

CURRICULUM VITAE

DINESH ARUN KUMBHARE, MD, PhD, FRCP (C), FAAPMR
Toronto Rehabilitation Institute
550 University Avenue,
Toronto, Ontario M5G 2A2

PERSONAL DATA:

Date of Birth: April 30, 1963

Marital Status: Married

Citizenship: Canadian

EDUCATIONAL QUALIFICATIONS:

- 2017 PhD, Institute of Biomaterials and Biomedical Engineering, University of Toronto: *“Ultrasound Characterization of Upper Fibers of Trapezius Muscle in Healthy and Myofascial Neck Pain.”*
Supervisor: Dr. Geoff Fernie
- 2013 Re-certification with the American Board of Physical Medicine and Rehabilitation
- 2003 Re-certification with the American Board of Physical Medicine and Rehabilitation
- 1995 Graduate Studies, McMaster University, Master of Health Sciences in Design Measurement and Evaluation: *“A Clinical Trial Using a Factorial Design to Determine the Effectiveness of Anti-inflammatory Medication and a Physiotherapy Program in the Functional Recovery of Acute Ankle Sprains in Athletes.”*
Supervisor: Dr. Lawrence Hart
- 1993 Faculty of Health Sciences, McMaster University, Assistant Clinical Professor
- 1994 Diplomat of the American Board of Physical Medicine and Rehabilitation
- 1992-1994 Faculty of Medicine, McMaster University, Hamilton, Ontario, Canada
Clinical Scholarship under Dr. A. McComas and Dr. S. Banerjee
- 1992 Fellow of Royal College of Physicians and Surgeons of Canada on Physical Medicine and Rehabilitation, successfully complete the examination and admitted as a Fellow

- 1991-1992 Faculty of Medicine, McMaster University, Chief Resident in Physical Medicine and Rehabilitation
- 1988-1992 Faculty of Medicine, McMaster University Residency in Physical Medicine and Rehabilitation
- 1987-1988 Faculty of Medicine, Dalhousie University Halifax, Nova Scotia, Canada Internship, “Rotating”
- 1988 LMCC licentiate
- 1983-1987 Faculty of Medicine, Dalhousie University, Halifax, Nova Scotia, Canada Medical Doctor, May 1987 degree received
- 1979-1983 Faculty of Arts and Science, Dalhousie University, Halifax Nova Scotia, Canada Bachelors of Science, Chemistry (With special admission from Grade 11)

CURRENT STATUS:

Lead Assessor, Physical Medicine and Rehabilitation, College of Physicians and Surgeons of Ontario

Adjunct Associate Professor, Institute of Health Policy, Management and Evaluation, University of Toronto

Adjunct Associate Professor, Institute of Biomaterials and Biomedical Engineering, University of Toronto

Associate Professor, Department of Engineering, McMaster University, Hamilton, Canada

Adjunct Professor, Human Health and Nutritional Science, University of Guelph

Associate Professor, Adjunct appointment, Faculty of Kinesiology & Physical Education, University of Toronto, 2015 – present

Associate Professor, Department of Medicine, Division of Physiatry, University of Toronto, 2013- present.

Scientist, Toronto Rehabilitation Institute, 2013- present.

Associate Clinical Professor at McMaster University, Department of Medicine with appointments in Physical Medicine and Rehabilitation and Rheumatology, 1994-2014.

Joint appointments at St. Joseph’s Hospital and Hamilton Health Sciences Corporation, 1994-

2013

Adjunct Faculty, Brain Body Institute and the Imaging Research Center, McMaster University, since 2005-present.

Adjunct Faculty, Department of Engineering, McMaster University, Since 2007-present.

EMPLOYMENT EXPERIENCE:

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| 2013 | Peer Assessor, Physical Medicine and Rehabilitation, College of Physicians and Surgeons of Ontario, 2013-present |
| 2015 | Lead Assessor, Physical Medicine and Rehabilitation, College of Physicians and Surgeons of Ontario, 2015-present |
| 2015 | Pain Special Interest Group Lead, Canadian Association of Physical Medicine and Rehabilitation, 2015-present |
| 2013 | Staff Physiatrist, Toronto Rehabilitation Institute, University Health Network, Scientist, Toronto Rehabilitation Institute |
| 2010 | Medical Director, Chronic Pain Management Unit
Hamilton Health Sciences |
| 2010 | MRP Spinal Cord Unit,
Regional Rehabilitation Center,
Hamilton Health Sciences |
| 2006-2007 | MRP Spinal Cord Unit,
Chedoke Hospital,
Hamilton Health Sciences |
| 1995-2010 | Head of Service, Rehabilitation Medicine,
Medical Director, Center of Acute Injury Rehabilitation
St. Joseph's Hospital, Hamilton, Ontario |
| 2001-present | Faculty of Health Sciences, Department of Medicine
McMaster University
Associate Clinical Professor |
| 1994-2000 | Hamilton Tiger Cats Football Club, Team Physician |
| 1992 | Hamilton Skyhawks Basketball team
Team Physician |

- 1992-1993 Hamilton Spectator Indoor Games 91st Highlanders Athletic Association Sports Physician
- 1992-1993 Faculty of Medicine, McMaster University Clinical Scholarship with Dr. A. McComas and Dr. S. Banerjee
- 1993 Medical Council of Canada, Examiner for OSCE type part II examination; to the present
- 1988-1992 Faculty of Medicine, McMaster University Residency in Physical Medicine and Rehabilitation
- 1987-1988 Faculty of Medicine, Dalhousie University Internship, rotating
- 1986-1987 Faculty of Medicine, Dalhousie University Clinical Clerkship
- 1985 Nova Scotia Rehabilitation Centre, Junior Clinical Clerkship for 3 ½ mths., Dr. L. Kirby, Dr. A. Shears

JOURNAL Reviewer and Editorial Board Memberships:

- 2009 - 2015 Therapeutic Advances in Musculoskeletal Diseases, associate member editorial board
- 2008 - 2018 Pain Research and Management, reviewer, journal not in operation after 2018
- 2004 - present Spine: Member of Associate Editorial Board for “Spine” (2011).
- 2013 - present AAPMR Annual Meeting Abstract reviewer
- 2016 - present American Journal of Physical Medicine and Rehabilitation, Section Editor, Psychiatry Reviews for Evidence in Practice (PREP) Second Order Peer Reviews of Clinically Relevant Articles for the Physiatrist
- 2018 - present American Journal of Physical Medicine and Rehabilitation, Section Editor, Residents and Fellows Corner

SUPERVISORSHIPS:

- (i) Undergraduate Students:
Liuyue (Louise) Xie (Biomedical Engineering Minor, Sept – December 2018) – 4th year student as part of BME499Y1 (Applied Research in Biomedical Engineering)
- (ii) M.Sc. and M.A.Sc. Graduate Students:

Valerie Evans (Institute of Biomedical and Biomaterial Engineering, Sept 2018 to August 2020) THESIS: Capsaicin Induced Sensitization in Healthy Population to assess Neuroplasticity using EMG and Quantitative Ultrasound

Andrew Davis (Medical Physics, September 2007 – December 2009). THESIS: *Optimization of Functional Magnetic Resonance Imaging of Skeletal Muscle.*

Sonya Bells (Medical Physics, September 2003 – March 2006). THESIS: *Assessment of Muscle Microvasculature Using MRI.*

Jan. 2011 - July 2011: 3 physiotherapy masters' degree students on research project examining physical examination correlates of the neck disability index following motor vehicle accident related injuries.

Jan. 2010 - July 2010: 4 physiotherapy masters' degree students on a research project on inter-rater reliability of a comprehensive physical examination for patients having motor vehicle accidents.

Jan. 2003 - July 2003: 3 clinical Masters Degree students, School of Rehab. Science on project examining muscle injury in Neuromuscular Electrical Stimulation.

Jan. 2002 - July 2002: 6 clinical Masters Degree students on Research project examining clinical correlates of repetitive strain injury in runners.

Mar. 2000 - July 2000: Clinical Applied Research Project for School of Rehab. Science Supervised 2 physiotherapy students on a study on physical examination of Achilles Tendonopathies.

(ii) Ph.D. Graduate Students (co-supervisor with Dr. M. Noseworthy)

Andrew Davis (Medical Physics, January 2010 –2017).

Alyaa Elzibak (Medical Physics, January 2009 – 2014).

Gavin Jones (Biomedical Engineering, September 2008 - 2012).

Conrad Rockell (Biomedical Engineering, July 2012-2017).

Alireza Akbari (Biomedical Engineering, July 2012-2016).

(iii) Ph.D. Graduate Students (co-supervisor with Dr. J. Srbely)

Lukas Linde (Medical Physics, January 2016- 2019)

(iv) PhD Graduate Student (co-supervised with Dr. Ann Agur)

Mikaela Stiver (Anatomy, 2016-present)

(v) Postdoctoral Fellows:

Dr. Tanya Zaraiskaya (Medical Physics, September 2004 – January 2006)

Dr. Liza Grosman-Rimon (Rehabilitation, September 2014-present)

(vi) Committee Members:

Sidney Abou Sawan (Kinesiology and Physical Education, Exercise Science, University of Toronto, September 2018 – present)

Michael Mazzulla (Kinesiology and Physical Education, Exercise Science, University of Toronto, September 2018 – present)

Graduate Examinations:

Sidney Abou Sawan (PhD Proposal Defence). December 18th, 2018. Faculty of Kinesiology & Physical Education, Department of Exercise Sciences, University of Toronto. THESIS TITLE: The Effect of Amino Acids and Resistance Exercise on the Mechanisms of Muscle Adaptation with Training

Role: Examiner: Committee Member

Michael Mazzulla (PhD Proposal Defense). Faculty of Kinesiology & Physical Education. Department of Exercise Sciences, University of Toronto. THESIS TITLE: The Development of Oral Amino Acid Traced Models to Study Protein Turnover in Humans.

Role: Committee Member

Paul Angaran (MSc Oral Defense). December 18th, 2018. Institute of Health Policy, Management & Evaluation, University of Toronto. THESIS TITLE: Mental Illness Diagnosis After Intensive Care.

Thesis Supervisor: Dr. Douglas Lee

Role: Exam Chair

Mengxiz Liu (PhD Final Oral Examination). August 17th, 2018. The Edward S. Rogers Sr. Department of Electrical & Computer Engineering, University of Toronto. THESIS TITLE: Colloidal Quantum Dots for Solar Energy Conversion.

Thesis Supervisor: Dr. Edward Sargent

Role: Committee Chair

Andrew Davis (PhD). December 12th, 2017. Medical Physics, McMaster University. THESIS TITLE: Optimization of functional magnetic resonance imaging of skeletal muscle. Advisor: Dr. Michael Noseworthy.

Role: Examiner.

Tea Lulic (PhD Comprehensive Oral Examination, July 28, 2016, Department of Kinesiology, McMaster University).

Role: Examiner.

Alyaa Elizbak (PhD) Medical Physics, McMaster University. Thesis defense January 27, 2014. Thesis Title: Lower Limb Muscle Assessment Using Diffusion Tensor and Blood Oxygen Level Dependent Imaging. Supervisors: Drs. Noseworthy and Kumbhare. Chair: Dr. T. Hawke,

Role: Examiner.

Conrad Rockel (PhD Comprehensive Examination, April 4, 2013, School of Biomedical Engineering). Thesis Title: Effects of Vincristine/Prednisone Administration on Skeletal Muscle

and Counter Effects of an Exercise Intervention as Assessed by DTI and 31P-MRS. Supervisor: Drs. Noseworthy and Kumbhare, Chair: Dr. John Connelly
Role: Examiner.

Alexander Mark Weber (PhD Comprehensive Examination, October 27, 2010, School of Biomedical Engineering). Thesis Title: Music Medicine as a Conjunctive Psychotherapeutic Treatment for Primary Glioblastoma Multiforme in Adults. Supervisor: Dr. Naom Serani,
Role: Chair

Gavin Jones (PhD Comprehensive Examination, June 2, 2010, School of Biomedical Engineering) Thesis Title: The Effect of Protein Administration on Exercise Induced Changes in Elderly Males. Supervisor: Dr. M. Noseworthy, Chair: Dr. Greg Wohl.
Role: Examiner

Mohammed Warsi (PhD Comprehensive Examination, February 4, 2010, School of Biomedical Engineering.) THESIS TITLE: Use of Neuroimaging in the Differentiating of Dementias. Supervisor: Dr. M. Noseworthy.
Role: Chair

Andrew Davis (M.Sc. defense). December 30th, 2009. Medical Physics, McMaster University. THESIS TITLE: Optimization of functional magnetic resonance imaging of skeletal muscle. Advisor: Dr. Michael Noseworthy.
Role: Examiner

Sonya Bells (M.Sc. defense) March 22nd, 2006. McMaster University, Medical Physics. THESIS TITLE: Assessment of muscle microvasculature using MRI. Advisor: Dr. Michael Noseworthy.
Role: Examiner

TECHNICAL PAPERS

Parkinson W, Kumbhare D, Dunlop RB, Balsor B. Response to the Liberal Government request for stakeholder submissions on their plan to remove the designated assessment center model for handling disputes related to auto insurance related injuries. Submitted on behalf of the Center For Acute Injury Rehabilitation, St. Joseph's Hospital, December 2004.

PUBLICATIONS:

Books and Chapters:

1. **Kumbhare, D.** Periarticular and Soft Tissue Injections. In Ozcakar, L Editor in Chief. Ultrasound Imaging and Guidance for Musculoskeletal Interventions in Physical Medicine and Rehabilitation. Edi-ermes Publishers. March 2020.
2. Guerra-Farfan E, **Kumbhare D**, Adili A (Section Editors) What Every Research Coordinator Needs to Know. In Mohit Bhandari (ed). The Coordination of Clinical

Research: A Handbook for Research Coordinators. Thieme Medical Publishers. New York, NY. [In press Dec 2019]

3. Furlan A, Mittal N, **Kumbhare DA**, Giraldo-Prieto, Mailis-Gagnon A. Chapter 40: Chronic Pain. In: Frontera's Physical Medicine and Rehabilitation: Principles and Practice 6th ed., Philadelphia: Wolters Kluwer Health, 2017.
4. **Kumbhare, DA** Buschbacher RM, Robinson, L. Manual of Nerve Conduction Studies, 3rd ed. Demos Medical Publishing, 2015. This book has been deemed the "gold standard" for nerve conduction procedures by the AANEM.
5. Nesathurai S, **Kumbhare D**. Bladder Management. In: The Rehabilitation of People with Spinal Cord Injury, 2013.
6. **Kumbhare D**, Parkinson W, Dunlop B, Adili A. Biochemical measurement of injury and inflammation in orthopedic surgeries. In: *Orthopedic Surgery*, Zaid Al-Aubaidi Ed, *Intech Web.org* 2012, pp. 166-182.
7. GEG Jones, **DA Kumbhare**, S Harish, MD Noseworthy, P Eng. Chapter 4: Diffusion Tensor Imaging (DTI) in the Healthy Lower Back. In: *Advanced MRI in Chronic Low Back Pain*. 2012. p. 23-43.
8. GEG Jones, **DA Kumbhare**, S Harish, MD Noseworthy, P Eng. Chapter 5: Lumbar Multifidus DTI and Chronic Low Back Pain (CLBP). In: *Advanced MRI in Chronic Low Back Pain*. 2012. p. 44-69.
9. GEG Jones, **DA Kumbhare**, S Harish, MD Noseworthy, P Eng. Chapter 6: Lumbar Stabilization Muscles and Low Back Pain: Associations Between Asymmetry, Cross Sectional Area and Anthropometric Data. In: *Advanced MRI in Chronic Low Back Pain*. 2012. p. 70-92.
10. GEG Jones, **DA Kumbhare**, S Harish, MD Noseworthy, P Eng. Chapter 7: Alterations in resting state BOLD MRI fractal dimension after Swedish Massage. In: *Advanced MRI in Chronic Low Back Pain*. 2012. p. 93-114.
11. GEG Jones, **DA Kumbhare**, S Harish, MD Noseworthy, P Eng. Chapter 8: BOLD FD in the erector spinae in subjects with and without LBP. In: *Advanced MRI in Chronic Low Back Pain*. 2012. p. 115.
12. **Kumbhare DA**, Basmajian J, *Decision Making and Outcomes in Sports Rehabilitation*, W.B. Saunders Company, Philadelphia, May 2000, co-editor.
13. **Kumbhare DA**, *Decision Making and Outcomes in Sports Rehabilitation*, W.B. Saunders Company, Philadelphia, May 2000, author of three chapters:

“Appraisal of Alternative Treatment Methods in Sports”
 “The Pediatric Athlete”
 “Lower back pain”

Peer Reviewed Manuscripts:

Submitted:

1. Lukas D. Linde, Leah R. Bent, James P. Dickey, **D. A. Kumbhare**, & John Z. Srbely. The Effect of Experimentally Induced Central Sensitization on the Nociceptive Reflex Threshold in the Upper Limb. *J Pain*. Under Review.
2. **Kumbhare D**, Evans V, Behr M, Masani K. Quantitative Response of Healthy Muscle Following the Induction of Capsaicin: An Exploratory Randomized Control Trial. Submitted to *Euro J PMR*.
3. Evans V, Behr M, Ahmed S, **Kumbhare D**. Improving Diagnosis of Chronic Widespread Pain: Impact of Omitting Certain Clinical Scores. Submitted to *Pain Medicine*.
4. Behr M, Evans V, **Kumbhare D**. Feasibility of Implementing Computer Aided Diagnostics using Portable Ultrasound in Clinics. Submitted to *J Clinical Ultrasound*
5. **Kumbhare DA**, Ahmed, Flannery J, Clarke H, Subramaniam S, Furlan A. Important Clinical Factors for Characterizing Chronic Pain Patients. Submitted to *Pain Medicine*.

In Preparation:

1. Linde LD, Domenichini CMR, Bent LR, Dickey JP, Kumbhare DA, Srbely JZ. Validation of the interval peak z-score as an objective measure of nociceptive reflex responses in upper limb muscles. In Preparation

Published:

1. Linde LD, Duarte FCK, Esmaeili H, Hamad A, Masani K, **Kumbhare D**. The nociceptive flexion reflex: a scoping review and proposed standardized methodology for acquisition in those affected by chronic pain. *British Journal of Pain*. 2020; DOI: <https://doi-org.uhn.idm.oclc.org/10.1177/2049463720913289>
2. Giusti EM, Spatola CA, Brunani A, **Kumbhare D**, Oral A, Lieva E, Kiekens C, Pietrabissa G, Manzoni GM, Imamura M, Castelnuovo G, Capodagilo P. ISPRM/ESPRM Guidelines on Physical and Rehabilitation Medicine (PRM) professional practice for adults with obesity and related comorbidities. *Eur J Phys Rehabil Med*. 2020; DOI: 10.23736/S1973-9087.20.06232-2
3. Behr M, Saiel S, Evans E, **Kumbhare D**. Machine Learning Diagnostic Modeling for Classifying Fibromyalgia Using B-mode Ultrasound Images. *Ultrasonic Imaging*. 2020; DOI: <https://doi-org.uhn.idm.oclc.org/10.1177/0161734620908789>

4. McIntyre M, Kempenaar A, Amiri M, Alavinia SM, **Kumbhare D**. The Role of Subsymptom Threshold Aerobic Exercise for Persistent Concussion Symptoms in Patients With Postconcussion Syndrome. *AM J PM&R*. 2020;99(3):257–264.
5. Vadasz B, Gohari J, West D, Grosman-Rimon L, Wright E, Ozcakar L, **Kumbhare D**. Improving characterization and diagnosis quality of Myofascial Pain Syndrome: a systematic review of the clinical and biomarker overlap with Delayed Onset Muscle Soreness. *European Journal of Physical and Rehabilitation Medicine*. 2020 Feb 18.
6. Nederveen, J; Ibrahim, G; Fortino, S; Snijders, T; **Kumbhare, D**; Parise, G. Variability in skeletal muscle fiber characteristics during repeated muscle biopsy sampling in human vastus lateralis. *Applied Physiology, Nutrition, and Metabolism*. 2020; 45(4):368-375.
7. Waskiw-Ford, M, Hannian, S, Duncan, J, Kato, H, Abou Sawan, S, Locke M, Kumbhare, D, Moore, D. Leucine enriched essential amino acids improve recovery from post-exercise muscle damage independent of increases in integrated myofibrillar protein synthesis in young men. *Nutrients*. 2020;12(4):1061-1080.
8. McIntyre M, Kempenaar A, Amiri M, Alavinia SM, **Kumbhare D**. The role of sub-symptom threshold aerobic exercise for persistent concussion symptoms in patients with post-concussion syndrome: A systematic review. *Am J Phys Med Rehabil*. 2020; 99(3):257-264.
9. **Kumbhare D**, Alavinia SM. The Certainty Behind Reporting a Significance Result: What the Clinician Should Know. *Am J Phys Med Rehabil*. 2019 Dec 1;98(12):1147-1150.
10. Bell K, Brook M, Snijders T, **Kumbhare D**, Paris G, Smith K, Atherton PJ, Phillips SM. Integrated myofibrillar protein synthesis in recovery from unaccustomed and accustomed resistance exercise with and without multi-ingredient supplementation in older men. *Frontiers in Physiology*. 2019; 6(40):1-10.
11. Snijders T, Nederveen J, Bell , Saddler N, Mazara N, **Kumbhare D**, Phillips S, Parise G. Prolonged nutritional supplementation does not restore impaired type II muscle fiber satellite cell response after a single bout of exercise in older men. *J Physiol* 2019; 597(1):105-119.
12. Schroeder A, Bean A, Weaver M, Spicer P, Gao C, Frontera W, **Kumbhare D**. Empowering Physiatrists In-Training to the Peer Review Process. *Am J Phys Med & Rehabil*. 2019;98(10):839-840.
13. Sahota B, Alavinia SM, Kumbhare D, Sangha H, Flannery J, Furlan A. A retrospective study of the association between pain intensity and opioid use with length of stay during musculoskeletal inpatient rehabilitation after primary knee and hip arthroplasty. *PM&R*. 2019;12(5):462-469.

14. Phan V, Shah J, Tandon H, Srbely J, DeStefano S, **Kumbhare D**, Sikdar S, Clouse A, Gandhi A, Gerber L. Myofascial Pain Syndrome: A Narrative Review Identifying Inconsistencies in Nomenclature. *PM&R*. 2019 Nov;1-10.
15. Nederveen JP, Fortino SA, Baker JM, Snijders T, Joannisse S, McGlory C, McKay BR, **Kumbhare D**, Parise G. Consistent expression pattern of myogenic regulatory factors in whole muscle and isolated human muscle satellite cells after eccentric contractions in humans. *J Appl Physiol* (1985). 2019 Nov 1;127(5):1419-1426.
16. McKay BR, Nederveen JP, Fortino SA, Snijders T, Joannisse S, **Kumbhare DA**, Parise G. Brain-Derived Neurotrophic Factor is Associated with Human Muscle Satellite Cell Differentiation in Response to Muscle Damaging Exercise. *Appl Physiol Nutr Metab*. 2019 Oct 29.
17. Schroeder A, Bean A, Weaver M, Spicer P, Gao C, Frontera W, **Kumbhare D**. Empowering Physiatrists in Training to the Peer-Review Process. *Am J Phys Med Rehabil*. 2019 Oct 1;98(10):839-840.
18. Behr M, Noseworthy M, **Kumbhare D**. Feasibility of a Support Vector Machine Classifier for Myofascial Pain Syndrome: Diagnostic Case-Control Study. *J Ultrasound Med*. 2019 Aug 1;38(8):2119-2132.
19. Upadhye S, Alavinia M, **Kumbhare D**. Understanding Measures of Association: A Primer With Examples From Rehabilitation Research. *Am J Phys Med Rehabil*. 2019 Aug 1;98(8):725-728.
20. Behr M, McNabb E, Noseworthy M, Sidkar S, **Kumbhare D**. Automatic ROI Placement in the Upper Trapezius Muscle in B-mode Ultrasound Images. *Ultrason Imaging*. 2019 Jul 1;41(4):231-246.
21. Liang J, Alavinia SM, **Kumbhare D**. Second-Order Peer Reviews of Clinically Relevant Articles for the Physiatrist: Aspirin or Rivaroxaban for Venous Thromboembolism Prophylaxis After Hip or Knee Arthroplasty. *Am J Phys Med Rehabil*. 2019 May 1;98(5):e40-e42.
22. Clarke H, Rai A, Poon M, Rao V, Dijaini G, Beattie S, Choiniere M, McGillion M, Patterson A, Hunter J, Watt-Watson J, Martin L, Grosman-Rimon L, **Kumbhare D**, Hanlon J, Knight J, Seltzer Z, Katz J. Toward a phenomic analysis of chronic postsurgical pain following cardiac surgery. *Canadian Journal of Pain*. 2019 Apr 12;3(1):58-69.
23. Allison D, Nederveen J, Snijders T, Bell K, **Kumbhare D**, Phillips S, Parise, Heisz J. The influence of a chronic training program on skeletal muscle gene expression related to the kynurenine pathway. *AJP-Cell Physiology – Cell Physiology*. 2019; 316(3):C444-C448.

24. Clarke H, Rai A, Poon M, Rao V, Dijaini G, Beattie S, Choiniere M, McGillion M, Patterson A, Hunter J, Watt-Watson J, Martin L, Grosman-Rimon L, **Kumbhare D**, Hanlon J, Knight J, Seltzer Z, Katz J. The phenomics of chronic postsurgical pain following cardiac surgery. *Canadian Journal of Pain*. 2019 Jan 1;3(1):58-69.
25. Ahmed S, Subramaniam S, Sidhu K, Khattab S, Singh D, Babineau J, **Kumbhare D**. Effect of Local Anesthetic versus Botulinum Toxin-A Injections on Subjective for Myofascial Pain Disorders: A Systematic Review and Meta-analysis. *Clinical Journal of Pain* 2019; 35(4): 353-367.
26. Snijders T, Nederveen J, Bell KE, Lau SW, Mazara, **Kumbhare D**, Phillips S, Parise G. Prolonged exercise training improves the acute type II muscle fiber satellite cell response in healthy older men. *J Physiology* 2019; 597(1):105-119
27. Mittal N, Bhandari M, **Kumbhare D**. A tale of confusion from overlapping confidence intervals: Brief report. *Am J PM&R* 2019; 98(1):81-83.
28. **Kumbhare D**, Mohammad A, Furlan J. Hypothesis testing in superiority, non-inferiority and equivalence clinical trials: Implications in Physical Medicine and Rehabilitation. 2019; 98(3):226-230.
29. Ahmed S, Haddad C, Subramaniam S, Khattab S, **Kumbhare DA**. The effect of electric stimulation techniques on pain and tenderness at the myofascial trigger point: a systematic review and meta-analysis. *Pain Medicine*. 2019; doi:10.1093/pm/pny278.
30. **Kumbhare D**, Shaw S, Ahmed, S Noseworthy M. Quantitative Ultrasound of Trapezius Muscle in Myofascial Pain: Comparison of Clinical and Healthy Population using Texture Analysis. *J Ultrasound* 2018 Nov 9:1-8.
31. Ahmed S, Khattab S, Haddad C, Babineau J, Furlan A, **Kumbhare D**. Effect of Aerobic Exercise in the Treatment of Myofascial Pain: A Systematic Review. *J Exercise Rehabilitation* 2018; 14(6); 902-910
32. Alavinia M, Furlan JC, MacDonald SL, **Kumbhare D**. Physiatry Reviews for Evidence in Practice (PREP) Second Order Peer Reviews of Clinically Relevant Articles for the Physiatrist Is pregabalin effective in the treatment of "radiating low back pain into the leg?" *AM J PM&R* 2018; 97(9):78-80.
33. Catapano M, Mittal N, Adamich J, **Kumbhare D**, Sangha H. Hydrodilatation with corticosteroid for the treatment of adhesive capsulitis: A systematic review. *PMR* 2018; 10(6):623-35.
34. Ozcakar L, Ata AM, Kaymak B, Kara M, **Kumbhare D**. Ultrasound imaging for sarcopenia, spasticity and painful muscle syndromes. *Curr Opinion in Supportive & Palliative Care* 2018; 12(3): 373-381

35. Murphy L, Lax L, Musa R, Langlois S, Kanofsky S, Hunter J, **Kumbhare D**, Promislow S, Oskarsson J, Davies R, Cockburn L, Barry M, Bjelajac-Mejia A, Lanca J, Dao T, Watt-Watson J, Stevens B. Mapping of Pain Curricula Across Health Professions Programs at the University of Toronto. Accepted *Canadian Journal of Pain* 2018; 2(1):182-90.
36. Nederveen JP, Joanisee S, Snijders T, Thomas AQC, **Kumbhare D**, Parise G. The influence of capillarization on satellite cell pool expansion and activation following exercise-induced muscle damage in healthy young men. Submitted to *J Physiol* 2018; 596(6):1063-1078.
37. Mittal N, Bhandari M, **Kumbhare D**. Are corticosteroid injections safe to inject into knees with osteoarthritis? What are the long-term effects. *Am J PM&R* 2018; Jun 1; 97(6):461-4
38. Mann, S, Hamad A, **Kumbhare D**. Commentary: The problem of sedentary behaviour in the office workplace: a structured exercise program for primary prevention. *J Physiotherapies* 2018 8(1): 1-7.
39. **Kumbhare D**, Ahmed S, Watter S. A narrative review on the difficulties associated with fibromyalgia diagnosis. *Therapeutic Advances in Musculoskeletal Disease* 2018; 10(1): 13-26.
40. **Kumbhare DA**, Gerber LH. Physiatry Reviews for Evidence in Practice (PREP) Second Order Peer Reviews of Clinically Relevant Articles for the Physiatrist: Physiological effects of a 26 week combined aerobic and resistance training exercise program and dietary modifications in obese older adults. *Am J PM&R* 2018 Feb 1;97(2):141-2.
41. Osmond M, **Kumbhare D**. Physiatry Reviews for Evidence in Practice (PREP) Second Order Peer Reviews of Clinically Relevant Articles for the Physiatrist: Effect of Inpatient Rehabilitation vs a Monitored Home-Based Program on Mobility in Patients With Total Knee Arthroplasty: The HIHO Randomized Clinical Trial. *Am J PM&R* 2018; 97(4): 304-307.
42. Liang J, Alavinia SM, **Kumbhare D**. Physiatry Reviews for Evidence in Practice (PREP), Second Order Peer Reviews of Clinically Relevant Articles for the Physiatrist Aspirin or Rivaroxaban for VTE Prophylaxis after Hip or Knee Arthroplasty. *Am J PM&R* Accepted September 2018. doi: 10.1097/PHM.0000000000001046.
43. **Kumbhare D**, Gupta P, Frontera W. Physiatry Reviews for Evidence in Practice (PREP) Second-Order Peer Reviews of Clinically Relevant Articles for the Physiatrist What is more effective, aerobic or resistance exercise for Obese Older Adults? Villareal DT, Aguirre L, Gurney B et al. Aerobic or Resistance Exercise, or Both, in Dieting Obese Older Adults *NEJM* 2017 376:1943-55. *Am J PM&R* September 2018 doi: 10.1097/PHM.0000000000001040

44. Ahmed S, Singh D, Khattab S, Babineau J, **Kumbhare D**. The effects of diet on the proportion of intramuscular fat in human muscle: A systematic review and meta-analysis. *Front Nutr* 2018 5:7. DOI: 10.3389/fnut.2018.00007
45. Gerber LH, **Kumbhare DA**. Physiatry Reviews for Evidence in Practice (PREP) Second Order Peer Reviews of Clinically Relevant Articles for the Physiatrist: Does massage therapy have value in the treatment of tension type headache. *Am J PM&R* 2018; 97(2):141-142.
46. **Kumbhare D**. In gluteal tendinopathy, education+ exercise improved outcomes vs corticosteroid injection or wait strategy. *Annals of internal medicine*. 2018 Aug 21;169(4):JC22-.
47. Upadhye S, **Kumbhare D**. Potential harms with long term glucocorticoid use. *Amer J PM&R* 2018; 97(1):72-74
48. Linde LD, **Kumbhare DA**, Joshi M, Srbely J. The relationship between rate of algometer application and pain pressure threshold in the assessment of myofascial trigger point sensitivity. *Pain Practice* 2018; 18(2): 224-229.
49. Bourgaize S, Newton G, **Kumbhare D**, Srbely J. A comparison of the clinical manifestation and pathophysiology of myofascial pain syndrome and fibromyalgia: implications for differential diagnosis and management. *JCCA* 2018; 62(1):26-41.
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51. **Kumbhare D**, Parkinson W, Balsor B, McPhee C, Goyal S, Papaioannou A. Consistency of Primary Care with Guidelines for the Management of Whiplash in Canadians. Poster presented at the 1st Annual Meeting of the Physical Medicine Research Foundation, Markham, Ontario, Canada, September, 2002.
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53. **Kumbhare D**, Atlas S, Jurriaans E, O'Neil J, Parkinson W, Dunlop B, Boulos P. Diagnosis of Achilles Tendonopathies Using Magnetic Resonance Imagery Versus Ultrasound. Poster presented at the 1st Annual Meeting of the Physical Medicine Research Foundation, Markham, Ontario, Canada, September, 2002.
54. **Kumbhare D.**, Balsor B., Adachi J., Parkinson W, Bedard M, Robinson J. Cervical Flexor Endurance: Measurement properties in patients with and without neck pain. Annual Meeting of the Canadian Physiotherapy Association, Poster, Calgary, Alberta, July 2001.
55. Balsor B., **Kumbhare D.**, Adachi J., Harding P., Parkinson W. Cervical Flexor Endurance: Reliability, Validity, and Responsiveness During Clinical Change. Annual Meeting of the Canadian Physiotherapy Association, Podium presentation, Calgary, Alberta, July 2001.
56. **Kumbhare D**, Parkinson W, Balsor B, Bedard M, Papaioannou A, Adachi JD. Association of Depression in Acute Whiplash Patients with Physical and Psychosocial Stress. American Academy of Physical Medicine and Rehabilitation, Annual Meeting Proceedings, Sept. 2001 Abstract No. 01-A-1415
57. **Kumbhare D**, Balsor B, Parkinson W, Harding P, Adachi J, Robinson J. Normal Values for Endurance of the Cervical Flexors with Comparison to Whiplash Patients. American Academy of Physical Medicine and Rehabilitation, Annual Meeting Proceedings, Abstract No. 01-A-1271, Sept. 2001.
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Change. Annual Meeting of the American Pain Society, Atlanta, GA, Nov. 2000, Abstract No. 750.

60. Parkinson Wm., Caspersen E., **Kumbhare D.**, Dunlop B., Allega R., Adachi J., Papaioannou A., Cott A. "Incidence of treatable psychosocial problems in early back pain disability". Poster presented to the Canadian Pain Society, Niagara-on-the-Lake, May 23, 1997. Abstract #48-Journal Canadian Pain Society, 1997;2(1): 62.

Hand and Neck, Shoulder, Arm (HaNSA) Team Presentations:

1. MacDermid J, Galea V, Pierrynowski M, Gross A, McLaughlin L [and HaNSA]. The relationship between quantitative sensory tests or electrophysiology and disability in patients with mechanical neck disorders. The Changing Face of Physiotherapy, 2005 Orthopaedic Symposium, Canadian Physiotherapy Association, London, Ontario 28-30, 2005.
2. Teo A, Galea V, MacDermid J, Gross A, McLaughlin L, Pierrynowski M [and HaNSA]. Performance of patients with mechanical neck disorder on a reach and grasp task: neural strategies. The Changing Face of Physiotherapy, 2005 Orthopaedic Symposium, Canadian Physiotherapy Association, London, Ontario 28-30, 2005.
3. Teo A, Galea V, MacDermid J, Gross A, McLaughlin L, Pierrynowski M [and HaNSA]. Performance of patients with mechanical neck disorder on a reach and grasp task: coordination dynamics. The Changing Face of Physiotherapy, 2005 Orthopaedic Symposium, Canadian Physiotherapy Association, London, Ontario 28-30, 2005.
4. Galea V. (and HaNSA) 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, McMaster University, 16-18 January 2004.
5. 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, 25, 26 October 2003.

PRESENTATIONS:

Malpractice in Pain Medicine. Co-organizer with Phillip Peng. Toronto, ON. September 19, 2015. University of Toronto.

RESEARCH FUNDING AND GRANTS:

NSERC i2i

Amount:	\$123,000
Funding:	Received in September 2018

Title: Development of Novel Magnetic Resonance Imaging (MRI) Algorithms for the Assessment of Mild Traumatic Brain Injury (mTBI)

Ontario Thoracic Society:

Funding Period: July 1, 2019 to December 31st, 2020

Amount: \$49,912.20

Title: Skeletal Muscle Fat Infiltration of the Limb Muscles in Idiopathic Pulmonary Fibrosis;

Investigative Team: co-PI Dmitry Rosenberg;

AFP Innovation Fund, University of Toronto, Department of Medicine

Amount: \$53,500.00

Funding Period: January 2014 to January 2015

Title: "Development of Chronic Pain Program at TRI"

Investigative Team Dinesh Kumbhare, John Flannery, Andrea Furlan

National Research Council Canada (NRC), Industrial Research Assistance Program (IRAP)

Amount: \$287,990 (NRC Amount \$184,030)

Funding Period June 1, 2012 to May 31, 2013

Title: "Development of a Novel Immunological Technique for Biomarkers Quantitation: Phase 3."

Investigative Team STI Research Inc: William Parkinson, Dinesh Kumbhare
Activation Laboratories (Industry Sponsor): Eric Hoffman, Michael Hoffman

National Research Council Canada (NRC), Industrial Research Assistance Program (IRAP)

Amount: \$ 733,205 (NRC amount \$439,923; Activation Laboratories Contribution Amount \$293,282)

Funding Period: April 1, 2010 – March 31, 2012

Title: "Development of a Novel Immunological Technique for Biomarkers Quantitation: Phase 2"

Investigative Team STI Research Inc: Dinesh Kumbhare, William Parkinson
Activation Laboratories (Industry Sponsor): Eric Hoffman

Canadian Institutes of Health Research

Amount: \$143,000

Period: Jan 1 2009 – Dec 31, 2009

Title: "Quantification of whiplash injury using a novel MRI RF coil and functional muscle MRI fractal dimension mapping."

Investigators: Noseworthy MD, Kumbhare D, Harish S.

Ontario Research Commercialization Program, POP Grant

Amount: \$22,000.00

Funding Period: February 6th, 2009 to February, 2010

Title: Quantification of Whiplash Injury Using a Novel RF Coil and Functional MRI Fractal Dimension Mapping

Investigators: Dinesh Kumbhare

National Research Council Canada (NRC), Industrial Research Assistance Program (IRAP)
 Amount: \$304,543 (NRC amount \$130,305; Activation Laboratories Contribution Amount \$174,238)
 Funding Period: April 1, 2008 – March 31, 2009
 Title: “Development of Novel Immunological Technique for Biomarkers Quantitation”
 Investigators: STI Research Inc: Dinesh Kumbhare, William Parkinson
 Activation Laboratories (Industry Sponsor): Eric Hoffman

Hamilton Surgical Associates Research Grant
 Amount: \$25,800
 Funding Period: Sept 1, 2008 – August 31, 2009
 Title: “Further Development of a Biochemical Approach to Measuring Surgical Trauma to Musculoskeletal Tissues”.
 Investigators: Anthony Adili, R Brett Dunlop, Dinesh Kumbhare, Carl Richards, Jack Rosenfeld, William Parkinson

Hamilton Surgical Associates Research Grant
 Amount: \$12,500
 Funding Period: Mar 1, 2006 – February 28, 2007
 Title: “Validity of Serum Creatine Kinase and Interleukin-6 Concentrations as Measures of Surgically Produced Muscle Injury.”
 Investigators: R. Brett Dunlop, Dinesh Kumbhare, Paul Missiuna, William Parkinson, Carl Richards

Hamilton Surgical Associates Research Grant
 Amount: \$17,000
 Funding Period: Sept 1, 2005 – August 31, 2006
 Title: “Biochemical measurement of injury following total knee replacement.”
 Investigators: Anthony Adili, Justin DeBeere, Mathew Denkers, Dinesh Kumbhare, Paul Missiuna, William Parkinson

Ministry of Health
 Amount \$25,475.00
 Funding Period January 2003 - August 2003
 Title “Pilot Study to Examine Physical and Psychological Factors in Non-Ulcer Upper Abdominal Pain.”
 Investigators: Dinesh Kumbhare, Robert Annis, Gervais Tougas, William Parkinson

Aventis Pharmaceuticals
 Amount: \$35,000 per patient (targeted 10 patients)
 Funding Period: September 2002 - May 2003
 Title: “A Double Blind Randomized Controlled Study of Tolerance, Safety, and Preliminary Clinical Effects of HP184 For Spinal Cord Injury.”
 Janssen-Ortho Pharmaceuticals

Amount: \$40,000.00
Funding Period: January 2000-Spring 2000
Title: Hamilton Site for a Double Blind Placebo Controlled Trial of
Tramadol plus Acetaminophen for Chronic Low Back Pain.
Investigator: Dinesh Kumbhare

Searle Pharmaceuticals

Amount: \$10,000.00
Funding Period: December 1, 1999-April 2000
Title: Hamilton Site for a Double Blind RCT of Celecoxib vs. Naproxen in Ankle
Sprains.
Investigator: Dinesh Kumbhare

Hamilton Hospital Assessment Centre

Amount: \$14,000.00
Funding Period: October 1, 1999- May 30, 2000
Title: "Evaluation of the Quebec Task Force Guidelines for Whiplash
Associated Disorders."
Investigators: Dinesh Kumbhare, William Parkinson, Jonathan Adachi