

The Faculty of Advanced Training in Transosseous Osteosynthesis at the Kurgan Ilizarov Center is 45 years old

In 2024, the Teaching Faculty in Traumatology, Orthopaedics and Related Disciplines at the National Ilizarov Medical Research Center for Traumatology and Orthopaedics turns 45 years. It is a successor of the Faculty for Advanced Training in Transosseous Osteosynthesis for orthopedic surgeons and has been a forge of scientific and professional medical personnel throughout its existence.

The history of the faculty is closely intertwined with the history of the Ilizarov Center. The brilliant idea of Gabriil Abramovich Ilizarov led to a qualitative breakthrough in the treatment of patients with orthopaedic diseases and injuries and gave impetus to scientific research. The Ilizarov method has become one of the greatest achievements in contemporary world medicine.

The historical period of popularization of the Ilizarov method began in the 70s of the last century. KNIIEKOT (Kurgan Research Institute of Experimental and Clinical Orthopedics and Traumatology, hereinafter referred to as the Institute) was included in the leading scientific institutions of the Soviet Union. Doctors from different regions of the USSR sent letters to the Ministry of Health of the RSFSR and the Ministry of Health of the USSR with requests to organize advanced training courses for orthopaedic surgeons to master the Ilizarov method of transosseous osteosynthesis. The issue of training specialists for the growing young staff of the institute itself also became urgent.

There was a long discussion about the need and possibility of training orthopaedic traumatologists in a new discipline, the Ilizarov transosseous osteosynthesis, directly in the city of Kurgan. There was no higher educational medical institution in the Kurgan region. Therefore, the Ministries of Health of the USSR and the RSFSR made a compromise decision on April 27, 1979 to establish the department of Traumatology and Orthopaedics on the basis of KNIIEKOT but affiliated to the Faculty of Advanced Training for physicians at the Sverdlovsk Medical Institute.



Professor G.A. Ilizarov, Doctor of Medical Sciences, the founder of the transosseous osteosynthesis method and a novel scientific direction in traumatology and orthopedics, Academician of the Russian Academy of Sciences

The first head of the department was Doctor of Medical Sciences, Professor Anatoly Dmitrievich Li. On approval of G.A. Ilizarov, he formed a team of teachers of the department that included the head of traumatology unit B.K. Konstantinov, MD; Candidate of Medical Sciences, Associate Professor V.G. Trokhova; V.A. Safonov, MD; V.C. Kamerin, MD; doctor V.M. Kanaev; doctor A.P. Bochanov.



The first head of the Department of Traumatology and Orthopaedics, Prof. A.D. Li and the first staff of the Department for Advanced Training at KNIIEKOT (1979)



First group of the training course surgeons (1979)

All teachers of the department were practicing surgeons and were also actively involved in research activities. The principle of synthesis of theoretical, practical and scientific research justification of the method has been currently implemented by the staff of the department in the educational process, providing course students with theoretical knowledge, practical experience and developments in the scientific field.

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The plans and training programs were designed as 3-month cycles for young specialists and 1.5-month courses for specialists with experience in traumatology and orthopedics.

The first training course of advanced knowledge and skills in transosseous compression-distraction osteosynthesis for domestic specialists, in which 26 doctors took part, was held in September 1979.

The program of training included participation in morning conferences, lectures, clinical rounds, practical classes in three rooms allocated to the department, work in the operating room, instrumentation room, dressing room, and seminars.

The geography of the participants was large: Yaroslavl, Kaluga, Tambov, Tomsk, Orel Region, Leningrad Region, Perm Region, Krasnoyarsk Territory, Belarusian SSR, Kazakh SSR, Chechen-Ingush ASSR, Dagestan ASSR, Ukrainian SSR, Uzbek SSR, Mongolian People's Republic.

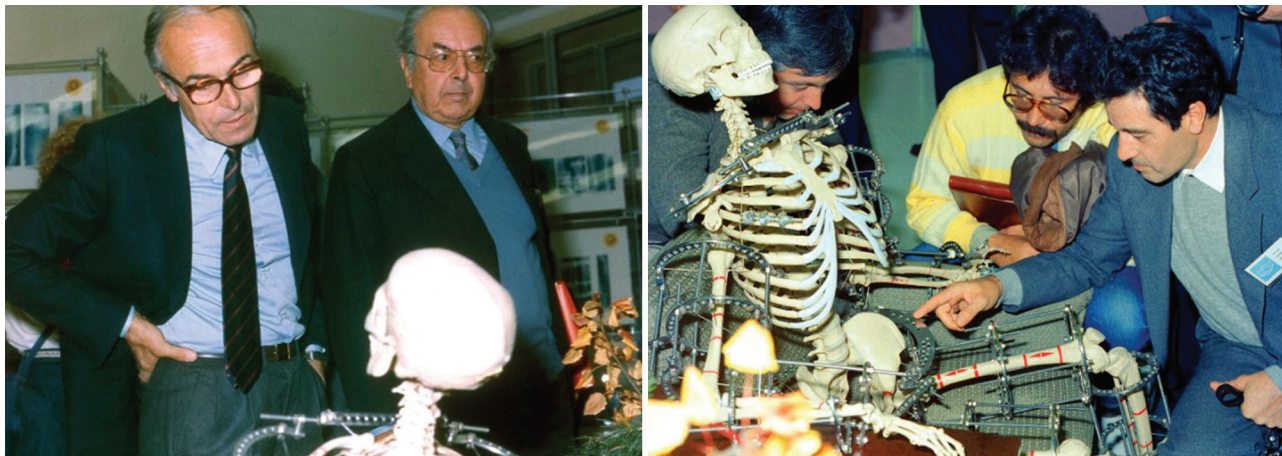
The training process under the guidance of professors G.A. Ilizarov and A.D. Li additionally involved specialists from other fields: A.A. Svishnikov, V.A. Shchurov, Yu.N. Bakhlykov, L.A. Popova, V.D. Makushin, F.N. Zusmanovich, S.B. Lieberman.

There were so many surgeons that were willing to take the course that for some time two departments of advanced training were formed: the Department of Traumatology and the Department of Orthopaedics. Traumatology questions were supervised by Prof. A.D. Li and orthopedic training by Prof. G.A. Ilizarov.

In 1983, when the developments of G.A. Ilizarov became known in Europe, a group of Italian surgeons arrived at the institute (Prof. A. Bianchi-Maiocchi, the young doctor Maurizio Catagni who is nowadays a world-famous orthopaedic surgeon, doctor Angelo Villa and Prof. N. Benedetti).

G.A. Ilizarov worked with them personally and conducted preoperative discussion of patients and operations. The department teachers and other staff provided demonstrations of patients during and after treatment.

The Italian doctors asked to show the Ilizarov apparatus assemblies on bone models with a detailed explanation of each manipulation. For this purpose, specialists from the pilot plant within 24 hours built a stand for training in the apparatus mounting. Everything they saw shocked the Italians; they had never seen such results in the treatment of patients with injuries and orthopaedic pathologies. Once they returned home, there appeared the publications in Italian newspapers declaring that a second revolution had occurred in Russia, and now it was a revolution in traumatology and orthopaedics, and G.A. Ilizarov was called the Michelangelo of orthopaedics.



Italian specialists at the training course

G.A. Ilizarov always considered traveling abroad to give lectures and conduct demonstrative operations to be an educational process and described technological techniques in his lectures in great detail. Gabriil Abramovich received invitations from different countries, and he willingly shared his experience of using the apparatus and applying the method.

Information about the achievements of G.A. Ilizarov also reached the USA, and the first orthopaedic surgeon to arrive at the institute from this country was the now world famous doctor Dror Paley. He visited the institute twice in 1986, then in 1987 and 1988. Leaving home, he told Prof. V.I. Shevtsov: "I dealt with fractures, joint replacement and other banal operations. Now I will work only with the Ilizarov apparatus and become an American Ilizarov." His dream came true.

In the late 1980s, Prof. Stuart Green visited the institute and studied the Ilizarov method very thoroughly. In 1990, he was appointed editor of G.A. Ilizarov's monograph published in English at Springer.



G.A. Ilizarov among foreign specialists

It was the work with foreign specialists that significantly stimulated the educational process, helped to better organize it, adding more practical classes, which always aroused sincere interest.

The number of applications from foreign and domestic colleagues for training in the Ilizarov method grew every year. The appeal of Prof. G.A. Ilizarov to the Ministry of Health of the USSR to increase the number of trainees in one cycle to 50, and then to 100 persons was approved. Therefore, a large number of leading employees of the institute were involved in the implementation of educational programs of the department.

Comfortable conditions were created for the training course participants: they were provided with rooms in the institute's living facilities, equipped classrooms and halls for workshops. Moreover, cultural and entertainment programs were organized. Classes were conducted in specially equipped rooms and operation theaters in various forms: lectures, seminars, case discussions and work-shops. At work-shops, with the help of teaching aids and visual materials, the course participants practiced the procedures of insertion, installing, and dismantling the Ilizarov apparatus components. After studying a specific topic within the framework of a seminar and practical classes, the students applied the acquired knowledge and skills of the original Ilizarov method in operating rooms. Their complete immersion in clinical activities contributed to the practical acquisition of the technique of transosseous osteosynthesis in the treatment of patients.

The two teaching departments functioned until 1984. Students did not really welcome this division; they were more attracted to orthopaedics. Therefore, both departments were again combined into one faculty for advanced training in traumatology and orthopedics.

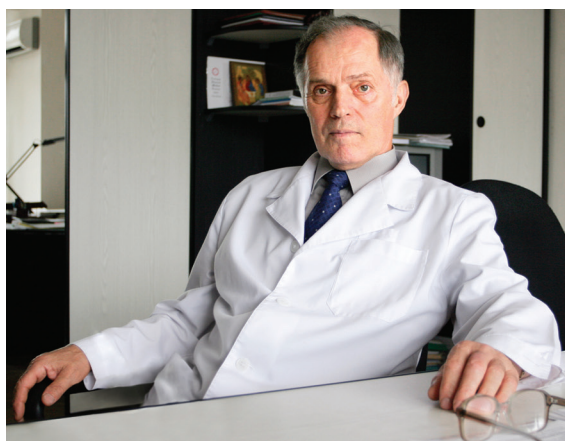
In 1985–1987, the staff of the faculty was enlarged with new specialists of the highest category: N.M. Klyushin, V.K. Noskov, N.M. Murzikov, V.M. Shigarev, I.A. Kataev, G.E. Karagodin, S.Ya. Zyryanov, A.G. Karasev, D.I. Shakhmatov, V.D. Shatokhin and others. All faculty teachers conducted classes with both domestic and foreign specialists.

The work of the faculty was not limited to the walls of the institute; the teaching staff interacted with educational, scientific and medical organizations in the USSR and abroad, participating in scientific and practical conferences at various levels, internships, advanced training courses, and conducted large-scale research in the field of rehabilitation of patients with congenital developmental disorders of the musculoskeletal system. All this ensured the acquisition of advanced developments in science and clinical experience and formed new approaches to training surgeons in technologies for treating patients with bone pathology.

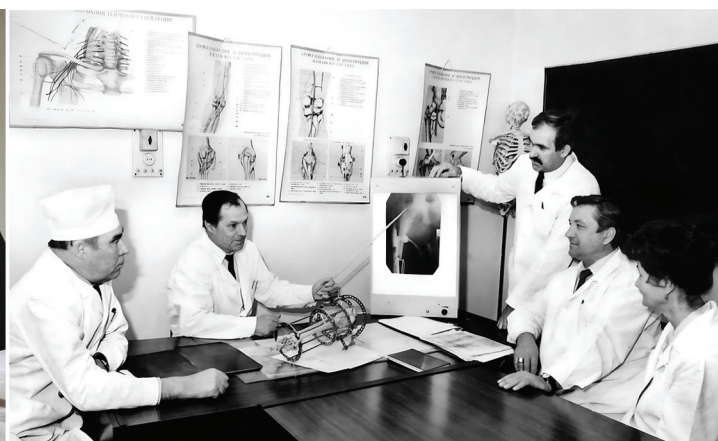
In connection with the need to systematize and expand scientific research at the institute, as well as to meet the need for qualified specialists in the field of traumatology and orthopedics, clinical residency and postgraduate studies were opened at the institute (Order of the Ministry of Higher and Secondary Special Education of the USSR dated February 1, 1984 No. 73). Candidate of Medical Sciences V.G. Trokhova was appointed responsible for the organization of postgraduate studies and V.C. Kamerin, associate professor, candidate of medical sciences, was in charge of the residency.

The faculty continued to develop and soon acquired the international appraisal. In 1988, the 1st and 2nd international courses on limb lengthening were held on the basis of the Center, that was then called All-Russian Scientific Research Center for Restorative Traumatology and Orthopaedics. In the following years, the courses were conducted for specialists from Poland, the USA, Portugal, Italy, Mexico, India, England and other countries. In 1989, negotiations were held and a cooperation agreement was signed with the Ministry of Health of Poland. As a result of the negotiations, many specialists from Poland were trained at the Center, and the department professors repeatedly traveled to Poland to conduct courses.

In 1991, Prof. Sergey Ivanovich Shved, MD, the disciple and successor of academician G.A. Ilizarov, was appointed head of the Faculty of Traumatology and Orthopaedics. He had much experience in training and research work on the treatment of patients with multiple and combined injuries, improvement of primary specialized care, and primary surgical treatment of open and gunshot fractures for persons of different age groups.



Professor S.I. Shved



Discussion of a clinical case

The faculty, like the entire Center, went through quite difficult times. In 1992, the founder of the method, Academician Gavriil Abramovich Ilizarov passed away. The collapse of the Soviet Union significantly complicated the work of the Center as funding was limited, but did not cool the ardor of researchers, doctors and teachers.

A huge contribution to the preservation of the Center's advances and the development of the Teaching Faculty of Traumatology and Orthopedics in that difficult time was made by then General Director of the Russian Ilizarov Scientific Center (1992–2009), corresponding member of RAMS, professor, doctor of medical sciences Vladimir Ivanovich Shevtsov. Under his guidance, the Center entered a new stage of development, design and implementation of innovative methods of diagnosis and rehabilitation of patients. It was not only possible to maintain, but to expand and improve the educational process. New areas of treatment and, accordingly, educational programs emerged: microsurgery and replantation, joint arthroplasty and arthroscopy. Advanced technologies of internal osteosynthesis and highly effective combinations of transosseous and internal techniques were introduced.



Staff of the faculty

The Center signed agreements with Richards Medical, USA (represented at that time by N. Zelensky and R. Wigginton); Tokyo University, Japan (represented by Professor T. Kurokawa); South Korean company Seoul Meditech (represented by Mr. Dong); Brazilian ASAMI. Under the terms of the agreements, groups of 25–30 specialists came from these countries twice a year, and 55–60 orthopaedic surgeons came from Brazil once every two years. The duration of training was 7–10 days; in addition to short-term courses, there were also programs that continued from 3 to 6 months.



Working moments at the courses



Working moments at the courses

The faculty and international department staff always organized cultural programs for course participants: playing Russian game gorodki, football matches, skiing competitions, visiting a Russian sauna and field trips, which were very popular with foreign guests.



Before the start of an international football match between the teams of KNIIEKOT (Russia) and Smith & Nephew (USA)

Japanese specialists are mastering an old Russian game gorodki

In 2005, the All-Russian Scientific Research Center for RTO was renamed into the Russian Ilizarov Scientific Center for Restorative Traumatology and Orthopaedics, and it was given federal status. Russian legislation underwent changes. The legitimacy of the activities of the Center's teaching faculty was disputable as there was no higher medical educational institution in Kurgan. The solution was the proposal of the Tyumen Medical Institute to open a branch of their Chair of Traumatology on the basis of the Center. For several years, the students of the training courses studied transosseous osteosynthesis technologies in Kurgan but received certificate documents from the Tyumen University. This did not impair the effectiveness of the training and allowed us to retain the excellent teaching staff.

Times have changed, and state requirements for educational programs have changed. In 2015, the teaching faculty of the Ilizarov Center and its educational programs for the first time passed state accreditation

of educational activities. In 2016, the Center's additional professional education programs were approved by the Russian Ministry of Health and posted on its portal of continuing medical and pharmaceutical education. From 2012 to the present, the head of the Faculty of Traumatology and Orthopedics is Doctor of Medical Sciences, Prof. Yuri Petrovich Soldatov.

Yuri Petrovich conducts clinical and organizational work, combining it with work on training scientific workers, development of the faculty and education in general. He also is the director and compiler of new educational programs for postgraduate and residency programs, advanced training for doctors that have been implemented face-to-face and through the NMFO portal.



Professor Yu.P. Soldatov conducts the training

In 2020, the Ilizarov Center was renamed into the National Ilizarov Medical Research Center for Traumatology and Orthopedics (NIMRC TO). Under the organizational and methodological guidance of the Center, there are 27 healthcare entities of the Russian Federation constituent subjects from the Ural Mountains to the Kuril Islands. This fact significantly increases the role and responsibility of the teaching department as an important link in advanced postgraduate education in the specialty of traumatology and orthopedics.

The expansion of the range of academic disciplines related to medicine required to enlarge the teaching staff. Today there are 16 teachers working at the teaching faculty, including 8 professors (A.V. Burtsev, MD; A.G. Karasev, MD; D.A. Popkov, MD; E.V. Zhdanova, MD; O.K. Chegurov, MD; A.V. Gubin, MD; Doctors of Biological Sciences E.N. Shchurova and M.V. Stogov); 5 assistant professors (K.A. Dyachkov, MD; O.G. Prudnikova, MD; A.A. Grin, MD; candidate of biological sciences T.A. Silantyeva, candidate of medical sciences A. S. Sudnitsyn); and 2 faculty assistants (candidate of veterinary sciences A.A. Yemanov and doctor of medical sciences S.A. Lukin).

On the basis of the Center, there is an accreditation and simulation center, where the teachers of the educational faculty are Prof. A.V. Popkov, MD; A.V. Kaminsky, MD, I.V. Sutyagin MD, and O.Yu. Germann, MD.

The staff of the faculty, relying on accumulated experience, develop modern and innovative educational technologies. All the nuances of presenting the material to course students were worked out, based on practical use and the development of surgical skills. Students are immersed in the atmosphere of a working team. During rounds in the departments, in discussion of clinical cases, at planning the operations and, of course, in the operating room, a great number of surgeons and doctors, not only the faculty teachers, are involved in the teaching process at the Center. The opportunity to study various surgical techniques and approaches to solving complex clinical problems significantly expands the horizons of our course

participants, residents and post-graduate students and shows the versatility of the Ilizarov method and other educational areas.

Currently, teaching is carried out according to postgraduate educational programs in four groups of specialties: clinical medicine, biomedical sciences, biological sciences, fundamental medicine (specialties of traumatology and orthopedics, pathological physiology, human and animal physiology, cell biology); specialized residency program in the specialty "Traumatology and Orthopedics"; and 27 programs of additional professional education. Educational programs in all areas are certified and have state accreditation.

Over 45 years of the teaching department's history, 754 training cycles for orthopaedic surgeons and traumatologists have been conducted, in which 10,343 participants from 75 countries of the world were taught. Between 1984 and 2023, 146 young scientists completed post-graduate studies and 283 doctors completed residency.

Today, the work of the faculty and educational department of the Federal State Budgetary Institution National Ilizarov Medical Research Center for Traumatology and Orthopaedics of the Russian Ministry of Health is greatly demanded. In the conditions of the special military operation, the Center's technologies are in great need throughout the country. Restoring the limb length, supportability and function using the Ilizarov technologies and those developed by the Center have turned into everyday tasks of orthopaedic surgeons and traumatologists.

Additional confirmation of the demand for the Ilizarov method in the world orthopaedic community was demonstrated at the ASAMI (Association for the Study and Application of the Ilizarov Method) congress, which was held on March 29–31, 2024 in India with the participation of hundreds of doctors from different countries. The Ilizarov method remains competitive and widely used all over the world, and new devices are being developed for limb lengthening and deformity correction.



Congratulations to the staff of the Teaching Faculty in Traumatology, Orthopaedics and Related Disciplines of the Ilizarov Center on its 45th anniversary! A difficult but particular path has been passed and continues. New vibrant educational programs are emerging and modern approaches to medical education are in demand.

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