Victoria Galea
galeav@mcmaster.ca

EDUCATIONAL BACKGROUND:

1978 **University of Waterloo, Waterloo, Canada**
B.Sc.(Honours) Dance/Kinesiology
Thesis title: "An epidemiological study concerning the incidence of injury among members of a professional ballet company and non-professional dancers enrolled in the University of Waterloo Dance Programme."

1983 **University of Waterloo, Waterloo, Canada**
M.Sc. Kinesiology (Biomechanics)
Thesis title: "Bone-on-bone and muscle forces in the first metatarsal-phalangeal and talocrural joints during releves en pointes".

1993 **McMaster University, Hamilton, Canada**
PhD Medical Sciences (Neuroscience)
Thesis title: "Electrical responses of human muscle during fatigue and recovery".

ACADEMIC AWARDS:

1974-1978	Consumers Glass Scholarship (Undergraduate) $800.00/year
1979-1981	Consumers Glass Scholarship (Graduate). $800.00/year
1985	Thoracic Foundation Graduate Scholarship $7,900.00
1987	Ontario Graduate Scholarship $12,000.00
1988	D.C. Russell Scholarship $6,000.00
1989	Muscular Dystrophy Association of Canada - Leman Brothers Foundation for Muscular Dystrophy Research Scholar $9,000.00

CURRENT STATUS: Associate Professor
School of Rehabilitation Science
Faculty of Health Sciences, McMaster University
Co-Director, Human Movement Laboratory, McMaster University
Education Programme in Anatomy (Appointed January, 1994).
Associate Member, Department of Kinesiology (Appointed May/95)

PROFESSIONAL ASSOCIATIONS:

1987 - date	Society for Neuroscience
1986 - 1998	American College of Sports Medicine
1983 - 2005	Canadian Society for Biomechanics
1994 - date	Canadian Society for Exercise Physiology
1994 - date	Canadian Association for Neuroscience

PROFESSIONAL EXPERIENCE:

ACADEMIC:

1999 -	**McMaster University**, Hamilton, Ontario Faculty of Health Science School of Rehabilitation Science Associate Professor
1993 - 1999	Faculty of Health Science School of Rehabilitation Science Assistant Professor
	School of Occupational Therapy and Physiotherapy
1992 - 1993	Assistant Professor (Part-time)
	Department of Medicine (Neurology)
1990 - 1993	Research Associate

	School of Occupational Therapy and Physiotherapy
1987 - 1989	Teaching Assistant
	School of Nursing
1985 - 1987	Teaching Assistant
	University of Waterloo, Waterloo, Ontario
	Faculty of Applied Health Science
	Department of Dance
1982 - 1985	Lecturer (Full-time)
	Department of Kinesiology
1980 -1982	Teaching Assistant
	University of Calgary, Calgary, Alberta
	Faculty of Physical Education
Fall/1980	Sessional Instructor

SCHOLARLY AND PROFESSIONAL ACTIVITIES

Professional Activities

Journal Reviews

1995-	Medicine and Science in Sports and Exercise
1994-	Journal of Applied Biomechanics
1996-	Acta Physiologica Scandinavica
2001-	Canadian Journal of Exercise Physiology
2001-	Journal of Medical Engineering and Technology
2002-	Journal of Applied Physiology
2002-	American Journal of Physiology
2003-	IEEE Transactions in Biomedical Engineering
2006-	The Clinical Journal of Pain
2006-	Journal of Neurophysiology
2006-	Archives of Physical Medicine and Rehabiliation
2006-	Clinical Journal of Sports Medicine
2007-	Physiotherapy Canada
2008-	Journal of Aging and Physical Activity

Grant Reviews

1999-	Physiotherapy Foundation
1999-	NIH, Special review Panel
2002-	Ontario Workplace Safety and Insurance Board
2002-	National Sciences and Research Council (NSERC)

AREAS OF INTEREST:

Research

Motor control during the performance of upper limb hypnoticomotor tasks.

Analysis of upper limb movement, with particular emphasis on motor control of the arm, wrist and hand.
Neurophysiological mechanisms during normal and pathological movement in both adult and pediatric populations.

Teaching:
Musculoskeletal structure and function and coordination.
Neuroanatomy and neurophysiology of the central and peripheral nervous system
Control of human movement.

UNDERGRADUATE: Courses Taught (last 5 years).

1997 to present. **Unit V (Unit 1V from 2000 on) Neurology Role: Anatomy/Physiology Instructor**.
Neuroanatomy/Neurophysiology - 1) scheduled resource sessions 3hours/week X 6 weeks. The sessions included detailed information on the brain and spinal cord as related to sensory/motor control. Also additional hands-on sessions on full clinical EMG measurements conducted in the neuromuscular clinic. These sessions are attended by the entire class - 60 students.

1996 to 1999. **Unit II Musculoskeletal II**
Role: Tutor. Tutorial groups consist of 6-8 people and meet for 5hrs/week for 8 weeks. The tutor facilitates the learning, process provides feedback and evaluation. The content knowledge required is that of the entire vertebral column, including management of cervical, thoracic and lumber pathology. The tutor is usually responsible for attending tutor meetings and grading individual group mid - terms.

1996 to 2000 **Unit IV Cardiopulmonary**
Role: Tutor. Role as above for Unit II. Content expertise required here is that of Cardio/Respiratory physiology.

1993 to present. **Unit I. Musculoskeletal I**
Role: Anatomy/Physiology Instructor. Meeting with entire class (~ 60 students) once a week for 12 weeks. Because of the importance of learning in small groups students arrive for scheduled resource sessions lasting 12 hours. For the instructor this represents an entire day (7 hours). I am specifically responsible for muscle mechanics, connective tissue mechanics, neuromuscular physiology, muscle electrophysiology and functional anatomy of the upper and lower limbs.

1995 (0ne term) **Unit II. Musculoskeletal II**
Role: Tutor-in-Training. Training term before becoming full tutor.

1994 to 2000 **Unit IV. Cardiopulmonary**
Role: Anatomy/Physiology Instructor. Meet with whole class (~60 students) 3 hours/week for 5 weeks over the Fall term. Sessions include teaching of respiratory mechanics, Ventilation/Perfusion matching and neural control of the heart.

Occupational Therapy
1993 to present. **Unit I. Occupation and Health across the Lifespan.**
Role: Anatomy Instructor. Meet with entire class for scheduled resource sessions (~60 students). 4 hours/week for 4 weeks. Gross anatomy of the upper and lower limbs. Basic neurophysiology of the motor unit.

1997 to present. **Unit III. Occupation and Physical Health in Adulthood**.
Role: Anatomy Instructor. Meet with entire class for scheduled resource sessions. Content sessions involve review of gross anatomy of the upper and lower limbs.

Medicine
1996 - 2000. **Unit IV. Locomotor Subunit**.
Role: Anatomy Resource. Student initiated resource sessions on gross anatomy of the upper and lower limbs; trunk and vertebral column. Students come in their tutorial groups and the sessions usually run for 12 hours.

Faculty of Health Sciences: BHSc Program
2003 - present **HTH SCI 4V03. Control of Human Movement**
Role: Course Instructor. This is a three unit course offered in the Fall term for 4th year students. The topics in this course include basic neurophysiology of sensation, proprioception, reflex and voluntary movement. Finally, theories underlying motor control of voluntary movement are studied in healthy and neurologically impaired populations.

2007- present **HTH SCI 4PP3. Motor Control – Theories and Models**
Role: Course Instructor. This is also a 3 unit course offered in the winter term and follows on HTH SCI 4V03 to investigate control of human movement by exploring theories of motor control and the models derived from those theories presently in use by motor control neuroscientists. Students will also be expected to conduct a short experiment of their design investigating any aspect of human motor control.

GRADUATE

McMaster University, Hamilton, Ontario
MSc Physiotherapy
2001 to present. **CHS 613 Professional Issues in Physiotherapy Practice.**
Role: Course Coordinator. Professional Issues is a full course that spans three units of study offered over three terms. The course covers five basic themes which encompass issues common to physiotherapy practice. These themes are: communication, evidence-based practice, functional movement, models of practice and professionalism. I am responsible for the last component of this course

McMaster University, Hamilton, Ontario
PhD Medical Sciences
01/2000 - 05/2000 MS 799 Independent Studies

Electrophysiology of Skeletal Muscle: Theory and Practice (with Drs M. Tarnopolsky, J. Bain)
Karen Veltri - PhD 2003

Education.

Invited Lectures.

1. **Galea V**. Electrophysiology of the human motor unit. Guest Lectures (3), Kin 709 Neuromuscular Function in Health and Disease. Winter, 1997, 1998.

2. **Galea V**. Spasticity. Guest Lecture, Nursing N3U02. Presented April 2, 1996.

3. **Galea V.** Anorexia nervosa and Bulimia Nervosa. What to watch for in the developing child studying dance. Guest Lecture, Dance Department, University of Waterloo, January 1995.

4. **Galea V**. Series of Lectures for the Physical Medicine and Rehabilitation residency program on basic electrophysiology of muscle and nerve signals. Department of Medicine, McMaster University, Sept/1993.

5. **Galea V**. Series of Lectures for Dance/Kin 264 "Developmental Aspects of Movement". dance Department, University of Waterloo, Sept/Oct 1992.

6. **Galea V**. Exercise and the Anorectic patient. Benefits and contraindications. Guest Lecture, PE 4S03 - "Adapted Physical Education: Selected Topics", Department of Physical Education, McMaster University, January 1991.

7. **Galea V**. Effects of exercise on Anorexia and Bulimia Nervosa patients. Guest Lecture, PE 3B03 - "Adapted Physical Education and Movement", Department of Physical Education, McMaster University, October 1989.

8. **Galea V**. Kinesiology of Dance. The Cinderella of Science. Invited speaker, Deep River Science Association, 88/89 Lecture Series. Deep River, Ontario.

9. **Galea V**. Physiological Aspects of Exercise in the Anorexia Nervosa and Bulimia Nervosa Patient. Guest lecture, Dance Department, University of Waterloo, November 1988.

Learning resources.

The following modules were developed for use by all students in Health Sciences, Kinesiology and Biomedical Engineering as well as various health professionals with an interest in neuromuscular physiology.

Introduction to Anatomy (2006 – 2007)

This is an interactive on-line resource that provides students entering Health Sciences with an introduction to anatomical concepts and terminology as well as interactive learning on movements available at specific joints of the body. This module is meant for those students who do not have any background in the anatomical or physiological sciences entering their first year of Health Sciences programs.

Electromyography (1994-1995)

Provides a basic understanding of the electromyographic (EMG) signal and its use during assessment. Specifically, this module contains a description of the structure of skeletal muscle as a whole and of the individual muscle fibres and their ability to generate action potentials and thereby force, the motor unit and the motor unit action potential, how an EMG signal is generated, processed and interpreted, and the relationship between isometric force production by a muscle and its EMG signal.

Muscle Mechanics (1994-1995)

Examines the relationship between the neural drive to a muscle and that muscle's force output as modified by mechanical factors. Specifically, this module contains 1) a discussion of the strategies used by the central nervous system in the production of force by muscle, 2) examples of the effects of differing neural drive to force output, 3) discussion of the muscle force-length relationship, 4) discussion of the muscle force-velocity relationship, and 5) a discussion of the effect of inertia on the velocity and acceleration of the limb moved by a muscle.

Educational Publications (peer reviewed).

Geddes EL, Boni M, DiBiase A, Forrest D, Phachu C, **Galea V**. The development of an educational module in respiratory mechanics and ventilation and perfusion matching. Ontario Physiotherapy Association Annual Conference, March 25-28, 1999. Hamilton, Ontario.

Undergraduate Thesis and Independent Studies

School of Rehabilitation Science, Unit VI Independent Studies

May - July/2000

Is dissociation of spatial activation of lower extremity muscles possible using biofeedback therapy in post spinal cord injury patients.
J. Power, P. Coward
Supervisors: V. Galea, J. Bugaresti

Is there potential for increased function as a result of nerve grafting post spinal cord injury (SCI): Phase I. Is dissociation of upper shoulder girdle muscles possible using biofeedback therapy.
S. Siebold
Supervisors: V. Galea, J. Bugaresti

May - July/1999

The development of an educational module on muscle tone.
M. Arnott, V. Hamilton
Supervisor: **V. Galea**

Balance and feed-forward control in children with Acute Lymphoblastic Leukemia.
A. Beecroft, M. Davis, D. Henry, K. Tomlinson
Supervisors: V. Galea, M. Wright.

May- July/1998
Balance in children with Acute Lymphoblastic Leukemia (ALL). Feedforward control. M. Chesney, C. Pollock, K. MacDonald.
Supervisors: M. Wright and **V. Galea**

Evaluation of motor recruitment in the hemiplegic upper limb: A pilot feasibility study. T. Carefoot, L. King, C. Workman
Supervisor: V. Galea

The development of an educational module in respiratory mechanics and ventilation and perfusion matching. M. Boni, A. Dibiase, D. Forrest, C. Phachu.
Supervisors: **V. Galea** and L. Geddes.

May - July/1997
Balance in children with Acute Lymphoblastic Leukemia. W. Clute, K. Patton
Supervisor: V. Galea

May - July/1996
EMG spectral analysis of hip, knee and ankle muscles during gait in children with Acute Lymphoblastic Leukemia. K. Masterson, G. Pears
Supervisor: V. Galea

Gait strategies in children with Acute Lymphoblastic Leukemia. K. Whibbs, C. Newman
Supervisors: MRP Pierrynowski, **V. Galea**

Open versus closed chain kinetic exercises: Assessing anterior tibial translation. P. De Angelis, F. Massoud, P. Tolomiczenko.
Supervisors: MRP Pierrynowski, P. Stratford, **V. Galea**

May - July/1995
Effect of knee joint angle on reflex inhibition of quadriceps muscle group in acutely effused knees.
Supervisor: V. Galea

Gait analysis of children with Acute Lymphoblastic Leukemia. Development of a database. P. Dissanayake, R. Maltby, S. Nixon.
Supervisors: MRP Pierrynowski and **V. Galea**

Patterns of heel contact in normal pediatric gait. L. Derochie, K. Crosby.
Supervisors: MRP Pierrynowski and **V. Galea**

May - July/1994
Clinical gait evaluation of children with Acute Lymphoblastic Leukemia. S. Lawson, C. Sobie, M. Stanley.
Supervisors: MRP Pierrynowski, **V. Galea**, J. Halton

Hamstring co-activation during maximum knee extensor efforts. T. Hinton, D. Stacey, M. Charania.
Supervisors: V. Galea, P. Stratford, MRP Pierrynowski.

Bachelor of Health Sciences, Faculty of Health Sciences

HTH SCI 3H03
Winter 2004 (01/2004 - 05/2004)
"Shoulder Protocol for Functional Task Development". A. Teo
Supervisor: V. Galea

Fall/Winter (2005/2006)
"Sensory function in patients with active rheumatoid arthrtis of the hand". L. Leonard
Supervisor: V. Galea

"Motor control during hand dexterity tasks". A. Crombeen
Supervisor: V. Galea

"Control strategies in the upper limb during hypnosis". J. Karam
Supervisor: V. Galea

Fall/Winter (2006/2007)
"Experience in motor and sensory assessments during upper limb tasks in human subjects". A. Kay, KCL Chung
Supervisor: V. Galea

HTH SCI 4A09 (Senior Thesis)
Fall/Winter (2004/2005)
"Coordination of upper limb during a functional task"**. A. Teo**
Supervisor: V. Galea

Fall/Winter (2005/2006)
"Upper limb motor control during a functional task in patients with moderate to severe mechanical neck pain: Coordination dynamics" J. Morash
Supervisor: V. Galea

"Upper limb motor control during a functional task in patients with moderate to severe mechanical neck pain: Neural Strategies" L. Bradley
Supervisor: V. Galea

Fall/Winter (2006/2007)
"Sensory gating during a hypnotic motor task" J. Karam, S. Bulk
Supervisor: V. Galea

"Effect of arm position on neural strategies during a reach and grasp task in patients with chronic neck pain" M. Aristone
Supervisor: V. Galea

""Hand impairments, dexterity and function of persons with osteoarthritis or rheumatoid arthritis of the hand – a model of disability" L. Leonard
Supervisor: V. Galea

Department of Biology, Senior Thesis (Biol 4C09)
Fall/Winter (99/2000)
The effects of Botox and traditional therapy in hypertonicity in children with Cerebral Palsy. A. Hamilton.
Supervisor: V. Galea

Fall/Winter (97/98)
Passive stiffness about the elbow in young vs. aged subjects. O. Pona
Supervisor: V. Galea

Fall/Winter (95/96)
Variability of function within the Stage 3 hemiplegic upper extremity. T. Jessop
Supervisor: V. Galea

The effects of pressure on muscle twitch force. R. Newberry
Supervisors: **V. Galea** and AJ McComas

Fall/Winter (94/95)
The effects of chemotherapy on pediatric gait patterns in children with Acute Lymphoblastic Leukemia. C. Mark
Supervisor: V. Galea

Department of Electrical Engineering, Final Year Design Project (EE 4B15)
Fall/Winter (2006/2007)
Determining muscle onset times of neck and shoulder girdle muscles using Matlab. S. Liddle
Supervisor: V. Galea

GRADUATE
Supervisorships, Thesis Committees

PhD (Medical Sciences)
Thesis Committee Member:

1998-2004 **McMaster University,** Hamilton Ontario
Maltais, Desiree. Effects of therapeutic and surgical interventions on metabolic cardiopulmonary, kinematic and electromyographic functions in children with a neuromuscular disease.

PhD (Kinesiology)
Thesis Committee Member**:**

2004 - 2007	**McMaster University,** Hamilton, Ontario Adams, Melanie**.** Improving the assessment and management of symptoms of spasticity in individuals with spinal cord injury.
2005-	**McMaster University**, Hamilton, Ontario Brimble, Scott. Muscle function in patients undergoing dialysis.

Master of Science (Physiotherapy)
May – July/2006
Are there central and peripheral sensory processing problems in clients with active Rheumatoid arthritis of the hand?
I. Antunes, N. Qureshi, D. Vaz, M. McCormick, A. Kingdon.
Supervisor: V. Galea, J. Wessel

The effectiveness of weight-bearing vs. non-weight-bearing stretching on hamstring flexibility.
M. Broersma, F. Romeo, L. Ropelski, S. Williams, T. Brockwell.
Supervisor: V. Galea, L. Woodhouse

Superficial neck flexor and extensor muscle activity during the Neck Walk Index (NWI) assessment in patients with mechanical neck disorder.
M. Bergeron, J. Cushing, R. Spencer, L. Stewart
Supervisor: V. Galea, M. Pierrynowski

May - July/2005
Relationship between head and upper limb coordination in individuals with a mechanical neck disorder.
S. Cherry, J. Gorny, J. Gottschalk, B. Hoag, P. Kazun, J. St. Michael.
Supervisor: V. Galea, M. Pierrynowksi

May - July/2003
Impairment of upper limb function in patients with a mechanical neck disorder**.**
S. Buck, B. Tang, G. Cheung, K. Zavitz, L. Lundquist
Supervisor: V. Galea

Control of reach and grasp activity in infants born with an obstetrical brachial plexus injury (OBPI).
C. Popelas, C. Parks, L. Craig, K. Parkes, M. Ailey
Supervisors: V. Galea, C. DeMatteo

Master of Science (Rehabilitation Science)
Supervisor:
McMaster University, Hamilton, Ontario

2006- Shaw, Jean K. The Effect of Proprioceptive Acuity on Motor Control during a Repetitive Reach and Grasp Task in Patients with Mechanical Neck Disorder. ***Co-supervisor with Dr.M. Pierrynowksi***

McMaster University, Hamilton, Ontario

2002-2007 McKenzie, Kirsty. Motor control of the human quadriceps in humans with patellofemoral syndrome.

Supervisory Committee:

2005 - **McMaster University**, Hamilton, Ontario
Trotter, Leslie. Efficacy of foot orthoses

Master of Science (Kinesiology)

Supervisor:

McMaster University, Hamilton, Ontario

1995 - 1996 Cockell, Dawn. The development of an EMG-driven model for the quantitative assessment of the hemiparetic elbow.

Thesis Committee Member:

2005 - 2007 **McMaster University**, Hamilton, Ontario
Gonzalez Claudia. Motor evoked potentials in spinal cord injured patients.

2001-2002 **McMaster University**, Hamilton, Ontario
Dufresne, Nathaniel. Metabolic demands and EMG profiles while walking on a body weight support treadmill in individuals with incomplete spinal cord injuries.

1998- 1999 **McMaster University**, Hamilton, Ontario
Ayoub, Beatrice. A combined physiologic-kinematic approach to assess the energy cost of locomotion in children who vary in body adiposity.

1997-1999 **McMaster University**, Hamilton, Ontario
Ditor, David. Gender differences in fatigue of the Adductor Pollicis Muscle.

1996 - 1997 **McMaster University**, Hamilton, Ontario
Maltais, Desiree. The effect of ankle foot orthoses on walking economy of children with cerebral palsy.

M.Sc. External Reviewer:

2004 **University of Toronto**, Toronto, Ontario
Cohen, Ellen. Gait asymmetry and step-to-step variability post-stroke. Invited review.

McMaster University, Hamilton, Ontario

1996 Unsworth, Karen. The relationship between Beta-blockade, plasma potassium concentrations and muscle excitability following static exercise.

1994 West, Bill C. The relationship between extracellular potassium concentrations and muscle membrane excitability following a sustained submaximal isometric quadriceps contraction.

1993 Leedham, John S. The relationship between Length, Velocity, EMG and Force in the Isolated Human Biceps Brachii Muscle.

Graduate Program in Neuroscience

Supervisor:

2007 - 2009 **McMaster University**, Hamilton, Ontario
Traynor, Robin. Upper limb motor control in typically developing children.

PhD. External Examiner (Invited):

2006 **University of Western Ontario**, London, Ontario
Mochizuki, George. Mechanisms underlying the bilateral control of leg muscles during standing posture.

PhD (Examining Committees)

03/04/2002 Tremblay, Luc. Vestibulo-ocular interactions with Body Tilt: Gender differences and afferent-efferent interplay.

03/25/2002 Kothari, Anita. The contextual approach in health research: Two empirical studies.

09/19/2002 Conrad, Nicole. Letter processing in children with naming speed deficits.

06/28/2004 Giangregorio, Lora. Musculoskeletal health in spinal cord injury: Effects of body-weight supported treadmill training.

01/12/2005 Mahoney, Douglas J. Analysis of global gene expression in skeletal muscle during recovery from endurance and damaging resistance exercise.

01/13/2005 Krasnik, Catherine. The time course, pathophysiology and neurochemical correlates of neuroleptic-induced TH down-regulation in midbrain DA neurons.

RESEARCH FUNDING (Granted):

LogicBack Inc:
08/2008 – 03/2009
$45,500 Effects of LogicBack on seating postural control and upper body work.
Investigators: Triano JJ, Grondin D, Ross K, **Galea V**.

Hamilton Surgical Associates: HAHSO:
07/2008 – 06/2009
$30,000 Pilot study of limb length discrepancy in Obstetrical Brachial Plexus Injury
Investigators: Bain J, Strumus N, DeMatteo C, Agro D, **Galea V**.

Evelyn Mackin Grant for Research:
09/2007 – 09/2008
$5,000 Hand Impairments, dexterity, and function of persons with osteoarthritis or rheumatoid arthritis of the hand-a model of disability.
Investigators: MacIntyre, N, Wessel, J, **Galea,V.**

Neuro Group Inc:
08/2007 - 01/2009
$316,000 Proposal to Evaluate the Efficacy of the InterX 5000 in the Treatment of Chronic Neck and Shoulder Pain.
Investigators: Triano, J, Woodhouse, L, **Galea,V**, Injeyan,HS, MacDermid, J, McGregor, M, Pierrynowski, MR Ruegg, R, Teodoroczyk, JA.

Centre for Leadership in Learning (McMaster University)
2005 - 2006
$4,721.00 Effectiveness of Personal Progress Testing in the OT Program
Investigators: Galea V, Letts L, StewartD, Salvatori P, Keane D.

NSERC
2004 - 2009
$95,000 Neural Mechanisms of Hypnosis.
Investigators: Woody, E and Galea V.

Hamilton Heath Sciences Corporation
01 Jan 2004 - 31 Dec 2004
$9, 674.00 Upper limb function following mechanical neck disorder.
Investigators: Manto L, Lee A, Galea V, Pierrynowski M, Gross A, McDermid J, McLaughlin L.

Hamilton Hospital Assessment Centre,
01 June 2003 - 30 May 2004,$11,089.00, A pilot study to examine the test-retest reliability of anovel performance outcome measure, the neck-walk index, for patientswith neck pain or stiffness.
Investigators: Pierrynowski M, Gross A, MacDermid J, **Galea V**, McLaughlin L, McPhee C, Graham.

Canadian Physiotherapy Association
01 May 2003 - 30 April 2004

$1,000.00, Promoting effective manual therapy for patients with mechanical neck disorders
Investigators: McPhee C, **Galea V**, Graham N, Gross A, MacDermid J, McLaughlin L, Pierrynowski

Physiotherapy Foundation of Canada
01 July 2003 - 30 June 2004
$4,001.00 The role of quantitative sensory testing in diagnosis and evaluation of mechanical neck disorders.
Investigators: MacDermid J, **Galea V**, Gross A, Graham N, McPhee C, McLaughlin L, Pierrynowski

Bloorview Children's Hospital Foundation
$53,870, September 1, 2001 – August 30, 2002
An innovative, multidisciplinary assessment of the effects of an exercise program on the energy cost of locomotion and walking proficiency in children with spastic cerebral palsy
Investigators: O. Bar-Or, MR Pierrynowski, **V. Galea**

Ontario Neurotrauma Foundation
$41,000, July1, 1999 - June 30, 2001
Physiology of upper limb hemiparesis following brain injury.
Investigators: **V. Galea**, J.J. Dowling

Hamilton Health Sciences Research Development Fund
$29,000, Sept 1, 1998 - Aug 31, 2000
Disordered balance in children following treatment for Acute Lymphoblastic Leukemia.
Investigators: M.J. Wright, **V.Galea**, R.D. Barr

Role: Initiated original studies of static balance in ALL children. Developed methodology and wrote sections of the grant related to the components taking place in the Human Movement Laboratory of which I am co-director.

Hospital for Sick Children Foundation
$40,000, Sept 1, 1997- Aug 31, 1998
Multi disciplinary approach to measuring the effect of ankle foot orthoses on walking economy of children with cerebral palsy.
Investigators: O. Bar-or, MRP Pierrynowski, **V. Galea**

Role: Developed methodology for muscle activity monitoring and determination of co-contraction indices. Wrote neurophysiological sections relevant to cerebral palsy as well as all methodology related to EMG.

North American Spine Society
$11,000.00, Sept 1, 1995-Aug 31, 1996
Relationship between 3D segmental spinal motion *in vivo* and pain in instrumented patients with low back pain.
Investigators: D.A. Bednar, J.P. Dickey, M.R. Pierrynowski, **V.Galea**

Role: Part of the question being asked in this project was one of possible deep back muscle denervation, consequent to chronic low back pain, based on pilot work by J. Dickey. In addition to generating the question on disordered motor control my role was to develop methods measuring muscle activity in the deep paraspinal muscles as well as surface determination of muscle activity in patients instrumented for kinematic analysis.

Edith Herman Fund
$5,668.00, March 30, 1994-June 30, 1995
Effect of joint angle on reflex inhibition of quadriceps muscle group in acutely effused knees.
Investigators: **V. Galea**, P.W. Stratford, D.R. Levy

McMaster University Faculty of Health Sciences: Start-Up Research Funds.
$15,900.00, July 1, 1993

J.P. Bickell Foundation
$18,068.00, Sept 1, 1993-January 30, 1995
Assessing translation and shear in anterior cruciate deficient knees.
Investigators: M.R. Pierrynowski, P.W. Stratford, **V. Galea**, R. Ogilvie, D.R. Levy

Role: Surface EMG determination of motor control about anterior cruciate deficient knees.

PUBLICATIONS (Peer Reviewed):
Journal Articles:

1. McNulty PA, **Galea V**, Fallon JB, Bent LR, Macefield V: Low-threshold afferent signalling of viscous loads during voluntary movements of the human digits. Neuroreport 2008, 19(10): 1049 -54

2. MacDermid JC, Ghobrial M, Quirion KB, St-Amour M, Tsui T, Humphreys D, McCluskie J, Shewayhat E, **Galea V**. Validation of a new test that assesses functional performance of the upper extremity and neck (FIT-HaNSA) in patients with shoulder pathology. BMC Musculoskeletal Disorders 2007, 8:42-52.

3. Bain JR, DeMatteo C, **Galea V,** Gjersten D. The role of Botulinum Toxin as an adjunct to motor learning therapy and surgery for Obstetrical Brachial Plexus Injury. *Developmental Medicine and Child Neurology* 48:245-252, 2006.

4. DeBruin H, Fu W, **Galea V**, McComas A. Speculations surrounding a spinal reflex. *J Neurol Sci*. 242:75-82, 2006.

5. Wright MJ, **Galea V**, Barr RD. Proficiency of balance in survivors of Acute Lymphoblastic Leukemia in childhood. *Physiotherap*y. August 85(8): 782-790, 2005.

6. Maltais D, Pierrynowski MR, **Galea V**, Bar-or O. Physical activity level is associated with the O2 cost of walking in cerebral palsy. *Med Sci Sports Excerc.* Mar 37(3):347-353, 2005.

7. Pierrynowski MR, Tiidus PM, **Galea V**. Women with fibromyalgia walk with an altered muscle synergy. *Gait and Posture.* 22:210-218, 2005.

8. Maltais DM, Pierrynowski MR, **Galea V**, Matsuzaka A, Bar-Or O. Habitual physical activity levels are associated with biomechanical walking economy in children with cerebral palsy. *American Journal of Physical Medicine and Rehabilitation*. 84(1): 36-45, 2005.

9. Pierrynowski MR, Gross A, Miles M, **Galea V**, McLaughlin L, McPhee C. Reliability of the long-range power-law correlations obtained from the bilateral stride intervals in asymptomatic volunteers whilst treadmill walking. *Gait and Posture.* 22: 46-50, 2005.

10. Maltais D, Pierrynowski MR, **Galea V**, DeBruin H, Al-Mutawaly N, Bar-Or O. Minute by minute differences in co-activation during treadmill walking in cerebral palsy. *Electromyogr Clin Neurophysiol* Dec 44(8):477-87, 2004.

11. **Galea V,** Wright MJ, Barr RD. Measurement of balance in survivors of Acute Lymphoblastic Leukemia. Gait and Posture., 19:1-10, 2004

12. Wright MJ, **Galea V**, Barr RD. "Self-perceptions of physical activity in survivors of Acute Lymphoblastic Leukemia in childhood". Pediatric Exercise Science 15(2): 191-201, 2003.

13. Maltais D, Bar-Or O, **Galea V,** Pierrynowski M. Repeated treadmill walks affect physiologic responses in children with cerebral palsy. Med Sci Sports Exc 35:1653-1661, 2003.

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Submitted for publication:

1. MacDermid J.C., Galea, V, Teo, A.; Gross, A.; and Pierrynowski, M. Quantitative sensory testing has moderate reliability and validity in patients with mechanical neck disorders. Physiotherapy Canada (submitted).

2. Pierrynowski MR, McLaughlin M, Gross A, Parkinson W, Galea V, MacDermid V, HaNSA. Innovative Biologically-Based Assessment Tools to Differentiate and Assess Patients with Neck Pain. JOSPT Clinical commentary manuscript, 2008.

3. McKenzie K, Galea V, Wessel J, Pierrynowski M. Lower extremity kinematics of females with Patellofemoral Pain Syndrome while stair climbing. Arch Phys Med Rehabil (submitted)

Abstracts:

1. **Galea V**, Woody EZ, Szechtman H. Neural control during hypnoticomotor tasks: Neural strategies as observed through electromyography. *International Society of Electrophysiology and Kinesiology. Annual Meeting. June 18-21, 2008. Niagara Falls, ON.*

2. Wessel J, MacDermid J, MacIntyre N, **Galea V**. The relationship between impairment, dexterity and self-reported disability of persons with osteoarthritis of the hand. 31st Annual Meeting of the American Society of Hand Therapists. Boston 2008.

3. **Galea V**, Szechtman H, Woody EZ. Is the primary motor cortex engaged during hypnoticomotor tasks? Evidence from burst analysis of motor activity. *Program No. 277.19. Neuroscience Meeting Planner. Online. Annual Meeting of the Society for Neuroscience. November 15-19, 2008 Washington, DC.*

4. Traynor RL, **Galea V**. Neural activation strategies during a cyclical reach and grasp task in typically developing children. *Program No. 29.4. Neuroscience Meeting Planner. Online. Annual Meeting of the Society for Neuroscience. November 15-19, 2008 Washington, DC.*

5. Traynor RL, **Galea V**. Age effects on the development of upper limb coordination and timing. *Canadian Association of Neuroscience. 2nd Annual meeting. May 25-28, 2008. Montreal, Quebec.*

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11. **Galea V,** Woody EZ. Motor strategies during hypnotic suggestion: Looking for "stationarity". Program No 8-11. *Proceedings from Progress in in Motor Control V. A Multi-disciplinary Perspective*. The Pennysylvania State University, State College PA. August 17-20, 2005**.**

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14. Teo A, **Galea V**, MacDermid J, Gross A, McLaughlin L, Pierrynowski M, The Head, and Neck, Shoulder, Arm Research Group (HaNSA). Performance of patients with mechanical neck disorders on a reach and grasp task: coordination dynamics. Orthopedic Division Review 2006; March/April:34.

15. **Galea V**, Teo A, MacDermid J, Gross A, McLaughlin L, Pierrynowski M, The Head, and Neck, Shoulder, Arm Research Group (HaNSA). Performance of patients with mechanical neck disorders on a reach and grasp task: neural strategies. Orthopedic Division Review 2006; March/April:35.

16. **Galea V**, Woody EZ, Szechtman H. Motor strategies underlying the classic challenge to bend a stiffened arm. Program No. 200.13 2004 *Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience. 34th Annual Meeting, San Diego, California, October 23-27, 2004.

17. Maltais DB, Pierrynowski MR, **Galea V**, Bar-Or O. Physical activity level is associated with the oxygen cost of walking in children and adolescents with mild spastic cerebral palsy. North American Society for Pediatric Exercise Medicine, August 11-15, 2004 .New Brunswick Canada

18. Guy S, McDowell J, Ruttan P, Stevenson B, Turner L, Vair R with the Headand Neck, Shoulder & Arm Special Interest Group (HaNSA Members: **Galea V**,Graham N, Gross A, Kumbhare D, MacDermid J, Manto L, McLaughlin L,McPhee C, Parkinson W, Pierrynowski M1) (2004) The Neck-Walk Indexidentifies patients with mechanical neck disorders, 8th InternationalFederation of Orthopaedic Manual Therapists Conference, 21-26 March2004, Cape Town, South Africa

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22. Wright MJ, **Galea V,** Barr RD. Balance skills in survivors of acutte lymphoblastic leukemia in childhood. World Congress for Physiotherapy, Barcelona, Spain June 7-12, 2003

23. **Galea V**, Wright MJ, Barr RD. Measurement of balance in survivors of Acute Lymphoblastic Leukemia (ALL) in childhood. Pediatric Oncology Group of Ontario Annual Symposium. November 9-10, 2001. Toronto, Canada

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25. McComas AJ, Galea V, DeBruin H. Synaptic connectivity between human 1Ia fibres and soleus motoneurons. XV International Congress of Clinical Neurology, May 17-19 2001, Buenos Aires, Argentina.

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32. Galea V, Barreca SR, Dowling J. Peripheral neuromuscular consequences of hemiplegia following stroke. Arch Phys Med Rehab 79:1332, 1998.

33. **Galea V**, Cockell DL, Barreca SR, Dowling JJ. Development of an EMG-driven model for thequantitative assessment of the hemiparetic elbow. Society for Neuroscience Abstracts 23(2):2373P, New Orleans, Louisiana, October 25-30, 1997.

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35. **Galea V**, Mark C, Halton JA, Pierrynowski MR. The effects of chemotherapy on gait patterns in children with Acute Lymphoblastic Leukemia. Society for Neuroscience Abstracts 21(3):2083P, San Diego, California, November 11-16, 1995.

36. McFadden L, **Galea V**, McComas AJ. Changes in muscle membrane excitability following fatigue. Muscle & Nerve Suppl 4, S40, 1996.

37. Galea V, McComas AJ. Changes in motor unit estimates with aging. Can J Neurol Sci 20(4):355, 1993.

38. **Galea V**, MacFadden L, Cupido C, McComas AJ. Delayed depression of human muscle excitability following fatigue. Can J Neurol Sci 20(4):359, 1993

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43. **Galea V**, McComas AJ. Electrical Response of Human Ankle Dorsiflexors and Plantarflexors during Fatigue. Society for Neuroscience Abstracts 16(1):420P, St. Louis, Missouri, Oct 28-Nov 2, 1990.

44. Lindinger MI, **Galea V**, Heigenhauser GJF, Green HJ. Duration of Endurance Training Affects Lactate Release and Production. Medicine and Science in Sports and Exercise 22(2) Suppl.:S8, April 1990.

45. Galea V, Freisinger E, Lindinger MI, Heigenhauser GJF. Effects of lactacidosis on skeletal muscle ion regulation. Medicine and Science in Sports and Exercise 19(2) Suppl.:S35P, April 1987.

46. Freisinger E, Lindinger MI, **Galea V**, Heigenhauser GJF. Effect of Lactoacidosis on Resting Skeletal Muscle Metabolism in Isolated Perfused Rat Hindlimb. Medicine and Science in Sports and Exercise 19(2) Suppl.:S54, April 1987

47. Galea V, Norman RW. One- and two-joint muscle length and velocity changes during a rapid ballet movement. Canadian Society of Biomechanics, Kingston, Ontario, September, 1982.

Proceedings:

1. **Galea V** and R Norman.(1985) Bone-on-bone forces at the ankle joint during a rapid dynamic movement. in Biomechanics IX-A. International Series on Biomechanics. Proceedings of the Ninth International Congress of Biomechanics, Waterloo, Ontario, August, 1983, DA Winter,

RW Norman, RP Wells, KC Hayes and AE Patla (eds.), pp. 71-76, Champaign, IL: Human Kinetics Publishers.

2. McComas AJ, H DeBruin, RW Einhorn, **V Galea** (1989) Novel electrophysiological tests for patients with muscle weakness. In: Motor Disturbances, Mechanisms and Implications for Therapy, edited by M. Torode & R. Balnave. Proceedings of the 7th., Biennial Conference. pp. 63-68, Cumberland College of Health Sciences: Sydney.

PUBLICATIONS (Not Peer Reviewed):

Chapters in Books:

McComas AJ, **Galea V**, Einhorn RW, Hicks AL, Kuiack S. The role of the Na^+, K^+-pump in delaying muscle fatigue. in Neuromuscular Fatigue. AJ Sargeant and D Kernell (eds.), pp 35-43, 1993.

Abstracts (Not in Peer - Reviwed Journals):

Pierrynowski MR, **Galea V**. Enhancing the ability of gait analysis to differentiate between groups: Scaling gait data to body size. Italian National Congress. Movement analysis in clinics: present and future. Istituto Superiore di Sanita. Rome, 28-29 October, 1999 pg 61 (proc.)

Dickey JP, Pierrynowski MR, Bednar DA, **Galea V**. In-Vivo intra-vertebral deformation in low-back pain candidates for spinal fusion. International Society for the study of the Lumbar Spine. 1999 Annual Meeting, Kono, Hawaii, June 21-25, 1999.

Galea V, Pierrynowski MRP. Research Activities in the Human Movement Laboratory (HML). Department of Biomedical Sciences, Annual Research Day. Held at McMaster University, February 6, 1998 pg 18 (proc.).

Galea V, McComas AJ. Changes in motor unit estimates with aging. APTA - Section on research - Muscle Function in Normal and Pathological States. New Hampton, New Hampshire, August 21-26, 1994.

McFadden L, **Galea V**, McComas AJ. Changes in muscle membrane excitability following fatigue. Department of Biomedical Sciences, Annual Research Day. Held at McMaster University, February 9, 1994 p.39.

McComas AJ, **Galea V**, DeBruin H. Automated motor unit estimation in the neuromuscular clinic. Department of Biomedical Sciences, Annual Research Day. Held at McMaster University, February 5, 1993 p.29.

Galea V, De Bruin H, McComas AJ. Automated determination of human motor unit populations. Department of Biomedical Sciences, Annual Research Day. Held at McMaster University, March 4, 1992 p.17.

McComas AJ, **Galea V**, Hicks AL, Kuiack S. Enhanced Na^+, K^+-pump activity delays fatigue. Symposium on the Current Problems of Neuromuscular fatigue. Amsterdam, Netherlands, April 9-11, 1992.

Galea V, McComas AJ. Effects of ischaemia on M-wave potentiation in human biceps brachii muscles. Department of Biomedical Sciences, Annual Research Day. Held at McMaster University, May 3, 1991 p.7.

SEMINARS AND LECTURES/INVITED:

Galea V.

Galea V. Sensory-Motor Control of the Upper Limb: Effects of Chronic Pain. Invited presentation. Life Science Research Seminars. Faculty of Medicine and Surgery – Faculty of Science. University of Malta. Monday, November 5th, 2007.

Galea V, Miall RC. Cerebellar activity during a hypnoticomotor task. Invited presentation. Brain Imaging Methods Group. Department of Psychology. University of Birmingham. Tuesday, October 9th, 2007.

Wessel J, **Galea V**, Henry J, Kean W. Osteoarthritis – New concepts on mechanisms of osteoarthritis pain. Medical Grand Rounds; Thursday, Nov 2, 2006. McMaster University.

Galea V. "Implications of mechanical neck disorder on motor control of the arm and hand. Is this a problem with disruptions in coordination?" Invited presentation, Occupational Therapy & Physiotherapy Symposium Ergotherapie & Physiotherapie. Hamilton, ON, January 16-18, 2004.

Galea V. (and HaNSA) Implications of mechanical neck disorder on motor control of the arm and hand. Invited presentation, Canadian Physiotherapy Association Orthopaedic Division 2003 Symposium "Research and Practice: Making It Fit". Victoria, BC, October 25, 26, 2003.

Galea V. Needles and pins down under. Motor control of the hand and that elusive cutaneous afferent. Invited presentation , graduate seminar series, Department of Kinesiology, McMaster University, Hamilton. November 8, 2001.

Galea V, DeBruin H, McComas A. Stimulation MUNE techniques. Automated estimates using incremental stimulation. First International Symposium and Workshop on Motor Unit Number Estimation. 13-15 July 2001, Snowbird, Utah

Galea V. Test-retest reliability for MUNE using incremental stimulation. As above

Galea V, McComas A. MUNE in Plexus Injuries. As above.

Galea V. Peripheral consequences of upper limb hemiplegia. Invited Presentation. School of Physiotherapy, The University of Melbourne, Melbourne, Australia, June 18, 2001.

Galea V. Altered peripheral properties of the hemiparetic upper limb. Contribution to disordered motor control. Invited presentation. School of Health and Rehabilitation Sciences, The University of Queensland, Brisbane Australia, February 27th, 2001.

Galea V. Neurophysiology and motor control in the hemiparetic upper limb. Invited Presentation. Faculty of Health Studies, Auckland University of Technology, Auckland, New Zealand, April 4, 2001.

Galea V. Consequences of upper limb hemiparesis: Impact of peripheral neuromuscular system changes on functional outcome. Invited speaker, Evidence -Based Rehabilitation. 75th Annual Meeting, American Congress of Rehabilitation Medicine. Nov 8-10, 1998.

Galea V. Determination of individual muscle moments about the hemiparetic elbow. Can it be done using an EMG-driven model? Invited speaker, Sensory-Motor Performance Research Program, Rehabilitation Institute of Chicago, Chicago, Illinois, January 22, 1998.

Galea V. The Human Movement Laboratory at McMaster University. School of Rehabilitation Science Research Networking Afternoon, McMaster University, October 15th 1997. (***Organizer/ Chair and poster participant***)

Galea V (Chair) Symposium in Honour of Dr. Alan J McComas. McMaster University, June 10, 1996.

Galea V. How doth the little motor neuron? Observations from patients with alterations in central drive and from patients with altered peripheral drive. Department of Biomedical Sciences Seminar Series, Faculty of Health Sciences, McMaster University, March 11, 1996. This seminar

Pierrynowski M, **Galea V**. An Overview of research conducted in the Human Movement Laboratory. OT/PT Research Rounds, Faculty of Health Sciences, McMaster University. April 5, 1995.

Halton J, Pierrynowski M, **Galea V,** Wright M. A moving assessment of gait. Pediatric Grand Rounds, Faculty of Health Sciences, McMaster University. March 2, 1995.

PRESENTATIONS AND WORKSHOPS/INVITED:

1. **Galea V**. Dance injury prevention and care: An anatomical approach for the dancer. 12th Annual Conference, Dance in Canada Association, Toronto, Ontario, June, 1984.

2. **Galea V**. Common foot and ankle problems in the female ballet dancer. 11th Annual Conference, Dance in Canada Association, Saskatoon, Sask., June, 1983.

3. **Galea V**. Muscle length and velocity changes during pointe work. 10th Annual Conference, Dance in Canada Association, Ottawa, Ontario, June, 1982.

4. **Galea V**. Prevention and care of dance injuries. Workshop Series, University of Calgary, Department of Physical Education, October 1980.

5. **Galea V**. Prevention of dance injuries - an overview. Workshop, Dance in Canada Conference, Waterloo, Ontario, June 1979.

6. **Galea V**. Reviews from Dance Injury Symposium, New York City. Kinesiology for Dance Newsletter, October 1978.

ADMINISTRATIVE RESPONSIBILITIES
MCMASTER UNIVERSITY

School of Rehabilitation Science

2005 - date	Member, Rehabilitation Science Curriculum Committee
2003 - 2006	Chair, OT Personal Progress Index Committee
1993 - date	Corresponding member PT curriculum committee
1993 – date	Corresponding member OT education committee
2001 -	PT Program Council
1999- 2000	Dean's Advisory Committee for Career Progress and Merit Policy

Faculty of Health Sciences

2006 -	Health Sciences Scholarship Committee
2006 -	Faculty of Health Sciences Student Ethics Committee

McMaster University

Fall/2007	Senate Board for Student Appeals
Winter/2006-	Senate Executive Committee
Fall/2004 -	SRS Representative to University Senate
Fall/1996 - 2006	Member, Senate Committee on Student Affairs
Fall/1997 - 1998	Member, Subcommittee on Alcohol Policy and Education.

UNIVERSITY OF WATERLOO

Department of Dance

1982 - 1985	Undergraduate Affairs Officer

Faculty of Applied Health Science

1982 - 1985	Departmental Representative, Undergraduate Affairs Committee
1982 - 1985	Departmental Representative, Committee for Computing

December 31st, 2008