

**List of Keywords**

3D analysis	Arthroscopy	Bone biomechanics	Cartilage repair	Chromatin modifying enzymes
3-D bio-printing	Articular cartilage	Bone cells	Cartilage surgery	Classification
3-D cephalometry	Articular fractures	Bone cement	Cartilage tissue engineering	Clavicle
3D culture	Articular joint	Bone defects	CD73	Cleft lip and palate
3-D imaging	Aseptic loosening	Bone deformity	Cell and organ culture system	Clinical
Absorbable materials	Augmentation	Bone development	Cell based therapies	Clinical epidemiology
Acetabular fracture	Autograft	Bone filling material	Cell culture	clinical fracture care
Acetabulum	Autologous chondrocyte implantation	Bone fixation	Cell delivery	Clinical implantology
Anterior cruciate ligament	Autologous stem cell transplantation	Bone formation	Cell expansion and differentiation	Clinical studies
Adenovirus	Back pain	Bone grafts	Cell senescence	Clinical trials
Adipose stem cells	Bacteria adhesion	Bone healing	Cell signaling pathways	Coating
Adolescent idiopathic scoliosis	Bacterial infection	Bone histomorphometry	Cell stretching	Collagen
Adolescent spondylolisthesis	Basic research	Bone infections	Cell-cell adhesion	Compartment syndrome
Adult deformity	basic Fibroblast growth factor	Bone innervation	Cell-matrix interactions	Complex Fractures
Adult stem cells	Biochemistry	Bone lengthening	Cell-mediated therapy	Compromised bone healing (by smoking, radiotherapy, osteoporosis...)
Advanced Neuromonitoring	biocompatibility	Bone loss	Cell-surface interaction	Computational biomechanics
Aesthetic surgery	Biocomposite	Bone metabolism	Cellular and molecular interaction	Computational stress analysis
Alcohol	Biocorrosion	Bone morphogenic proteins	Cellular Biology	Computed tomography
Allografts	Bioengineering	Bone perfusion	Cellular Diagnostics and Therapeutics	Computer assisted planning (CAP)
Alveolar bone graft	Biofilm	Bone quality	Cellular differentiation	Computer assisted surgery (CAS)
Alveolar Cleft	Biomaterials	Bone regeneration	Cellular engineering	Congenital anomalies
analysis of instability	Biomechanical testing	Bone tissue engineering	Cellular response to environmental stress	Connective tissue
Angiogenesis	Biomechanics	Bone tumor	Cements	Controlled release
Angular fractures,	Biomimetics	Bone viscoelasticity	Ceramics	Cranio-maxillo facial surgery
Angular stable nailing	Bioprinting	Bracing	Cerebral Edema	Craniomaxillofacial
Animal models	Bioreactors	Brain Tissue Oxygenation	Cervical	Critical size bone defects
Ankle	Bioresorbable implants	BSEM, uCT	Cervical fractures	Cruciate ligament
Ankle fracture	Bioresorbable materials	Burns	Cervical myelopathy	Cytokine/growth factor
Ankle surgery	Biostatistics	Cables, Cerclages, Periprosthetic	Cervical spine	Cytokines
Annulus fibrosus	Bisphosphonate-related osteonecrosis of the jaws	Cadaver studies	Cervical trauma	Damage control / Polytrauma
Antibiotic treatment (local and systemic)	Bisphosphonates	Calcaneum fracture	Chemistry	Decompressive
Antimicrobials	Bisphosphonates	Cancellous bone	Chemokines	hemispanectomy
Apoptosis	Bone	Cancer	Chest trauma	Deformity correction
Applied navigation	Bone / Implant interface	C-arm fluoroscopy	Chest wall	Degeneration
Artificial bone	Bone adaptation	Carpal injury	resection/reconstruction	Degenerative diseases
Arthodesis	Bone architecture	Cartilage	Child & adolescent	Degradable materials
Arthritis	Bone augmentation	Cartilage biology	Chondrocyte	Degradable metals
Arthroplasty	Bone bioengineering	Cartilage defect	Chondrogenesis	Delayed union
Arthroscopic assisted reduction of fractures	Bone biology	Cartilage injury		
Arthroscopic surgery		Cartilage mechanics		
		Cartilage regeneration		

Delivery system	Epidemiology	Frontal sinus trauma	Implant design	Leukotriene Metabolism
Dental	Equine	Functional adaptation	Implant loosening	Ligaments
Dental pulp stem cells	Esthetic facial surgery	Gene expression	Implant osseointegration	Limb deformities
Developmental biology	Evidence based medicine	Gene regulation	Implant removal	Limb Regeneration
Diabetes	Experimental modelling	Gene silencing	Implant stability	Limb salvage
Diagnosis and imaging	Expert nail	Genetic engineering	Implants	Listhesis
Diaphysis	External fixation	Gene Therapy	In vitro	Liver
Dicckopf 1	Extra oral implants	Genetics	In vivo	Locked nailing
Differentiation	Extracellular matrix	Geriatric	In vivo tracking	Locking plate
Disaster, mediocl coordinator of the dormant disaster hospital and course director of MRMI courses	Extracorporal shock wave	Geriatric fractures	in vivo loading	Long bone
Discogenic pain	Extremity trauma	Glial cells	Induced pluripotent stem cells	Low back pain
Dislocations	Fabrication	Glycosaminoglycan	Infection	Low intensity pulsed ultrasound or therapeutic ultrasound
Distal extremities fractures - carpus, tarsus, digits	Face transplantation	Greyhounds	Infection Models	Lower extremity
Distal Femur Fracture	Facet joint mechanics	Growth factors	Infections	Lumbar
Distal radius	Facial deformity	Growth Plate	Inflammation	Macrophages
Distraction osteogenesis	Facial growth	Guided bone regeneration	Information technology	Magnetic resonance imaging and technology
Drug delivery and nanomedicine	Facial paralysis	Hand and wrist	Innate immunity	Malalignment
Dupuytren's disease	Facial reconstruction	Head & neck cancer	Instability	Malunion
DXA	Facial skin & soft tissue	Head & Neck reconstructive surgery	Interlocking nails	Management of multiple trauma
Dynamic loading	Facial tissue Regeneration	Head injuries	Internal fixation	Mandible
Dynamization	Facial trauma	Health care economics	Interspinous devices	Mandible morphometry and shape
Dysphagia	Fat embolus	Hemorrhage / Resuscitation	Intervertebral disc	Mandibular reconstruction
Education	Femoral Acetabular	Heparan sulphate	Intervertebral disc cells	Mandibular trauma
Elbow	Impingement/Hip Dysplasia	Heterotopic bone formation	Intervertebral disc Degeneration	Materials science
Electric and magnetic stimulation	Femoral nailing	HIF-1	Intracellular pathogen	Mathematics
Electrospinning	Femur and hip	High energy trauma	Intracranial Pressure	Matrix biology
Embolisation	Fibroblast	Hip and Pelvis	Intramedullary nailing	Matrix metalloproteinases
Embryonic stem cells	Fibronectin	Histology or histomorphometry	Intra-operative neuromonitoring	Mechanical adaptation
Emergency medicine	Finite Element Analysis	Host pathogen interactions	Ionic homeostasis	Mechanical analysis
Enabling technology	Fixation stability and tissue regeneration	HTO	Ischemia / Reperfusion	Mechanical engineering
Endochondral ossification	Fluid flow	Human	Joint	Mechanical forces
Endocrine orbitopathy	Fluorescence microscopy	Human Motion Analysis	Joint biomechanics	Mechanical Loading
Endoprosthesis	Foot & ankle	Humeral nailing	Joint fractures	Mechanical testing
Endoscopic assisted surgery	Foot & ankle surgery	Humeral shaft fracture	Joint modeling	Mechanobiology
Endoscopic spinal approaches	Foot & ankle trauma	Humerus	Joint replacement	Medical education
Endoscopic surgical instruments	Forearm and elbow surgery	Hydrogels	Joint surgery	Medical physics
Endothelial cell biology	Forearm fractures	Hypoxia	Kinematics	Medical software
Endothelial progenitor cells	Fracture healing	Ihh	Knee	Meniscus
Enophthalmous repair	Fracture healing assessment	Iliac fixation	Knee revision	Mesenchymal stem cells
Enthesis	Fracture healing assessment	IM Fixation	Knee surgery	meta-analyses
	Fragility fractures	Imaging - microCT, DXA, pQCT, high resolution pQCT	Kyphoplasty	Metadherin, AEG-1
	Free flap reconstruction	Immunohistochemistry	Large animal models	
	Frontal and base of the skull	Immunology	Large bone defects	
	Frontal sinus reconstruction		Lentivirus	
	Frontal sinus surgery		Less invasive spine surgery	

Metal & biodegradable implant materials	Nonunions	Patella Fracture	Prostaglandins/COX-2	Rib plating
Metal implants	Notch signaling	Patient specific implants	Prosthesis	Rigid fixation
Metastasis	Notochordal cells	Pediatric fractures	Prosthodontics	RNA interference
Methodology	Nuclear replacement strategies	Pediatric Orthopedics	Protein adsorption	Robotics
Microarray analysis	Nucleus Pulposus	Pediatric plastic surgery	Protein expression	Satellite cells
Microbiology	Nutrition	Pediatric Trauma	Proteinase	Scaffolds
microcirculation	Obstructive Sleep Apnea Syndrom	Pedicle screws	Proteoglycan	Scaphoid
Micro-computed tomography	Occupational back pain	PEEK	Proximal humerus	Scapula
microRNA	Open fracture and related healing	Pelvis and acetabulum	Pseudoarthrosis	Scheuermanns kyphosis
Microsurgery	Operation planning	Pelvis fracture	Public health	Schwann cells
Mineralization	Oral oncology	Peptides	Pulsed electromagnetic fields	Sciatic nerve
Minimally invasive surgery	Oral pathology	Percutaneous instrumentation	QCT	Sciatica
Mircovascular free bone tissue transfer	Orbit	Periarticular	Quality of life	Sclerostin
Mircroarray analysis	Orbital	Peri-implantitis	Quality of life (QoL) and posttraumatic growth (PTG) research	Scoliosis
Modeling	Orbital reconstruction	Periosteal distraction	Quantitative resonance imaging	Scope & Sports Medicine
Molecular biology	Orbital trauma	Periosteum signaling	Radiation injury to bone	Segmentation
Monocyte	Organ culture	Peripheral nerve regeneration	Radiation therapy	Self-inductive scaffold
Motion Analysis/ Gait	Orthobiologics	Peripheral nerve tissue engineering	Radiculopathy	Sensor integration
Mouse genetics	Orthognatic Surgery and imaging	Periprosthetic fractures	Radiculopathy	Sepsis
Mouse knockout models	Orthopaedic medical devices	Pharmaceuticals	Radiostereometry	Shape analysis
Mouse models	Orthopaedic trauma	Photobiology	Radiotherapy	Sheep
Muscle	Orthopaedics	Photochemical crosslinking	Radius	Shock
Myelin disorders	Osseointegration	Photochemistry	Rapid prototyping	Shoulder
Nailing	Osteoarthritis	Physical loading	Rat	Shoulder arthroplasty
Nanobiotechnology	Osteoblast biology	Physiology	RDG, integrin	Shoulder biomechanics
Nasal	Osteochondral graft	Pilon fractures	Real-time tracking	Shoulder fractures
Nasoethmoidal repair	Osteochondral tissue engineering	Plastic surgery	Reconstructive Surgery	Shoulder instability
Naso-orbito-ethmoid trauma/reconstruction	Osteoclasts	Plastics	Reduction techniques	Shoulder Surgery
Navigation	Osteoconduction	Plate	Regeneration	Shoulder trauma
Nerve injury	Osteocytes	Plateau fractures	Regenerative medicine	Signal transduction
Nerve regeneration	Osteogenesis	PMMA	Regulatory (pre-/non clinical)	Silica
Neuroanatomy	Osteogenic differentiation	Poly lactide membranes	Rehabilitation and Physical Therapy	Simulation
Neurobiology/Neuroscience	Osteomyelitis	Polymers	Remodeling	Skeletal development
Neurocritical Care	Osteonecrosis	Polytrauma	Repair	Skeletal metastases
Neuromuscular	Osteoporosis	Positron emission Tomography	Replacement	Skull reconstruction
Neuromuscular scoliosis	Osteoporotic fracture	Post trauma reconstructive surgery	Reverse nailing	Small animal models
Neuromuscular spine deformity	Outcome measures	Post-traumatic arthritis	Rheumatology	Small molecule drugs
Neuronavigation	Oxidative stress and cellular ageing	Posttraumatic complications	RIA (Reamer Irrigator Aspirator)	Soft tissue
Neuroscience	Pain	Posttraumatic Deformities	Rib	Soft tissue reconstruction
Neurosurgerey	Parathyroid hormone action	Posttraumatic inflammation	Rib and sternal fixation in rib fractures and pseudoarthrosis	Soft tissue trauma
Neurotrauma		Preclinical	Rib fracture	Spinal cord regeneration
Neutrophil		proprioception		Spinal deformity
		Prosimal humerus		Spinal devices
				Spinal fracture
				Spinal fusion

Spinal stenosis Spinal trauma Spinal tumor Spine Spine biomechanics Spine degeneration Spondylolisthesis Sport medicine Squamous cell carcinoma Staphylococcal aureus Staphylococcus physiology Statins Statistics Stem cell biology Stem cell therapy Stereotactic navigation Sternal closure Sternal fixation Sternal reconstruction Sternum Stress fractures Stroma Structure-function Subchondral bone Subchondral cysts Surface characteristics Surface chemistry Surface coating Surface energy Surface modification Surgery Surgical alternatives to bone graft Surgical approaches Surgical decision making Synovium Systematic review talus Temporomandibular joint Tenascin-C Tendon Tendon regeneration Tendon stem/progenitor cells Thoracic surgery Thorax	Tibia Tibia fracture Tibia Plateau Fracture Tissue engineering Tissue reaction Titanium TMJ ankylosis Tooth development Total disc replacement Total elbow arthroplasty Total hip arthroplasty Total joint replacement TPLO Trabecular bone Transforming growth factor, TGF- $\beta$ Transcription factors Transgenic animal models Transient response Transmembrane signaling Transplantation Trauma Traumatic brain injury Tribology Ulna Ultrasound Upper extremity Vascularization VEGF Vertebra Veterinary orthopedics Viral vectors Virtual reconstructions Viscoelasticity War surgery Wear Whiplash Whole body vibration Wireless sensing wnt signaling Wound healing Wrist Zygoma			
--	---	--	--	--