

NEIL A. MANSON MD FRCSC

Spine, Sports Medicine, and Orthopaedic Surgery

400 University Ave, 3DNorth Suite F • Saint John • NB • E2L 4L2 • Canada
506 649 2667

PROFESSIONAL FOCUS

To provide excellence in clinical patient care, scientific research, and medical education with a focus regarding:

- Degenerative and deforming pathologies of the spine and complex spinal procedures,
- Minimally invasive surgical techniques and technologies of the spine,
- Sports pathologies of the spine and extremities and optimizing care of the elite athlete.

APPOINTMENT

Active Staff Physician August 4, 2006—Present
Department of Orthopaedic Surgery, Zone 2, Horizon Health Network

Assistant Professor January 4, 2008—Present
Department of Surgery, Dalhousie University

Assistant Professor July 12, 2010—Present
Department of Surgery, Memorial University

SUBSPECIALTY EDUCATION

Spine Fellowship

August 1, 2005—July 31, 2006

Dr An, Dr Phillips, Dr DeWald, Dr Hammerberg, et al, Rush University, Chicago, Illinois

Reconstruction of traumatic, deforming and degenerative spinal diseases in adults and children.

Advanced clinical, surgical, and research techniques.

Sports Medicine Fellowship

August 1, 2004—July 31, 2005

Dr Heidt, et al, Wellington Orthopaedics and Sports Medicine, Cincinnati, Ohio

Dr Colosimo, University of Cincinnati, Cincinnati, Ohio

Team coverage including NFL, NCAA, AHL, junior and recreational athletes.

Advanced clinical, surgical, and research techniques.

SPECIALTY EDUCATION

Fellow of the Royal College of Surgeons (Canada). July 1, 1999—June 30, 2004

Dr Cooke, Dr Stanish, Dr Alexander, et al, Dalhousie University, Halifax Nova Scotia

Residency training in Adult and Pediatric Orthopaedic Surgery. High volume surgical exposure to traumatic and degenerative musculoskeletal pathologies and their treatments.

CERTIFICATIONS

Diploma of the American Board of Independent Medical Examiners. American Board of Independent Medical Examiners. 2011.

Diploma of Sports Medicine. Canadian Academy of Sports and Exercise Medicine. 2009.

Doctor of Medicine. Dalhousie University. 1999.

B.Sc. Medicine. Dalhousie University. 1999.

B.Sc. Human Kinetics. University of Guelph. 1995.

INVITED PRESENTATIONS

Back Pain. Patient assessment and management in the ER.

- Horizon Health Network Department of Emergency Medicine Grand Rounds. Saint John, NB, June, 2013.

Flexible rod review and clinical results.

- Motion Sparing Technologies Focus Group Meeting. Toronto, ON, May, 2013.

Clinical guidelines for the management of thoracolumbar trauma. Triage to definitive management.

- New Brunswick Trauma Program. Provincial Trauma Grand Rounds. Saint John, NB, November, 2012.

Guidelines to triage and manage thoracolumbar spine trauma.

- The 4th Annual Atlantic Canada Spine Meeting. Wallace, NS, October, 2012.

New back surgery techniques. Impact of surgery, recovery, and complications.

- New Brunswick Medical Society Physician Update. Sussex, NB, April, 2012.

Concussion discussion.

- KenVal Rehab concussion information session for coaches and families. Saint John, NB, October, 2011.

The role of databases in the management of degenerative spine patients.

- The 3rd Annual Atlantic Canada Spine Meeting. Wallace, NS, October, 2011.

Direct Lateral Interbody Fusion.

- Medtronic Canada. Cadaver surgical technique course. Toronto, ON, October, 2011.

Transient Quadriplegia and Spinal Stenosis.

- Annual Scientific Meeting of the Canadian Academy of Sports and Exercise Medicine. St John's, NL, July, 2011.

Advanced posterior techniques for spinal trauma: Approach to surgical decision making for thoracolumbar trauma.

- 6th Annual Canadian Contemporary Spinal Techniques Course. Toronto, ON, May, 2011.

Laminoplasty: indications, experience, results.

- Motion Sparing Technologies Focus Group Meeting. Niagara Falls, ON, May, 2011.

Direct Lateral Interbody Fusion.

- The 2nd Annual Atlantic Canada Spine Meeting. Wallace, NS, October, 2010.

Direct Lateral Interbody Fusion.

- Medtronic International. Cadaver surgical technique course at International Minimal Access Surgical Techniques Annual Meeting. Toronto, ON, July, 2010.

Direct Lateral Interbody Fusion and Neuromonitoring.

- Medtronic International. Advances in Spine Surgery: Current Techniques in Minimal Access. Toronto, ON, July, 2010.

Minimally invasive Spine Surgery: Direct Lateral Interbody Fusion and Neuromonitoring as it Applies to Direct Lateral.

- 5th Annual Canadian Contemporary Spinal Techniques Course. Toronto, ON, May, 2010.

What is the best clinical scenario for laminoplasty?

- Motion Sparing Technologies Focus Group Meeting. Kelowna, BC, April, 2010.

Decompression and interbody fusion.

- Motion Sparing Technologies Focus Group Meeting. Kelowna, BC, April, 2010.

End level fracture.

- Motion Sparing Technologies Focus Group Meeting. Kelowna, BC, April, 2010.

Flexible rod review and clinical results.

- Motion Sparing Technologies Focus Group Meeting. Kelowna, BC, April, 2010.

Direct Lateral Interbody Fusion: Neuromonitoring.

- Medtronic USA. Cadaver surgical technique course at Spine Arthroplasty Society Annual Meeting. New Orleans, LA, April, 2010.

Minimally Invasive Spine Surgery: Patient benefit or marketing gimmick?

- Sea to Sky Orthopaedic Rounds. Whistler, BC, February, 2010.

Minimally Invasive Spine Surgery: Is it really beneficial to patients or just a marketing gimmick?

- The 1st Annual Atlantic Canada Spine Meeting. Wallace, NS, October, 2009.

The rationale for MASTER-D.

- Medtronic Europe, MASTER-D study launch at EuroSpine. Warsaw, Poland, September, 2009.

Selective Nerve Root Injections and Lumbar Disc Herniations.

- Atlantic Health Sciences Corporation Department of Diagnostic Imaging Grand Rounds. Saint John, NB, June, 2009.

Cervical laminoplasty.

- Motion Sparing Technologies Focus Group Meeting. Innsbruck, FL, February, 2009.

Posterior dynamic stabilization.

- Motion Sparing Technologies Focus Group Meeting. Innsbruck, FL, February, 2009.

Posterior dynamic stabilization.

- Motion Sparing Technologies Focus Group Meeting. Innsbruck, FL, February, 2009.

Orthopaedic Surgery and Rheumatoid Arthritis and the Cervical Spine:When is it Safe to Proceed?

- The Annual Scientific Meeting of the Atlantic Provinces Orthopedic Society. Kentville, NS, September, 2008.

Orthopaedic Surgery and Rheumatoid Arthritis and the Cervical Spine:When is it Safe to Proceed?

- Atlantic Health Sciences Corporation Department of Anaesthesiology Grand Rounds. Saint John, NB, June, 2008.

Minimally Invasive Back Surgery.

- The 56th Annual Meeting of The Canadian Association of Physical Medicine and Rehabilitation. Fredericton, NB, June, 2008.

Open and Minimally Invasive Techniques for Trauma Applications in the Thoracolumbar Spine: Flexion Distraction Injury and Percutaneous Management.

- 3rd Annual Canadian Contemporary Spinal Techniques Course. Toronto, ON, May, 2008.

Evolving Concepts in Spine Fracture Management.

- The Annual General Meeting of The New Brunswick Association of Medical Radiation Technologists. Saint John, NB, April, 2008.

DLIF: Direct Lateral Interbody Fusion

- Medtronic Techniques Forum at the 8th Annual Meeting of the Canadian Spine Society. Sun Peaks, BC, March, 2008.

Cervical laminoplasty.

- Motion Sparing Technologies Focus Group Meeting. Innsbruck, FL, February, 2008.

Posterior dynamic stabilization.

- Motion Sparing Technologies Focus Group Meeting. Innsbruck, FL, February, 2008.

Evolving Concepts in Spine Fracture Management.

- The Annual Scientific Meeting of the Atlantic Provinces Orthopedic Society. Saint John, NB, September, 2007.

Balloon Kyphoplasty: Minimally Invasive Treatment of Vertebral Compression Fractures.

- The Annual Scientific Meeting of the Atlantic Provinces Orthopedic Society. Saint John, NB, September, 2007.

ICL Spine I:Adult Spondylodiscitis.

- The 62nd Annual Meeting of The Canadian Orthopaedic Association. Halifax, NS, June, 2007.

ICL Spine II: Cervical Spine Fractures and Instability in the Elderly.

- The 62nd Annual Meeting of The Canadian Orthopaedic Association. Halifax, NS, June, 2007.

Controversies in Cervical Spine Trauma.

- Atlantic Health Sciences Corporation Trauma Grand Rounds. Saint John, NB, January 2007.

SCIENTIFIC CONTRIBUTIONS

PEER REVIEW EXPERIENCE

Invited abstract reviewer, 10th Annual Scientific Conference of the Canadian Spine Society, 2010.

Invited manuscript reviewer, Canadian Journal of Surgery, 2009.

REFEREED ARTICLES

Abraham EP, **Manson NA**, McKeon MD. The incidence of adjacent segment breakdown in posterolateral thoracolumbar fusions of three or more levels with minimum 5 year follow up. *Global Spine Journal: submitted January, 2013*.

Manson NA, Abraham EP, McKeon MD. Transforaminal epidural steroid injections prevent the need for surgery in patients with sciatica secondary to lumbar disc herniations: a retrospective case series. *Canadian Journal of Surgery*. 2013; 56(2): 89-96.

Ford KR, **Manson NA**, Evans BJ, Myer GD, Gwin RC, Heidt RS Jr, Hewett TE. Comparison of In-Shoe Loading Patterns on Natural Grass and Synthetic Turf. *Journal of Science and Medicine in Sport*. 2006 Dec; 9(6):433-440.

McKean KA, **Manson NA**, Stanish WD. Musculoskeletal Injury in the Masters Runner. *Clinical Journal of Sports Medicine*. 2006 Mar; 16(2): 149-154.

Alexander DI, **Manson NA**, Mitchell, MJ. Efficacy of Calcium Sulfate Plus Decompression Bone in Lumbar and Lumbosacral Spinal Fusion: Preliminary Results in 40 Patients. *Canadian Journal of Surgery*. 2001 Aug; 44(4): 262-6.

PROCEEDINGS and BOOK CHAPTERS

Manson NA, An HS. Halo Placement in the Pediatric and Adult Patient. in *Operative Techniques: Spine Surgery*, 2nd Edition. Editors: Vaccaro and Baron. Saunders Elsevier, Philadelphia, 2012. P 11-22.

Manson NA, An HS. Halo Placement in the Pediatric and Adult Patient. in *Operative Techniques: Spine Surgery*. Editors: Vaccaro and Baron. Saunders Elsevier, Philadelphia, 2008. P 11-22.

Manson NA, Phillips FM. Minimally Invasive Techniques for the Treatment of Osteoporotic Vertebral Fractures. *Instructional Course Lectures*, 2007; 56: 273-286.

Manson NA, Goldberg EJ, Andersson GB. Sexual Dimorphism in Degenerative Disorders of the

Spine. *Orthopaedic Clinics of North America*. 2006 Oct; 37(4): 549-553.

Manson NA, Phillips FM. Minimally Invasive Techniques for the Treatment of Osteoporotic Vertebral Fractures. *Journal of Bone and Joint Surgery (America)*. 2006 Aug; 88(8): 1862-1872.

ABSTRACTS and NOTES

Green AJ, **Manson NA**, McKeon, MD, Abraham EP. Elevated patient BMI does not negatively affect self-reported outcomes of thoracolumbar surgery. *The Spine Journal*. 2013; 13(9S): 64S.

Scheufler, KM, Buzek D, **Manson NA**, Periera P, Senker W, Franke J, et al. Analysis of the MASTERS-D study: a prospective multi-center observational data-monitored study of minimally invasive fusion to treat degenerative lumbar disorders. *European Spine Journal*. 2013; 22(Suppl 5): S715.

Abraham EP, Green AJ, McKeon, MD, Murray J, **Manson NA**. Subjective patient outcomes and surgical morbidity in decompression with an interspinous process device (IPD) versus decompression and fusion for treatment of stable degenerative spondylolisthesis. *Canadian Journal of Surgery*. 2013; 56(4 Suppl 2): S61.

McKeon, MD, **Manson NA**, Abraham EP, Albert W. A comparison of subjective versus objective outcome measures in postoperative spine patients. *Canadian Journal of Surgery*. 2013; 56(4 Suppl 2): S62.

Pencle F, **Manson NA**, Elliott RM, Wheeler-O'Neill C, Christie S. The role for percutaneous thoracolumbar stabilization for trauma. *Canadian Journal of Surgery*. 2013; 56(4 Suppl 2): S77.

Abraham EP, **Manson NA**, Elliott RM, McKeon, MD, Eastwood, D. Two-year results of interspinous spacers (DIAM) as an alternative to arthrodesis for lumbar degenerative disorders. *Canadian Journal of Surgery*. 2012; 55(Suppl): S45.

Manson NA, Elliott RM, McKeon, MD, Abraham EP. Percutaneous thoracolumbar stabilization for trauma: surgical morbidity, outcomes, and need for revision surgery. *Canadian Journal of Surgery*. 2012; 55(Suppl): S41.

McKeon, MD, **Manson NA**, Abraham EP. Traditional open versus minimally invasive decompression and fusion of the lumbar spine: a retrospective analysis. *The Spine Journal*. 2011; 11(10S): 154S.

Rampersaud YR, **Manson NA**, Abraham EP, Persaud O, McKeon MD, Fisher CG. Agreement between back and/or leg pain dominance as reported by patients compared with the surgeon reported primary indication for surgery: a preliminary study from the CSS surgical registry. *Canadian Journal of Surgery*. 2011; 54(3): S3.

Rampersaud YR, **Manson NA**, Abraham EP, Persaud O, McKeon MD, Fisher CG. Variations in patients and surgical management between two Canadian spine centers: A preliminary study from the CSS surgical registry. *Canadian Journal of Surgery*. 2011; 54(3): S5.

Manson NA, McKeon MD, Abraham EP. Traditional open versus minimally invasive decompression

and fusion of the lumbar spine: a retrospective analysis. *Canadian Journal of Surgery*. 2011; 54(3): S7.

Soroceanu A, Abraham EP, **Manson NA**, Attabib N. Role of Intraoperative Betadine Irrigation in Decreasing Postoperative Wound Infections in Lumbar and Lumbosacral Instrumented Fusions: A Retrospective Review. *Canadian Journal of Surgery*. 2011; 54(3): S12.

Manson NA, Rampersaud YR, Abraham EP, Persuade O, McKeon MD, Fisher CG. Lost to Followup: Are Postoperative Recheck No Shows All Doing Well? A Preliminary Study from the CSS Surgical Registry. *Canadian Journal of Surgery*. 2011; 54(3): S19.

Manson NA, Lamont M, McKeon MD, Comstock S, Abraham EP. Do flexion-extension radiographs affect pre-surgical planning in patients suffering from lumbar compressive pathologies? *Canadian Journal of Surgery*. 2011; 54(3): 21.

Abraham EP, **Manson NA**, Eastwood D. Comparison of the one- and two-surgeon approach in the treatment of nondegenerative spinal deformity: are two surgeons better. *Canadian Journal of Surgery*. 2010; 53(Suppl): S33.

Abraham EP, **Manson NA**, Eastwood D. Preliminary experience with DIAM interspinous spacers as an alternative to arthrodesis for lumbar degenerative disorders. *Canadian Journal of Surgery*. 2010; 53(Suppl): S35.

Manson NA, McKeon, MD, Abraham EP. Selective nerve root injections can prevent the need for surgery in patients with lumbar disc herniations. *Canadian Journal of Surgery*. 2010; 53(Suppl): S47.

Manson NA, McKeon, MD, Abraham EP. Selective nerve root injections can prevent the need for surgery in patients suffering from lumbar disc herniation. *The Spine Journal*. 2009; 9(1S): 205S.

Abraham EP, **Manson NA**, Eastwood D. Morbidity associated with decompression, fusion and instrumentation of the lower thoracic spine to the pelvis for degenerative disc disease in the elderly. *Canadian Journal of Surgery*. 2009; 52(Suppl): S6.

Abraham EP, **Manson NA**. Acute fracture of the end or adjacent level after posterior lumbar spine fusion and instrumentation. *The Spine Journal*. 2008; 8(5): S109-110.

Abraham EP, **Manson NA**. Fracture at the end or adjacent level post spinal fusion and instrumentation. *Canadian Journal of Surgery*. 2008; 51(Suppl): S9.

Abraham EP, **Manson NA**. Construct survival of CD Horizon Legacy 5.5 posterior spinal instrumentation system: radiographic evaluation of the thoracolumbar spine. *Canadian Journal of Surgery*. 2008; 51(Suppl): S20.

Manson NA, McKean KA, Stanish WD. The biomechanics of running injuries. *The Journal of Bone and Joint Surgery (British)*. 2008; 90(B) Supp 1; 52.

Abraham EP, **Manson NA**. Incidence of adjacent segment degeneration in thoracolumbar fusions of three or more levels. *The Spine Journal*. 2007; 7(5): S25.

Abraham EP, **Manson NA**. Incidence of adjacent segment degeneration in extended thoracolumbar fusions. *Canadian Journal of Surgery*. 2007; 50(Suppl): S13.

Manson NA, Ford KR, Evans B, Myer GD, Gwin RC, Heidt RS, Hewett TE. Comparison of in-shoe foot loading patterns in football players on synthetic turf. *Medicine and Science in Sports and Exercise*. 2006; 38(5) Suppl: S67.

Ford KR, **Manson NA**, Evans B, Myer GD, Gwin RC, Heidt RS, Hewett TE. Comparison of in-shoe foot loading patterns in football players on natural grass and synthetic turf. *Medicine and Science in Sports and Exercise*. 2006; 38(5) Suppl: S24-25.

Alexander DI, **Manson NA**. Calcium sulfate plus decompression bone in spinal fusion. *The Spine Journal*. 2003; 3(5): 135.

McKean KA, **Manson NA**, Stanish WD. Gender differences in running injury. *Clinical Journal of Sports Medicine*. 2004; 14(6): 377.

McKean KA, **Manson NA**, Stanish WD. Musculoskeletal Injury in the Masters Runner. *Medicine and Science in Sports and Exercise*. 2003 May; 35(5): S203.

Manson NA, McKean KA, Milne AD, Stanish WD. Pronation, Shock, and Injury in the Running Athlete. *Medicine and Science in Sports and Exercise*. 2002 May; 34(5): S253

SCIENTIFIC CONFERENCE PROCEEDINGS

Senker W, Buzek D, Chasnal A, Hubbe U, **Manson NA**, et al. MASTERS-D: Final results of a prospective multi-center observational data-monitored study of minimally invasive fusion to treat degenerative lumbar disorders.

- Annual Meeting Society for Minimally Invasive Spine Surgery, Las Vegas, 2013.

Green AJ, **Manson NA**, McKeon, MD, Abraham EP. Elevated patient BMI does not negatively affect self-reported outcomes of thoracolumbar surgery.

- Spine J 2013; 13(9S): 64S.
- 28th Annual Meeting North American Spine Society, New Orleans, 2013.

Scheufler, KM, Buzek D, **Manson NA**, Periera P, Senker W, Franke J, et al. Analysis of the MASTERS-D study: a prospective multi-center observational data-monitored study of minimally invasive fusion to treat degenerative lumbar disorders.

- *European Spine Journal*. 2013; 22(Suppl 5): S715.
- Eurospine, Liverpool, 2013.

Abraham EP, Green AJ, McKeon, MD, Murray J, **Manson NA**. Subjective patient outcomes and surgical morbidity in decompression with an interspinous process device (IPD) versus decompression and fusion for treatment of stable degenerative spondylolisthesis.

- *Canadian Journal of Surgery*. 2013; 56(4 Suppl 2): S61.
- Canadian Spine Society 13th Annual Meeting, Mont Tremblant, 2013.

McKeon, MD, **Manson NA**, Abraham EP, Albert W. A comparison of subjective versus objective outcome measures in postoperative spine patients.

- *Canadian Journal of Surgery*. 2013; 56(4 Suppl 2): S62.
- Canadian Spine Society 13th Annual Meeting, Mont Tremblant, 2013.

Pencle F, **Manson NA**, Elliott RM, Wheeler-O'Neill C, Christie S. The role for percutaneous thoracolumbar stabilization for trauma.

- *Canadian Journal of Surgery*. 2013; 56(4 Suppl 2): S77.
- Canadian Spine Society 13th Annual Meeting, Mont Tremblant, 2013.

Manson NA, Abraham EP, McKeon MD, Elliott RM. Direct lateral interbody fusion without posterior stabilization: Initial report of the first 10 consecutive cases.

- The Annual Meeting of the Canadian Orthopaedic Association, Ottawa, 2012.

Manson NA, Abraham EP, McKeon MD, Elliott RM. Traditional open versus minimally invasive decompression and fusion of the lumbar spine: a retrospective analysis.

- The Annual Meeting of the Canadian Orthopaedic Association, Ottawa, 2012.

Abraham EP, **Manson NA**, Elliott RM, McKeon MD. Dynamic Stabilization with an Interspinous Spacer as an Alternative to Arthrodesis for Lumbar Degenerative Disorder.

- The Annual Meeting of the Canadian Orthopaedic Association, Ottawa, 2012.

Manson NA, Abraham EP, McKeon MD, Elliott RM. Percutaneous Thoracolumbar Stabilization for Trauma: Surgical Morbidity, Clinical Outcomes and Revision Surgery.

- The Annual Meeting of the Canadian Orthopaedic Association, Ottawa, 2012.

Manson NA, McKeon, MD, Abraham EP. Transforaminal epidural steroid injections prevent the need for surgery in patients with sciatica secondary to lumbar disc herniation: a retrospective case series.

- Spineweek: multi-society meeting for Eurospine. Amsterdam, 2012

Abraham EP, **Manson NA**, Elliott RM, McKeon, MD, Eastwood, D. Two-year results of interspinous spacers (DIAM) as an alternative to arthrodesis for lumbar degenerative disorders.

- *Canadian Journal of Surgery*. 2012; 55(Suppl): S41.
- Canadian Spine Society 12th Annual Meeting, Sun Peaks, 2012.

Manson NA, Elliott RM, McKeon, MD, Abraham EP. Percutaneous thoracolumbar stabilization for trauma: surgical morbidity, outcomes, and need for revision surgery.

- *Canadian Journal of Surgery*. 2012; 55(Suppl): S41.
- Canadian Spine Society 12th Annual Meeting, Sun Peaks, 2012.

McKeon, MD, **Manson NA**, Abraham EP. Traditional open versus minimally invasive decompression and fusion of the lumbar spine: a retrospective analysis.

- Spine J 2011; 11(10S): 154S.
- 26th Annual Meeting North American Spine Society, Chicago, 2011.

Rampersaud YR, **Manson NA**, Abraham EP, Persaud O, McKeon MD, Fisher CG. Agreement between back and/or leg pain dominance as reported by patients compared with the surgeon reported primary indication for surgery: a preliminary study from the CSS surgical registry.

- *Canadian Journal of Surgery*. 2011; 54(3): S3.
- Canadian Spine Society 11th Annual Meeting, Quebec City, 2011.

Rampersaud YR, **Manson NA**, Abraham EP, Persaud O, McKeon MD, Fisher CG. Variations in patients and surgical management between two Canadian spine centers: A preliminary study from the CSS surgical registry.

- *Canadian Journal of Surgery*. 2011; 54(3): S5.
- Canadian Spine Society 11th Annual Meeting, Quebec City, 2011.

Manson NA, McKeon MD, Abraham EP. Traditional open versus minimally invasive decompression and fusion of the lumbar spine: a retrospective analysis.

- *Canadian Journal of Surgery*. 2011; 54(3): S7.
- Canadian Spine Society 11th Annual Meeting, Quebec City, 2011.

Soroceanu A, Abraham EP, **Manson NA**, Attabib N. Role of Intraoperative Betadine Irrigation in Decreasing Postoperative Wound Infections in Lumbar and Lumbosacral Instrumented Fusions: A Retrospective Review.

- *Canadian Journal of Surgery*. 2011; 54(3): S12.
- Canadian Spine Society 11th Annual Meeting, Quebec City, 2011.

Manson NA, Rampersaud YR, Abraham EP, Persuade O, McKeon MD, Fisher CG. Lost to Followup: Are Postoperative Recheck No Shows All Doing Well? A Preliminary Study from the CSS Surgical Registry.

- *Canadian Journal of Surgery*. 2011; 54(3): S19.
- Canadian Spine Society 11th Annual Meeting, Quebec City, 2011.

Manson NA, Lamont M, McKeon MD, Comstock S, Abraham EP. Do flexion-extension radiographs affect pre-surgical planning in patients suffering from lumbar compressive pathologies?

- *Canadian Journal of Surgery*. 2011; 54(3): S21.
- Canadian Spine Society 11th Annual Meeting, Quebec City, 2011.

Abraham EP, **Manson NA**, Eastwood D. Comparison of the one- and two-surgeon approach in the treatment of nondegenerative spinal deformity: are two surgeons better.

- *Can J Surg*. 2010; 53(Suppl): S33.
- Canadian Spine Society 10th Annual Meeting, Lake Louise, 2010.

Abraham EP, **Manson NA**, Eastwood D. Preliminary experience with DIAM interspinous spacers as an alternative to arthrodesis for lumbar degenerative disorders.

- *Can J Surg*. 2010; 53(Suppl): S35.
- Canadian Spine Society 10th Annual Meeting, Lake Louise, 2010.

Manson NA, McKeon, MD, Abraham EP. Selective nerve root injections can prevent the need for surgery in patients with lumbar disc herniations.

- Can J Surg. 2010; 53(Suppl): S47.
- Canadian Spine Society 10th Annual Meeting, Lake Louise, 2010.

Manson NA, McKeon MD, Abraham, EP. Selective nerve root injections can prevent the need for surgery in patients suffering from lumbar disc herniations.

- Spine J 2009; 9(1S): 205S.
- 24th Annual Meeting North American Spine Society, San Francisco, 2009.

Abraham EP, **Manson NA**, Eastwood D. Morbidity associated with decompression, fusion and instrumentation of the lower thoracic spine to the pelvis for degenerative disc disease in the elderly.

- Can J Surg. 2009; 52(Suppl): S6.
- Canadian Spine Society 9th Annual Meeting, Gatineau, 2009.

Abraham EP, **Manson NA**. The incidence of adjacent segment degeneration in extended thoracolumbar fusions.

- The 63rd Annual Meeting of The Canadian Orthopaedic Association, Quebec City, 2008.

Abraham EP, **Manson NA**. Acute fractures of the end or adjacent level after posterior lumbar spine fusion and instrumentation.

- Spine J 2008; 8(5): 109S-110S.
- 23rd Annual Meeting North American Spine Society, Austin, 2008.

Abraham EP, **Manson NA**. Fracture at the end or adjacent level post spinal fusion and instrumentation.

- Can J Surg. 2008; 51(Suppl): S9.
- Canadian Spine Society 8th Annual Meeting, Sun Peaks, 2008.

Abraham EP, **Manson NA**. Construct survival of CD Horizon Legacy 5.5 posterior spinal instrumentation system: radiographic evaluation of the thoracolumbar spine.

- Can J Surg. 2008; 51(Suppl): S20.
- Canadian Spine Society 8th Annual Meeting, Sun Peaks, 2008.

Abraham EP, **Manson NA**. Incidence of adjacent segment degeneration in thoracolumbar fusions of 3 or more levels.

- Spine J 2007; 7(5): 25S.
- 22nd Annual Meeting of the North American Spine Society, Austin, 2007.

Abraham EP, **Manson NA**. Incidence of adjacent segment degeneration in extended thoracolumbar fusions.

- Can J Surg 2007; 50(Suppl): S13.
- Canadian Spine Society 7th Annual Meeting, Mont Tremblant, 2007.

Manson NA, Natarajan RN, Hussain M, Reo M, Robinson J, Andersson GB, An HS. The intact Cervical Disc Versus Total Disc Arthroplasty: A Finite Element Model Study.

- Canadian Spine Society Annual Meeting, Mont Tremblant, 2007.

Manson NA, Ford KR, Evans B, Myer GD, Gwin RC, Heidt RS, Hewett TE. Comparison of in-shoe

foot loading patterns in football players on synthetic turf.

- Med Sci Sp Exer. 2006; 38(5) Suppl: S67.
- 53rd Annual Meeting of the American College of Sports Medicine, Denver, 2006.

Ford KR, **Manson NA**, Evans B, Myer GD, Gwin RC, Heidt RS, Hewett TE. Comparison of in-shoe foot loading patterns in football players on natural grass and synthetic turf.

- Med Sci Sp Exer 2006; 38(5) Suppl: S24-25.
- 53rd Annual Meeting of the American College of Sports Medicine, Denver, 2006.

McKean KA, **Manson NA**, Stanish WD. Gender differences in running injury.

- Clin J Sp Med. 2004; 14(6): 377.
- Rendez-Vous 2004 Sports Medicine Symposium, Vancouver, 2004.

Alexander DI, **Manson NA**. Calcium sulfate plus decompression bone in spinal fusion.

- Spine J. 2003; 3(5): 135.
- 18th Annual Meeting of the North American Spine Society, San Diego, 2003.

Manson NA, McKean KA, Stanish WD. Musculoskeletal Injury in the Masters Runner.

- Med Sci Sp Exer. 2003 May; 35(5): S203.
- The American College of Sports Medicine 50th Annual Meeting, San Francisco, May 2003.
- Sport Med 2003, Toronto, 2003.

Manson NA, McKean KA, Stanish WD. The biomechanics of running injuries.

- JBS(B). 2008; 90(B) Supp 1; 52.
- The Canadian Orthopaedic Research Society, Winnipeg, 2003.

Manson NA, McKean KA, Stanish WD. Running Injuries Updated: Is the Knee the Most Common Site in 2001?

- Sport Med 2002, Toronto, 2002.
- The Canadian Academy of Sports Medicine 2002 Annual Symposium, Mt Tremblant, 2002.

Manson NA, McKean KA, Milne AD, Stanish WD. Pronation, Shock, and Injury in the Running Athlete.

- Med Sci Sp Exer. 2002 May; 34(5): S253.
- The 28th Annual Meeting of the American Orthopaedic Society for Sports Medicine, Orlando, 2002.
- The American College of Sports Medicine 49th Annual Meeting, St. Louis, 2002.
- The Canadian Academy of Sports Medicine 2002 Annual Symposium, Mt Tremblant, 2002.

Manson NA, McKean KA, Deluzio KJ, Stanish WD. Rearfoot Motion and Tibial Acceleration in the Running Athlete.

- International Society of Biomechanics 4th World Congress, Calgary, 2002.

Alexander DI, **Manson NA**, Mitchell, MJ. Efficacy of Calcium Sulfate Plus Decompression Bone in Lumbar and Lumbosacral Spinal Fusion: Preliminary Results in 40 Patients.

- The Annual Meeting of the Canadian Orthopaedic Association, Edmonton, 2001.

Manson NA, Earl EM, Stanish WD, Smyth B, O'Neil B. Anterior Cruciate Ligament Deficiency and Proprioception: Changes in Standing Balance Strategy With and Without a Knee Brace.

- The 2nd Biennial Congress of the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine, Washington, 1999.

Manson NA, Earl EM, Stanish WD, Smyth B. Anterior Cruciate Ligament Deficiency and Proprioception: Postural Control Responses.

- The 18th Annual Meeting of the Arthroscopy Association of North America, Vancouver, 1999.

Manson NA, Earl EM, Stanish WD, Smyth B. Gastrocnemius Function in Stabilizing the Anterior Cruciate Ligament Deficient Knee.

- The 33rd Annual Meeting of the Canadian Orthopaedic Research Society, St. John's, 1999.

O'Neil B, Earl EM, Stanish WD, **Manson NA**. A Preliminary Investigation of Knee Joint Position Sense of Male and Female Basketball Players and Athletic Controls.

- The 32nd Annual Meeting of the Canadian Orthopaedic Research Society, Ottawa, 1998.

CLINICAL AND RESEARCH GRANTS AND AWARDS

\$250,000 St Joseph's Hospital Foundation sponsorship to purchase Operating Room microscope to facilitate minimally invasive and outpatient spine surgery in New Brunswick, 2013.

\$9,780 Health Innovation Research Foundation (Horizon Health Network) research grant to support the study: Accelerometer analysis of total joint arthroplasty versus lumbar fusion to assess in-hospital recovery and safe discharge home. 2012.

\$250,000 St Joseph's Hospital Foundation sponsorship to purchase Operating Room equipment to facilitate minimally invasive and outpatient spine surgery in New Brunswick, 2011.

\$5,000 Atlantic Provinces Orthopaedic Society research grant to support the study: Accelerometer analysis of total joint arthroplasty versus lumbar fusion to assess in-hospital recovery and safe discharge home. 2011.

\$10,000 Health Promotion and Research Foundation (Horizon Health Network) operating grant to support the study initiation: Traditional open versus minimally invasive decompression and fusion of the lumbar spine: an objective biomechanical assessment of recovery. 2011.

\$25,000 New Brunswick Health Research Foundation seed operating grant to support the study initiation: Traditional open versus minimally invasive decompression and fusion of the lumbar spine: a prospective randomized cohort study. 2010.

\$20,000 WorksafeNB research grant to support the study: Selective nerve root injections can prevent the need for surgery in patients suffering from lumbar disc herniations: a prospective randomized blinded trial. 2010.

\$10,000 WorksafeNB research grant to support the study initiation: Selective nerve root injections can prevent the need for surgery in patients suffering from lumbar disc herniations: a prospective randomized blinded trial. 2009.

\$2,500 Health Promotion and Research Foundation Tier I Grant to support successful study completion: Selective nerve root injections can prevent the need for surgery in patients suffering from lumbar disc herniations. 2008.

\$650,000 Rally of Hope Foundation sponsorship to purchase Operating Room equipment to facilitate minimally invasive spine surgery in New Brunswick. 2007.

\$30,000 Nike Sports Research Laboratory research grant to support study completion: Pronation, Shock, and Injury in the Running Athlete. 1999.

\$10,000 Dalhousie University Faculty of Medicine research grant to conduct B.Sc. Medicine thesis: Increased Standing Stability in Anterior Cruciate Ligament Deficient Individuals Via Improved Proprioception. 1996.

CLINICAL EDUCATOR

Assistant Professor. Department of Surgery, Dalhousie University, 2008 to present

Assistant Professor. Department of Surgery, Memorial University, 2010 to present

Instruction of Medical students, Primary Care residents, and Orthopaedic Surgery residents.

Instruction of ancillary health care students and staff.

Instruction of Spine Colleagues regarding current surgical techniques and technologies.

Educational Coordinator. Canada East Spine Centre, 2007 to present.

Development of teaching rounds and case rounds for staff spine specialists and residents (Orthopaedic Surgery, Neurosurgery, Physiatry).

Journal club preparation.

Interdepartmental Journal Club: Clearing the Cervical Spine in Trauma. July, 2010.

Invited departments: Diagnostic Imaging, Emergency Medicine, Intensive Care Medicine, Neurosurgery, Orthopaedic Surgery.

Educational Coordinator. Department of Orthopaedic Surgery, Saint John, 2007 to 2009.

Program design and modification, objective creation, creation of evaluation book, workload planning for clinical training of students and residents.

Evaluation and promotion of trainees.

Orthopaedic Grand Rounds organization for surgeon and staff teaching.

Clinical Instructor. Medtronic Spine Canada/USA/International, 2008 to present.

- Direct Lateral Interbody Fusion and Midline Lumbar Fusion. Cadaver surgical technique course for surgeons. Halifax, Canada. November, 2013.
- Direct Lateral Interbody Fusion. Cadaver surgical technique course for surgeons. Sunnyvale, USA. June, 2013.
- Visiting Surgeon Program. DLIF intra-operative peer training, Saint John, Canada. June, 2013.
- Visiting Surgeon Program. DLIF intra-operative peer training, Windsor, Canada. April, 2012.
- Visiting Surgeon Program. DLIF intra-operative peer training, Saint John, Canada. November, 2011.
- Direct Lateral Interbody Fusion. Cadaver surgical technique course for surgeons at North American Spine Society Annual Meeting. Chicago, USA. November, 2011.
- Direct Lateral Interbody Fusion. Cadaver surgical technique course for surgeons. Toronto, Canada. October, 2011.
- Advanced posterior techniques for spinal trauma: Approach to surgical decision making for thoracolumbar trauma. 6th Annual Canadian Contemporary Spinal Techniques Course. Toronto, Canada. May, 2011
- Direct Lateral Interbody Fusion. Cadaver surgical technique course for surgeons at Spine

Arthroplasty Society Annual Meeting. New Orleans, USA. October, 2010.

- Direct Lateral Interbody Fusion. Advances in Spine Surgery. Current techniques in minimal access. Toronto, Canada. July, 2010.
- Direct Lateral Interbody Fusion. Cadaver surgical technique course for surgeons at International Minimal Access Surgical Techniques Annual Meeting. Toronto, Canada. July, 2010.
- Minimally invasive Spine Surgery: Direct Lateral Interbody Fusion and Neuromonitoring as it Applies to Direct Lateral. 5th Annual Canadian Contemporary Spinal Techniques Course. Toronto, Canada. May, 2010.
- Open and Minimally Invasive Techniques for Trauma Applications in the Thoracolumbar Spine: Flexion Distraction Injury and Percutaneous Management. 3rd Annual Canadian Contemporary Spinal Techniques Course. Toronto, Canada. May, 2008.

Clinical Instructor. Advanced Trauma Life Support, 2009 to present.

Educator.

North American Spine Society; Section on Minimally Invasive Spine Surgery. Committee member. 2013.

Contributing to weekly Orthopaedic Teaching Rounds for residents and medical students.

Contributing to Saint John Orthopaedics Grand Rounds for surgeons, staff, residents and students.

Annual scientific meeting program committee member for the 4th Annual Atlantic Canada Spine Meeting. Wallace, NS, October, 2012.

Annual scientific meeting program committee member for the 3rd Annual Atlantic Canada Spine Meeting. Wallace, NS, October, 2011.

Recognition of teaching excellence.

The Socratic Award for Teaching Excellence. Presented to the members of Saint John Orthopaedics by the Dalhousie Orthopaedic Residents. 2011.

CLINICAL CONSULTANT

Clinical and educational consultant for Medtronic Canada. Educational consultant for Medtronic USA.

- Providing education, skills training, and operative guidance to spine surgery colleagues.
- Providing product review and clinical relevance information regarding emerging technologies and existing technologies and techniques.

Clinical consultant for the New Brunswick Trauma Program.

- Providing clinical guideline development for provincial Emergency Departments to ensure safe triage and management of Cervical spine trauma.
- Providing clinical guideline development for provincial Emergency Departments to ensure safe triage and management of Thoracolumbar spine trauma.

COMMITTEE RESPONSIBILITIES

Canadian Spine Society. Canadian Spine Outcomes Research Network. Steering Committee. 2013

Horizon Health Network. Ambulatory Care Committee. 2012 to present.

Horizon Health Network. Smoking Cessation Committee. 2010-2012.

Province of New Brunswick, Department of Health. Surgical Access Committee. 2010-2011.

Safer Healthcare Now. Surgical Site Infection Committee. 2008 to present.

Horizon Health Network. MRSA operating room policy change meeting. 2011.

Horizon Health Network, Zone 2. Research Action Committee. 2009-2011.

SPORTS MEDICINE EXPERTISE

Diploma of Sports Medicine, awarded by the Canadian Academy of Sports Medicine, 2009.

Active Member, Canadian Academy of Sports Medicine, 2007 to present.

Team Physician Sports Medicine Experience

Canadian Alpine Ski Team.

Physician, FIS World Cup. Men's Technical Team. Sölden, Austria, 2013.

Physician, FIS World Cup. Men's Speed Team. Kitzbuehl, Austria, 2013.

Physician, FIS World Cup. Men's Speed Team. Garmisch-Partenkirchen, Germany, 2012.

Physician, FIS World Cup. Women's Speed Team. Cortina, Italy, 2011.

Physician, Speed Camp. Men's and Women's Speed Teams. Portillo, Chile, 2008.

Sea Dogs: Quebec Major Junior Hockey League. Head Team Physician. Saint John, 2007-present.

Canadian Sports Centre Atlantic. Elite athlete Orthopaedic Specialist for New Brunswick, 2009-present.

Saint John Wanderers: Maritime Football League. Team Physician. Saint John, 2007-2009.

Cincinnati Bengals. National Football League. Cincinnati, 2004-2005. (Sports Medicine Fellow)

Cincinnati Mighty Ducks. American Hockey League. Cincinnati, 2004-2005. (Sports Medicine Fellow)

University of Cincinnati Bearcats. National Collegiate Athletic Association. Cincinnati, 2004-2005. (Sports Medicine Fellow)

Field of Play Sports Medicine Experience

XXI Olympic Winter Games, Vancouver, 2010.

Cirque du Soleil, Saint John, 2009.

IPC Alpine Skiing World Cup Finals, Whistler, 2009.

Canadian Under 18 Men's and Women's Soccer Championships. Saint John, 2006.

LaSalle Bank Chicago Marathon. Chicago, 2005.

Flying Pig Marathon. Cincinnati, 2005.

Association of Tennis Professionals. Cincinnati, 2004-2005 (Sports Medicine Fellow)

IIHF World Junior Hockey Championships. Halifax, 2002. (Orthopaedic Resident)

XIIIth Pan American Games. Winnipeg, 1999. (Orthopaedic Resident)