

MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN

TASHKENT MEDICAL ACADEMY  
DEPARTMENT OF TRAUMATOLOGY-ORTHOPEDECS AND  
MILITARY SURGERY

«Approved»

By Vice Rector for Academic  
affairs prof. Boymurodov Sh.A.

Residency Program Guide

5A510121

TRAUMATOLOGY AND ORTHOPEDICS

Special subject: 1398 hours

Including practical work: 920 hours

Research work: 2835 hours

Scientific and pedagogical work: 567 hours

Qualified practice: 648 hours

## FACULTY

- Khujanazarov I.E. Ph.D
- Yugay A.V. MD
- Turdibekov B.S. MD
- Asilova S.U. professor . Director of the Residency's program,

### Reviewers:

- Karimov M. professor  
Tashkent Medical Academy
- Khodjanov I. professor  
Scientific Research Center of Orthopedics republic of Uzbekistan,

## TABLE OF CONTENTS

Introduction.....	4
Purpose of learning.....	6
Learning objective.....	6
Requirements for residents in the discipline.....	7
Clinical performance expectations.....	8
Resident supervision process.....	14
Case log system.....	17
The list of academic disciplines and their sections necessary for the study.....	17
Seminar requirements.....	19
Control measures to assess the knowledge of a resident.....	20
Training facilities.....	20
The volume of academic work in the discipline.....	21
Subjects of seminars.....	21
Resident's practice.....	26
The list of thematic rotations.....	26
Research activity guidelines.....	30
Resident duty hours.....	33
Outcomes evaluations.....	35
Resident's knowledge order and gradation.....	39
Conclusion.....	40
Reference.....	41

## INTRODUCTION

Orthopedics and traumatology are inextricably linked fields of clinical medicine.

Orthopedics is the science of diseases and congenital as well as acquired deformations of the musculoskeletal system. Its task is to study the etiopathogenesis, prevention, diagnosis and treatment of diseases and deformities of the organs of support and human movement. Specialists in the field of traumatology and orthopedics should have a base of theoretical knowledge and practical skills in areas of medicine related to orthopedics and traumatology, including all clinical aspects of diagnosis, conservative and surgical treatment, as well as the prevention of diseases of the musculoskeletal system.

Traumatology - a section of this discipline mainly studies the processes that occur and occur in the body during injuries and traumatic diseases, the mechanism of damage and recovery processes in case of damage to the musculoskeletal system, develops methods for restoring the integrity and function of the organs of motion and support, and is engaged in the prevention of injuries and its complications .

Despite the tremendous achievements of modern medicine, some types of pathology relating to the field of traumatology and orthopedics continue to be a serious medical and social problem. In this regard, the need for qualified doctors - orthopedic, who fully possess knowledge and skills in the comprehensive treatment of such diseases, is constantly growing. Orthopedics with a master's degree is called upon to become such high-class specialists.

In addition, residents being highly qualified specialists, will be able to carry out not only medical and preventive work, but also administrative and managerial, medical, social and organizational and methodological work.

In connection with the foregoing, the orthopedics will be fully in demand in modern conditions.

According to the curriculum, a three-year full-time course of study is provided for in the magistracy in the specialty "Traumatology and Orthopedics". 1058 hours are allotted for theoretical classes, 300 hours for

scientific and pedagogical activity, 312 hours for preparation of a scientific project, 1708 hours for master's practice (118 weeks in total).

The maximum load of classroom studies and master's practice is set at 12.9 hours per week.

Classes are held at the Department of Traumatology and Orthopedics of sponsoring medical universities, based in specialized trauma and orthopedic departments, on the basis of city and republican, as well as departmental medical institutions. In addition, training is provided at participating research institutes and scientific centers of the Ministry of Health or the Academy of Sciences of Uzbekistan.

Theoretical training in the specialty is carried out in the form of seminars in all sections of orthopedics, and includes 15 thematic blocks (research Methods in orthopedics and traumatology. Anatomy and physiology of the musculoskeletal system and general issues of orthopedics and traumatology. Outpatient orthopedics. General orthopedics and research methods in orthopedics. Orthopedics and traumatology of the shoulder girdle and upper limbs. Orthopedics and traumatology of the lower extremities. Orthopedics and traumatology of the pelvic bones. Orthopedics and traumatology of the spine. Multiple traumas. Pediatric traumatology. Gerontology. Congenital deformities. Acquired deformations. Amputation of limbs and prosthetics. Bone Oncology).

Practical training (residency practice) is conducted in the relevant departments of Tashkent Medical Academy and other specialized centers. It includes an independent interpretation of the results of clinical and paraclinical studies, the implementation of diagnostic and treatment procedures, filling out medical documentation, and curating patients in accordance with the list of practical skills within each rotation. A part of practical skills is mastered during duty.

Practical training (residency practice) is conducted under the supervision.

Monitoring of training is carried out by checking the protocols of daily work with an indication of the share of independent participation of a resident.

## The goal of Learning

To provide an orthopaedic residency program dedicated to the superior care of orthopaedic patients with an appropriate associated program of scientific research and teaching. Our primary concern is in the superior care of orthopaedic patients and the total commitment of returning people to functional lives. Through investigation and restoration, we hope to rehabilitate and restore function and form. Training of highly qualified specialists in orthopedics, possessing the necessary knowledge, skills and practical skills necessary in modern orthopedics practice, corresponding to **certification requirements and subsequent licensing as specialists.**

## Learning objectives

- to develop modern knowledge on epidemiology, etiology, pathogenesis and complications of damage to organs and systems of the musculoskeletal system.

- to develop knowledge on the use of modern methods for diagnosing pathological conditions resulting from injuries or diseases, as well as congenital and acquired deformations of the musculoskeletal system.

- to teach the necessary and adequate medical and diagnostic procedures and procedures for orthopedic patients in outpatient and inpatient settings.

- to develop the ability to interpret the results of modern laboratory and instrumental studies used in the everyday practice of an orthopedics

- to develop skills to provide highly qualified care at the modern level in emergency conditions associated with injuries and diseases of the musculoskeletal system.

- to develop skills in intensive care for severe rehabilitation measures for trauma and orthopedic patients.

- to develop the ability to implement preventive measures to reduce the level of injuries, the most common post-traumatic complications and the prevention of orthopedic diseases.

## **Requirements for residents in the discipline.**

The resident of specialty "Orthopedics" should have an idea:

- on current issues and the main directions of development of medicine;
- on new technologies in the diagnosis and treatment of pathology in patients with orthopedic diseases of the musculoskeletal system.

Know and be able to use:

- epidemiological information of injuries, modern theories of pathogenesis, classifications, modern methods of diagnosis and treatment of injuries of the musculoskeletal system at various stages of medical care and orthopedic diseases, prevention of injuries and orthopedic diseases.
- orders and regulations of the health authorities of the Republic of Uzbekistan relating to the trauma service.

Have skills:

- highly qualified interrogation of patients with orthopedic pathology of the musculoskeletal system;
- determination of the volume and set of necessary medical and diagnostic measures used in the orthopedic practice;
- the perfection of the physical methods of examining patients with orthopedic pathology of the musculoskeletal system;
- independent conduct of the necessary medical and diagnostic procedures for orthopedic patients;
- interpretation of the results of additional studies (laboratory, functional, hormonal, radiological, immunological, microbiological, morphological);
- independent conduct of a comprehensive individualized treatment of injuries, as well as orthopedic diseases in an outpatient clinic, trauma center, trauma and orthopedic department of a hospital, intensive care unit;
- carrying out some resuscitation measures and assisting in emergency situations in orthopedic practice;

- development and implementation of rehabilitation measures for patients with orthopedic pathology of the musculoskeletal system;
- advice to survivors;
- maintaining medical records.

## **CLINICAL PERFORMANCE EXPECTATIONS**

### **Daily Schedule**

Residents shall start clinical activity no earlier than 06:00 when not on call and when not on night float. The attending will make rounds at his/her discretion. After hospital rounds and didactic conferences, the resident will proceed with other responsibilities (clinic, surgery).

### **Inpatient Ward**

### **Role of the Junior Resident**

The junior resident on each service shall round on all patients on the service, preferably before morning conferences. Junior residents should be in communication with the responsible senior resident. Ultimate decisions regarding patient care shall be coordinated with the attending physician. Each evening and prior to leaving for the weekend or other extended period, each junior resident shall conduct a verbal sign-out with the incoming on-duty resident.

### **Role of the Intern**

The intern shall assist in gathering information (follow-up on labs and x-rays) and performing minor bedside procedures.

### **The Trauma Team**

The Trauma Team shall consist of the intern, nurse practitioner, chief resident, and the Orthopaedic Trauma attending. The on-call night resident and the day team will participate in formalized hand-offs.



## **Rounding**

Upon arriving at a bedside, the resident responsible for the patient should present an abbreviated status report including vital signs, test reports and plan of treatment including changes since the previous day. The general care plan for the patient(s) will ultimately be determined by the attending physician who was on call and accepted responsibility for the care of the patient. All inpatients that have had surgery should have a documented post-op check by either the resident on the respective service or the on-call resident. Any patient admitted for observation (e.g. for monitoring compartment syndromes) should also have documented checks every few hours. The resident involved in the surgical case shall make rounds, see the patient, and be involved in the post-operative inpatient care.

## **Weekend Rounds**

The senior resident's role on weekends and holidays is to coordinate the entire service. The senior may leave the hospital only after all rounding has been completed and in the absence of surgical cases. Junior residents off duty shall sign out to the on-call resident prior to leaving for the weekend.

## **Notification to Attending Physician**

It is the responsibility of the resident on call to notify the attending orthopaedic surgeon on call of any admissions, potential operative cases, changes of medical status (such as transfer to ICU) as soon as possible. It is the responsibility of the resident to consult with the patients' family members and keep them updated on the status of the patient. It is the responsibility of the resident to maintain documentation of information and consults on the patient's chart.

## **Interdisciplinary Rounds**

Interdisciplinary rounds are instituted to maximize resident learning in the domains of Patient Care, Communication, Professionalism, and Systems-Based Practice. Residents are given opportunity to develop skills in working effectively as a member of the health care team. Members of the team include the nurse practitioner, charge nurse, bedside nurse, physical

therapist, pharmacist, case manager, chaplain, and social worker. The responsibility of the resident is to streamline each patient's experience through coordinating activities. This encompasses communication skills at the bedside, between healthcare professionals, and systems-based facilitation of patient care.

## **On-call Duties**

### **Inpatient Consults**

Consults are to be performed on a timely basis by the intern or resident on call. Following notification, the intern or resident is to assess the patient including the physical exam, review of pertinent lab values and x-rays. A differential diagnosis and treatment plan should be prepared. A synopsis of this information should be presented in an organized fashion with selected x-rays (when appropriate) to the orthopaedic junior resident, senior resident, or attending on call. The junior orthopaedic resident is responsible for supervising all intern-performed consultations. The formal consult shall be confirmed by the attending on call within 24 hours. It is the responsibility of the intern/resident to notify the appropriate attending.

### **Emergency Department Consults**

The intern or junior resident shall evaluate consults from the Emergency Department in a timely manner. In most cases, this shall be within two hours. All manipulative procedures and all cases requiring surgery shall be evaluated and supervised by the junior resident. Scheduling of cases from the Emergency Department shall be coordinated by the senior resident, with appropriate communication with the on-call attending. Chiefing of consultations shall proceed along the following chain: intern/PA, junior resident, senior resident, attending staff.

### **Surgeries**

The senior resident shall coordinate all operative cases. To facilitate hands-on learning, the junior resident should learn to work efficiently so as to take advantage of operative opportunities while on call.

## **Nightly Check Out and Duties**

The senior resident on call shall receive a check out from the day call junior resident. This will allow the senior to check to see if any traumas or other consults have occurred. The senior resident will also check with the operating room to see if there has been trauma that has bypassed the day call resident and will also analyze the coverage of attending surgery in the operating room. The senior resident shall only be utilized for trauma coverage. From Monday through Friday, the intern(s) on the orthopaedic service shall commence signout to the night call resident at 18:00, and an additional 30 minutes may be utilized to complete sign out. The senior on-call resident shall ensure that the intern should be off duty at 18:30 but no later than 19:00. The exception is on Tuesday, where the intern may be used to cover until 20:00. The senior resident shall coordinate dismissal strategies for the other residents while assigning responsibility to the night float resident.

## **Backup Call**

The backup call resident shall remain in the vicinity, no more than 90 minutes away.

## **Orthopaedic Emergencies**

All orthopaedic emergencies require notification of the surgeon on call as soon as possible. These include, but are not limited to:

- Open fractures
- Displaced supracondylar fractures
- Compartment syndrome
- Ischemic extremity
- Hip dislocations
- Flexor tendon injuries
- Spine injuries with progressive nerve loss

## **Transfers**

All requests for transfer(s) of patient(s) from other facilities are to be referred to the attending on call.

## **Clinic Appointments**

Return appointments to the clinic are scheduled on the basis of urgency of

diagnosis and possibility of changes during the interim. Therefore, all fractures which may displace are to be seen weekly for the first three weeks following reduction. Those that are not likely to displace (because of no original displacement, etc.) should be scheduled as availability permits.

## **Post-call Duties**

### **Post-call Sign-out Rounds**

Sign-out Rounds shall be carried out during weekdays at 06:00 am, in room A511. The intern, all junior residents, the post-call senior resident, and the Trauma senior resident are required to attend. Attending presence is discretionary. When present, the responsible attending at morning sign-out rounds shall engage and include the entire team in the hand-off conversation. To foster learning in the domains of Communication and Professionalism, the senior resident(s) shall remain a critical part of the decision-making before reaching the attending level and be responsible for presenting consultations and cases at Sign-out Rounds. Before Sign-out Rounds, the junior resident shall gather information and prepare for presentation.

### **Transfer of Care**

In transferring care of a patient to another orthopaedic surgeon, communication should be directed from the current attending physician to the attending physician assuming care of the patient. Residents shall not be used to shop other attendings to solicit care transfers.

### **Patient List**

The Orthopaedic Service patient list shall be updated before 06:00 am on the morning following call.

### **Pagers**

Residents are encouraged to wear their pagers, turned on, while awake and on duty.

### **Attending Physician Expectations**

## **Priorities**

Because one resident cannot be in more than one place at any given time, and because there are more attendings than there are residents, the utilization of residents shall be prioritized. Attendance priorities for the junior residents are in the following order, from most important to least important:

- Conference attendance
- Emergency Department coverage
- Inpatient ward coverage
- Clinic coverage

Attendance priorities for the senior residents are in the following order, from most important to least important:

- Conference attendance
- Surgical experience
- Coordination of inpatient and emergency care
- No less than one-half day of clinic experience

## **Attending Vacations**

Attendings shall communicate with each other, such as during faculty and departmental meetings, to coordinate utilization of residents during attending vacation time. Sharing of the free resident shall be pre-arranged, prior to the 15th day of the month before.

## **Coverage**

Attendings are not expected to demand coverage for operative and clinic assistance when their resident is on vacation, unless pre-arrangements have been made prior to the 15th day of the month before. Attendings should not expect coverage when they choose to operate during academic time. Research and Basic Science time is protected; however, residents on these rotations may be used in limited cases for special circumstances, with approval from the Program Director and/or Department Chair. For further details, see the Leave Policies and Procedures.

## **Operating Room**

### **Patient preparation**

Each resident is expected to see the patient no later than 20 minutes before surgery. If required, the resident shall complete the 24-hour Update Form and verify the Informed Consent. The resident shall also mark the surgical site after appropriate assessment.

### **Educational preparation**

The resident should under no circumstances expect to simply walk in and operate. Furthermore, in scheduled cases, the resident is expected to have read up on the case. Adequate preparation includes, but is not limited to, familiarity with the patient's history and exam findings, diagnostic studies, indications for surgery, surgical approach, common complications, and post-operative care. The scheduled cases can be anticipated by contacting the surgery scheduler.

### **Clinic**

Residents are expected to arrive to clinic on time. Clinic responsibilities vary from service to service, and shall be dictated by the supervising attending physician.

## **RESIDENT SUPERVISION PROCESS**

The Orthopaedic and Traumatology Residency Program adheres to the basic policy established by the Graduate Medical Education Committee of Tashkent Medical Academy.

### **Inpatient duties**

Residents shall be supervised by members of the Medical Staff with appropriate privileges and with the authorization of the Program Director. This supervision shall be exercised by daily rounds, telephone consultations, and other means when needed. Documentation of this supervision shall be demonstrated by counter-signing the resident's notes.

## **Patient evaluation**

The supervising physician shall personally interview and examine the patient on a regular basis to confirm the resident's findings and to provide the opportunity to evaluate and educate the resident in clinical care.

## **Procedures**

The supervising physician shall be physically present for any procedures for which the resident is not capable of performing without direct supervision. If another resident has been designated as being capable of performing this procedure without direct supervision, that resident can be designated to substitute for the presence of the supervising physician.

## **Admissions, transfers, and discharges**

The designated member of the Medical Staff must approve any admission of a patient to the service. This will allow discussion of the resident's preliminary medical decision making. The designated member of the Medical Staff shall be informed immediately of any unexpected transfer of a patient to another service or to another level of care (ICU, intermediate, basic). The designated member of the Medical Staff shall be informed immediately of any unexpected discharge or death of a patient. The designated member of the Medical Staff must approve of any recommendation to discharge a patient from the Emergency Department.

## **Consultation and testing**

The resident shall order consultations and testing on behalf of the attending physician following discussion with the attending physician. This may be documented by the resident or by the attending in the physicians' orders or in the doctors' notes. Any consultation requested by another service may be initially seen by the intern. All consults should also be discussed with the junior orthopaedic resident on duty. The resident shall immediately discuss the consultation with the designated member of the Medical Staff for any critically ill patient. The consulting physician shall personally evaluate

the patient within one day of the request for consultation, or sooner if warranted.

## **Outpatient Clinics**

The attending physician shall be present and supervise all evaluation and management services, including key components of the history, physical examination, and medical decision making. Exceptions to attending physician presence and supervision include

- Pre-op evaluations
- Post-op care within the 90-day global period for major surgeries

## **Surgery**

The supervising physician shall be physically present and in the operating room for the critical portion of the case. The critical portion of the case shall be determined by the supervising physician. Other than during the critical portion, the attending physician must be immediately available within five minutes and remain within the same building.

## **Compliance and Oversight**

The purpose of the Resident Supervision Process is to allow for maximum educational effectiveness in patient care related instruction. It is the responsibility of the attending physician to provide an adequate level of supervision. When there is non-compliance with the Resident Supervision Process and the policies outlined herein, the resident shall report such behavior to the Department Chair, Program Director, and Quality Resource Management. Non-compliant behavior includes, but is not limited to:

- Failure to chief inpatient consults within 24 hours. Allowing residents to perform surgery without being immediately available. Allowing residents to perform evaluation and management services without verifying the history, physical examination, and medical decision making.



## **CASE LOG SYSTEM**

### **Purpose**

Systems are reviewed by the Program Director when completing the final Record of Resident Assignment forms for the American Board of Orthopaedic Surgery. This is to confirm that a resident is prepared for the independent practice of operative orthopaedics

### **What Should Be Reported**

All operative procedures Manipulative reductions

### **What Should Not Be Reported**

Closed treatments without manipulation Simple splint or cast applications Joint aspirations Steinmann pin placements

### **Time Frame**

Residents shall be no more than two weeks behind when logging in cases. Ideally, residents should enter all their data for one rotation before beginning the next rotation.

## **THE LIST OF ACADEMIC DISCIPLINES AND THEIR SECTIONS NECESSARY FOR THE STUDY OF THIS ACADEMIC DISCIPLINE.**

Residency study in the specialty "Traumatology and Orthopedics" is based on knowledge and skills, acquired in theoretical and clinical departments during training at a medical university under the general practitioner training program and includes the following:

1. Normal anatomy (structure of the musculoskeletal system).
2. Normal physiology (physiology of the musculoskeletal system).

3. Pathological anatomy and histology (macro- and microscopic substrate of the disease in injuries and diseases of the musculoskeletal system).

4. Pathological physiology (mechanisms of the development of the disease, adaptive-compensatory reactions and patterns of violation of the body's homeostasis in orthopedic diseases).

5. Biochemistry (the main biochemical reactions that occur at the time of an injury and after it, which underlie a traumatic disease and reparative processes, as well as orthopedic diseases of the musculoskeletal system).

6. Microbiology (microbiological and biochemical characteristics of etiological agents, methods for their identification and methods for choosing the optimal antimicrobial treatment of infectious diseases of the musculoskeletal system).

7. Internal diseases (physical methods for examining patients and assessing the condition of internal organs, etiology, pathogenesis, classification, clinical manifestations, complications, diagnostics, differential diagnosis, complex treatment, rehabilitation and prevention of diseases of internal organs).

8. Surgical diseases (the most common diseases that occur as complications or concomitant diseases of the musculoskeletal system, requiring urgent or planned surgical treatment, clinical, outpatient and instrumental criteria for the most common surgical diseases).

9. Anesthesiology and intensive care (emergency care and resuscitation for patients with trauma and in the early postoperative period).

10. Infectious diseases (diagnostic criteria and principles for the treatment of the most common infectious diseases).

11. Phthisiology (damage to the skeletal system with tuberculosis, clinical, laboratory, instrumental diagnostic criteria).

12. Endocrinology (diagnostic criteria and principles for the treatment of the most common endocrine diseases, damage to the musculoskeletal system in endocrine diseases).

13. Hematology (blood diseases leading to impaired function of the musculoskeletal system).

14. Oncology (methods for the diagnosis and treatment of benign bone tumors, early clinical signs of cancer of the musculoskeletal system, differential diagnosis of benign and malignant bone tumors).

15. Radiology (interpretation of radiographs of injuries and diseases of the musculoskeletal system).

16. Clinical pharmacology (mechanism of action, pharmacodynamics, pharmacokinetics, drug interaction).

17. Physiotherapy and exercise therapy (physical methods of treating injuries and diseases of the musculoskeletal system, exercise therapy and rehabilitation for diseases of the musculoskeletal system).

## **REQUIREMENTS FOR SEMINARS.**

- taking notes of the developed literature.
- photocopying part of the literature to prepare for seminars.
- preparation of a message at a clinical conference on a particular issue (s) of the seminar.
- compilation of tables, diagrams, algorithms on key issues of seminars.
- the solution of complicated situational problems on the topic of the seminar.
- the solution of complicated test items on the topic of the seminar.
- analysis of clinical cases on the topic of a seminar.

To the residency practice:

- independent examination of inpatients and outpatients;
- independent supervision of patients in the departments;
- compilation and implementation of a set of necessary medical, diagnostic and rehabilitation measures;
- participation in clinical, pathological conferences, clinical analysis of patients;
- assessment and interpretation of the results of additional research methods;
- analysis of "thematic" patients;
- participation in examinations and manipulations of patients performed by specialist consultants;
- filling out outpatient records, case histories, statistical coupons and other medical medical records;
- execution of daily work protocols indicating the share of independent participation of the undergraduate.

## **CONTROL MEASURES TO ASSESS THE KNOWLEDGE OF A RESIDENT.**

- Current control on the topic of the seminar in the form of an interview
- Interim control
- The final control conducted at the end of each seminar in the form of a written test survey on the topics of seminars and practical skills acquired.

## **TRAINING FACILITIES**

Classes are held at the Department of Traumatology and Orthopedics of the Tashkent Medical Academy, based in the Department of Traumatology and Orthopedics of the Republican and specialized departments of Scientific Center of Orthopedics Republic of Uzbekistan. Practical training is carried out in the relevant specialized departments of the Tashkent Medical Academy, Scientific Center of Orthopedics Republic of Uzbekistan and other specialized centers in Tashkent.

Residents in the specialty of orthopedics are carried out at the Department of Traumatology and Orthopedics of the Tashkent Medical Academy, as well as at Scientific Center of Orthopedics Republic of Uzbekistan, which is the main base of the department of the Tashkent Medical Academy.

The clinical base of the Department of Traumatology and Orthopedics is the Department of Traumatology and Orthopedics with a round-the-clock trauma center and all clinical departments and the emergency post of Scientific Center of Orthopedics Republic of Uzbekistan. On the bases of the department there are a clinical and biochemical laboratory, radiological departments.

Scientific Center of Orthopedics Republic of Uzbekistan has the following departments: emergency post, consultative clinic, adult traumatology, pediatric traumatology, sports traumatology, pediatric

orthopedics, adolescent orthopedics, adult orthopedics, vertebrology, compression and distraction osteosynthesis, resuscitation. The Institute has a good material base: there are clinical, biochemical, pathomorphological and electrophysiological laboratories.

### **THE VOLUME OF ACADEMIC WORK IN THE DISCIPLINE**

Semester	Labor input	Practical lessons	Master's practice	Scientific and pedagogical work	Preparation of a master's thesis project
I	540	200	240	80	20
II	580	200	280	60	40
III	500	220	240	40	
IV	600	180	380	40	
V	618	258	280	80	
VI	540		288		252
Total:	3378	1058	1708	300	312

### **SUBJECTS OF SEMINARS FOR RESIDENTS IN THE SPECIALTY TRAUMATOLOGY AND ORTHOPEDICS.**

#### **1<sup>ST</sup> SEMESTER.**

- I. Topographic anatomy of the musculoskeletal system.
  1. Topography of the shoulder girdle, clavicle, sternum.
  2. Surgical approach
  3. Topography of the shoulder.
  4. Surgical approach
  5. Topography of the shoulder and elbow joint.

6. Surgical approach.
7. Topography of the forearm.
8. Surgical approach.
9. Topography of the hand and wrist joint.
10. Surgical approach.
11. Topography of the hip joint.
12. Surgical approach.
13. Hip topography.
14. Surgical approach.
15. Topography of the knee joint.
16. Surgical approach.
17. Topography of the lower leg.
18. Surgical approach.
19. Topography of the foot, ankle joint.
20. Surgical approach.

## **FOR 2<sup>ND</sup> SEMESTER**

1. The topography of the pelvis.
2. Surgical approach.
3. Topography of the chest.
4. Surgical approach.
5. Topography of the cervical spine.
6. Topography of the cervical and brachial plexus.
7. Topography of the thoracic region.
8. Topography of the lumbosacral region.
9. Topography of the lumbosacral plexus.
10. Surgical approach.
11. Minimally invasive methods of surgical interventions in traumatology and orthopedics.
12. Methods of examination of patients.
13. Conservative treatment methods.
14. Surgical treatment methods.
15. Bone osteosynthesis.
16. Intraosseous osteosynthesis.

17. Extraosseous osteosynthesis.
18. Injuries to the shoulder girdle
19. Injuries to the shoulder
20. Injuries to the elbow

## FOR 3<sup>RD</sup> SEMESTER

II. Methods of examination of orthopedic and traumatological patients. Injuries to the upper limbs

1. Injuries to the forearm
2. Injuries to the wrist, hand and fingers
3. Primary surgical treatment for injuries to the hand.
4. Complications of injuries to the bones of the upper limb.

III. Injuries to the lower extremities

5. Injuries to the hip joint
6. Hip fractures.
7. Injuries to the knee joint
8. Fractures of the leg bones.
9. Injuries to the ankle joint
10. Fractures of the bones of the foot.

IV. Traumatic dislocations, injuries to the bones of the pelvis and spine.

11. Reasons, diagnosis and signs of dislocations in / limb.
12. Therapeutic tactics for acute dislocations in / limbs.
13. Therapeutic tactics for chronic dislocations in / limbs.
14. Methods of rehabilitation and prevention of recurrence of dislocation of the upper limb.
15. Reasons, diagnosis and signs of dislocations of n / limbs.
16. Therapeutic tactics for acute dislocations of the n / limb.
17. Therapeutic tactics for chronic dislocations of the n / limb.
18. Methods of rehabilitation and prevention of recurrence of dislocation of the lower limb.
19. Injuries to the pelvis
20. Therapeutic tactics for injuries to the pelvis.

## FOR 4<sup>TH</sup> SEMESTER

1. Methods of conservative treatment of patients with pelvic injuries.
2. Methods of surgical treatment of patients with pelvic injuries.
3. Rehabilitation of patients with pelvic injuries.
4. Etiology, pathogenesis and clinical presentation of torticollis.
5. Treatment of torticollis
6. Etiology, pathogenesis and clinical presentation of congenital clubfoot.
7. Treatment of congenital clubfoot
8. Diagnosis and treatment of children with DDH up to one year of life.
9. Diagnosis and treatment of children with DDH up to two years or more.
10. Etiology and pathogenesis of scoliotic deformity.
11. Methods of treatment of scoliosis of a growing organism.
12. Underdevelopment and deformation of the hand and fingers
13. Clinics, diagnosis and treatment of a funnel chest.
14. Clinic, diagnosis and treatment of a flat chest.
15. Congenital high standing scapula. Pterygoid scapula.
16. Diagnosis and treatment of the absence of limbs.
17. Surgical treatment methods that improve the quality of life of patients.
18. Congenital shortening and orthopedic pathology of the knee joint
19. Congenital pseudarthrosis. Etiology and pathogenesis, diagnosis and clinics of pseudarthrosis. Principles of conservative and operative treatment of pseudarthrosis.
20. Congenital deformation of hand. Chronic subluxation. Madelung deformation.



## FOR 5<sup>TH</sup> SEMESTER

1. Congenital dislocation of the humerus, radius, and patella.
2. Etiology and pathogenesis of osteomyelitis development, classification and clinics.
3. Treatment of hematogenic and rare forms of osteomyelitis.
4. Causes and pathogenesis of the development of the disease, clinics and diagnosis.
5. Orthopedic treatment of cerebral palsy complications.
6. Pathological dislocation of the hip. Conservative treatment
7. Pathological dislocation of the hip. Surgical treatment
8. Etiopathogenesis of the orthopedic complications of the poliomyelitis.
9. Orthopedic aspects of poliomyelitis treatment.
10. Benign bone tumors and treatment.
11. Malignant bone tumors and their treatment.
12. Arthrosis, arthritis of the hip joint.
13. Arthrosis, arthritis of the knee joint.
14. Arthrosis, arthritis of the ankle joint.
15. Arthroplasty
16. Spondylosis of the spine.
17. Politrauma. The principles of modern treatment
18. Multiple injuries. Classification, clinics and diagnosis of combined injuries the principles of modern treatment
19. Combined injuries Classification, clinic and diagnosis of combined injuries. The principles of modern treatment
20. Social rehabilitation. Medical rehabilitation of patients, issues of organizing the rehabilitation of orthopedic patients in Uzbekistan.

**6<sup>th</sup> semester no any seminars. Residents prepare to fulfill research requirements for presentation.**

## **RESIDENT'S PRACTICE.**

Practical training is conducted under the guidance of a trainer in specialized traumatology and orthopedic departments, as well as in intensive care and emergency departments, in auxiliary diagnostic departments of the hospital, in an advisory clinics, with the necessary medical and diagnostic procedures and procedures, filling out medical documentation, a part of practical skills is mastered during duty. In the first year of training, the duty is joint with the trainer or doctor on duty of the department, and from the second year of training independent watch is planned.

## **THE LIST OF THEMATIC ROTATIONS**

1. "Emergency care."

Emergency. Second clinic Tashkent Medical Academy

2. "X-ray diagnostics in traumatology and orthopedics"

X-ray departments of the Republican Scientific Center of Orthopedics.

3. "Children's traumatology"

Department of Pediatric Traumatology Republican Scientific Center of Orthopedics

4. "Children's Orthopedics"

Department of Pediatric Orthopedics Republican Scientific Center of Orthopedics, Republican Children's Orthopedic Center.

5. "Adult Orthopedics"

Department of Adult Orthopedics Republican Scientific Center of Orthopedics and second clinic of Tashkent Medical Academy

6. "Vertebrology"

Department of Vertebrology Republican Scientific Center of Orthopedics, Department of Spinal Surgery Republican Scientific Center of Neurosurgery.

7. "Compression-distraction osteosynthesis"

Department of compression-distraction osteosynthesis and childhood injury  
Scientific Center of Orthopedics Republic of Uzbekistan

8. "Multiple injury"

Department of Emergency. Tashkent Medical Academy

9. "Osteomyelitis"

Republican Osteomyelitis Center of the Ministry of Health of the Republic of  
Uzbekistan

10. "Hand Surgery"

Republican Center for Hand Surgery. Tashkent Medical Academy

11. "Sports traumatology"

Department of sports injury Republican Scientific Center of Orthopedics

12. "Outpatient traumatology"

Outpatient department and emergency care. Second clinic Tashkent Medical  
Academy

13. "Cerebral Palsy"

Republican neuropsychiatric center

14. "Orthopedic diseases in children"

Republican Children's Orthopedic Center.

15. "Injuries to the brain and spinal cord"

Republican Scientific Center for Neurosurgery

16. "Teenage Orthopedics."

Department of teenage orthopedics Republican Scientific Center of Orthope-  
dics

17. "Adult traumatology."

Department of Traumatology. Second clinic Tashkent Medical Academy

## Amount of practical skills in conducting thematic rotations

1. Children's orthopedics:
  - a) Functional traction system
  - b) Applying a plaster cast in the Lorenz I position
  - c) Postoperative period rehabilitation
  
2. Spine surgery department:
  - a) Epidural blockade
  - b) Paravertebral blockade
  
3. Department of large joints:
  - a) Conservative and surgical treatment
  - b) Arthroplasty
  - c) Oxygen therapy
  
4. "Compression-distraction osteosynthesis"
  - a) Applying apparatus of Ilizarov,
  - b) Applying a plaster cast
  - c) Conservative therapy
  
5. Department of children's traumatology:
  - a) Plaster cast application
  - b) Reposition
  - c) Applying of Ilizarov apparatus
  
6. Department of the teenage orthopedics:
  - a) Surgical treatment of DDH
  - b) Applying a plaster cast
  - c) Treatment of bone pathology
  
7. Multiple injuries:
  - a) Applying of the apparatus of Ilizarov,
  - b) Conservative therapy
  
8. Emergency department:
  - a) Anesthesia
  - b) Reposition

c) Casting

9. OPD:

- a) Examination of patients
- b) Applying a plaster cast
- c) Physiotherapy

10. Center for children's orthopedics:

- a) Functional traction system
- b) Applying a plaster cast in the Lorenz I position
- c) Postoperative rehabilitation

11. Republican Osteomyelitis Center:

- a) surgical treatment
- b) Applying of the Ilizarov apparatus
- c) Application of plaster casts

12. Sports injury department:

- a) Surgical treatment
- b) Conservative treatment
- c) Application of plaster casts

13. Brain and spinal cord injuries:

- a) Surgical treatment
- b) Conservative treatment
- c) Puncture of the spinal cord

15. Republican neuropsychiatric dispensary. Cerebral palsy:

- a) Surgical treatment
- b) Conservative treatment
- c) Rehabilitation

16. "Hand Surgery" Republican Center for Hand:

- a) Surgical treatment
- b) Conservative treatment

17. Radiodiagnosis in traumatology and orthopedics:

- a) Study of projections of x-ray images

- b) Description of x-ray images
- c) Clinical rationale

## **RESEARCH ACTIVITY GUIDELINES**

### **Purpose**

The research program is designed to enable the resident to develop abilities to critically evaluate medical literature, research, and other scholarly activity. Activities include instruction on experimental design, hypothesis testing, research methods, and information dissemination.

### **Program Structure**

#### **Research time**

While residents may participate in research at any time during residency, dedicated research time is provided during PGY-2 and/or PGY-3 training. In addition to research, the resident on the research rotation may be scheduled to have call duties.

Use of the research resident to simply cover cases and clinics is discouraged. Protection of research time is a priority. When clinical duty coverage by the research resident is anticipated, arrangements shall be made by the 15th of the month prior. Coverage shall be arranged through joint discussion of (1) the resident going on leave, (2) the research resident, and (3) the Program Director. Whether the research resident is used for the requested coverage shall be determined at the discretion of the Program Director. Factors involved in such determination shall be based on (1) the progress of the research resident's project and (2) the educational value of anticipated coverage duties.

#### **Educational materials**

Materials used for instruction shall include, but are not limited to:

- Selected reading materials describing research methods and authorship

standards

- Information supplied by the Office of Sponsored Research
- Information systems, such as Pubmed

### **Record of research activity**

The Orthopaedic Research Coordinator shall keep a record of departmental research activity. Research in publishable form, submitted for publication, or already published, shall be filed in printed form in the respective resident's chart.

### **Research Steps and Process Flow**

#### **Project selection**

This can be from a list, generated by the department and attached with a Primary Investigator, or it may come from the resident's own idea.

#### **Types of projects**

Research may be clinical/human, animal, biomechanical, or miscellaneous.

#### **Specific steps involved**

Some steps may or may not apply, depending on the project.

- Detailed literature search
- Discussion with Primary Investigator
- Proposal
  - Introduction of the problem
  - Hypothesis
  - Methods
  - Statistical tests to be used
  - Power calculation
  - Expected findings and results
  - Anticipated grant application
  - Anticipated presentation/publication venue
  - Budget calculations
  - References
- Proposal approval by the Orthopaedic Research Committee
- Grant proposal submission
- Begin project
- Gather data
- Analyze data
- Write the abstract

- Revise manuscript
- Publication

## **Research Requirements**

Before engaging in the research activity, the resident shall propose the research to the Orthopaedic Research Committee. Such proposal shall include, at the minimum, an introduction, anticipated materials and methods (including statistical analysis), potential funding sources, and references. The resident is expected to defend the rationale behind the research and to provide an explanation regarding clinical significance. Proposal presentation shall be formal, which would include the use of PowerPoint or other presentation platform. Approval shall be granted by the Orthopaedic Research Committee once clinical relevance and scientific soundness has been determined, and the Committee shall determine whether the research is considered as a two-point major project or a one-point minor project. Residents shall not be granted credit for research performed outside of Orthopaedic Research Committee oversight and approval.

Once the research project is completed, the resident shall submit an abstract to the Orthopaedic Research Committee for approval. In order to be eligible to present at the Orthopaedic Research Seminar, the resident shall submit the abstract prior to the due date set by the Committee, which shall be before March 1 of the same year. Furthermore, one month prior to the Orthopaedic Research Seminar, the resident shall turn in a full length manuscript in a form ready for submission to a specific peer-reviewed journal of the resident's or faculty's choice, including formatting in adherence to the journal's Instructions for Authors. Specific deadlines shall be set by the Orthopaedic Research Committee.

The resident shall present one of the projects on or before the Seminar of the PGY-1 year, and shall present the second project on the end of the PGY-2 year. See Specific Criteria for Advancement under Outcomes Evaluations and Promotions for more details. The research project shall be deemed to be completed after (1) approval of research proposal by the Orthopaedic Research Committee, (2) completion of data gathering and analysis, (3) approval of abstract by the Orthopaedic Research Committee, (4) submission of full manuscript to a peer-reviewed journal, (5) approval of full manuscript by the faculty advisor and the Orthopaedic Research Committee, and (6) presentation at the Orthopaedic Research Seminar.



A point system shall be utilized for credit-based evaluation. Two points shall be awarded to research involving hypothesis testing performed to completion as outlined in the paragraph above. Non-hypothesis testing projects such as case reports, review papers, anatomic descriptions, completed according to the above guidelines shall be awarded one point. An additional point is awarded upon successful acceptance of a manuscript (either a hypothesis or non-hypothesis testing projects). Assistance in another resident's project may be awarded one-half point, subject to Orthopaedic Research Committee approval. Patient safety quality improvement (QI) projects will be awarded one-half point, subject to approval. The above designation is determined and granted by the Orthopaedic Research Committee. In addition, one month of international or mission elective, with oral presentation and manuscript submission to a non-profit or charitable organization for publication shall be awarded one point, which may be used to offset one of the hypothesis- testing research required. A total of four points is required four points is required for completion of residency research requirements, and at least one of which must be from a two-point project

## **RESIDENT DUTY HOURS**

### **Specific regulations**

#### **Moonlighting**

Moonlighting is prohibited, with one exception. Residents may participate in the C&P Program at the VA Hospital. To participate, the resident must meet the following criteria:

- Latest OITE score above 50th percentile.
- Not more than 50% delinquent on case log and time log audits, year-to-date (delinquent defined as being more than two weeks behind).
- In good standing, without being on probationary or disciplinary status (formal or informal).
- An upper level resident, being in the SECOND HALF OF 2th or 3th postgraduate level.

## **Specific process**

- PGY-2 residents will be assigned primarily for Emergency Department coverage beginning at 15:00 each afternoon. (Starting with April, the PGY-2 day call schedule will be pre-determined, such that a certain service's resident will take a particular weekday.) Clinic and operating room coverage will be secondary—only when there are no pending consults.
- Consults shall be supervised by a PGY-2 resident within 60 minutes of the consult order being placed and called in. The nurse should be asked to document the arrival time of the PGY-2 resident.
- Evening sign-out shall be face-to-face, at 18:30 in A511, with the senior on call resident chiefing the sign-out. The senior on call, intern, day call PGY-2, and night float residents are expected to be present. Exception is made for Tuesdays, where sign-out shall take place before Basic Science Conference. During sign-out, the on call senior shall delegate unfinished work and shall leave no earlier than the day call team's departure.
- Day duty residents (not on night float) shall be relieved of their duties ideally by 20:00 and must not be later than 22:00.
- In line with existing policy, there shall be no pre-rounding before 06:00 by day duty residents.
- Residents should only cover attendings on their assigned service. If cross-service coverage is requested, the administrative senior resident may make the reassignments beforehand, prior to the beginning of the month. For instance, Hand/Foot service junior resident should only cover Hand/Foot attendings during the weekday, unless on call.

## **Oversight**

Compliance with duty hour guidelines shall be monitored on a monthly basis to ensure an appropriate balance between education and service. Residents and faculty shall be educated to recognize the signs of fatigue and to apply policies to prevent and counteract the potential negative effects

## OUTCOMES EVALUATION

This provision has been developed on the basis and in accordance with order No. 388 of 08.20.04, the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan. The Orthopaedic Surgery Residency Program adheres to the basic policy established by the Tashkent Medical Academy.

### Evaluation

#### Rotation evaluation

Each resident shall be evaluated by each supervising attending at the end of the rotation. The evaluation shall be a face-to-face encounter. An opportunity for resident feedback shall be provided.

Resident performance assessment is carried out regularly during each semester in 2 stages in the following forms:

Stage 1 - current control (CC).

Stage 2 - final control (FC) - semi-annual or annual certification.

Each of these control stages is rated at 100 points.

The average indicator of the total number of points scored per semester in the discipline for all types of control (CC + FC) is set in the rating books of the resident.

The general methodological study of the program disciplines is evaluated in the form of CC (upon completion of the study of a specific section of the program) and IR.

At the end of each semester, the IR - grade ratings are similar to the criteria for the current rating score.

Resident's practice is evaluated in the form of CC according to the criteria developed by the department at the end of rotation and IR (in the form of an interview at the end of the II, IV and VI semesters).

## **General Criteria**

To be promoted to the next PGY level, or to graduate from residency, the resident must pass every rotation. The resident must also demonstrate competency in all six core domains. It is recognized that many of these domains have overlapping areas.

### **Patient care outcomes evaluation**

The resident must demonstrate patient care that is compassionate, appropriate, and effective for the treatment of health programs and the promotion of health.

- Caring, respectful, and compassionate behavior shall be assessed through patient surveys.
- Informed decision making and patient management skills shall be evaluated through direct observation in the clinical setting.
- The ability to work within a team shall be assessed using the 360° Global Rating tool. The resident must have mastered the appropriate surgical skills for level of training
- Surgical skills are evaluated on an ongoing basis and documented at the end-of-rotation evaluation.
- Case logs must be maintained from beginning of PGY.

### **Medical knowledge outcomes evaluation**

The resident must possess medical knowledge about established and evolving biomedical, clinical, and cognate sciences, as well as the application of this knowledge to patient care, appropriate for the level of training.

- Investigatory and analytical thinking shall be assessed by formal or informal oral examinations given by the supervising faculty or Program Director.
- Knowledge and application of basic sciences shall be determined through the Orthopaedic in-training Examination.

The resident must have adequately attended educational conferences (no less than four hours per week). Residents scoring below the 40th percentile on the Orthopaedic In-training Examination shall be required to participate in a remediation program set forth by the Program Director. Failure to comply with remediation program or unsatisfactory remediation performance may result in reappointment without advancement to the next training level.

### **Practice-based learning and improvement outcomes evaluation**

The resident must utilize practice-based learning and improvement that involves the investigation and evaluation of care for their patients, the appraisal and assimilation of scientific evidence, and improvements in patient care.

- Progressive learning as related to patient care management and improvement should be evident, as assessed by formal or informal oral examinations by the supervising faculty.

### **Interpersonal and communication skills outcomes evaluation**

The resident must effectively exchange information and collaborate with patients, their families, and other health professionals. The resident must receive positive evaluations concerning their professionalism, communication skills and teamwork from nurses, staff, residency coordinator, students, and fellow residents.

- Effectiveness of communication with patients shall be measured through patient surveys.
- Interpersonal and communication skills within the healthcare team shall be evaluated through the 360° Global Rating tool.

### **Professionalism outcomes evaluation**

The resident must demonstrate professionalism, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to patients of diverse backgrounds.

- Professionalism in the patient care setting, including respectful attitude and sensitivity to the patients' situations, shall be assessed using patient surveys.
- Professionalism in the workplace shall be evaluated using the 360° Global Rating tool.

### **Systems-based practice outcomes evaluation**

The resident must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

- Patient advocacy shall be evaluated using the patient survey.
- Facilitation of patient care in the larger context of healthcare and the practice of cost-effective care shall be assessed by direct observation and documentation by the supervising faculty. The resident is expected to appropriately code patient encounters and surgeries, in compliance with the current health care regulations.

### **Specific Criteria for Advancement**

Advancement to the next training level is determined by successful completion of specific criteria as detailed in this Handbook and by the House Staff Office. Final determination shall be made by the Residency Program Evaluation Committee. The following criteria shall serve as guidelines.

#### **PGY-1**

- Pass every clinical rotation

- Obtain satisfactory marks in all Competencies as adjudicated by the Clinical Competency Committee

### **PGY-2**

- Pass every clinical rotation as outlined by Rotation-Specific Goals and Objectives

- Maintain Professional behavior, as exhibited by audits relating to conference attendance, case and time logs, and sign-in sheets upkeep

- Obtain satisfactory marks in all Competencies as adjudicated by the Clinical Competency Committee

### **PGY-3**

- Pass every clinical rotation as outlined by Rotation-Specific Goals and Objectives

- Maintain Professional behavior, as exhibited by audits relating to conference attendance, case and time logs, and sign-in sheets upkeep

- Fulfill research requirements for third-year level

- Demonstrate sufficient professional ability to practice competently and independently

When transferring a resident from one course to another, the total number of rating points scored by him in the disciplines in the academic year is taken into account. The transfer is carried out by order of the rector **Tashkent Medical Academy**.

The protection of a scientific project at state certification is carried out at the end of the PGY-3 year and is evaluated by a special commission established by order of the rector of **Tashkent Medical Academy**.

## **RESIDENT'S KNOWLEDGE ORDER AND GRADATIONS OF ASSESSMENT**

The rating system is a modern and adequate method for monitoring the assimilation of material from all sections of the master's curriculum, which allows a differentiated and objective assessment of the knowledge of underresidents.

When assessing the knowledge of residents, its attendance, activity in the classroom, participation in manipulations, the degree of preparation for seminars, the usefulness of abstracts, including well-developed literature in a foreign language, participation in clinical conferences, conducting practical classes, preparing teaching materials, conducting scientific research work.

Resident performance assessment is carried out regularly during each semester in 2 stages in the following forms:

Stage 1 - current control (CC)

Stage 2 - final control (FC) - semi-annual or annual certification. Each of these control stages is rated at 100 points.

A resident who has scored over 65% of the maximum number of points in the discipline during the semester is considered to be successful.

All knowledge and practical skills acquired by students in all sections of the program, including scientific and pedagogical activity, preparation of a scientific project and the results of the State certification are evaluated in rating points and are recorded separately in the master's rating book.

Residents who scored less than 55% of the maximum points for the academic year are considered to be underperforming and expelled from the number of residents in the prescribed manner by order of the rector.

Rating criteria for rating points for residents have the following gradations:

Satisfactory - 55-70.9% of the maximum points of CC and IR.

Good - 71-85.9% of the maximum points of CC and IR.

Excellent - 86-100% of the maximum points of CC and IR.

## CONCLUSION

Points scored by residents during the semester in the form of CC are recorded in the educational journal at the department.

To conduct an FC for each resident, the following will be submitted to the dean's office of the magistracy:

1. A folder with daily protocols of the student.
2. The protocol of the results of the CC in the relevant disciplines and sections of the curriculum, indicating the scores and the corresponding percent, signed by the director of the program and the head of the department.
3. The master's certification sheet, including sections:
  - A. The results of the CC in the form of points, percent and the corresponding assessment (pre-set at the department).
  - B. The results of the FC in the form of points, grades and corresponding grades (set based on the results of six-month or annual certification).
  - B. The final results in the form of points, percent and the corresponding assessment are calculated by the sum of 2 previous indicators.



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