400 p.

Additional:

2. Aitken, M. J. Rheumatology and orthopaedics / M. J. Aitken, A. Gibson. – 4 th ed. : Elsevier, 2019. – 229 p.

CHARACTERISTICS OF THE USED TRAINING METHODS

In the educational process traditional methods of teaching the academic discipline are used. They are practical classes, as well as elements of the students' independent work.

It is recommended to organize the educational process using traditional and modern educational technologies (simulation training technologies, various forms of communication, variable models of independent work, test and other competence assessment systems, etc.).

Practical classes are conducted in the admission and surgical departments, operation rooms. During practical classes under the supervision of a teacher, students independently take patient`s complaints and the case history, conduct a physical examination, learn to make a plan for a laboratory and instrumental examination, interpret the results of laboratory and instrumental tests correctly, make the diagnosis, draw up a treatment plan and medical records. Practical training is provided by solving situational tasks, mastering patient examination skills, injuries diagnostics.

Independent extracurricular work consists in studying the main and additional literature, preparing presentations and short reports on the most important issues of traumatology and orthopaedics.

Students get acquainted with safe working conditions, requirements and ethical norms during physical examination and patient`s management.

LIST OF TRAINING MEANS

1. Multimedia presentations;
2. video;
3. X-rays;
4. results of other additional examination methods.

LIST OF AVAILABLE DIAGNOSTIC TOOLS

The following forms are used for competences assessment:

Oral form:

1. Interviews.
2. Assessment based on role-playing.
3. Situational tasks.

Written form:

4. Tests.

Oral-written form:

5. Classroom practical exercises with oral defense.

6. Credit.

Technical form:

7. Electronic tests.

LIST OF PRACTICAL SKILLS

1. Determination of the axis of the limbs
2. Determination of the range of motions in joints.
3. Determination of the type of restrictions on the range of motion in the joint
4. Applying of transport immobilization in the fracture of the humerus.
5. Applying of transport immobilization in case of fracture of the femur.
6. Applying of transport immobilization in the fracture of the lower leg bones.
7. Identification of reliable signs of diaphyseal fracture.
8. Determination of the type of periostitis in bone tumors.
9. Determination of the type of fragments displacement on the x-ray.
10. Preparation of medical documentation

Траб.

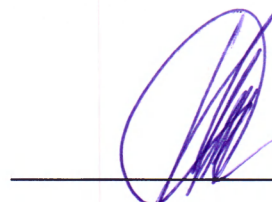
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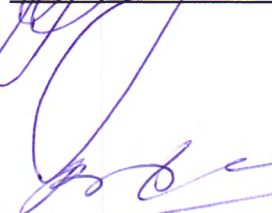
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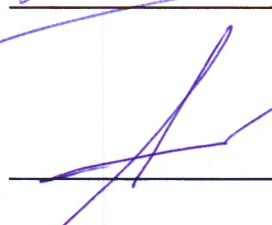
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Curriculum content, composition and accompanying documents comply with established requirements.

Dean of the Medical Faculty for International Students of the educational institution «Belarusian State Medical University»

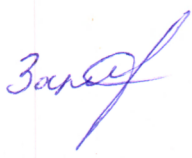
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