

THE EXPERTS Robson Forensic

MEHRAN KASRA, PH.D., P.ENG.
Mechanical Engineer/Biomedical and Biomechanical Engineering

Investigates and analyzes biomechanical and biomedical injuries; injury causation; and medical equipment, devices, and implants.

Assesses Injuries: Applying physics, anatomy, and physiology, assesses injuries involving:

- Traumatic brain injuries and skull fractures
- Maxillofacial trauma
- Neck, back and spinal cord injuries
- Orthopedic and neurologic injuries
- Vascular ruptures
- Abdominal organs
- Heart, lungs, skin (including burns) and other organs
- Musculo-skeletal injuries including joints (i.e., shoulders, knees, ankles and elbows), soft tissues (i.e., rotator cuff, tendons and ligaments), and fracture patterns (torso, long bone, hand, foot or skull)

Determines Cause: Applying engineering principles, determines:

- The manner in which tissue failed: the type of loading, the direction of loading and magnitude or size of the load that caused the injury.
- If injury patterns are causally related or consistent with the hazardous condition or circumstances claimed.
- Whether there was sufficient force in the right direction to cause an injury.
- The presence of pre-existing conditions and how they affect the injury.
- Who and/or what action contributed to the injuries.
- What could have been done to prevent the injuries.

Typical Personal Injury Cases Involve:

- Motor vehicle collisions
- Slips, trips, and falls
- Medical device failures
- Occupational and workplace injuries
- Sports and recreational injuries

PROFESSIONAL EXPERIENCE

2021 to
present

Robson Forensic, Inc.
Associate

Provides technical investigations, analysis, reports, and testimony toward the resolution of personal injury litigation involving injury analysis and causation, medical equipment, medical devices, and procedures.

MEHRAN KASRA, PH.D., P.ENG.

Mechanical Engineer/Biomedical and Biomechanical Engineering

- 2010 to present **Amirkabir University**
Associate Professor, Biomedical Engineering
Teaching undergraduate/graduate engineering core courses and development of new courses. Writing grant proposals. Supervising graduate students, publishing scholarly work. Performing research in the areas of orthopaedic biomechanics and tissue engineering.
- 2005 to 2008 **McMaster University**
Associate Professor, Mechanical Engineering
Teaching undergraduate/graduate engineering core courses and development of new courses. Writing grant proposals. Supervising graduate students. Publishing scholarly work. Performing research in the areas of orthopaedic biomechanics and tissue engineering.
- 2000 to 2006 **University of Tennessee**
Associate Professor, Biomedical Engineering
Teaching undergraduate/graduate engineering core courses and development of new courses. Writing grant proposals. Supervising graduate students. Publishing scholarly work. Developing and setting up of teaching and research laboratories. Performing research in the areas of orthopaedic biomechanics and tissue engineering. The main contributor in the development of new Biomedical Engineering program at the University of Tennessee, Knoxville leading to its ABET approval.
- 2000 **University of Iowa**
Associate Professor, Biomedical Engineering
Teaching Engineering core courses, undergraduate courses, graduate courses, and development of new courses. Assisting in the development of new experiments for existing laboratories or new laboratories in support of the college and departmental curricula. Supervising graduate students and publishing scholarly work. Performing research in the area of tissue engineering.
- 1992 to 2000 **University of Toronto**
Assistant Professor, Department of Medicine (status only, in affiliation with Mount Sinai Hospital)
1995-2000
Supervising residents in their research projects undergraduate mechanical engineering students in their last year thesis projects, biomedical engineering students from University of Technology in Compiegne France in their internship program, and co-supervising graduate students in their Master and Ph.D. projects. Performing research in the areas of bone and joint mechanics (spine, hip, knee).

Adjunct Professor, Department of Metallurgy and Materials Science 1992-1995
Teaching Materials Science to mechanical engineering students.

MEHRAN KASRA, PH.D., P.ENG.
Mechanical Engineer/Biomedical and Biomechanical Engineering

1991 to
2000

Samuel Lunenfeld Research Institute, Mount Sinai Hospital

Research Associate

Directing a biomechanics laboratory. Development of finite element models and experimental set-ups for analyses related to connective tissues (bone and soft tissues) and implants. Design of experimental set-ups for tissue engineering. Supervising students.

Postdoctoral Fellow

Performing research of bone mechanics. Establishing a biomechanics laboratory at Mount Sinai Hospital Research Institute.

1991-1993

PROFESSIONAL CREDENTIALS

Registered Patent Agent, United States Patent & Trademark Office (USPTO), 2015

EDUCATION

Doctor of Philosophy (Ph.D.), Mechanical Engineering, Ecole Polytechnique de Montreal, 1991

Master of Engineering (M.Eng.), Mechanical Engineering, McGill University, 1986

Bachelor of Science (B.S.), Mechanical Engineering, Tehran Polytechnique, 1980

PROFESSIONAL MEMBERSHIPS

Professional Engineers of Ontario (PEO)

Orthopaedic Research Society (ORS)

PEER REVIEWED JOURNAL ARTICLES

Rahimtoroghi, E., Kasra, M. (2021) "Mechanical and cellular characterization of electrospun poly (l-lactic acid)/gelatin yarns with potential as angiogenesis scaffolds," Iran Polymer Journal, 30, 623–632.

Shahab S, Kasra M, Dolatshahi-Pirouz A. (2021) "Design and construction of a novel measurement device for mechanical characterization of hydrogels: A case study," PloS One 16(2): e0247727. doi: 10.1371/journal.pone.0247727

Ganji Y, Li Q, Quabius EA, Böttner M, Selhuber-Unkel C, Kasra M. (2016) "Cardiomyocyte behaviour on biodegradable polyurethane/gold nanocomposite scaffolds under electrical stimulation," Materials Science and Engineering C, C59:10-18.

MEHRAN KASRA, PH.D., P.ENG.
Mechanical Engineer/Biomedical and Biomechanical Engineering

Ganji Y, **Kasra M**, Salahshour Kordestani S, Bagheri Hariri M. (2014) "Synthesis and characterization of gold nanotube/nanowire - polyurethane composite based on castor oil and polyethylene glycol," *Materials Science and Engineering C*, C42: 341–349.

Ganji Y, **Kasra M**, Salahshour Kordestani S. (2015) "Mechanical and degradation properties of castor oil-based polyurethane," *International Journal of Engineering and Advanced Technology*, 4:207-213.

Bazrgari B, Shirazi-Adl A, **Kasra M**. (2008) "Computation of trunk muscle forces, spinal loads, and stability in whole body vibration," *Journal of Sound and Vibration*, 318: 1334-1347.

Bazrgari B, Shirazi-Adl A, **Kasra M**. (2008) "Seated whole body vibrations with high magnitude accelerations - relative roles of inertia and muscle forces," *Journal of Biomechanics*, 41:2639-2646.

Kasra M and Gryn timer MD. (2007) "On shear properties of trabecular bone in torsion: Effects of bone marrow and strain rate," *Journal of Biomechanics*, 40:2898–2903.

Kasra M, Merryman D, Loveless K, Martin J, Goel V, Buckwalter J. (2006) "Frequency response of pig intervertebral disc cells subjected to dynamic hydrostatic pressure," *Journal of Orthopaedic Research*, 24(10):1967-1973.

Wise LM, Waldman SD, **Kasra M**, Cheung R, Binnington A, Kandel RA, White LM, Gryn timer MD. (2005) "The effect of zoledronate on bone quality in the treatment of aseptic loosening of hip arthroplasty in the dog," *Calcified Tissue International*, 77(6):367-75

Kasra M, Parnianpour M, Shirazi-Adl A, Wang JL. (2004) "Effect of strain rate on tensile properties of sheep disc anulus fibrosus," *Technology and Health Care*, 12: 333-342.

Kasra M, Wang S, Martin J, Goel V, Choi W, Buckwalter J. (2003) "Effect of dynamic hydrostatic pressure on rabbit intervertebral disc cells," *Journal of Orthopaedic Research*, 21:597-603.

Chachra D, Lee JM, **Kasra M**, Gryn timer MD. (2000) "Differential effects of ovariectomy on the mechanical properties of cortical and cancellous bone in rat femora and vertebrae," *Biomedical Sciences Instrumentation*, 36:123-8.

Boutros CP, Trout DR, **Kasra M**, Gryn timer MD. (2000) "The effect of repeated freeze-thaw cycles on the biomechanical properties of canine cortical bone," *Veterinary and Comparative Orthopaedics and Traumatology*, 13:59-64.

Kasra M, Gryn timer MD. (1998) "Static and dynamic finite element analyses of an idealized structural model of vertebral trabecular bone," *Journal of Biomechanical Engineering*, 120: 267-272.

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Mechanical Engineer/Biomedical and Biomechanical Engineering

Anderson JD, **Kasra M.** (1996) "Engineered bar design for a midface defect. A case report," The International Journal of Oral & Maxillofacial Implants, 11:400-404.

Kasra M, Gryn timer MD. (1995) "The effects of androgens on the mechanical properties of primate bone," Bone, 17:265-270.

Gryn timer MD, **Kasra M,** Renlund R, Pritzker KPH. (1995) "The effect of pamidronate in a new model of immobilization in the dog," Bone, 17:225S-232S.

Chachra D, **Kasra M,** Vanin C, MacLusky N, Casper R, Gryn timer M. (1995) "The effect of different hormone replacement therapy regimens on the mechanical properties of rat vertebrae," Calcified Tissue International, 56:130-134.

Vanin CM, MacLusky NJ, Chachra D, **Kasra M,** Gryn timer MD, Casper RF. (1995) "Lumbar vertebral density and mechanical properties in aged ovariectomized rats treated with Estrogen and Norethindrone or Norgestimate," American Journal of Obstetrics and Gynecology, 173:1491-1498.

Kasra M, Gryn timer MD. (1994) "Effect of long-term ovariectomy on bone mechanical properties in young female cynomolgus monkeys," Bone, 15:557-561.

Gryn timer MD, **Kasra M,** Dumitriu M, Nespeca R, Very JM, Mertz BP. (1994) "Recovery from pamidronate (APD): a two year study in the dog," Calcified Tissue International, 55:288-294.

Acito AJ, **Kasra M,** Lee JM, Gryn timer MD. (1994) "The effect of intermittent administration of pamidronate (APD) on the mechanical properties of canine cortical and trabecular bone," Journal of Orthopaedic Research, 12:742-746.

Gryn timer MD, Acito A, **Kasra M.** (1994) "Effect of Pamidronate on the mechanical properties of canine bone," Annals of Oncology, 5(suppl. 7): S49-S51.

Kasra M, Shirazi-Adl A, Drouin G. (1992) "Dynamics of human lumbar intervertebral joints - Experimental and finite element investigations," Spine, 17:93-102.

PEER REVIEWED CONFERENCE PRESENTATIONS AND PROCEEDINGS (partial listing)

Rahimtoroghi E, **Kasra M,** Mirabdolhosseini N. (2017) "Cellular interaction and mechanical properties of electrospun poly (L-lactic acid)/gelatin yarns: a novel scaffold with potential application in angiogenesis," Orthopaedic Research Society, Annual Meeting, San Diego, CA, March.

Mirabdolhosseini N, **Kasra M,** Rahimtoroghi E. (2017) "Effect of audible sound waves on human umbilical vein endothelial cell response: application in wound and fracture healing," Orthopaedic Research Society, Annual Meeting, San Diego, CA, March.

MEHRAN KASRA, PH.D., P.ENG.
Mechanical Engineer/Biomedical and Biomechanical Engineering

Kasra M. (2016) “New power law relationships describing trabecular bone compressive mechanical properties in terms of density and connectivity: a parametric finite element study,” Orthopaedic Research Society, Annual Meeting, Orlando, FL, March.

Ganji Y, **Kasra M.** (2015) “Characterization of biodegradable castor oil based polyurethane of different chemical compositions: comparison of solid and porous samples,” Orthopaedic Research Society, Annual Meeting, Las Vegas, NV, March.

Kasra M, Habibi H. (2014) “Quasilinear viscoelastic models of intact and meniscectomized human knee joints,” Orthopaedic Research Society, Annual Meeting, New Orleans, LA, March.

Kasra M, Madeh Khaksar F, Ramezanzadehkoldeh M. (2013) “Effect of psoas muscle spasm in L4-L5 spinal load: a finite element study simulating active response of skeletal muscle in low back pain,” Orthopaedic Research Society, Annual Meeting, San Antonio, TX, Jan.

Madeh Khaksar F, **Kasra M,** Pronost N. (2013) “Effect of abdominal muscles elongation during pregnancy on L4-L5 spinal load: using a finite element model,” 8th Combined Meeting of Orthopaedic Research Society (CORS 2013), Venice, Italy, Oct.

Kasra M, Bohleber B. (2011) “Vibration response analysis of the human passive knee joint, effects of meniscectomy and flexion angle,” Orthopaedic Research Society, Annual Meeting, Long Beach, CA, Jan.

Kasra M. (2008) “Optimization of vertebral body for geometry and optimum strength,” Orthopaedic Research Society, Annual Meeting, San Francisco, CA.

Kasra M. (2006) “Optimum vertebral body shape and density for sustaining load with minimum mass,” Invited presentation in Computational Methods in Biomechanics and Mechanobiology, 5th World Congress in Biomechanics, Munich, Germany.

Kasra, M, Grynepas, M, “Mechanical Properties of eburnated and non-eburnated osteoarthritic trabecular bone” Orthopaedic Research Society, Annual Meeting, Washington, DC, February.

Pfeiler W, **Kasra M,** Shirazi-Adl A, Cates H. (2004) “Finite element dynamic response analysis of the human knee joint,” ASME International Mechanical Engineering Congress IMECE2004-59873.

Merryman WD, Loveless K, and **Kasra M.** (2003) “Disc nucleus cellular response to dynamic pressures at critical frequencies: a pig model,” 2003 ASME International Mechanical Engineering Congress & Exposition (bioengineering division), IMECE2003-43092.

Kasra M, Martin J, Wang S, Goel V, Choi W, English T, Buckwalter J. (2001) “Effect of dynamic hydrostatic pressure on intervertebral disc cells: A rabbit model”, Orthopaedic Research Society, 47th Annual Meeting, San Francisco, CA

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Mechanical Engineer/Biomedical and Biomechanical Engineering

Kasra M, Gryn timer M, Soric R, Arnaud S. (2000) "A clinical evaluation of vibration testing in the assessment of osteoporosis," *Advances in Bioengineering*, 48:213-214.

Kasra M. (2000) "Parametric meshing of finite element models of lumbar spine," *Advances in Bioengineering*, 48:279-280.

Ekstein S, Moran E, **Kasra M**, Gryn timer M, James D, Bogoch E. (2000) "The effect of arthritis on the mechanical properties of the cortex in long bones," 46th Annual Meeting, Orthopaedic Research Society, Orlando, FL.

Kasra M, Gryn timer MD, Shirazi-Adl A. (1999) "Dynamic response analyses of rabbit knee joint," ASME Winter Annual Meeting.

Kasra M, Timmer M, Gryn timer MD. (1998) "A parametric finite element study of a vertebra: effect of cortical shell geometry," *Advances in Bioengineering*, 39:183-184.

Kasra M, Parnianpour M, Wang JL, Shirazi-Adl A, Gryn timer MD. (1997) "Effect of strain rate on failure behaviour of the annulus fibrosus in tension," *Advances in Bioengineering*, 36:205-206.

Kasra M and Anderson JD. (1997) "Framework design for an orofacial implant-supported prosthesis," *Advances in Bioengineering*, 36:275-276.

Kasra M, Catelas I, Tomlinson G, Gryn timer MD. (1995) "Mechanical behaviour of trabecular bone in torsion: Effects of bone marrow and strain rate," *Advances in Bioengineering*, 31:161-162.

Kasra M, Gryn timer MD. (1994) "Finite element dynamic response analysis of trabecular bone: Effect of bone marrow," *Advances in Bioengineering*, 28:225-226.

Kasra M, Boisvert C, Vanin CM, Casper RF, MacLusky NJ, Gryn timer M. (1994) "Effect of estrogen and progesterin regimens on the mechanical properties of bone in aged ovariectomized rats," *Orthop Trans (ORS)*, pp:79.

Kasra M, Gryn timer MD. (1992) "The effect of ovariectomy on the mechanical properties of primate cortical bone," 38th Annual Meeting, Orthopaedic Research Society, Washington, DC.

Gryn timer MD, Acito A, **Kasra M**, Renlund R, Pritzker KP. (1992) "The effect of pamidronate (APD) administration on canine bone," Abstract, The XIth International Conference on Calcium Regulating Hormones, Florence, Italy.

PATENTS

Kasra M. (2016) "Hydrostatic pressure generator device," U.S. Pat. No. 9,303,244

Kasra M, and Gryn timer MD. (2000) "Bone prosthesis fixation device and method of using same," U.S. Pat. No. 6,126,691

MEHRAN KASRA, PH.D., P.ENG.
Mechanical Engineer/Biomedical and Biomechanical Engineering

JOURNAL REFEREE

Annals of Biomedical Engineering, Euro Spine, Journal of Biomechanics, Clinical Biomechanics, Journal of Biomechanical Engineering, Journal of Orthopaedic Research, Materials Science and Engineering, Orthopaedic Research Society.

GRANTS

Kasra M. (2012-2014) "Design and fabrication of a polyurethane-conductive nanowire composite scaffold for repair of heart muscle tissue," Iran National Science Foundation (\$20,000) and Tehran Polytechnic (support for a Ph.D. student)

Kasra M. (2007-2008) "Biomechanics of musculoskeletal system at tissue and cellular levels," Canadian foundation for innovation (Leaders Opportunity Fund, CAD \$242,000)

Kasra M. (2008-2010) "Dynamics of the Human Knee Joint," NSERC CANADA, (Discovery grant \$18,000/year)

Kasra M, Wasserman J. (2005) "Operator seating performance analyses by vehicle driver spine modelling," Commercial Vehicle Group, Tennessee (Research Contract, US \$50,000)

(Research Associate) Grynepas et al., 1998-2000 (25% effort): Contract, "The effect of zoledronate on bone quality in the treatment of aseptic loosening of hip arthroplasty in the dog," University- Industry Collaborative Research Programme (MRC and Novartis, CAD \$500,000)

(Research Associate) Grynepas et al., 1994- 1998 (60% effort): Contract, "Do third generation bisphosphonates alter the quality and quantity of bone in animal models of osteoporosis?" University-Industry Collaborative Research Programme (MRC and CIBA-GEIGY, CAD \$684,000)

COURSES TAUGHT

Graduate course "Cellular Biomechanics" (2009-2016), Dept. of Biomedical Engineering, Amirkabir University (Tehran Polytechnic).

Graduate course "Viscoelasticity" (2010-2017), Dept. of Biomedical Engineering, Amirkabir University (Tehran Polytechnic).

Undergraduate course "Design of Machine Elements" (2017), Dept. of Biomedical Engineering, Amirkabir University (Tehran Polytechnic).

MEHRAN KASRA, PH.D., P.ENG.
Mechanical Engineer/Biomedical and Biomechanical Engineering

Graduate course “Advance Engineering Mathematics” (Spring 2011), Dept. of Biomedical Engineering, Amirkabir University (Tehran Polytechnic).

Undergraduate course “Engineering Mathematics” (2011-2012), Dept. of Biomedical Engineering, Amirkabir University (Tehran Polytechnic).

Undergraduate course “Bone Mechanics and Injuries” (Spring and Fall 2010), Dept. of Biomedical Engineering, Amirkabir University (Tehran Polytechnic).

Undergraduate course “Solid Mechanics” (Fall 2009, Spring 2010), Dept. of Biomedical Engineering, Amirkabir University (Tehran Polytechnic).

Graduate course “Tissue Engineering” (Winter 2009), Dept. of Biomedical Engineering, Amirkabir University (Tehran Polytechnic).

Undergraduate/graduate course “Experimental & Computational Biomechanics” (Winter 2008), Dept. of Mechanical Engineering, McMaster University.

Undergraduate/graduate course “Biomechanics” (Fall 2007), Dept. of Mechanical Engineering, McMaster University.

Undergraduate course “4th Year Thesis Project ME 4M06” (Fall 2006, 2008), Dept. of Mechanical Engineering, McMaster University, supervising 3 design groups.

Graduate course “Applied Biomechanics” (Fall 2006), Dept. of Mechanical Engineering, McMaster University.

Undergraduate course “Engineering Mechanics MECH ENG 3A3” (Spring 2006-2008), Dept. of Mechanical Engineering, McMaster University (135 students).

Undergraduate course “Mechanical Engineering Design II ME3E05” (Spring 2006-2008), Dept. of Mechanical Engineering, McMaster University, supervising 4 design groups.

Undergraduate course “Cell and Tissue Engineering” (2002), Dept. of Mechanical, Aerospace and Biomedical Engineering, The University of Tennessee.

Undergraduate course “Dynamics” (2003-2005), Dept. of Mechanical, Aerospace and Biomedical Engineering, The University of Tennessee.

Graduate course “Computational Biomechanics” (2002-2005), Dept. of Mechanical, Aerospace and Biomedical Engineering, The University of Tennessee.

Graduate & Undergraduate course “Cell and Tissue Engineering” (2002), Dept. of Mechanical, Aerospace and Biomedical Engineering, The University of Tennessee.

MEHRAN KASRA, PH.D., P.ENG.
Mechanical Engineer/Biomedical and Biomechanical Engineering

Graduate & Undergraduate course “Applied Biomechanics” (2001), Dept. of Mechanical, Aerospace and Biomedical Engineering, The University of Tennessee.

Undergraduate course “Mechanics of Materials” (2001), Dept. of Mechanical, Aerospace and Biomedical Engineering, The University of Tennessee.

Graduate & Undergraduate course “Biomedical Laboratory” (2001-2005), Dept. of Mechanical, Aerospace and Biomedical Engineering, The University of Tennessee.

Undergraduate “Senior Design project” (2002-2005), Dept. of Mechanical, Aerospace and Biomedical Engineering, The University of Tennessee.

Undergraduate course “Mechanics of Deformable Bodies” (2000), Dept. of biomedical Engineering, University of Iowa.

Graduate course “Composite Materials” (2000), Dept. of biomedical Engineering, University of Iowa.

Graduate course “Biomaterials”, Dept. of Mechanical Engineering, Iran University of Science and Technology (a United Nations mission).

Undergraduate course “Materials Science” Department of metallurgy and materials Science, University of Toronto, (1993-1994).

Undergraduate “4th year thesis project” (1993-2000), Department of Mechanical Engineering, University of Toronto. Two of my students received the 1st place Centennial award for the best theses of 1999 and 2000, among 120 students.

STUDENT MENTORING (partial listing)

Amirkabir University, School of Biomedical Engineering

Hossein Saeedinia A. (MSc, 2018-2020) “Development of a simplified parametric finite element model of the human spine”

Salehi S. (MSc, 2017-2019) “Effect of mechanical stimulation on chemical decellularization of cartilage tissue”

Abbasirad M. (MSc, 2017-2019) “Enhancement of cortical bone decellularization by creating channels.”

Shahab S. (MSc, 2017-2019) “Design and construction of a device demonstrating the application of magnetic bead rheometry for measurement of cell mechanical properties”

Alipouryani N. (MSc, 2017-2019) “Finite element modelling of the human cervical spine: cervical muscle simulation”

Saeidi S. (MSc, 2016-2018) “Development of a Parametric Finite Element Model of the Proximal Femur for Predicting the Risk of Hip Fracture”

Rahimtoroghi E. (MSc, 2014-2016) “Scaffold design and fabrication for angiogenesis”

Mirabdolhosseini N. (MSc, 2014-2016) “Cellular response to acoustic waves”

Abdolzade A. (MSc, 2014-2016) “Finite element frequency response analysis of a chondrocyte”

Ganji Y. (PhD, 2011- 2015) “Design and fabrication of polyurethane-gold composite for tissue engineering of heart muscle”

Vakili S. (MSc, 2013-2015) “Finite element analyses of the human spine musculoskeletal system”

Habibi H. (MSc, 2011-2013) “Design and Making a prototype of a Vibrating-String Sensor”

Farahani H. (MSc, 2010-2012) “Finite element dynamic response analyses of the human knee joint”

Khaksar F. (MSc, 2010-2012) “Finite element modeling of the human thoracolumbar musculature”

Behforootan S. (MSc, 2010-2012) “Finite element simulation of vertebral load-deformation response”

Shojaee M. (MSc, 2010-2012) “Drug conjugation on polyurethane scaffold for cardiovascular tissue engineering”

Ramezanzadeh M. (MSc, 2009- 2011) Dept. of Mechanical Engineering, Sharif University, Tehran, “Parametric finite element modeling of the lumbar facet joints”

Ganji Y (MSc, 2009- 2011) “Experimental vibration response analysis of the human osteoblasts”

McMaster University

Boyd J. (MSc, 2005-2007) Dept. of Mechanical Engineering, “Relationship between vertebral geometry and its compressive strength. An experimental study”

MEHRAN KASRA, PH.D., P.ENG.
Mechanical Engineer/Biomedical and Biomechanical Engineering

University of Tennessee, Mechanical, Aerospace and Biomedical Engineering

Boheleber B. (MSc, 2003-2005) “Experimental vibration response analyses of the human knee joint”

Loveless K. (MSc, 2002-2003) “Experimental frequency response analyses of intervertebral disc cells”

Pheiler W. (MSc, 2002-2004) “Dynamic finite element analysis of the human knee joint”

Cowan B. (M.Sc, 2004) “Quantitative endothelial cell monolayer impedance sensing and analysis,” Co-supervised

Merryman D. (MSc, 2001-2002) “Effect of dynamic hydrostatic pressure on intervertebral disc cells”

University of Iowa

Wang S, Choi W. (foreign exchange orthopaedic surgeons), Dept. of Orthopaedic surgery, “Effects of hydrostatic pressure amplitude and frequency on protein synthesis by intervertebral disc cells”

University of Toronto

Heitzner J. (MD; 97-98) University of Toronto, Department of Medicine, division of Physiatry, “Vibration measurement of ulnar stiffness in osteoporotic women”

Chachra D. (MSc 93-95) University of Toronto, Dept. of Metallurgy & Material Science, “The effect of IGF-I on the bone mechanical properties,” Co-supervised.

Undergraduate 4th year thesis students, Dept of Mechanical Engineering:

Oven JC. (BSc 99-2000), “Parametric finite element model of lumbar spine” (winner of the departmental centennial award for the best thesis, 2000)

Given S. (BSc 99-2000) “Mechanical Properties of osteoarthritic human femoral head cancellous bone”

Ghahramani A. (BSc 99-2000) “Finite element modeling and Analyses of the human lumbar vertebra”

Farrington J. (BSc 98-99) “The effect of arthritis on viscoelastic properties of human femoral head trabecular bone” (winner of the departmental centennial award for the best thesis, 1999)

Zargar F. (BSc 98-99) “Finite element parametric modeling of the human femur”

Lew E. (BSc 98-99) “Two-dimensional finite element model of the human knee joint”

Timmer M. (BSc 97-98), “Finite element analysis of the effect of osteoporosis on vertebral fractures”

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McBrien K. (BSc 97-98) "Effect of cortical shell geometry on the vertebral body compressive strength"

Quig R. (BSc 96-97) "Finite element vibration analyses of the human Ulna"

Dressler J. (BSc 95-96) "Effect of strain rate on stiffness and tensile failure of disc annulus"

Leung C. (BSc 95-96) "Development of an instructional finite element code"

Labrakos E. (Bsc 94-95) "An experimental study on the mechanical properties of sheep vertebrae"

Boisvert C. (BSc 93-94), "Effect estrogen and progesterone regimens on bone mechanical properties"

Other Students

Boutros C. (DVSc; 97-99), University of Guelph, Ontario Veterinary College, "The effect of repeated freeze-thaw cycles on the biomechanical properties of canine cortical bone"

Supervised biomedical engineering students from University of Technology in Compiègne France in their internship program (10 students)

AWARDS

CFI Leaders opportunity fund/ORE Research Infrastructure, 2007

American Society of Mechanical Engineers (ASME) Student Paper Competition, (Merryman D, Loveless K, Kasra M) Master level, 2005 (3rd place winner)

New Investigator Recognition Award (Finalist), Annual meeting of Orthopaedic Research Society, 1993

ASME Student Paper Competition, PhD level, Kasra M et al., 1989 (honorary mention)

OTHER CERTIFICATES / ACTIVITIES

Open water scuba diving certificate (NAUI), Hart House Underwater Club, Toronto (1992)

Sky Diving (Solo), Ontario, (1996)

University of Toronto Judo Club at Hart House (blue belt), (1995-1999)

Sinai Lightning Dragon Boat team, Toronto (1996-1999)

University of Montreal Varsity Swimmer (1986-1991)

McGill University Varsity Swimmer (1984-1986)