The Institute was established in 1907 and is today one of the largest facilities of its kind in Ukraine. It is a major referral centre for orthopaedic problems requiring expert consultation and sophisticated investigation and management. With more than 240 beds and a wide range of surgical treatment centres, the multi-disciplinary staff at the Institute is able to provide patient care and research in a diverse range of spine and joint diseases/trauma.

At the Institute new techniques and medical procedures are being developed on site with the focus being the spine and joint pathology spheres. Researchers at the Institute have made internationally recognised advances in many areas of orthopaedics and traumatology. Some of the innovative procedures bear the names of their co-inventors, such as Sytenko, Novachenko, Chaklin, Korzh, Khvisyuk. Clinical trials of new technologies for the treatment of orthopaedic disorders are also evaluated at the Institute.

The research focus of the Institute are the following:

- Problems of diagnostics and treatment of the diseases and injuries of the spine and joints in adults and children
  - Primary and revision endoprosthetics of the joints
  - Application of biologically inert and biologically active materials for plastic of bone cavities and defects
  - Treatment of axial deformations and shortened limbs in children
  - Mini-invasive and -instrumented surgery of the spine
  - Treatment of complications after traumas of the spine, pelvis and limbs
  - Treatment of the tumours of spine, pelvis and limbs
Thus in addition to providing pioneering and proven treatment options through its clinical research, the staff at the Sytenko Institute are committed to increasing our understanding of the causes and mechanisms of orthopaedic disorders. The Institute is a centre of excellence, and its world class staff has one of the largest clinical experience in the former Soviet Union in the surgical management of a broad range of orthopaedic disorders.

**STCU project 1913**

**The Development and Clinical Approbation of Sapphire-Metallic Hip Joint Endoprosthesis**

A new hip joint prosthesis, with a sapphire head, was jointly developed by the Institute of Single Crystals and Sytenko Institute of spine and joint pathology of the National Academy of Sciences of Ukraine. The high wear resistance and other mechanical properties of the sapphire head plus its biological compatibility makes it an attractive technology for hip joint replacement surgery. Clinical trials on the new technology have been successful. There is optimism that the technology can be applied to other joints.