ORS Pioneers of Innovation

Orthopaedic Research Society

Dr. Steve Arnoczky, DVM

Dr. Steve Arnoczky's research for over 30 years has focused on sports related injuries such as repair and reconstruction of ligamentous and meniscal injuries of the knee and is most known for the development of several techniques of tissue repair and transplantation that is currently in clinical use in both animals and humans. He is a pioneer of translational research and considered the most recognized veterinarian in human orthopedics nationally and internationally. Dr. Arnoczky is currently the Wade O. Brinker Professor of Veterinary Surgery and Director of the Laboratory for Comparative Orthopaedic Research (LCOR) at Michigan State University

Dr. Adele Boskey, Ph.D.

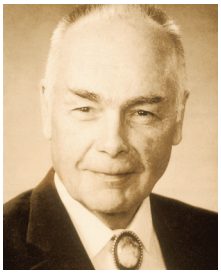
Dr. Adele Boskey has spent over four decades studying how bone structure, composition, and mineral formation influence bone strength and reduce the risk of fracture. For over 20 years, she has received NIH funding to support her research, which has led to insights regarding a number of musculoskeletal diseases including dystrophic calcifications, growth plate abnormalities, osteogenesis imperfecta, osteoarthritis, and osteoporosis. Dr. Boskey's work suggests that measuring bone quality, rather than bone density, promises greater accuracy and could better identify patients that are at high risk for fracture because of the the quality, not quantity, of their bones. Dr. Boskey is currently the Starr Chair in Mineralized Tissue Research at the Hospital for Special Surgery in New York, New York and is the program director of the Musculoskeletal Integrity Program.

Dr. Carl T. Brighton, MD, PhD

Dr. Carl Brighton's research has helped restore mobility to patients who otherwise might suffer serious functional limitations. His NIH-funded research demonstrated how electrical therapy helps fracture complications heal more effectively. In addition, he is the author of several patents, including a patent for the use of electrical fields to treat osteoarthritis. Dr. Brighton is currently the Paul B. Magnuson Professor Emeritus of Bone and Joint Surgery at the University of Pennsylvania.

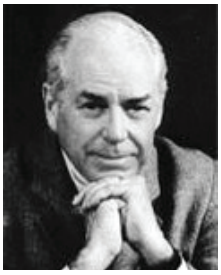
Dr. Arnold I. Caplan, Ph.D.

Dr. Arnold Caplan's research over the past 30 years has introduced and promulgated the idea of adult-derived mesenchmyal stem cells (MSCs) for tissue repair. Over this period of work, he and his colleagues have demonstrated that MSCs from adult bone marrow selectively differentiate dependent upon the site of engraftment, and exert immunomodulatory effects and trophic factor secretion. His works have translated these cell-based regenerative medicine therapies into commercial entities such as Osiris Therapuetics, Inc., and CellBank Technologies. His efforts have been recognized by his receipt of the Elizabeth Winston Lanier Award by the American Academy of Orthopaedic Surgeons and the Marshall R. Urist Award from the Orthopaedic Research Society. Dr. Caplan is currently a Professor of Biology and the Director of the Skeletal Research Center at Case Western Reserve University.



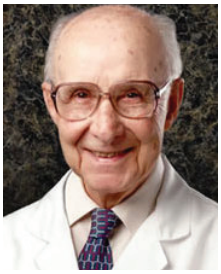
Dr. Harold Frost, M.D

Dr. Frost was an orthopaedic surgeon whose work at Henry Ford Hospital in Michigan and then Southern Colorado Clinic in Colorado who developed fundamental techniques and concepts in skeletal biology. Among his many accomplishments, he developed the use of tetracycline as an agent for dynamic histomorphometry for quantitative analysis of bone development, the idea of dynamic interplay between osteoclasts and osteoblasts in bone remodeling, and the mechanostat theory for how bone responds to mechanical loading. These discoveries and their practical applications have dramatically shaped basic bone biology and its application to clinical practice and treatment.



William H. Harris, MD

Dr. William Harris's career as an Orthopaedic Surgeon has spanned almost six decades. He played a pivotal role in identifying major features and causes of the disease periprosthetic osteolysis, which led to development of highly cross-linked polyethylene, an advancement that has virtually eliminated periprosthetic osteolysis from metal-on-polyethylene total hip replacements. In addition, he contributed to the idea that a majority of osteoarthritis of the hip is caused by developmental abnormalities, rather than by cartilage deficits. His work also greatly contributed to reducing the risk of fatal pulmonary emboli and loosening of the components of total hip arthroplasty.



Ignacio V. Ponseti, MD

Ignacio Ponseti's pioneering work in the treatment of clubfoot changed the lives of tens of thousands of children worldwide. Children with clubfoot faced a lifetime of disability, and the surgical treatments used at the time had significant limitations because it resulted in stiff, fixed ankles, and patients almost always had a limp. Ponseti developed a technique that involves the careful manipulation of the feet, held in a series of casts and braces to reposition the foot back to normal; an international symposium on clubfoot in 2006 showed more than 95% successful results with the use of the Ponseti Method in centers around the world, including in developing nations with limited physician resources. This truly exemplifies how basic science knowledge can be applied to patient care.

Dr. Marshall R. Urist, M.D.

Dr. Marshall R. Urist's impressive research career spanned over four decades. He is perhaps best known for his discovery of bone morphogenetic proteins, or BMPs. Although it was already known that bone had the ability to heal after an injury, the individual mechanisms that made this possible remained a mystery. By implanting demineralized bone matrix directly into muscle, Dr. Urist discovered that new bone grew at the site of implantation. This exciting revelation opened the door for additional growth factor research. Eventually, the identification and cloning of individual BMPs led directly to two FDA-approved treatments of long-bone defects as well as the regeneration of intervertebral discs.