

УДК 001.32:61](477)HAMHY(09)(045)

DOI: <http://dx.doi.org/10.15674/0030-59872023391-99>

The long-term fruitful cooperation of the Sytenko Institute of spine and joint pathology and the National academy of medical sciences of Ukraine (to the 30th anniversary of the academy)

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In 2023, the National Academy of Medical Sciences of Ukraine celebrated its 30th anniversary (Fig. 1).

From a historical point of view, since the beginning of the period of development of the independent state of Ukraine in 1993, there was a need to develop new approaches to the organization of scientific research in the field of medicine, it was then that the National Academy of Sciences of Ukraine and the Ministry of Health of Ukraine took the initiative to create the Academy of Medical Sciences. The principles of the organization of the new academy were defined by outstanding domestic scientists of the National Academy of Sciences of Ukraine, academicians: B. Ye. Paton, O. F. Vozianov, M. M. Amosov, Yu. I. Kundiyev, O. M. Lukyanova, and V. V. Frolkis, O. O. Shalimov and O. O. Korzh.

On 24 February 1993, the first President of Ukraine L. M. Kravchuk signed the decree «On the establishment of the Academy of Medical Sciences of Ukraine», and on 22 March 1993 resolution No. 211 «Issues of the Academy of Medical Sciences of Ukraine» was adopted by the Cabinet of Ministers of Ukraine.

The quantitative composition of the members of the newly created academy was immediately determined, namely: 30 active members of the academy and 60 corresponding members, as well as 25 founding academicians and leading medical institutions, who were to be included in the structure of the new academy. At the first stage, 12 scientific institutions were part of the Academy, later 6 more were additionally included, in 2000, by a resolution of the Cabinet of Ministers of Ukraine, 18 more research institutes were transferred to the Academy.

An outstanding surgeon, talented scientist, laureate of the State Prize of Ukraine, academician



Fig. 1. Photo of the main building of the National Academy of Medical Sciences in Kyiv

of the National Academy of Sciences of Ukraine, director of the Institute of Urology and Nephrology, professor O. F. Vozianov (Fig. 2, a) was elected as the first president.

Its founders became full members of the Academy of Medical Sciences of Ukraine — outstanding Ukrainian scientists M. M. Amosov, V. O. Bondarenko, A. D. Vizir, M. Ya. Golovenko, V. P. Komisarenko, S. V. Komisarenko, O. O. Korzh, Yu. I. Kundiyev, A. O. Lobenko, L. T. Mala, O. O. Navakatikyan, V. G. Pinchuk, N. O. Puchkivska, L. A. Pyrig, A. P. Romodanov, B. Ya. Reznik, Yu. S. Spizhenko, K. S. Ternovy, V. V. Frolkis, D. F. Chebotaryov, O. O. Shalimov.

During 1993, the first meetings of the active members of the new Academy were held, at which Yu. P. Zozulya and V. V. Frolkis and academic secretary Yu. I. Gubskiy were elected vice-presidents of the academy. Later, academician Yu. I. Kundiyev became the vice president, and then academician

L. G. Rosenfeld. Until 1997, the corresponding member of the National Academy of Medical Sciences Yu. I. Gubskiy was the chief scientific secretary.

Currently, the vice presidents are academicians D. I. Zabolotny, V. M. Kovalenko, V. V. Lazoryshinets, I. A. Lurin, and M. D. Tronko.

The Academy of Medical Sciences of Ukraine is defined as the main scientific medical institution with the charter of a self-governing organization and independent in conducting scientific research. The main priority tasks of the Academy of Medical Sciences at that time were as follows:

- determination of priority areas of development of medical science in Ukraine;
- a comprehensive approach to the development of medical science, conducting fundamental and applied research in the field of health care and medicine;
- integration of academic, university and industry medical science with the aim of creating a unified policy in this area;
- participation in the development of proposals and recommendations on the development of medical science and health care, as well as higher medical and pharmaceutical education;
- training of highly qualified scientific personnel;
- support of talented scientists, promotion of scientific creativity of young people in the field of medicine.

Creation of the Academy of Medical Sciences significantly contributed to the improvement of the quality and efficiency of fundamental and applied research in the field of medicine and related sciences, to the improvement of the training of scientific personnel and doctors for practical health care, which gave a new impetus to the development of medical science in Ukraine. The decree of the President of Ukraine dated 24 February 2010 it was granted

the status of the National Academy of Medical Sciences of Ukraine.

In 2011, academician Andrii Mykhailovych Serdyuk (Fig. 2, b) was elected to the post of president of the National Academy of Sciences, and he actively continued to develop the previously defined areas of activity of the academy, which significantly increased its status and recognition at the state level.

In 2016, the talented neurosurgeon Academician Vitaly Ivanovich Tsimbalyuk became the president of the National Academy of Sciences of Ukraine (Fig. 2, c).

This period in the life of the academy is characterized by active activity in the definition and development of new priority scientific areas of research that correspond to international levels.

A new composition of the Presidium was elected and the statute was developed in accordance with the requirements of the time. The priority areas of development of medical science were defined as follows:

- study of the fundamental mechanisms of the body's vital activity and the development of diseases;
- development of fundamentally new methods of diagnosis, treatment and prevention of the most common human diseases, ways to improve health and prolong life;
- disclosure of mechanisms and prevention of adverse effects on the human body of environmental factors, including radiation, and working conditions.

During this period, new specialist departments were created in the Academy — from clinical, theoretical and preventive medicine, as well as management — to scientific coordination, treatment and organization, and management of international and interdepartmental scientific relations. All this significantly increased the authority and significance of the Academy at the state and international levels.



Fig. 2. Photo of Academicians O. F. Vozianov (a), A. M. Serdyuk (b), and V. I. Tsimbalyuk (c)



Fig. 3. Photo of the heads of the institute for the period from 1907 to 1996: a) K. F. Wegner, b) M. I. Sytenko, c) Ya. G. Dubrov, d) M. P. Novachenko, e) O. O. Korzh

Today, academician Y. G. Antipkin is the academician-secretary of the department of clinical medicine, and academician D. A. Bazika is the head of the department of theoretical and preventive medicine.

Currently, the National Academy of Sciences of Ukraine has 48 active members and 78 corresponding members. It includes 35 leading scientific institutions, in which scientists of various specialties of clinical, theoretical and preventive medicine work, including 578 doctors of science, 1,396 candidates of science.

One of such scientific institutions, which were included in the Academy in 2000, is the oldest in Ukraine scientific research orthopedic and traumatological institution Professor M. I. Sytenko Institute of Pathology of the Spine and Joints. It was created and opened in Kharkiv on 8 June 1907, in accordance with the decision of the 31st Congress of Mining Industry of Donbas. Then its name was the Medical and Mechanical Institute. It was the first institution of orthopedic and traumatology profile in Ukraine, the main task of which was the qualified treatment of patients with injuries and fractures of bones and joints, which they received at the enterprises of the coal, mining and metallurgical industry of Donbas, as well as conducting an examination and determining the degree of loss of working capacity of this contingent of patients.

During the long history of the Institute, its directors were world-renowned outstanding scientists, orthopedic traumatologists and organizers (Fig. 3): professor K. F. Wegner (1907–1926), corresponding member of the Academy of Sciences of Ukraine, professor M. I. Sytenko (1926–1940), professor Y. G. Dubrov (1940–1943), corresponding member of the Academy of Sciences of Ukraine, professor M. P. Novachenko (1943–1965), academician of the National Academy of Sciences of Ukraine, professor O. O. Korzh (1965–1996).



Fig. 4. Photo of Professor M. O. Korzh

Since 1996, the Institute has been headed by the Honored Worker of Science and Technology of Ukraine, Laureate of the State Prize of Ukraine, Professor Mykola Oleksiiiovych Korzh (Fig. 4), who, continuing the historical traditions of the institution, formed an energetic creative team, which enabled further active and fruitful development of scientific and clinical research.

Today, the priority directions of the Institute's scientific activity remain fundamental and experimental diagnostic research in the field of orthopaedics and traumatology, orthopedic problems in the case of spine pathology, orthopedic arthrology and joint endoprosthesis, orthopedic oncology, modern combat trauma and rehabilitation of patients.

The achievements of many outstanding scientists and specialists of the Institute, who in different years worked within its walls: K. F. Wegner, M. I. Sitenko, V. D. Chaklin, M. P. Novachenko, L. P. Nikolaeva, F. E. Elyashberg, O. P. Kotov, V. O. Marks, O. V. Nedrygailova, B. Y. Shkurov, K. F. Yelenevskyi, E. I. Lysytskyi, B. K. Babich, V. O. Berdnikov, O. P. Skoblin, M. V. Andruson, E. Ya. Pankov, O. O. Bukhtiyarov, O.O. Korzh, M. I. Kulish, S. D. Shevchenko, B.I. Simenach, M. I. Khvysyuk,

M. O. Korzh, O. I. Prodan, D. O. Yaremenko, allowed to form the world-famous Sytenko school of orthopaedics and traumatology.

Since 2000, when the State Institution Professor M. I. Sytenko Institute of Spine and Joint Pathology became a member of the National Academy of Medical Sciences of Ukraine, which since then has been fruitfully cooperating. Under their leadership of the Academy, in accordance with the current requirements, the topics of scientific research were significantly expanded and their level increased, the system of implementing the Institute's scientific developments into health care practice was improved, more attention was paid to the training of medical personnel in orthopaedics and traumatology.

Currently, the Professor M. I. Sytenko Institute is the main scientific institution in Ukraine that deals with the problems of spine and joint pathology, performs leading coordination work in conducting scientific research and organizational relevant activities in this field. The Institute supervises all regions of Ukraine regarding the problems of spine pathology and 10 regions with general problems of orthopaedics and traumatology.

Many years of in-depth fundamental theoretical, morphological, biochemical, electrophysiological and biomechanical research allowed scientists of the Institute to create modern pathogenic theories of the development of pathological conditions of the spine (dysplastic and degenerative spondylolisthesis, osteochondropathy of the spine, instability of the spine and spinal canal stenosis) and joints (deforming arthrosis and arthritis, aseptic necrosis), as well as to reveal the main mechanisms of the development of reparative osteogenesis in a new way. The obtained new knowledge became the basis for the development and introduction into the practice of medicine of a number of new diagnostic and treatment measures regarding the use of modern advanced technologies during the performance of surgical interventions on the spine and joints, as well as for improving the processes of osteoreparation and fusion of bone fractures.

It was important and relevant that in 2001, a scientific department of instrumental and minimally invasive spine surgery was organized at the Institute on the basis of the first department of vertebrology in Ukraine, which was created back in 1974. Under the leadership of V. O. Radchenko, department employees K. O. Popsuyshapka, G. A. Skidanov, A. I. Popov, V. O. Kutsenko, O. A. Syrenko, O. O. Barkov and others developed new modern, more effective methods of operative and conservative treatment of patients with spinal pathology, in parti-

cular, so-called «dynamic fixators» were created and used during the surgical treatment of spinal diseases, new modern technologies for the treatment of scoliosis and spondylolisthesis were developed, a new method of percutaneous denervation of arcuate joints in spondyloarthrosis.

For patients with osteochondrosis, with compression fractures of the vertebrae under conditions of osteoporosis, minimally invasive surgical intervention technologies were developed and put into practice in the department. Employees of the Institute conduct promising fundamental research on the use of cell therapy and transplantation of autologous cells of the damaged intervertebral disc, the causes of the development of transient lumbar pain in the spine, as well as the influence of paravertebral muscles on the results of spondylosis surgery are studied.

For the first time in Ukraine, scientists of the clinic of vertebrology developed and implemented in clinical practice new methods of surgical interventions in spinal tumors using implants made of hydroxylapatite and corundum ceramics to replace defects of affected vertebrae and bones. A unique system of operations for the correction of skeletal deformities in children and adults was also created, and an algorithm for surgical treatment of patients with hematopoietic and metastatic lesions of the thoracic and lumbar spine was developed. A domestic interbody endoprosthesis for replacing the vertebral body, as well as an endoprosthesis of the intervertebral disc and a set of tools for performing the operation were developed, a new method of puncture vertebroplasty for osteoporosis of the vertebral bodies was developed and implemented. The use of a modern 3D navigation system and neuromonitoring to prevent complications during transpedicular spinal fixation operations is substantiated.

In the Professor M. I. Sytenko Institute, for the first time in Ukraine, a corrective corset for the treatment of scoliosis was designed and introduced into clinical practice, as well as polysegmental «growing» structures for fixing the spine that «grow» with the patient, special tools and a new surgical method of treating scoliotic disease in children and adults were developed, which corresponds to the world level of implants for children

For the first time in Ukraine, scientists of the Institute have started fundamental research on the problem of diseases of adjacent spinal segments after spondylosis operations for degenerative spinal diseases. A new method of transpedicular screw fixation

of spinal segments in patients with osteoporosis and metastatic lesions of the vertebral bodies was created.

Together with the National Scientific Centre Kharkiv Physical and Technical Institute under a grant from the National Technical Center of Ukraine, 3 variants of bactericidal coatings for fixation devices based on titanium oxide were developed and their research was carried out in cell culture.

For many years, the employees of the Institute have been fruitfully working with OJSC A. S. Berezhnyy Ukrainian Research Institute of Refractories on the development of new types of implantable ceramic materials and the study of the possibilities of their use in reconstructive and restorative surgery of the human musculoskeletal system. New types of implants made of carbon-carbon composite material have been developed for osteosynthesis in case of metaphyseal and metadiaphyseal fractures of long bones, which reproduce the anatomical structure of the metaphyseal part of the bone.

Employees of the Institute have developed a method of diagnosing early stages of osteoarthritis of large joints, methods of fractionation of glycosaminoglycans in biological fluids, and created an algorithmized system for diagnosing various stages of osteoarthritis of large joints.

In the Department of Arthrology and Endoprosthetics, which is headed by V.A. Filipenko, employees V. O. Tankut, A. I. Zhigun, O. V. Tankut, S. E. Bondarenko, O. P. Marushchak, Z. A. Harutyunyan and others developed pathogenically based systems of diagnosis and treatment of patients with various forms of deforming arthrosis.

A new direction in the work of scientists has become the development of new biocompatible materials with hitherto unknown properties on the basis of nanostructural technologies, a certificate was received from the Ministry of Health of Ukraine on the state registration of «Sapphire implants for hip endoprosthesis», created jointly with the Scientific and Industrial Association «Institute of Single Crystals of the National Academy of Sciences of Ukraine».

The department also developed and implemented modern methods of preoperative planning of joint endoprosthesis operations, including the use of 3D technologies, which, thanks to the use of plastic models of parts of the segments (injured and contralateral), made by the method of 3D printing on a scale of 1:1 based on scans CT studies allow simulating surgical interventions using various fixation devices. All this makes it possible to reduce the time of the operation and reduce the risk of complications.

For the first time, a method of predicting the development of infectious complications in patients with massive metal implants has been developed, which is substantiated by the conducted studies of blood indicators. This method contributes to the detection of early infectious complications, which allows timely treatment of the patient and shortens the period of his convalescence.

For the surgical treatment of patients with contractures of the knee joint, the Department of Arthrology has developed a new surgical method of stabilizing the lateral ligamentous apparatus of the knee joint, and used a method of replacing defects of the knee joint capsule, which makes it possible to restore its function. A new method of rehabilitation of patients was also created, namely, a method of rehabilitation of patients after knee joint replacement, as a method of preventing the development of contractures. The use of this technique in clinical practice makes it possible to increase the effectiveness of surgical treatment and reduce the percentage of postoperative complications, which positively affects the reduction of the average period of treatment of patients, as well as minimizes the time of their stay in the hospital and reduces treatment costs.

In the biomechanics laboratory of the Institute, on the basis of clinical examinations of patients with coxarthrosis, a biomechanically justified rehabilitation complex for restoring the symmetry of walking and a device for monitoring the process has been developed. As a result of clinical and biomechanical research, scientists of the Institute have developed a method of restoring the supporting function of orthopedic patients, which allows restoring the function of the muscles responsible for postural balance after hip joint replacement (O. A. Tyazhelov, M. Yu. Karpinskyi, I. A. Subbota, O. D. Karpinska, O. A. Yaresko).

On the basis of complex fundamental research in the department of pathomorphology, it was proved for the first time that the common link in the mechanism of development of arthrosis, osteochondrosis of the spine and osteoporosis is the unnatural remodeling of the subchondral bone. A connection was established between low bone mineral density in postmenopausal women with deficiency and insufficiency of vitamin D. Accordingly, a decrease in the level of vitamin D is a common link in the development of structural and functional disorders in cartilage and bone.

In the department of pathophysiology and functional diagnostics, I. V. Kotulskyi, H. M. Demyanenko, D. R. Duplii, S. M. Yakovenko, and others

performed fundamental studies of the mechanisms of the formation of pathological processes in the structures of the spine and joints, which became the basis for the development of new pathogenic concepts and principles of differential diagnosis and treatment. Based on the study of the role of sympathetic and parasympathetic mechanisms, their neurotransmitter links, in the pathogenesis of pain, ischemic and osteochondropathic syndromes of the musculoskeletal system, new methods of functional diagnosis and pathogenic therapy of pain syndromes in the shoulder and pelvic girdle have been developed, in particular in the case of non-specific back pain and of aseptic necrosis of the femoral head, which ensure complete remission and restoration of working capacity in the early stages of the process.

Orthopedic oncology is a separate important area of scientific activity.

In 2001, the Department of Bone Oncology was established at the Institute, the main focus of which was complex treatment of patients with bone tumors. The department was headed by O. E. Vyrva. Under his leadership, department employees Ya. O. Golovina, R. V. Malik, I. V. Shevchenko, D. O. Mikhanovskyi and others substantiated and implemented in surgical practice modern methods of using individual endoprostheses for the treatment of tumors of long bones. Our own unified modular designs of artificial joints for endoprosthesis of bone-articular defects of various sizes and locations have been developed. For the first time in Ukraine, the possibility of using modular unipolar endoprostheses in children with malignant tumors of the bones of the limbs has been substantiated. A new method of combined treatment of giant cell bone tumors has been introduced into clinical practice, the use of which improves the results of surgical treatment of patients with giant cell bone tumors and allows to increase its effectiveness by 40 %. A new method of replacing the post-resection defect of the periacetabular part of the pelvis is also proposed, which allows for organ-sparing surgical treatment of bone tumors of the pelvis and restores the integrity of the pelvic ring and preserves the supporting and motor function of the lower extremities.

The Institute has always paid great attention to the provision of qualified orthopedic care to children. It was in our institution that for the first time in Ukraine, during the treatment of children, the Ilizarov method and rod devices were used for the correction and lengthening of the lower leg due to its congenital shortening. During the surgical treatment of children with scoliotic spinal deformity, the technique of operations using polysegmental structures

of spinal distractors (apparatus) developed at the Institute, in particular «growing» ones, was implemented. The experience of using these distractors is unique in world practice. Specialists of the children's clinic also developed and implemented into clinical practice an intramedullary telescopic fixator for the treatment of fractures and defects of long bones in children with «incomplete osteogenesis». Technologies for the treatment of various forms of hip joint disorders in children of various ages have also been developed and are actively used (S. D. Shevchenko, S. O. Khmizov, V. V. Baev, G. V. Kykosh, I. M. Garbuzniak, O. I. Korolkov, etc.).

Based on the use of a complex of physiotherapeutic, prosthetic and orthopedic measures and methods of therapeutic physical exercises, mechanotherapy (a single domestic device is used for automatic development of movements in the hip and knee joints) in combination with medical treatment. Scientists have developed and implemented a system of restorative rehabilitation treatment for children and adults (V. A. Staude, T. M. Grashchenkova).

In 2008, the State Prize of Ukraine in the field of science and technology was awarded to professor M. O. Korzh, professor V. O. Radchenko, professor G. Kh. Gruntovsky, professor O. I. Prodan, doctor of medical sciences A.O. Mezentsev for the complex work «Development and implementation of the latest surgical technologies in case of diseases and injuries of the spine». Young scientists of the institute (O. V. Tankut, O. A. Pidgayska, Ya. A. Doluda) were laureates of the Prize of the President of Ukraine.

The staff of the Institute for their significant contribution to the development of medical science in the field of orthopedics and traumatology, provision of highly qualified specialized care to patients and training of scientific personnel was repeatedly awarded honorary degrees: in 2007 and 2017, the Honorary Certificate of the Cabinet of Ministers of Ukraine, in 2013, the Certificate of the Verkhovna Rada of Ukraine, in 2007 — Honorary Award of Kharkiv Regional Council «Slobozhanska Slava», in 2007 and 2017 — Medal of the National Academy of Medical Sciences of Ukraine.

An important area of activity of the Institute is scientific and organizational activity. Work is carried out on the training of scientific personnel in post-graduate studies, doctoral studies, internships, as well as at training courses and seminars for medical specialists and mid-level specialists. The institution is also an educational base for training students at the department of traumatology, orthopedics, physical

and rehabilitation medicine, almost 3 thousand specialists have been trained over the past 5 years.

During the period of martial law in Ukraine, the Institute constantly takes an active part in the treatment of patients injured in the war zone. Clinical departments for combat trauma and rehabilitation, created in 2014, are working continuously. Their employees have developed practical recommendations on the tactics of treatment and rehabilitation of patients with traumatic, combat injuries of long bones and their consequences, as well as methodological recommendations on improving the system of providing medical care to such patients.

Starting from 24 February 2022 and up to the present time, specialists of the institute (O. G. Chernyshov, V. V. Palkin, O. V. Palkin, I. V. Shevchenko, O. P. Marushchak, Z. A. Harutyunyan and etc.) provided consultation, treatment and operative assistance to military personnel and more than 1,000 civilian patients injured in the military conflict zone, performed complex reconstructive operations on bones and joints.

The concept of treatment of patients with explosive and gunshot fractures of the vertebral bodies was substantiated and developed. It helped to choose the optimal method of treatment for this contingent of patients, and the conducted clinical trial and obtained results confirmed its effectiveness. In 2020, the Presidium of the National Academy of Sciences of Ukraine recognized the scientific research work «Development of the concept of treatment of explosive and gunshot fractures of the vertebrae of the thoracic and lumbar spine» (V. O. Radchenko, K. O. Popsuyshapka) as the best and awarded it with a diploma.

In 2018–2022, at the Institute under the leadership of professor M. O. Korzh, important scientific studies were conducted to improve the methods of diagnosis, treatment and rehabilitation of patients with combat injuries of the limbs, which made it possible to create a more effective system of treatment and medical rehabilitation of this contingent of patients (researchers K. K. Romanenko, Ya. A. Doluda, D.V. Prozorovskyi, V.O. Tankut, I.V. Golubeva, etc.).

Today, the Institute is a territorial hospital base of the Military Medical Clinical Center of the Northern Region of the Ministry of Defense of Ukraine and actively continues to cooperate with the medical and preventive facilities of the network of practical medical care on the implementation of modern methods of treatment of patients with gunshot fractures of the spine and bone defects of the limbs, providing the necessary highly qualified consulting and medical care. Specialists travel to provide spe-

cialized assistance to medical institutions in the cities of the Kharkiv region (Balaklia, Chuhuyiv, Peremomaisk) and Ukraine: Ivano-Frankivsk, Poltava, Cherkasy.

In order to provide high-quality specialized orthopedic and traumatological care to patients and increase the efficiency of rehabilitation of individuals with the consequences of gunshot and mine-explosive injuries of the locomotor system at the Institute under the leadership of the director professor M. O. Korzh, a number of scientific-organizational and medical-prophylactic measures were implemented, namely:

- an operational headquarters was created to organize the necessary highly specialized medical care for victims of hostilities in the east of Ukraine;

- the necessary stock of medicines, sets of medical instruments, blood preparations and blood substitutes, drugs for anti-shock therapy, suturing and dressing materials and other medical supplies for the organization of emergency highly specialized medical care for victims of hostilities has been created;

- round-the-clock reception of victims from the collision zone who need urgent medical assistance by specialized teams is ensured;

- a mechanism for 24-hour urgent notification and gathering of mobile brigade members and an algorithm of actions of medical workers in case of providing medical aid to the injured were developed;

- measures are being taken to cooperate with the Ministry of Health, the Security Service, the Ministry of Internal Affairs, the administration of the State Border Service and the Ministry of Defense of Ukraine on issues of interaction and coordination in matters of medical support, provision of medical assistance and medical rehabilitation to victims of hostilities;

- in almost all regions of Ukraine adjacent to the city of Kharkiv, including the areas of hostilities, the employees of the Institute (according to the schedule) provide round-the-clock consultative and diagnostic and therapeutic assistance to the trauma departments of hospitals, perform the most complex surgical interventions using the latest developments of colleagues.

From the first years of the Institute's existence, cooperation with international organizations of orthopedic traumatologists has traditionally been and is an important direction of its activity. Today, these are the following international societies: SICOT, AAHKS, EHS, ISMISS, AAOS, EFORT. Our employees (M. O. Korzh, V. A. Filipenko, O. E. Vyrva, S. E. Bondarenko, V. O. Radchenko, I. F. Fedotova, etc.) are members of these organizations.

Their active research position contributes to increasing the authority of the Institute in the world scientific community. Every year, young specialists of the Institute go abroad on working visits, for internships in specialized clinics, to participate in seminars, scientific and practical forums, etc.

For 20 years, starting in 2002, international symposia «Minimally invasive and instrumental surgery of degenerative diseases of the lumbar spine» were held annually on the basis of the Institute with the participation of leading foreign specialists from Europe, the United States of America, Asia, and Africa.

In 2020 and 2021, the Institute together with the Ukrainian Association of Orthopedic Traumatologists in cooperation with the European Hip Society (EHS) and with the support of the European Federation of Orthopedic Societies (EFORT) held the International Conference «Advanced Methods of Treatment of Pathology of the Hip, Knee and Shoulder Joints». Foreign specialists from 14 countries took part in the conferences. The theme of the events was devoted to innovative approaches in the treatment of abnormalities of large joints — from reconstructive surgery to revision arthroplasty, discussion of complex cases associated with arthroplasty complications, diagnosis and treatment of periprosthetic infection.

Over the past 5 years, the Institute has organized and conducted 20 scientific conferences and symposiums in a mixed format (on-line and off-line) and 6 conferences on combat trauma, which were attended by leading military doctors of Kharkiv, Kyiv, Lviv, as well as foreign specialists. 25 webinars on combat trauma with the participation of leading experts from Israel, the United States, and Great Britain were organized and held jointly with JSC Foundation (professor K. K. Romanenko).

Every month, together with the Kharkiv regional branch of the All-Ukrainian public organization «Ukrainian Association of Orthopedic Traumatologists», the institute (on-line and off-line) holds the Days of the Orthopedic Traumatologist, where experts exchange best practices. This contributes to the improvement of professional qualifications and the quality of medical care.

In 2017–2019, employees of the institution participated in the Erasmus+ project, which was a framework project of the European Union and involved scientists from Israel, Spain, Croatia, and Poland. Its goal was the modernization and internationalization of higher education in the field of bioengineering in the target universities of Ukraine and Israel. As a re-

sult, new competencies and curricula for bachelors and masters majoring in Bioengineering were created, and the monograph «Technique and subjects on bio-medical engineering» was published, co-authored by V. O. Tankut.

The institution was also involved in the participation in international European multicenter studies «European Musculoskeletal Oncology Society» regarding the study of the results of treatment of patients with bone tumors of rare nosological groups, localization of lesions and special types of reconstructive interventions «Prognostic factors and survival in clear cell chondrosarcoma patients».

The employees are actively engaged in publishing activities. In addition to the continuous publication of the well-known journal «Orthopaedics, Traumatology and Prosthetics», monographs, textbooks, guides are published, 20 in the last 5 years.

Today, the Institute employs 480 specialists, including 23 doctors of medical sciences, including 7 professors, 51 candidates of medical, biological and pharmaceutical sciences and 2 doctors of philosophy (PhD), among them 2 laureates of the State Prize of Ukraine (professor M. O. Korzh, professor V. O. Radchenko), 4 honored figures of science and technology of Ukraine (professor M.O. Korzh, professor V. O. Radchenko, professor V. A. Filipenko, professor S. O. Khmyzov), 2 honored doctors of Ukraine (candidate of medical sciences G.S. Orlov, professor O. E. Vyrva) and an honored health worker (nurse O. B. Teslenko).

The staff of the Institute continues to actively cooperate with the National Academy of Medical Sciences of Ukraine and has many creative plans for the future. Among them are scientific studies on current problems of orthopedics and traumatology, namely:

- study of the problems of treatment of gunshot, mine-explosive and shrapnel injuries of the locomotor system and their consequences, as well as rehabilitation for these injuries;

- development of new minimally invasive technologies for the treatment of patients with pathology of the musculoskeletal system;

- development of new modern biomaterials based on nanotechnology for use in orthopedics and traumatology;

- research on the problems of using stem cells in orthopedics and traumatology;

- continuation of research into the pathogenesis of orthopedic diseases of the spine and joints and reparative tissue regeneration based on modern ideas about neurotransmitter and humoral mechanisms

of regulation of metabolism and the structure of bone and cartilage tissues.

The administration and staff of the Institute sincerely congratulate the National Academy of Medical Sciences of Ukraine on its 30th anniversary and wish it further creative success in its work for the prosperity of domestic medical science and practice!

Conflict of interest. The authors declare no conflict of interest.

References

1. Pirogov, O. V. (2007). Academy of Medical Sciences of Ukraine. Compiler. Kyiv : Akadempres. (in Ukrainian)
2. Tsybalyuk, V. I., Tronko, M. D., Hubsy, Y. I., Mikhnev, V. A., Kovalenko, V. M., Zabolotny, D. I., Antipkin, Y. G., & Bazika, D. A. (2018). National Academy of Medical Sciences of Ukraine. 25 years old. Academic medical science — for Ukrainian society. 1993–2018. Kyiv: VD «Avicenna». (in Ukrainian)
3. Tsybalyuk, V. I. (2018). National Academy of Medical Sciences of Ukraine — 25 years. Kyiv : Alfa-Vita. (in Ukrainian)
4. Novachenko, N. P. (Eds.) (1964). 50 years of scientific, medical and organizational and methodological activity of the Ukrainian Scientific and Research Sytenko Institute of Spine and Joint Pathology of the National Academy of Medical Sciences of Ukraine (1907–1957). Kyiv : «Zdorovye» Publishing House. (in russian)
5. Korzh, N. A., & Yaremenko, D. A. (Eds.) (2007). Historical essay about the Sytenko Institute of Spine and Joint Pathology of the National Academy of Medical Sciences of Ukraine. To the 100th anniversary of the foundation. Kharkiv : Sytenko Institute of Spine and Joint Pathology of the National Academy of Medical Sciences of Ukraine. (in russian)
6. Korzh, N. A. (2007). History of the institute. Memories of people, destinies, time. Kharkiv : Prapor. (in russian)
7. Institute reports on scientific, clinical and organizational activities for 2018, 2019, 2020, 2021, 2022. (in Ukrainian)

The article has been sent to the editors 01.09.2023

THE LONG-TERM FRUITFUL COOPERATION OF THE SYTENKO INSTITUTE OF SPINE AND JOINT PATHOLOGY AND THE NATIONAL ACADEMY OF MEDICAL SCIENCES OF UKRAINE (TO THE 30TH ANNIVERSARY OF THE ACADEMY)

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