

CURRICULUM VITAE

Timothy Robert Leonard

Faculty of Kinesiology

University of Calgary
2500 University Drive NW
Calgary, Alberta, Canada
T2N 1N4
Tel: 403-220-7002

Fax: 403-284-3553

Email: leonard@ucalgary.ca

EDUCATION

Degrees:

2010 Ph.D. in Kinesiology (Biomechanics), University of Calgary

Title: Force production in lengthened myofibrils and single sarcomeres.

1982 B.Sc. in Biological Sciences, University of Calgary

AWARDS

- 2012 Western Association of Graduate Schools award for Innovative Technology in Research, Fort Collins, CO, USA.
- 2011 J. B. Hyne Research Innovation Award, Faculty of Graduate Studies, University of Calgary.
- 2008 New Investigator Award (Ph.D. category), Canadian Society for Biomechanics. 15th CSB Biennial Conference, and NACOB, Ann Arbor, Michigan, USA. August 5-9th, 2008.
- 2004 New Investigator Award (M.Sc. category), Canadian Society for Biomechanics. 13th CSB Biennial Conference, Halifax, Nova Scotia, Canada. August 4-7th, 2004.

PROFESSIONAL DUTIES

Faculty of Kinesiology, University of Calgary

Research Associate and Biomechanics Specialist 1998 – present

Senior Research Technologist III 1988 - 1998

Department of Clinical Neurosciences, Faculty of Medicine University of Calgary

Research Technologist II 1983-1988

MEMBERSHIPS

Canadian Society for Biomechanics 1994 - present

American Society of Biomechanics 2002 - present

International Society for Biomechanics 2000 - present

Biophysical Society 2006 - present

REVIEWER FOR SCIENTIFIC JOURNALS

Journal of Biomechanics 2006 - present

Proceedings of the Royal Society- B-London 2009 – present

Exercise and Sport Sciences Reviews 2011 – present

Muscle & Nerve 2014 – present

PUBLISHED MANUSCRIPTS IN PEER REVIEWED SCIENTIFIC JOURNALS

2019

Leonard TR, Howard JJ, Larkin-Kaiser K, Joumaa V, Logan K, Orlik B, El-Hawary R, Gauthier L, Herzog W. Stiffness of hip adductor myofibrils is decreased in children with spastic cerebral palsy. *J Biomech.* 2019 Feb 28. doi: 10.1016/j.jbiomech.2019.02.023.

Leumann A, Leonard T, Nüesch C, Horisberger M, Mündermann A, Herzog W. The natural initiation and progression of osteoarthritis in the anterior cruciate ligament deficient feline knee. *Osteoarthritis Cartilage.* 2019 Apr;27(4):687-693. doi: 10.1016/j.joca.2019.01.003.

2017

E. Moo, T. Leonard and W. Herzog, *In Vivo Sarcomere Lengths Become More Non-uniform upon Activation in Intact Whole Muscle.* *Front. Physiol.*, 07 December 2017
<https://doi.org/10.3389/fphys.2017.01015>

E. Moo, D. Peterson, T. Leonard, M. Kaya, W. Herzog
In vivo muscle force and muscle power during near-maximal frog jumps. *PLOS* 2017 Mar 10;12(3):e0173415. doi: 10.1371/journal.pone.0173415

DuVall M, Jinha A, Schappacher-Tilp G, Leonard T, Herzog W (2017) Differences in Titin segmental elongation between passive and active stretch in skeletal muscle. *Journal of Experimental Biology* 220 (23): 4418-4425.

2016

W. Herzog, G. Schappacher, M. DuVall, T.R. Leonard and J. Herzog. Residual force enhancement following eccentric contractions: A new mechanism involving titin. *Physiology* 31:300-213.

Gudrun Schappacher-Tilp, Timothy Leonard, Gertrud Desch and Walter Herzog. Computing average passive forces in sarcomeres in length-ramp simulations. *PLoS Comput Biol.* DOI 10:1371: June 8, 2016.

2015

K. Collins, R. Reimer, R. Seerattan, T. Leonard, W. Herzog (2015) Using Diet-Induced Obesity to Understand a Metabolic Subtype of Osteoarthritis in Rats. *Osteo and Cartilage.* 2015 Jun;23(6):957-65.

Schappacher-Tilp G, Leonard T, Desch G, Herzog W (2015) A Novel Three-Filament Model of Force Generation in Eccentric Contraction of Skeletal Muscles. *PLoS ONE* 10(3): e0117634. doi:10.1371/journal.pone.0117634.

Leumann, A., Fortuna, R, Leonard, T.R., Valderrabano, V. and Herzog, W. (2015) Tibiofemoral Loss of Contact Area but no Changes in Peak Pressures after Meniscectomy in a Lapine In-Vivo Quadriceps Force Transfer Model. *Knee Surg Sports Traumatol Arthrosc.* 23(1):65-73.

2014

Powers K, Schappacher-Tilp G, Jinha A, Leonard T, Nishikawa K, Herzog W. (2014) Titin force is enhanced in actively stretched skeletal muscle. *Exp Biol.* 217, 3629-3636.

Egloff, C., Sawatsky, A., Leonard, T.R., Hart, D., Valderrabano, V. and Herzog W. (2014) Effect of muscle weakness and joint inflammation on the onset and progression of osteoarthritis in the rabbit knee. *Osteoarthritis and Cartilage* 22:1886-1893.

Egloff C, Sawatsky A, Leonard T, Fung T, Valderrabano V, Herzog W. (2014) Alterations in patellofemoral kinematics following vastus medialis transection in the anterior cruciate ligament deficient rabbit knee. *Clin Biomech* May;29(5):577-82.

JA Herzog, TR Leonard, A Jinha, W Herzog. (2014) Titin (Visco-) Elasticity in Skeletal Muscle Myofibrils. *Mol Cell. Biomech.* 11(1):001-017.

2013

Herzog W, Leonard TR. (2013). Residual force enhancement: the neglected property of striated muscle contraction. *J Physiol.* 2013 Apr 15;591(8):2221.

Leumann A, Fortuna R, Leonard T, Valderrabano V and Herzog W. (2013) Dynamic in-vivo force transfer in the lapine knee loaded by quadriceps muscle contraction. *Clin Biomech.* 28:199-204.

2012

Vaz, M.A., de la Rocha Freitas, C., Leonard, T. and Herzog, W. 2012. The force-length relationship of the cat soleus muscle. *Muscles, ligament and tendons journal* 2(2):79-84.

Szabo, E, Egloff, C, Seerattan, R, Leonard, T and Herzog, W. 2012. Strength training of the quadriceps Muscles following ACL loss: Effects on strength and Joint Integrity. *Sport Ortho Trauma* 28,266-273.

Herzog W., Leonard T., Joumaa V., DuVall M and Panchangam A. 2012. The three filament model of skeletal muscle stability and force production. *Mol Cell Biomech* Sep;9(3):175-191.

Herzog, W., Tang, C. and Leonard T. 2012. Internal carotid artery strains during high-speed, low-amplitude spinal manipulations of the neck. *J Manipulative Physiol Ther.* Nov 6. doi: :pii: S0161-4754(12

Herzog, W., Leonard, T.R., Symons, B., Tang, C. and Wuest, S. 2012. Vertebral artery strains during high-speed, low amplitude cervical spinal manipulation. *J. Electromyogr Kinesiol.* 22: 740-746.

Symons B, Wuest S, Leonard TR and Herzog W. 2012. Biomechanical characterization of cervical spinal manipulation in living subjects and cadavers. *J Electromyogr Kinesiol.* 22:747-751.

Herzog J, Leonard TR, Jinha A, Herzog W. 2012. Are Titin Properties Reflected in Single Myofibrils? *J Biomech.* 45:1893-1899.

Horisberger M, Fortuna R, Leonard TR, Valderrabano V, Herzog W. 2012. The influence of cyclic concentric and eccentric submaximal muscle loading on cell viability in the rabbit knee joint. *Clin Biomech (Bristol, Avon)* 27(3): 292-298.

Herzog W, DuVall M and Leonard TR. 2012. Molecular mechanisms of muscle force regulation: a role for titin? *Exerc Sport Sci Rev.* Jan 40(1), 50-57.

Leumann A., Longino D., Fortuna, R., Leonard T.R., Vaz M., Hart D. and Herzog W. 2012. Altered cell metabolism in tissue of the knee joint in a rabbit model of Botulinum toxin-A induced quadriceps muscle weakness. *Scand J Med Sci Sports Dec;22(6):776-782.*

2010

Leonard TR, Duvall M, Herzog W. 2010. Force enhancement following stretch in a single sarcomere. *Am J Physiol-Cell Physiol.* Dec;299(6):C 1398-1401.

Leonard TR, Joumaa V, Herzog W. 2010. An activatable molecular spring reduces muscle tearing during extreme stretching. *J Biomech.* Vol.43: 3063-3066.

Herzog W, Joumaa V, Leonard TR. 2010. The force-length relationship of mechanically isolated sarcomeres. *Adv Exp Med Biol.*:682:141-61.

Wuest S, Symons B, Leonard T.R., Herzog W. 2010. Preliminary report: biomechanics of vertebral artery segments C1-C6 during cervical spinal manipulation. *J Manipulative Physiol Ther.* 2010 May;33(4):273-8.

Leonard, T.R. and Herzog, W. 2010. Regulation of muscle force in the absence of actin-myosin based cross-bridge interaction. *Am. J. Physiol-Cell Physiol.* Jul;299(1):C 14-20.

Herzog, W., Joumaa, V. and Leonard, T.R. 2010. On the mechanics of single sarcomeres. *Molecular and Cellular Biomechanics.* vol. 7 (1) pp. 25-31.

Herzog W, Leonard TR, Abusara, Z, Han SK, Sawatsky, A. In-vivo Cartilage Mechano-Biology: How to Make Progress in Osteoarthritis Research, *IFMBE proceedings* 35:3-6 · December 2010

2009

Hisey B, Leonard T.R., Herzog W. 2009. Does residual force enhancement increase with increasing stretch magnitudes? *J. Biomech.* Jul 22;42(10):1488-92.

Rehan Youssef A., Longino D., Seerattan R., Leonard T.R., Herzog W. 2009. Muscle weakness causes joint degeneration in rabbits. *Osteoarthritis and Cartilage* Sept;17(9):1228-35.

2008

Joumaa V., Leonard T.R., Herzog W. Residual force enhancement in myofibrils and sarcomeres. *Proc Biol Sci.* 2008 Jun 22;275(1641):1411-9.

Herzog W., Leonard, T.R., Joumaa V. and Mehta, A. Mysteries of Muscle contraction. *J Appl Biomech.* 2008 Feb;24(1):1-13.

V. Joumaa, Rassier, D., Leonard, T.R. and Herzog, W. (2008) The origin of passive force enhancement in skeletal muscle. *Am J Physiol Cell Physiol.* 294: C74-C78.

Yaraskavitch M, Leonard T, Herzog W. Botox produces functional weakness in non-injected muscles adjacent to the target muscle. *J Biomech.* 41(4):897-902.

Kaya, M., Leonard, T.R. and Herzog, W. (2008) Premature deactivation of soleus during the propulsive phase of cat jumping. *J. R. Soc. Interface* 5:415-426.

2007

Joumaa, V., Rassier, D.E., Leonard, T.R. and Herzog, W. (2007). Passive force enhancement in single myofibrils. *Pflugers Archiv- Eur. J. Physiol.* Nov;455(2):367-71

Herzog, W. and Leonard, T.R. (2007) Residual force depression is not abolished following a quick shortening step. *J Biomech.* 40(12):2806-10.

Herzog, W. and Leonard, T.R. (2007) Response to the (Morgan and Proske) Letter to the Editor by Walter Herzog (on behalf of the authors) and Tim Leonard. *J. Physiol.* 578:617-620.

2006

Bullimore, S., Leonard, T.R., Rassier, D. Herzog, W. (2006) History-dependence of isometric muscle force: Effect of prior stretch or shortening amplitude. *J. Biomech.* 40: 1518-1524.

Clark, A.L., Leonard, T. Barclay, L. Matyas, J and Herzog, W. (2006) Heterogeneity in patellofemoral cartilage adaptation to anterior cruciate ligament transection; chondrocyte shape and deformation with compression. *Osteoarthritis and Cartilage.* 14(2):120-30.

Kaya, M., Leonard, T.R. and Herzog, W. (2006) Control of ground reaction forces by hind limb muscles during cat locomotion. *J. Biomech.* 39(15): 2752-2766.

2005

Leonard, T.R. and Herzog, W. (2005) Does the speed of shortening affect steady-state force depression in cat soleus muscle? *J. Biomechanics* 38:2190-2197.

Butterfield TA, Leonard TR, Herzog W. (2005) Differential serial sarcomere number adaptations in knee extensor muscles of rats is contraction type dependent. *J Appl. Physiol.* Oct;99(4):1352-1358.

Longino D, Frank C, Leonard TR, Vaz MA, Herzog W. (2005) Proposed model of botulinum toxin-induced muscle weakness in the rabbit. *J Orthop Res.* November 23(6): 1411-1418.

Kaya M, Jinha A, Leonard TR, Herzog W. (2005) Multi-functionality of the cat medial gastrocnemius during locomotion. *J Biomech.* Jun;38(6):1291-301.

Boyd SK, Muller R, Leonard T, Herzog W. (2005) Long-term periarticular bone adaptation in a feline knee injury model for post-traumatic experimental osteoarthritis. *Osteoarthritis Cartilage.* Mar; 13(3): pp. 235-42.

Clark AL, Leonard TR, Barclay LD, Matyas JR, Herzog W. (2005) Opposing cartilages in the patellofemoral joint adapt differently to long-term cruciate deficiency: chondrocyte deformation and reorientation with compression. *Osteoarthritis Cartilage.* Dec;13(12):1100-14

Herzog, W. and Leonard, T.R. (2005) The role of passive structures in force enhancement of skeletal muscles following active stretch. *J. Biomechanics* 38:409-415.

2004

Schachar, R., Herzog, W. and Leonard, T. (2004) The effects of muscle stretching and shortening on isometric forces on the descending limb of the force-length relationship. *Journal of Biomechanics* June; 37(6):917-26

2003

Kaya, M., Leonard, T.R. and Herzog, W., (2003) Coordination of medial gastrocnemius and soleus forces during cat locomotion. *J. Exp. Biol.* 206:3645-3655.

Herzog, W., Schachar, R., and Leonard, T.R. (2003) Characterization of the passive component of force enhancement following active stretching of skeletal muscle. *J. Exp. Biol.* 206, pp 3635-3643.

2002

Symons, B., Leonard, T., Herzog, W. (2002) Internal forces sustained by the vertebral artery during spinal manipulative therapy. *Journal of Manipulative and Physiological Therapeutics* 25:504-510.

Schachar, R., Herzog, W., Leonard, T.R. (2002) Force enhancement above the initial isometric force on the descending limb of the force-length relationship. *Journal of Biomechanics* 35: 1299-1306.

Herzog, W. and Leonard, T.R. (2002) Force enhancement following stretching of skeletal muscle: a new mechanism. *Journal of Experimental Biology* 205:1275-1283.

Kaya, M., Carvalho, W., Leonard, T.R., and Herzog, W. (2002) Estimation of cat medial gastrocnemius fascicle lengths during dynamic contractions. *Journal of Biomechanics* 35: 893-902.

Clark, A.L., Herzog, W., Leonard, T.R. (2002). Contact area and pressure distribution in the feline patellofemoral joint under physiologically meaningful loading conditions. *Journal of Biomechanics* 35:53-60.

2001

Hae-Dong Lee, Walter Herzog, Tim Leonard. (2001) Effects of cyclic changes in muscle length on force production in in-situ cat soleus. *Journal of Biomechanics* 34: 979-987.

2000

Herzog, W., Hasler, E.M. and Leonard, T.R. (2000) Experimental determination of in vivo pressure distribution in Biologic joints. *Journal of Musculoskeletal Research* 4: 1-7.

Herzog, W., Leonard, T.R., Wu, J.Z. (2000) The relationship between force depression following shortening and mechanical work in skeletal muscle. *Journal of Biomechanics* 33:659-668.

Symons, B., Herzog W., Leonard T., Nguyen H. (2000) Reflex responses associated with Activator treatment. *Journal of Manipulative and Physiological Therapeutics* 23: 155-159.

Herzog, W., Leonard, T.R. (2000). The history dependence of force production in mammalian skeletal muscle following stretch-shortening and shortening-stretch cycles. *Journal of Biomechanics* 33: 531-542.

Herzog, W., Koh, T., Hasler, E., Leonard T. (2000) Specificity and Plasticity of mammalian skeletal muscles. *Journal of Applied Biomechanics* 16:98-109.

1999

Herzog W, Hasler EM, Maitland ME, Suter E, Leonard TR, Müller C. (1999) In-vivo mechanics and in-situ stability of the anterior cruciate ligament-deficient knee.

Outlines of Biomechanics Research:11-27.

1998

Herzog, W., Leonard, T.R., Wu, J. (1998) Force Depression following skeletal muscle shortening is long lasting. *Journal of Biomechanics* 31:1163-1168.

Herzog W., Diet S., Suter E., Mayzus P., Leonard T.R., Müller C., Wu J.Z., Epstein M. (1998) Material and functional properties of articular cartilage and patellofemoral contact mechanics in an experimental model of osteoarthritis. *Journal of Biomechanics* 31:1137-1145.

Suter E., Herzog W., Leonard T.R., Nguyen H. (1998) One-year changes in hind limb kinematics, ground reaction forces and knee stability in an experimental model of osteoarthritis. *Journal of Biomechanics* 31:511-517.

Maitland M, Leonard T, Frank CB, Shrive NG, Herzog W. (1998) A method to assess in-vivo knee stability longitudinally in an animal model of ligament injury. *Journal of Orthopaedic Research* 16:441-447.

Maitland ME, Leonard T, Frank CB, Shrive NG, Herzog W. (1998) Longitudinal measurement of tibial motion relative to the femur during passive displacements and femoral nerve stimulation in the ACL-deficient cat model of osteoarthritis. *Journal of Orthopaedic Research* 16:448-454.

Herzog W, Hasler EM, Maitland ME, Suter E, Leonard TR, Müller C. (1998) In-vivo mechanics and in-situ stability of the anterior cruciate ligament-deficient knee. An animal model of osteoarthritis. *Sportorthopädie-Sporttraumatologie* 14.2:67-74

Hasler EM, Herzog W, Leonard TR, Stano A, Nguyen H. (1998) In-vivo knee joint loading and kinematics before and after ACL transection in an animal model. *Journal of Biomechanics* 31:253-262

1997

Herzog, W., Leonard T.R. (1997) Dynamic force properties of soleus and sensorimotor interactions of soleus, m. gastrocnemius and tibialis anterior in the freely moving cat. *Journal of Musculoskeletal Research* 1(2):95-109.

Herzog W, Leonard TR. (1997) Depression of cat soleus force following isokinetic shortening. *Journal of Biomechanics* 30:865-872.

Vaz MA, Herzog W, Zhang YT, Leonard TR, Nguyen H. (1997) The effect of muscle length on electrically elicited muscle vibrations in the in-situ cat soleus muscle. *Journal of Electromyography and Kinesiology* 7:113-121

Prilutsky BI, Herzog W, Leonard TR, Allinger TL. (1997) Response to letter to the editor re: Role of muscle belly and tendon of soleus, gastrocnemius and plantaris in mechanical energy absorption and generation during cat locomotion. *Journal of Biomechanics* 30:309

1996

Koh T.J. and Leonard T.R. (1996) An implantable electrical interface for in vivo studies of the neuromuscular system. *Journal of Neuroscience Methods* 70:27-32.

Herzog W, Hasler EM, Leonard TR. (1996) In-situ calibration of the implantable force transducer. *Journal of Biomechanics* 29: 1649-1652.

Vaz MA, Herzog W, Zhang YT, Leonard TR, Nguyen H (1996). Mechanism of electrically elicited muscle vibrations in the in-situ cat soleus muscle. *Muscle and Nerve* 19:774-776.

Prilutsky BI, Herzog W, Leonard T (1996) Transfer of mechanical energy between ankle and knee joints by gastrocnemius and plantaris muscles. *Journal of Biomechanics* 29:391-403.

Prilutsky BI, Herzog W, Leonard TR, Allinger TL (1996) Role of the muscle belly and tendon of soleus, gastrocnemius, and plantaris in mechanical energy absorption and generation during cat locomotion. *Journal of Biomechanics* 29:417-434.

Herzog W, Leonard TR (1996) Soleus forces and soleus force potential during unrestrained cat locomotion. *Journal of Biomechanics* 29:271-279.

Herzog W, Archambault JM, Leonard TR, Nguyen HK (1996) Evaluation of the implantable force transducer for chronic tendon force recordings. *Journal of Biomechanics* 29:103-109.

1995

Herzog W, Leonard TR, Stano A (1995) A system for studying the mechanical properties of muscles and the sensorimotor control of muscle forces during unrestrained locomotion in the cat. *Journal of Biomechanics* 28:211-218.

1994

Herzog W, Zatsiorsky V, Prilutsky BI, Leonard TR (1994) Variations in force-time histories of cat gastrocnemius, soleus, and plantaris muscles for consecutive walking steps. *Journal of Experimental Biology* 191:19-36.

1993

Herzog W, Stano A, Leonard TR (1993) A telemetry system to record force and EMG recordings from cat ankle extensor and tibialis anterior muscles. *Journal of Biomechanics* 26:1463-1471.

Herzog W, Leonard TR, Guimaraes ACS (1993) Forces in gastrocnemius, soleus and plantaris muscles of the freely moving cat. *Journal of Biomechanics*, 26:945-953.

1992

Herzog W, Leonard TR, Renaud JM, Wallace J, Chaki G, Bornemisza S (1992) Force-length properties and functional demands of cat gastrocnemius, soleus and plantaris muscles. *Journal of Biomechanics*, 25: 1329-1335.

1991

Herzog W, Leonard TR (1991) Validation of optimization models that estimate the forces exerted by synergistic muscles. *Journal of Biomechanics*, 24; S1: 31-39.

1990

J.A. Hoffer, T.R. Leonard, C.L. Cleland and T. Sinkjaer (1990). Segmental reflex action in normal and decerebrate cats. *Journal of Neurophysiology*, 64: 1611-1624.

PEER-REVIEWED CONFERENCE PROCEEDINGS

2018

Venus Joumaa, Ian C. Smith, Atsuki Fukutani, Timothy R. Leonard, Weikang Ma, Thomas C. Irving and Walter Herzog. EQUATORIAL AND MERIDIONAL X-RAY REFLECTIONS AFTER ACTIVE STRETCH AND SHORTENING IN SKELETAL MUSCLE. 47th European Muscle Conference, Budapest, Hungary, August 30-September 3, 2018.

V. Joumaa, I.C. Smith, A. Fukutani, T.R. Leonard, W. Ma, T.C. Irving and W. Herzog. EVIDENCE FOR ACTIN FILAMENT STRUCTURAL CHANGES AFTER ACTIVE SHORTENING IN SKINNED MUSCLE BUNDLES. Biophysical Society Meeting, San Francisco, USA, Feb 17-21, 2018.

2017

Tim Leonard, Azim Jinha and Walter Herzog. LOCALLY DEACTIVATED SARCOMERES DO NOT OVER-LENGTHEN IN MYOFIBRILS. XXVI Congress of the International Society of Biomechanics, Brisbane, Australia, 23-27 July, 2017.

T. Leonard and W. Herzog. ACTIVATED SKELETAL MUSCLE MYOFIBRILS HAVE DIFFERENT PEAK STRESSES AT SIMILAR SARCOMERE LENGTHS WHEN LENGTHENED BEYOND MYOFILAMENT OVERLAP. Biophysical Society Meeting, New Orleans, USA, Feb 11-15, 2017.

2016

V. Joumaa, I. Smith, T. Leonard and W. Herzog. EFFECT OF ACTIVE SHORTENING AND STRETCHING ON LATTICE SPACING AND CROSS-BRIDGE BINDING IN SKINNED MUSCLE FIBRES. Biophysical Society Meeting, Los Angeles, USA, Feb 27-March 2, 2016.

2015

T. Leonard, J. Herzog, A. Jinha, W. Herzog. PEAK FORCE AND HYSTERESIS IN ACTIVELY AND PASSIVELY LENGTHENED SKELETAL MUSCLE MYOFIBRILS AT VERY LONG SARCOMERE LENGTH. XXV Congress of the International Society of Biomechanics, Glasgow, UK, July 12-16, 2015.

M. Engel, T. Leonard and W. Herzog. Long-term simulation results in sarcomere length non-uniformity. XXV Congress of the International Society of Biomechanics, Glasgow, UK, July 12-16, 2015.

Kelly Larkin-Kaiser, V. Joumaa, T. Leonard J. Howard, W. Herzog. Larger isoforms of titin are associated with increased sarcomere lengths and severity of hip displacement in cerebral palsy. XXV Congress of the International Society of Biomechanics, Glasgow, UK, July 12-16, 2015.

Atsuki Fukutani, A. Sawatsky, T. Leonard and W. Herzog. Does Achilles tendon contribute to the force potentiation induced by stretch-shortening cycles? XXV Congress of the International Society of Biomechanics, Glasgow, UK, July 12-16, 2015.

J. Herzog, T. Leonard, A. Jinha, W. Herzog. TITIN HYSTERESIS IS GREATER FOR ACTIVELY LENGTHENED COMPARED TO PASSIVELY LENGTHENED SKELETAL MUSCLE SARCOMERES. Biophysical Society Meeting, Baltimore, USA, February 7-11, 2015.

2014

M. DuVall, A. Jinha, T. Leonard and W. Herzog. Titin – Actin – Myosin Interaction Observed in Labeled Skeletal Myofibrils. Special Meeting of the German Society of Cell Biology-Molecular Insight into Muscle Function. Potsdam, Germany. June 10-13, 2014.

J.A. Herzog, T.R. Leonard, A. Jinha, W. Herzog. Titin visco-elasticity modulated by limiting Ig domain unfolding/refolding. Biophysical Society Meeting, San Francisco, USA, Feb 15-19, 2014.

K. Powers, A. Jinha, T. Leonard, W. Herzog. An Active Role for Titin in Skeletal Muscle. Biophysical Society Meeting, San Francisco, USA, Feb 15-19, 2014.

Egloff Christian., Sawatsky Andrew, Leonard Tim, Fung Tak, Hart David, Valderrabano Victor, Herzog Walter. Effect of muscle weakness and joint inflammation on the onset and progression of osteoarthritis in the rabbit knee. AAOS Meeting 2014.

2013

DuVall M, Jinha A, Leonard TR and Herzog W. Comparative Stress Production of Native and quantum Dot Labelled Rabbit Psoas Muscle Myofibrils. Proceedings of the international Society of Biomechanics meeting, Natal, Brazil. August 4-9, 2013.

Leonard TR, Herzog J, Jinha A and Herzog W. Myofibril (and Titin) Kinetics during Passive Stretch-shortening Cycles. Proceedings of the international Society of Biomechanics meeting, Natal, Brazil. August 4-9, 2013.

Herzog J, Leonard TR, Jinha A and Herzog W. Modulation of Titin Elasticity in Working Muscle to Minimize Energy loss in Passive Stretch-shortening Cycles. Proceedings of the American Society of Biomechanics meeting. Omaha, Nebraska, USA. September 4-7, 2013.

Herzog J, Leonard T, Jinha A and Herzog W. Titin (Visco-) Elasticity and Ig domain un/re-folding kinetics. Proceedings of the 57th Annual Meeting of the Biophysical Society. Philadelphia, USA. Feb. 2-6, 2013.

2012

Leonard TR, Herzog W. Skeletal Muscle Myofibril Force Production During Lengthening. Proceedings of the European Solid Mechanics Conference. Graz, Austria, July 9-13, 2012.

Walter Herzog, Appaji Panchangam, Michael DuVall, Tim Leonard. Skeletal Muscle Research Across Structural Levels. Proceedings of the 17th Meeting of the Canadian Society for Biomechanics. Vancouver, B.C. June 6-9, 2012.

Maria Yamamoto, Tim Leonard, Walter Herzog. Rapid Serial Sarcomere Loss Caused By Electrical Stimulation In Rabbit Triceps Surae Muscles. Proceedings of the 17th Meeting of the Canadian Society for Biomechanics. Vancouver, B.C. June 6-9, 2012.

Jens Herzog, Tim R. Leonard, Azim Jinha, Walter Herzog. Can We Study Titin Properties In Single Myofibrils? Proceedings of the 17th Meeting of the Canadian Society for Biomechanics. Vancouver, B.C. June 6-9, 2012.

Leonard, TR. Molecular and biomechanical aspects of skeletal muscle contraction. Proceedings of the 91st Annual meeting of the German Physiological Society, Dresden Germany, March 22-25, 2012.

J A Herzog, TR Leonard A Jinha and W. Herzog. Hysteresis and Efficiency in Passive Skeletal Muscle Myofibrils. Proceedings of the 56th Annual Meeting of the Biophysical Society. San Diego, California USA, February 25-29, 2012.

Mike DuVall, Azim Jinha, Tim Leonard, Walter Herzog. Z-line elongation observed in titin labeled myofibrils. Proceedings of the 56th Annual Meeting of the Biophysical Society. San Diego, USA. February 25-29, 2012.

2011

Sawatsky A, Leonard T and Herzog W. Does knee extensor muscle imbalance cause changes in patellar tracking? Proceedings of the 35th Annual Meeting of the American Society for Biomechanics. Long Beach, California, August 1-13.

Leonard T. and Herzog W. Sarcomere behaviour in myofibrils during local deactivation. Proceedings of the 35th Annual Meeting of the American Society for Biomechanics. Long Beach, California, August 1-13.

Herzog W, Leonard TR, Abusara Z, Han SK, and Sawatsky A.(2011) In vivo cartilage mechano-biology: How to make progress in osteoarthritis research. Proceedings of the 5th International Conference on Biomedical Engineering, Kuala Lumpur, Malaysia, June 20-23, page 32.

Leonard, TR. Force production in lengthened skeletal muscle. 4th International Sports Sciences Symposium for Active Life. Waseda University, Tokyo, Japan, 26 February, 2011.

2010

Youssef A, Leonard TR, Herzog W (2010) Effects of hind limb muscle weakness on tibial cartilage degeneration in rabbits. Proceedings of the 16th Biannual Conference of the Canadian Society for Biomechanics, Kingston, ON, June 9-12.

Leumann A, Longino D, Fortuna R, Leonard TR, Valderrabano V, Herzog W (2010) Altered cell metabolism in tissues of the knee joint in a rabbit model of quadriceps muscle weakness. 56th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA, March 6-9.

Leonard TR, Herzog W (2010) Passive force augmentation in actively stretched myofibrils and sarcomeres. Proceedings of the 54th Annual Meeting of the Biophysical Society, San Francisco, CA, February 20-24.

Leonard TR, Herzog W (2010) Residual force enhancement following stretch occurs in a single sarcomere. Proceedings of the 16th Biannual Conference of the Canadian Society for Biomechanics, Kingston, ON, June 9-12.

Jinha A, Leonard TR, Herzog W (2010) Active force augmentation for physiologically relevant stretches in myofibrils and mechanically isolated sarcomeres. Biophysical Society 54th Annual Meeting, San Francisco, CA, February 20-24.

Youssef A, Longino D, Seerattan R, Leonard TR, Herzog W (2010) Exercising weak muscles causes selective degeneration of knee cartilage. 56th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA, March 6-9.

2009

Youssef A, Seerattan R, Leonard TR, Herzog W (2009) Effects of multiple-group muscle weakness on the retro-patellar cartilage in rabbits. Proceedings of the American Society of Biomechanics Conference, State College, PA, August 26-29.

Youssef A, Seerattan R, Leonard TR, Herzog W (2009) Effects of hind-limb weakness on knee osteoarthritis in rabbits. Proceedings of the 10th Annual Alberta Biomedical Engineering Conference, Banff, AB, October 23-25.

Leonard TR, Joumaa V, Herzog W (2009) Active and passive myofibrils lengthened beyond acto-myosin filament overlap produce different forces. Biophysical Society 53rd Annual Meeting, Boston, MA, February 28-March 4.

2008

Leonard TR, Herzog W (2008) Skeletal muscle myofibrils fail at different forces but similar lengths for active and passive stretching. Proceedings of the 4th North American Combined Congress on Biomechanics (NACOB), Ann Arbor, MI, August 5-9.

Hisey B, Leonard TR, Herzog W (2008) Force enhancement reaches a plateau at critical stretch magnitudes. Proceedings of the 4th North American Combined Congress on Biomechanics (NACOB), Ann Arbor, MI, August 5-9.

Youssef A, Seerattan R, Leonard TR, Herzog W (2008) Muscle weakness causes joint degeneration in rabbits. Journal of Biomechanics, Proceedings of the 16th Congress, European Society of Biomechanics, Lucerne, Switzerland, July 6-9.

Leonard TR, Herzog W (2008) Active and passive skeletal muscle myofibrils fail during stretch at different forces. Journal of Biomechanics, Proceedings of the 16th Congress, European Society of Biomechanics, Lucerne, Switzerland, July 6-9.

Szabo E, Seerattan R, Leonard TR, Herzog W (2008) Strength training of the quadriceps muscles following ACL transection: Effects on strength and joint integrity. Proceedings of the 4th North American Combined Congress on Biomechanics(NACOB), Ann Arbor, MI, August 5-9.

Youssef A, Seerattan R, Leonard TR, Herzog W (2008) Muscle weakness causes joint degeneration in rabbits. Transactions of the 54th Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, March 2-5.

Vaz MA, de la Roche C, Leonard TR, Herzog W (2008) The force-length relationship of the cat soleus muscle. Proceedings of the 4th North American Combined Congress on Biomechanics(NACOB), Ann Arbor, MI, August 5-9.

2007

Youssef A, Seerattan R, Leonard TR, Herzog W (2007) Muscle weakness causes joint degeneration in rabbits. Proceedings of the 8th Annual Alberta Biomedical Engineering Conference, Banff, AB, October 19-21.

Joumaa V, Leonard TR, Herzog W (2007) Calcium-dependent passive force enhancement in rabbit psoas and soleus myofibrils. Proceedings of the 51st Biophysical Society Annual Meeting, Baltimore, MD, March 3-7.

Szabo E, Leonard TR, Herzog W (2007) Quadriceps strength training inhibition following ACL injury. Proceedings of the 8th Annual Alberta Biomedical Engineering Conference, Banff, AB, October 19-21.

Hisey B, Leonard TR, Herzog W (2007) The effect of stretch magnitude on force enhancement. Proceedings of the 8th Annual Alberta Biomedical Engineering Conference, Banff, AB, October 19-21.

Joumaa V, Leonard TR, Herzog W (2007) Active and passive force enhancement in rabbit psoas myofibrils. Proceedings of the American Society of Biomechanics Conference, Stanford University, CA, August 22-25.

Herzog W, Leonard TR (2007) Residual force depression is not abolished following a quick shortening step. Proceedings of the American Society of Biomechanics Conference, Stanford University, CA, August 22-25.

Leonard TR, Joumaa V, Herzog W (2007) Sarcomeres on the descending limb of the force-length relationship exhibit stable behaviour. Proceedings of the 51st Biophysical Society Annual Meeting, Baltimore, MD, March 3-7.

2006

Herzog W, Hisey B, Leonard TR (2006) Does force enhancement increase with increasing stretch magnitudes? Journal of Biomechanics, Abstracts of the 5th World Congress of Biomechanics, Munich, Germany, July 29-August 4.

Leonard TR, Herzog W (2006) Sarcomeres on the descending limb of the force length relationship are stable. Proceedings of the XIVth Biennial Conference for the Canadian Society for Biomechanics, Waterloo, ON, August 16-19.

Leonard TR, Joumaa V, Herzog W (2006) Sarcomeres are stable and show significant force enhancement on the descending limb of the force length relationship in single myofibrils. Proceedings of the 6th International Muscle Energetics Conference, Banff, AB, July 22-27.

Joumaa V, Rassier D, Leonard TR, Herzog W (2006) Is titin's calcium-dependent stiffness responsible for passive force enhancement in skeletal myofibrils. Proceedings of the 6th International Muscle Energetics Conference, Banff, AB, July 22-27.

Joumaa V, Rassier D, Brattberg H, Leonard TR, Jinha A, Herzog W (2006) Mechanism(s) of passive force enhancement in skeletal muscle: titin and/or cross-bridges? Proceedings of the XIVth Biennial Conference for the Canadian Society for Biomechanics, Waterloo, ON, August 16-19.

Vaz MA, Longino D, Leonard TR, Frank CB, Herzog W (2006) Six months botulinum toxin-induced quadriceps muscle weakness in the rabbit. Journal of Biomechanics, Abstracts of the 5th World Congress of Biomechanics, Munich, Germany, July 29-August 4.

2005

Vaz MA, Longino D, Frank CB, Leonard TR, Herzog W (2005) Long term model of botulinum toxin-induced muscle weakness in the rabbit. Proceedings of the ISB XXth Congress - ASB 29th Annual meeting, Cleveland, OH, July 31 - August 5.

Rassier D, Jinha A, Leonard TR, Herzog W (2005) Passive force and sarcomere length non-uniformity in single myofibrils . Biophysical Society 49th Annual meeting, Long Beach, CA, February 12-16.

Yaraskavitch M, Weiss-Bundy K, Leonard TR, Herzog W (2005) The effects of botulinum toxin type-A on the mechanical properties of skeletal muscle. Proceedings of the 6th Alberta Biomedical Engineering Conference, Banff, AB, October 21-23.

Bullimore SR, Leonard TR, Rassier D, Herzog W (2005) Effect of stretch or shortening amplitude on subsequent isometric muscle force. Proceedings of the ISB XXth Congress - ASB 29th Annual Meeting, Cleveland, OH, July 31 - August 5.

2004

Clark AL, Herzog W, Hart DA, Mills L, Leonard TR (2004) Muscle induced patellofemoral joint loading effects cartilage MRNA levels 50th Annual meeting of the Orthopaedic Research Society, San Francisco, CA, March 7-10.

Park J-S, Bullimore SR, Leonard TR, Herzog W (2004) Contractile history influences the force-velocity relationship of skeletal muscle. Proceedings of the Thirteenth Biennial Conference, Canadian Society for Biomechanics, Halifax, N.S., August 4 - 7.

Rassier D, Leonard TR, Herzog W (2004) Sarcomere non-uniformity associated with stability of skeletal muscle myofibrils. Proceedings of the 28th Annual Conference of the American Society of Biomechanics, Portland, OR, September 8-11.

Weiss-Bundy K, Leonard TR, Herzog W (2004) Muscle weakness and force sharing in the cat hindlimb. Proceedings of the 5th Alberta Biomedical Engineering Conference, Banff, AB, October 22-24.

Clark AL, Herzog W, Matyas JR, Barclay LD, Leonard TR (2004) Heterogeneous adaptation of the patellofemoral joint to short-and long-term anterior cruciate ligament deficiency. Proceedings of the 28th Annual Conference of the American Society of Biomechanics, Portland, OR, September 8-11.

Weiss-Bundy K, Leonard TR, Herzog W (2004) Muscle weakness and force sharing in the cat hindlimb. Proceedings of the 28th Annual Conference of the American Society of Biomechanics, Portland, OR, September 8-11.

Leonard TR, Herzog W (2004) Does force depression in skeletal muscle depend on the speed of shortening?. Proceedings of the Thirteenth Biennial Conference, Canadian Society for Biomechanics, Halifax, N.S., August 4 - 7.

2003

Clark AL, Herzog W, Matyas JR, Barclay LD, Leonard TR (2003) Compression-induced changes in chondrocyte shape and volume during the progression of osteoarthritis Proceedings of the 49th annual Meeting of the Orthopaedic Research Society, New Orleans, LA, February 2-5.

Herzog W, Leonard TR (2003) The effects of activation on passive force enhancement in skeletal muscle. Proceedings of the XIXth Congress of the International Society of Biomechanics, Dunedin, New Zealand, July 6-11.

Kaya M, Leonard TR, Herzog W (2003) A new kinetics-based classification of the stance phase of walking. Proceedings of the XIXth Congress of the International Society of Biomechanics, Dunedin, New Zealand, July 6-11.

Kaya M, Leonard TR, Herzog W (2003) Speed-dependent deactivation of the cat soleus? IFMBE Proceedings of the World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia, August 24-29.

Clark AL, Herzog W, Hart DA, Mills L, Leonard TR (2003) Site specific differences in cartilage mRNA levels following muscle-induced patellofemoral joint loading. Proceedings of the 4th Biomedical Engineering Conference, Banff, AB, October 24-26.

2002

Herzog W, Kaya M, Leonard TR (2002) Work production in cat soleus and medial gastrocnemius during locomotion. Proceedings of the Banff Symposium on Skeletal Muscle, Banff, AB.

Kaya M, Leonard TR, Herzog W (2002) Coordination of cat MG and SOL during voluntary movements. Proceedings of the 3rd Alberta Biomedical Engineering Conference, Banff, AB, November 8-10.

Kaya M, Leonard TR, Herzog W (2002) Coordination of cat gastrocnemius and soleus during voluntary movements. Proceedings of the Banff Symposium on Skeletal Muscle, Banff, AB.

Kaya M, Leonard TR, Herzog W (2002) Coordination of cat gastrocnemius and soleus during locomotion based on direct measurement of in vivo muscle forces and Emgs. Proceedings of the IV World Congress of Biomechanics, Calgary, AB.

Clark AL, Herzog W, Matyas JR, Barclay LD, Leonard TR (2002) Chondrocyte deformation in early stage Osteoarthritic (OA) articular cartilage. Proceedings of the IV World Congress of Biomechanics, Calgary, AB, August 4-9.

Schachar R, Herzog W, Leonard TR (2002) Effects of Stretching and Shortening on Isometric Forces on the Descending Limb of the Force-Length Relationship in Cat Soleus Muscle. Proceedings of the IV World Congress of Biomechanics, Calgary, AB.

Schachar R, Herzog W, Leonard TR (2002) Force production on the descending limb of the force-length relationship following skeletal muscle stretching and shortening. Proceedings of the Banff Symposium on Skeletal Muscle, Banff, AB.

Schachar R, Herzog W, Leonard TR (2002) Force enhancement and force depression following active muscle stretching and shortening on the descending limb of the force-length relationship. Proceedings of the 3rd Alberta Biomedical Engineering Conference, Banff, AB, November 8-10.

Clark AL, Herzog W, Matyas JR, Leonard TR (2002) Osteoarthritic morphological pathology. 57 months post anterior cruciate ligament transaction in the feline knee joint. 48th Annual Meeting of the Orthopaedic Research Society, Dallas, Texas, February 10-13.

MacNaughton M, Leonard TR, Herzog W (2002) In vivo changes in muscular activation before and after anterior cruciate ligament transaction in the feline hindlimb. Proceedings of the 3rd Alberta Biomedical Engineering Conference, Banff, AB, November 8-10.

Herzog W, Leonard TR (2002) Mechanical properties of the passive component of force enhancement. Proceedings of the Annual meeting of the Society for Experimental Biology, Swansea, UK, April 8-12.

Butterfield T, Leonard TR, Herzog W (2002) Fiber strain and damage during eccentric exercise in the Rabbit TA. Proceedings of the 3rd Alberta Biomedical Engineering Conference, Banff, AB, November 8-10.

Butterfield T, Leonard TR, Herzog W (2002) Acute bout of exercise in the rabbit TA shows concomitant fiber length shortening and a subsequent shift in the force length relationship. Proceedings of the IV World Congress of Biomechanics, Calgary, AB, August 4-9.

2001

Herzog W, Leonard TR (2001) Can muscles produce more mechanical work than their fibres? 25th Annual Meeting of the American Society of Biomechanics, San Diego, CA, Aug 8-11.

Herzog W, Lee HD, Wakeling JM, Schachar R, Leonard TR (2001) History dependent force properties of skeletal muscle: in vitro, in situ and in vivo considerations. XVIIIth Congress of the International Society of Biomechanics, Zurich, Switzerland, July 8-13.

Kaya M, Leonard TR, Herzog W (2001) The distinct function of cat soleus and medial gastrocnemius during different types of locomotion. XVIIIth Congress of the International Society of Biomechanics, Zurich, Switzerland, July 8-13.

Leonard TR, Kaya M, Herzog W (2001) In vivo mechanics of selected cat hindlimb muscles during locomotion and other activities. XVIIIth Congress of the International Society of Biomechanics, Zurich, Switzerland, July 8-13.

Herzog W, Symons B, Leonard TR (2001) Forces and elongations of the vertebral artery during range of motion testing, diagnostic procedures, and neck manipulative treatments. Proceedings of the World Federation of Chiropractic 6th Biennial Congress, Palais des Congres, Paris, France, May 21 - 26.

Kaya M, Leonard TR, Herzog W (2001) Consideration of one- and two-joint muscle function based on direct measurement of in vivo muscle forces. 25th Annual Meeting of the American Society of Biomechanics, San Diego, CA, Aug 8-11.

Herzog W, Leonard TR (2001) A new mechanism for force enhancement following stretch of skeletal muscle. Society for Experimental Biology, University of Kent at Canterbury, Canterbury, UK, April 2-6.

Kaya M, Leonard TR, Herzog W (2001) Force-sharing among the cat ankle muscles during various types of locomotion. Society for Experimental Biology, University of Kent at Canterbury, Canterbury, UK, April 2-6.

Schachar R, Herzog W, Leonard TR (2001) Stability of skeletal muscle on the descending limb of the force-length relationship. XVIIIth Congress of the International Society of Biomechanics, Zurich, Switzerland, July 8-13.

2000

Herzog W, Leonard TR (2000) In vivo fibre mechanics and the role of series elasticity on the contractile properties of pennate muscle. 5th Annual Congress of the European College of Sport Science, Jyvaskyla, Finland, July 19-23.

Clark AL, Herzog W, Leonard TR (2000) Gross Morphology, contact area and pressure distribution in a long-term feline model of osteoarthritis. Canadian Orthopaedic Research Society, Edmonton, AB, June 3-6.

Herzog W, Leonard TR (2000) In vivo fibre length changes in the cat soleus. XIth Congress of the Canadian Society for Biomechanics, August 23-26.

Kaya M, Herzog W, Leonard TR (2000) Function of one - and two-joint muscles during cat locomotion based on direct measurement of in vivo muscle forces. XIth Congress of the Canadian Society for Biomechanics, August 23-26.

Herzog W, Leonard TR (2000) In vivo mechanics and function of selected cat hindlimb muscles during locomotion. Proceedings of the Society of Experimental Biology, Exeter, UK.

Herzog W, Hasler EM, Leonard TR (2000) The mechanics and neuromuscular control of the cat knee following ACL transection. Canadian Orthopaedic Research Society, Edmonton, AB, June 3-6.

Herzog W, Leonard TR, Stano A (2000) Force transmission in unipennate skeletal muscle. XIth Congress of the Canadian Society for Biomechanics, August 23-26.

Schachar R, Herzog W, Leonard TR (2000) Stability and the descending limb of the force-length relation in mammalian skeletal muscle. XIth Congress of the Canadian Society for Biomechanics, August 23-26.

Clark AL, Herzog W, Leonard TR (2000) Contact area and pressure distribution in the feline patellofemoral joint under physiological loading conditions. XIth Congress of the Canadian Society for Biomechanics, August 23-26.

1999

Kaya M, Herzog W, Leonard TR (1999) Consideration on the function of mono- and biarticular muscles during cat locomotion. Proceedings of the XVIIth International Society of Biomechanics Congress, Calgary, AB, August 8-13.

Wu JZ, Herzog W, Leonard TR (1999) Modelling history-dependent behaviour of muscle during concentric contraction. Proceedings of the XVIIth International Society of Biomechanics Congress, Calgary, AB, August 8-13.

Carvalho W, Leonard TR, Herzog W (1999) Structural changes during isometric contractions of the cat medial gastrocnemius. Proceedings of the XVIIth International Society of Biomechanics Congress, Calgary, AB, August 8-13.

Leonard TR, Herzog W, Suter E, Nguyen H (1999) Measurement of relative bone movement in the anterior cruciate ligament transected cat knee using sonomicrometry. Proceedings of the 45th Annual Meeting, Orthopaedic Research Society, Anaheim, CA, February 1-4.

Carvalho W, Leonard TR, Herzog W (1999) The influence of pennation and series elasticity on the sarcomere force-length behaviour of cat skeletal muscle. Proceedings of the Canmore Symposium on Skeletal Muscle, Canmore, AB, August 6-7.

Symons B, Leonard TR, Herzog W (1999) Strain in vertebral and carotid arteries during high-speed, low-amplitude chiropractic neck manipulation. World Conference of Chiropractic, New Zealand.

1998

Herzog W, Leonard TR (1998) Central vs Peripheral mechanisms of force-sharing among synergistic muscles. 3rd World Congress of Biomechanics, Sapporo, Japan, August 2-8.

Herzog W, Wu JZ, Suter E, Leonard TR (1998) The effect of changes in cartilage properties on force transmission across joints in an experimental model of osteoarthritis. Proceedings of the Orthopaedic Research Society.

Symons B, Herzog W, Leonard TR (1998) Strains in vertebral and carotid arteries during cervical manipulation. The Inaugural Scientific Conference of the Consortium of Canadian Chiropractic Research Centres, Calgary, AB, November 14-15.

Archambault JM, Herzog W, Leonard TR (1998) Measurement of tendon strain in situ with sonomicrometry. 3rd World Congress of Biomechanics, Sapporo, Japan, August 2-8.

Carvalho W, Herzog W, Leonard TR (1998) Global deformation of unipennate cat medial gastrocnemius during dynamic contraction. Proceedings of the 3rd North American Congress on Biomechanics, Waterloo, ON, August 14-18.

Herzog W, Wu JZ, Leonard TR (1998) Force depression following shortening in mammalian skeletal muscle: energy considerations. Proceedings of the 3rd North American Congress on Biomechanics, Waterloo, ON, August 14-18.

Symons B, Herzog W, Leonard TR, Nguyen H (1998) Reflex responses associated with Activator 7 treatment. Proceedings of 1998 International Conference on Spinal Manipulation, Vancouver, B.C., July 16-19.

1997

Herzog W, Wu JZ, Leonard TR, Suter E, Diet S, Muller C, Mayzus P (1997) Mechanical and functional properties of cat knee articular cartilage 16 weeks post ACL transection. XVIth Congress of the International Society of Biomechanics, Tokyo, Japan.

Herzog W, Leonard TR (1997) Long-lasting or transient force depressions in skeletal muscles following shortening. XVIth Congress of the International Society of Biomechanics, Tokyo, Japan.

Herzog W, Suter E, Hasler EM, Leonard TR (1997) Experimental model of osteoarthritis. Proceedings of the Arthritis 2000 Conference, Ottawa, ON.

1996

Suter E, Herzog W, Leonard TR (1996) Changes in the kinematics and external kinetics after ACL transection in a long-term animal model of osteoarthritis. Proceedings of the Canadian Orthopaedic Research Society, Quebec City, QC, May 24.

Herzog W, Leonard TR (1996) History-dependence of muscular force: shortening contractions. Proceedings, Ninth Biennial Conference, Canadian Society for Biomechanics, Burnaby, B.C.,.

Hasler EM, Herzog W, Leonard TR, Stano A, Nguyen H (1996) Acute changes in knee joint loading and kinematics after ACL transection in the cat hindlimb. Proceedings of the Ninth Biennial Conference, Canadian Society for Biomechanics, Burnaby, B.C., August 21-24.

Suter E, Herzog W, Leonard TR (1996) Changes in loading characteristics and joint degeneration after ACL transection: a long-term animal model of osteoarthritis. Proceedings, Ninth Biennial Conference, Canadian Society for Biomechanics, Burnaby, B.C.,.

Koh TJ, Leonard TR, Stano A, Herzog W (1996) A system for chronic loading of muscle and tendon. Proceedings of the Canadian Orthopaedic Research Society, Quebec City, QC, May 24.

Herzog W, Hasler EM, Leonard TR (1996) An accurate and reliable method for calibrating an implantable force transducer. Proceedings of the Canadian Orthopaedic Research Society, Quebec City, QC, May 24.

1995

Herzog W, Hasler EM, Maitland ME, Ronsky JL, Leonard TR (1995) In-situ pressure and displacement measurements in ACL-deficient knee joints. The Whitaker Foundation Biomedical Engineering Research Conference, Snowbird, UT.

Hasler EM, Herzog W, Leonard TR (1995) Muscular forces and EMGs before and after transection of the anterior cruciate ligament in the cat hindlimb. Proceedings of the 19th Annual Meeting of the American Society of Biomechanics, Stanford, CA, August 24-26.

Hasler EM, Herzog W, Leonard TR (1995) External and internal joint loading in intact and anterior cruciate ligament deficient cat hindlimbs. Transactions of the Combined Orthopaedic Research Societies Meeting, San Diego, CA, November 5-8.

Herzog W, Leonard TR (1995) Soleus forces and soleus force potential during unrestrained cat locomotion. XVth Congress of the International Society of Biomechanics, Jyväskylä, Finland.

Prilutsky BI, Herzog W, Leonard TR (1995) Mechanical work and peak forces of cat ankle extensor muscles as possible determinants of the gait transition from walking to trotting. XVth Congress of the International Society of Biomechanics, Jyväskylä, Finland.

Vaz MA, Herzog W, Zhang YT, Leonard TR, Nguyen H (1995) Mechanism of electrically elicited vibrations in the in-situ cat soleus muscle. Proceedings, 3rd European Conference on Engineering and Medicine, Florence, Italy.

1994

Brooks JG, Herzog W, Leonard TR (1994) Simultaneous measurement of whole muscle and fiber force-length properties of the cat MG in-situ. Second World Congress of Biomechanics, Amsterdam, The Netherlands, July 10-15, vol.II.

Brooks JG, Herzog W, Leonard TR (1994) Fiber dynamics of unipennate cat medial gastrocnemius during active shortening. Proceedings of the Eighth Biennial Conference, Canadian Society for Biomechanics, Calgary, AB, August 18-20.

Prilutsky BI, Herzog W, Leonard TR (1994) Transfer of mechanical energy between ankle and knee joints by cat gastrocnemius and plantaris muscles during walking and trotting. Second World Congress of Biomechanics, Amsterdam, vol.II.

Prilutsky BI, Herzog W, Leonard TR, Allinger TL (1994) Role of the muscle belly and tendon of cat soleus, gastrocnemius, and plantaris in mechanical energy absorption and generation during locomotion. Proceedings, Eighth Biennial Conference, Canadian Society for Biomechanics, Calgary, AB.

1993

Herzog W, Leonard TR, Nguyen H (1993) Force-sharing among cat gastrocnemius, soleus, and plantaris muscles during a fatigue protocol. International Society of Biomechanics XIV Congress, Paris, France, July 4-8.

Herzog W, Leonard TR (1993) Variations in force sharing among cat triceps surae/plantaris and tibialis anterior muscles for changing speeds of locomotion. International Union of Physiological Sciences, Glasgow, UK, August 1-6.

Herzog W, Leonard TR (1993) Changes in force sharing among cat triceps surae muscles as a function of movement intensity. International Society of Biomechanics XIV Congress, Paris, France, July 4-8.

Herzog W, Leonard TR, Nguyen H (1993) Force sharing among cat gastrocnemius, soleus and plantaris muscles during a fatigue protocol. International Society of Biomechanics XIV Congress, Paris, France, July 4-8.

Herzog W, Leonard TR, Prilutsky BI (1993) Why is peak soleus force in the cat almost constant at different speeds of locomotion? International Society of Biomechanics XIV Congress, Paris, France, July 4-8.

Herzog W, Leonard TR, Prilutsky BI (1993) Why is peak soleus force in the cat almost constant at different speeds of locomotion? International Society of Biomechanics XIV Congress, Paris, France, July 4-8.

1992

Maitland ME, Leonard TR, Herzog W (1992) Measurement of passive tibial translation in the ACL intact and ACL deficient cat. Proceedings of the 2nd North American Combined (NACOB) Congress on Biomechanics, Chicago, IL, August 24-28.

Brooks JG, Herzog W, Leonard TR, Allinger TL (1992) Function of cat plantaris in ankle extension and digit flexion: a quantitative approach. Proceedings of the Second North American Congress on Biomechanics, Chicago, IL, August 24-28.

Ronsky JL, Herzog W, Brown TD, Leonard TR (1992) In-vivo determination of patello-femoral joint contact pressures. Proceedings of the 2nd North American Combined (NACOB) Congress on Biomechanics, Chicago, IL, August 24-28.

Brooks JG, Herzog W, Leonard TR (1992) External loading of intact and anterior cruciate ligament deficient cat hindlimbs. Proceedings of the 2nd North American Combined (NACOB) Congress on Biomechanics, Chicago, IL, August 24-28.

1991

Zatsiorsky VM, Herzog W, Leonard TR (1991) Relative intercompensation in force output of cat plantaris and gastrocnemius muscles. Proceedings of the 13th Congress of the International Society of Biomechanics, Perth, Australia.

Herzog W, Zatsiorsky VM, Leonard TR (1991) Force sharing among synergistic muscles for consecutive step cycles. Transactions of the Combined Meeting of the Orthopaedic Research Societies of USA, Japan and Canada,.

1990

Herzog W, Leonard TR, Renaud JM, Wallace JL, Chaki G (1990) Force-length relations of in-situ cat gastrocnemius muscles. Proceedings of the sixth Biannual Conference of the Canadian Society for Biomechanics, Ottawa, ON, August 16-19.

1984

Hoffer J.A., Leonard T.R., Spence N.L., Cleland C.L. (1984) Reflex gain, muscle stiffness and viscosity in normal cats. Proceedings of the Society for Neuroscience, 10:330., Anaheim, California Oct. 10-15.

1983

Hoffer J.A., Leonard T.R., Spence N.L. (1983) A method for measuring muscle stiffness in unrestrained cats. Proceedings of the Society for Neuroscience, 9:470., Boston, Massachusetts Nov. 6-11.