



Allan Russell Martin, M.D., Ph.D., F.R.C.S.C.

Philosophy of Care

Dr. Martin approaches each patient in the same friendly manner, with open communication and thoughtful consideration. He will ensure that all of the appropriate imaging and diagnostic tests have been performed, and he prides himself in taking the time necessary to explain the diagnosis and all treatment options. He believes strongly in patient-centered care and shared decision-making to select the best course of treatment for each individual patient.

Clinical Interests

Dr. Martin is a neurosurgeon offering specialized care for patients with various spine conditions. His surgical practice includes treating patients with spinal deformity (e.g. scoliosis, kyphosis, spondylolisthesis), trauma, tumors, degenerative conditions (e.g. cervical myelopathy, lumbar stenosis, disc herniations), inflammatory conditions (e.g. Rheumatoid Arthritis), infections, connective tissue disorders (e.g. Ehlers Danlos), syringomyelia, and Chiari malformations. He uses state-of-the-art technologies such as image-guidance, robotics, and minimally invasive surgery (MIS) to ensure that he delivers surgical treatment at the highest level of quality and safety.

Research/Academic Interests

Dr. Martin is a leader in advanced spinal cord imaging, technology research, and clinical outcomes research with more than 50 peer-reviewed journal publications, numerous research awards, and patents. He is an Engineer with a keen interest in technology that improves patient care and outcomes, including the investigation and clinical translation of innovative MRI methods (e.g. diffusion and myelin imaging) to characterize spinal cord microstructure and tissue injury. His research laboratory has several areas of focus, including 1) quantification of spinal cord microstructure using MRI, PET, and other novel technologies; 2) development of clinical measures to assess spinal cord function; 3) automated image analysis; and 4) innovation of tools for surgical planning, deformity correction, image-guided surgery, and robotic surgery.

Title Assistant Professor

Specialty Spine Surgery

Department [Neurological Surgery](#)

Division Neurological Surgery

Center/Program Affiliation [Spine Center](#)

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Education M.D., University of Toronto, Toronto, Ontario, Canada 2011
Ph.D., University of Toronto, Toronto, Ontario, Canada 2017
B.A.Sc., University of Toronto, Toronto, Ontario, Canada 1999

Internships Neurosurgery, University of Toronto, Toronto, Ontario, Canada 2011-2012

Residency Neurosurgery, University of Toronto, Toronto, Ontario, Canada 2011-2019

Fellowships Complex Spine Surgery, Toronto Western Hospital, University of Toronto Spine Program, Toronto, Ontario, Canada 2019-2020

Board Certifications Royal College of Physicians and Surgeons of Canada - Neurological Surgery

Professional Memberships American Association of Neurological Surgeons (AANS)
American Association of Neurological Surgeons/Congress of Neurological Surgeons (AANS/CNS)
Section on Disorders of the Spine and Peripheral Nerves
Canadian Spine Society
Congress of Neurological Surgeons (CNS)
National Neurotrauma Society (NNS)
North American Spine Society (NASS)
Scoliosis Research Society

Honors and Awards Charles Kuntz Scholar Award, AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves, 2017, 2020
Clinical Fellowship in Spine Surgery, AOSpine North America (AOSNA), 2019, 2020
Post Residency Clinical Fellowship, Neurosurgery Research & Education Foundation (NREF), 2019, 2020
William Horsey Prize Runner-up, Division of Neurosurgery, University of Toronto, 2017
Thomas P. Morley Prize Runner-up, Division of Neurosurgery, University of Toronto, 2017
Best Resident Paper, Canadian Spine Society (CSS), 2017
Research Fellowship, Canadian Institutes of Health Research (CIHR), 2016, 2017
SpineFEST Abstract Competition, 3rd Place, 2016
Best Resident Paper, Canadian Spine Society (CSS), 2016
Magna Cum Laude Merit Award, International Society for Magnetic Resonance in Medicine (ISMRM), 2016



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Select Recent Publications

Murray Goldstein Award, National Neurotrauma Society (NNS), 2016

Seed Starter Grant, Cervical Spine Research Society (CSRS), 2016

Research Fellowship, Surgeon Scientist Training Program, University of Toronto, 2015, 2016

SpineFEST 2015 Abstract Competition, 3rd Place, University of Toronto, 2015

Research Fellowship, Ontario Ministry of Health Clinician Investigator Program, 2014, 2015

David G, Mohammadi S, Martin AR, Cohen-Adad J, Weiskopf N, Thompson A, Freund P. Spinal cord pathology in traumatic and non-traumatic spinal cord injury: insights from neuroimaging. *Nature Reviews Neurology*. 2019 Dec;15(12):718-731.

Martin AR, De Leener B, Cohen-Adad J, Kalsi-Ryan S, Cadotte DW, Wilson JR, Tetreault L, Nouri A, Crawley A, Mikulis DJ, Ginsberg H, Massicotte EM, Fehlings MG. Monitoring for Myelopathic Progression with Multiparametric Quantitative MRI. *PLoS One*. 2018;13(9):e0204082.

Martin AR, De Leener B, Cohen-Adad J, Cadotte DW, Nouri A, Wilson JR, Tetreault L, Crawley A, Mikulis DJ, Ginsberg H, Fehlings MG. Can microstructural MRI detect subclinical tissue injury in subjects with asymptomatic cervical spinal cord compression? A prospective cohort study. *BMJ Open*. 2018;8(4):e019809.

Nouri A, Martin AR, Tetreault L, Nater A, Kato S, Nakashima H, Nagoshi N, Reihani-Kermani H, Fehlings MG. The Relationship Between MRI Signal Intensity Changes, Clinical Presentation, and Surgical Outcome in Degenerative Cervical Myelopathy: Analysis of a Global Cohort. *Spine*. 2017; 42(24):1851-1858.

Fehlings MG, Tetreault L, Aarabi B, Arnold P, Brodke D, Burns A, Carette S, Chen R, Chiba K, Dettori J, Furlan J, Harrop J, Holly L, Kalsi-Ryan S, Kotter M, Kwon B, Martin AR, Middleton J, Milligan J, Nakashima H, Nagoshi N, Rhee J, Riew D, Singh A, Skelly AC, Sodhi S, Wilson JR, Yee A. A Clinical Practice Guideline for the Management of Patients with Degenerative Cervical Myelopathy: Recommendations for Patients with Mild, Moderate and Severe Disease and Non-myelopathic Patients with Evidence of Cord Compression. *Global Spine Journal*. 2017;7(3 Suppl): 70S-83S.



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Fehlings MG, Martin AR, Tetreault L, Aarabi B, Anderson P, Arnold P, Brodke D, Burns A, Chiba K, Dettori J, Furlan J, Hawryluk G, Holly LT, Howley S, Jeji T, Kalsi-Ryan S, Kotter M, Kurpad S, Kwon B, Marino R, Massicotte EM, Merli G, Nakashima H, Nagoshi N, Palmieri K, Singh A, Skelly AC, Tsai E, Vaccaro A, Wilson JR, Yee A, Harrop J. A Clinical Practice Guideline for the Management of Patients with Acute Spinal Cord Injury: Recommendations on the Role of Baseline Magnetic Resonance Imaging in Clinical Decision Making and Outcome Prediction. *Global Spine Journal*. 2017;7(3 Suppl):221S-230S.

Kurpad S, Martin AR, Fischer DJ, Skelly AC, Mikulis DJ, Flanders A, Aarabi B, Mroz T, Tsai E, Tetreault L, Fehlings MG. Impact of baseline magnetic resonance imaging upon neurologic, functional, and safety outcomes in patients with acute traumatic spinal cord injury. *Global Spine Journal*. 2017;7(3 Suppl):151S-174S.

Martin AR, De Leener B, Cohen-Adad J, Cadotte DW, Kalsi-Ryan S, Lange SF, Tetreault L, Nouri A, Crawley A, Mikulis DJ, Ginsberg H, Fehlings MG. A Novel MRI Biomarker of Spinal Cord White Matter Injury: T2*-weighted White Matter to Grey Matter Ratio. Submitted to *AJNR* 2016-10-03. *AJNR*. 2017;38(6):1266-1273.

Martin AR, Cohen-Adad J, De Leener B, Cadotte DW, Crawley A, Ginsberg H, Mikulis DJ, Fehlings MG. Clinically Feasible Microstructural MRI to Quantify Cervical Spinal Cord Tissue Injury using DTI, MT, and T2*-weighted Imaging: Assessment of Normative Data and Reliability. *AJNR*. 2017; 38(6):1257-1265.

Martin AR, Aleksanderek I, Cohen-Adad J, Tarmohamed Z, Tetreault L, Smith N, Cadotte DW, Crawley A, Ginsberg H, Mikulis D, Fehlings MG. Translating State-Of-The-Art Spinal Cord MRI Techniques To Clinical Use: A Systematic Review Of Clinical Studies Utilizing DTI, MT, MWF, MRS, and fMRI. *Neuroimage: Clinical*. 2016;10:192–238.

A full list of publications can be found at:



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Pubmed: <https://www.ncbi.nlm.nih.gov/pmc/?term=Martin+AR%5BAuthor%5D>

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