115-years Anniversary Sytenko Institute of Spine and Joint Pathology, National Ukrainian Academy of Medical Science

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The Institute was created in accordance with the decision of the 31st Congress of Mining Workers of the South of Russia and was founded in Kharkiv on 8 June 1907. At that time, it was called the Medical-Mechanical Institute and was the first orthopedic and traumatological institution in Ukraine. Its foundation was a vital necessity, since the rapid development of industry was accompanied by a sharp increase in injuries and mutilations among workers. Most often, there were injuries to the limbs and spine.

At that time, it was a medical and expert institution, treating workers of the coal, mining ore and mining industry of the Donetsk and Slobozhan regions with spinal injuries and complex fractures of the limbs. The famous orthopedist-traumatologist Professor K. F. Wegner (1907‒1925) was appointed as its first director. He developed and introduced into medical practice the methods of functional treatment of long bone fractures. It was at the Medical-Mechanical Institute that permanent skeletal traction and submerged osteosynthesis, proposed by K. F. Wegner, were used for the first time in the country.

During the First World War, the institute treated severe open and gunshot fractures of the bones of the limbs. Treatment methods developed for this purpose are used in many infirmaries.

In 1920, the Institute came under the authority of the People's Commissariat of Health and changed its name to the First State Ukrainian Medical and Mechanical Institute; its main task was the treatment of war invalids with the consequences of gunshot injuries of the musculoskeletal system, children with congenital and acquired developmental disabilities musculoskeletal system, numerous patients with bone and joint tuberculosis.

In November 1925, the institution was reorganized into the Ukrainian Clinical Institute of Orthopedics and Traumatology. The outstanding scientist Professor M. I. Sytenko became its director and turned it into a large research, medical and preventive institution. Mykhailo Ivanovych created a unique system of orthopedic and trauma care for patients. On his initiative in November 1929, for the first time in the country, in the city of Kharkiv, compulsory examination of newborn children by an orthopedic doctor was introduced in order to detect orthopedic diseases. M. I. Sytenko proposed a method of treating congenital dislocation of the hip in children, based on his proposal, the country's first children's orthopedic dispensary was created, which became a model for similar institutions throughout the former USSR.

The first country's specialized journal Orthopedics, Traumatology and Prosthetics has been published since 1927, on the initiative of Professor M. I. Sytenko, and we still have the opportunity to read it today.

One of the most important areas of work of the institute from the first days of its work was examination and rehabilitation treatment of the disabled.

M. I. Sytenko used this experience to develop a system of medical and social rehabilitation of the disabled. In 1934, a research station for retraining and employment of the disabled was opened at the institute, and in 1936 it was repurposed into an orthopedic labor dispensary.
On the initiative of Professor M. I. Sytenko in 1934, the first biomechanics department in the country was opened at the institute, which was headed by Professor L. P. Nikolaev. It began to conduct studies of static, kinematic and kinetic characteristics of patients with injuries and diseases of the musculoskeletal system, which made it possible to theoretically substantiate and develop new methods of reconstructive and restorative operations for musculoskeletal disorders.

After his death in January 1940, the institution headed by him was named after Professor M. I. Sytenko in honor of the scientist’s huge contribution to the development of domestic orthopedics and traumatology.

In 1940–1941, the Institute was headed by Ya. G. Dubrov.

In 1941–1943, during the Second World War, an evacuation hospital No. 3348 was established on the basis of the Institute, which exclusively treated seriously wounded people with injuries of the musculoskeletal system. The institute resumed its activities in September 1943 under the name Professor M. I. Sytenko Ukrainian Research Institute of Orthopedics and Traumatology. Professor M. P. Novachenko was appointed as the director. Since then, under his leadership, experimental and morphological work in clinical orthopedics and traumatology, the study of bio- and patho-mechanical features of the musculoskeletal system, the development of new means of combating industrial, agricultural, transport, sports and other types of traumatism were rendered.

In 1965, by decision of the Council of Ministers of the former Ukrainian SSR, the Institute was reorganized into Professor M. I. Sytenko Kharkiv Institute of Prosthetics, Orthopedics and Traumatology, the main institution for problems of prosthetic repair. During those times, the solution to the problems of improving the organization and improving the quality of providing prosthetic and orthopedic care to the population was started. Academician O. O. Korzh became the director, heading the Institute until 1996. Under his leadership, fundamental and clinical research began to be conducted, which made it possible to substantiate, develop and implement a number of reconstructive and restorative operations for scoliosis, hip joint impairments in adults and children. During this period, the problems of osteogenesis after bone fractures, the use of corundum ceramics in reconstructive and restorative operations, the contingent of disabled people who use prosthetic and orthopedic products were studied, the designs of prostheses and their manufacturing technologies were developed, and the methods and levels of limb amputations were substantiated. O. O. Korzh was the first in the country to propose and implement express prosthetic repair on the operating table after amputation of a limb, which has not lost its relevance even today.

In 1974, the Institute was repurposed into Professor M. I. Sytenko Kharkiv Institute of Orthopedics and Traumatology and the previously created department of prosthetics and prosthesis construction was transferred to the Ukrainian Central Research Institute of Expertise of Working Capacity and Labor Organization of Disabled Persons of the Ministry of Social Security. It was headed by Professor D. O. Yaremenko, an employee of Professor M. I. Sytenko Institute and a student of Academician O. O. Korzh. In 1976, the Ukrainian Research Institute of Prosthetics, Prostheses Construction, Expertise and Rehabilitation of the Disabled was established. Professor D. O. Yaremenko organized the institution's clinical, scientific, research and development work at a high level.

Since September 1996, Professor M. I. Sytenko Institute has been headed by Professor M.O. Korzh. In 2000, the Institute became part of the National Academy of Medical Sciences of Ukraine and received the name Professor M. I. Sytenko Institute.
of Spine and Joint Pathology of the National Academy of Medical Sciences of Ukraine, and in 2007 it became the State Institution Professor M. I. Sytenko Institute of Spine and Joint Pathology of the National Academy of Medical Sciences of Ukraine.

The main directions of the Institute's scientific activity are experimental and theoretical research in the field of orthopedics and traumatology, orthopedic problems of spine disorders, orthopedic arthrology and endoprosthetic repair, orthopedic oncology, spine and joint traumatology.

Currently, the Institute is the main center in Ukraine for the treatment of spine disorders. In 1976, the country's first department of vertebrology was created, and in 2001, the scientific department of instrumental and minimally invasive spine surgery was established. Today, the Institute is intensively developing new promising areas of operative and conservative treatment of patients with spine disorders, in particular, specialists are studying the peculiarities of the use of the so-called dynamic fixators in the surgical treatment of spine diseases, developing technologies for the treatment of scoliosis and spondylolisthesis, percutaneous denervation of arculate joints for spondyloarthrosis. The technology of minimally invasive surgical treatment of patients with osteochondrosis, with compression fractures of vertebrae due to osteoporosis was developed and put into practice. Fundamental research is being conducted on the use of cell therapy, transplantation of autologous cells of a damaged intervertebral disc, the study of the causes and development of transient lumbar pain in the spine, the influence of paravertebral muscles on the results of spondylodesis.

New methods of surgical interventions for spinal tumors have been developed and implemented into clinical practice, the use of implants made of hydroxylapatite and corundum ceramics to replace defects of affected vertebrae and bones, a unique system of correction of skeletal deformation in children and adults has been substantiated.

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An important area of activity of the institute is cooperation with international organizations of orthopedic traumatologists: AAOS, EFFORT, International Society of Orthopedic Surgery and Traumatology (SICOT), International Society of Minimally Invasive Spine Surgery (ISMISS) and others. Many employees of the institute are members of these organizations, which contributes to increasing the authority of the institution in the world scientific community.

Every year, since 2002, international symposia «Minimally invasive and instrumental surgery of degenerative diseases of the lumbar spine» have been held on the basis of the institute with the participation of leading specialists from Europe, the United States of America, Asia, and Africa.

In 2017–2019, employees of the institution participated in the framework project of the European Union «Erasmus+», which involved scientists from Israel, Spain, Croatia, and Poland.

In our strenuous times, the institute has created a combat trauma department, providing the necessary medical care to the injured.

The staff of the institute welcomes its anniversary full of creative plans for the future and continues to conduct scientific research on current problems of orthopedics and traumatology.