

## CURRICULUM VITAE

November 2013

### WILLIAM G. MACKENZIE, M.D.

**Office Address:**

A. I. duPont Hospital for Children  
1600 Rockland Road  
P.O. Box 269  
Wilmington, DE 19899 USA  
Phone:(302) 651-5890  
Fax: (302) 651-5951  
E-mail: [wmackenz@nemours.org](mailto:wmackenz@nemours.org)

Professor of Orthopaedic Surgery  
Jefferson Medical College of Thomas Jefferson University  
1020 Walnut Street  
Philadelphia, PA 19107-5587

**Citizenship:**

Canadian  
U.S. - permanent Visa

**Education:**

1974 B.Sc. University of British Columbia (Biology)  
1980 M.D. University of British Columbia

**Post Graduate Training/Fellowship Appointments:**

1980 81 Internship (Res.1) McGill University, Montreal PQ  
1981 86 Resident Orthopaedic Surgery University of British Columbia,  
Vancouver B.C.  
1986 87 Fellowship in Pediatric Orthopaedic Surgery Alfred I. duPont Institute,  
Wilmington, DE  
1987 - 88 Fellow of the Royal College of Physicians and Surgeons of Canada

**Faculty Appointments:**

1991 2013 Assistant Professor, Thomas Jefferson Medical College  
2013 - Professor of Orthopaedic Surgery, Thomas Jefferson Medical College

**Hospital and Administrative Appointments:**

1988-1993

Vancouver B.C.

1993 2010 Alfred I. duPont Hospital for Children of the Nemours Foundation

1994-2010 - Director of Clinical Fellowship Program, Department of  
Orthopaedics

2000-

College of Physicians and Surgeons of British Columbia (1987)  
 Royal College of Physicians & Surgeons of Canada (1987)  
 Canadian Orthopaedic Association,  
     Special Committee on Public Relations  
 Pediatric Orthopaedic Society of North America  
     Chairman, Bylaws Committee 2007  
     Chairman, Public Relations Committee 2001  
     Chairman, One Day Course 2004  
     Board of Directors 2011  
     Quality, Safety, Values Initiative Committee 2011  
     Corresponding Members Committee 2011  
     Awards Committee - 2011  
 Eastern Orthopaedic Association  
 American College of Surgeons  
 American Academy of Orthopaedic Surgeons  
     Public Education Committee  
 American Medical Association  
 Little People of America, Inc.  
     Medical Advisory Board 1995-2006  
     Chairman, Medical Advisory Board 2006 - Present  
 Dwarf Athletic Association of America  
     Medical Director 1995 - Present  
 Limb Lengthening and Reconstruction Society ASAMI  
     Program Chairman 2003, 2004, 2005  
     President 2004-2005,  
     Chairman, Nomination Committee 2005-Present  
 Council of Musculoskeletal Specialty Societies (2004-2005)  
 American Orthopaedic Association 2007  
 European Pediatric Orthopaedic Society 2009  
 International Federation of Pediatric Orthopaedic Surgeons  
 International Pediatric Orthopaedic Think Tank (IPOTT) 2010

Local Societies:

Philadelphia Orthopaedic Society  
 Delaware Society of Orthopaedic Surgeons (2000 - 2006)  
     Program Chair Annual Meeting 2000-2005  
 Medical Society of Delaware  
     Program Chairman, Annual Meeting 2001-2005

National Scientific Committees:

2010 - CDC, National Center on Birth Defects & Developmental Disabilities for the Duchenne Muscular Dystrophy care considerations project.

**Professional and Scientific Committees:**

Blood Utilization Review Committee, Alfred I. duPont Hospital for Children  
 Institutional Review Board Committee, Alfred I. duPont Hospital for Children (1994-Present)  
 Animal Care and Use Committee, Alfred I. duPont Hospital for Children (1994-Present)  
 Credentials Committee, Alfred I. duPont Hospital for Children  
 Graduate Medical Education Committee, Alfred I. duPont Hospital for Children  
 Surgical Executive Committee, Alfred I. duPont Hospital for Children  
 Hospital Education Committee, Alfred I. DuPont Hospital for Children  
 Medical Executive Committee, Alfred I. duPont Hospital for Children  
 Surgical Services Committee, Alfred I. duPont Hospital for Children  
 Public Relations Committee, past Chairman, Pediatric Orthopaedic Society of North America  
 One Day Course Committee, past Chairman, Pediatric Orthopaedic Society of North America  
 Secretary Council, Pediatric Orthopaedic Society of North America  
 Bylaws Committee, Chairman, Pediatric Orthopaedic Society of North America (2005-Present)  
 Nomination Committee, Chairman, Limb Lengthening and Reconstruction Society (2005-Present)  
 Program Committee, Chairman, Delaware Society of Orthopaedic Surgeons (2000-2005)  
 Program Committee, Delaware Society of Orthopaedic Surgeons (2000-2006)

**Editorial Positions:****Editorial Board**

Clinics in Orthopedic Surgery





August 15, 1992 Annual Meeting of the Little People's Association of British Columbia. "Limb lengthening." Delta Pacific Resort and Conference Centre, Richmond, B.C.

September 25, 1992 "Common Orthopaedic Injuries - Pitfalls in Management." 1st Annual Pediatric refresher for General Practitioners. University of British Columbia.

September 8, 1993 "Upper Extremity Fractures in Children," Primary Care Physician Seminar, The Alfred I. duPont Institute.

October 2, 1993 "Spinal Muscular Atrophy - Orthopaedic Management," The Alfred I. duPont Institute.

November 12, 1993 "Update in Limb Lengthening," Delaware Society of Orthopaedic Surgeons Annual Meeting.

March, 1994 "Orthopaedic Problems in the Newborn," Medical Center of Delaware, Wilmington, Delaware.

June 11, 1994 "Myotonic Dystrophy", The Alfred I. duPont Institute.

October 18, 1994 "Orthopaedic Problems in the First Year of Life," Medical Center of Delaware.

November 5, 1994 "Treatment and Research in Duchenne and Becker Muscular Dystrophy: A Seminar for Families", Alfred I. duPont Institute

September 30, 1995 "Spinal Muscular Atrophy: A Seminar for Families," Alfred I. duPont Institute.

October 12, 1995 "Orthopaedic Problems in the First Year of Life," Kent General Hospital.

January 24, 1996 "Skeletal Growth Discrepancies and Their Management," Pediatric Grand Rounds, The Alfred I. DuPont Institute.

Institute.

Seminar for Patients and Their Families. Alfred I. duPont Institute.

September 27, 1997 Duchenne/Becker Muscular Dystrophy Update, The Alfred I. duPont Institute.

Medical Center of Delaware.

for Children.

November 1, 2000 A.I. duPont Hospital for Children, Department of Nursing Continuing Education,

Out toeing,

Knock-

July 24-  
Syndrome Conference AI duPont Hospital for Children.

<sup>rd</sup> International Costello





February 23, 1994 Younger A.S.E., Mackenzie W.G., Morrison J.B., Gosline J., Taylor G., "The Changes in Sheep Articular Cartilage After Ilizarov Tibial Lengthening," A.S.A.M.I.

February 24, 1994 Younger A.S.E., Mackenzie W.G., Morrison J.B., Gosline J., "The Biomechanical Nature of Distraction Callus Generated During Ilizarov Tibial Lengthening in Sheep," American Academy of Orthopaedic Surgeons, New Orleans, Louisiana.

After Limb Lengthening for Total Fibular Hemimelia." A.S.A.M.I., Orlando, Florida.

March 17, 1995 "Muscular Dystrophy" and "Canadian Orthopaedics," Walter Reed Army Medical Center.

May 1-4, 1995 Tredwell, S.J., Sabharwal, S., Beauchamp, R.D., "Management of Pulseless Pink Hand in Pediatric Supracondylar Fractures of the Humerus." POSNA 1995 Annual Meeting, Miami, Florida.

May 17, 1995 Philadelphia College of Osteopathic Medicine.

December 14, 1995 The New York Orthopaedic Hospital at Columbia-Presbyterian Medical Center, New York, New York, Visiting Professor.

February 22-26, 1996 Mackenzie, W.G., Slomczykowski, M., Stern, G., "The Assessment of Acetabular Volume after the Pemberton Osteotomy" poster presentation. AAOS 1996 Annual Meeting, Atlanta, Georgia.

Baltimore, Maryland.

November 2-3, 1996 Little People of America Regional Meeting, Wilkes-Barre, Pennsylvania.

February 12, 1997 Mackenzie, W.G., Choi, I.H., Bowen, J.R., Lipton, G. E., Jay Kumar, S.,  
novalgus

A.S.A.M.I.

February 13-17, 1997 Mackenzie, W.G., Choi, I.H., Bowen, J.R., Lipton, G.E., Jay Kumar, S.,  
Epiphysis in the Pathogenesis of Equinovalgus

Annual Meeting, San Francisco, CA.

July, 1997 Little People Association Meeting, Atlanta, Georgia, multiple lectures.

January 9, 1998 Ohio University College of Osteopathic Medicine Residency Programs Advisory Committee Education Day,



May 23-

August 4-  
Common

November 16-

November 30, 2000 New Jersey Medical School, Department of Orthopaedi

January 10- -Van Creveld Syn  
Association for and Surgery, San Diego, CA.

Instructional Course Lecturer.

March 14, 2001 Pediatric Kaleidoscope: Focus Out toeing, Knock-

May 1-5, 2001 Mackenzie, W.G., Kelleher, Peter, B.S., Abu-

September 29, 2001 2001 Bryn Mawr Hospita

April 25-27, 2002 Smith & Nephew: Essentials of Ilizarov & Comprehensive Ilizarov Solutions,

June 7-9, 2002 Limb Lengthening and Reconstruction Society: ASAMI-  
Lengthening, Limb Reconstruction and External Fixatio

October 15, 2002 Walter Reed Army

December 4-

2003 Schwartz, D.M., Drummond, D., Bowen, J.R., Sestokas, A.K., Fan, D., Wierzbowski, L.,  
Dormans  
Artery Feed to the Anterior Spinal Cord Prior to Ligation With Transcranial Electric Motor Evoked

July 29-31, 2005 Muharrem Inan, MD; Changhoon Jeong, MD; Gilbert Chan, MD; William G. Mackenzie MD; Joe Glutting

<sup>th</sup> Annual Scientific Meeting of Limb Lengthening and Reconstruction Society: ASAMI-North America, New York, NY.

March 3-  
District 1 Spring Regional, Braintree, MA.

Orthopaedics  
America National Conference, Seattle, WA.

America National Conference, Seattle, WA.

September 19-  
Orthopaedic Meeting, Driggs, ID.

School of Medicine, New Haven, CT.

November 9

January 10 - 13, 2008 Smith & Nephew

Memphis, TN.

March 6- Reconstruction: Avoidance of and Solutions

March 6- Lengthening and  
Reconstruction Society, Specialty Day, AAOS, San Francisco, CA.

April 29 Natural History of Early Thoraco-Lumbar Kyphosis in Children with

May 1- uloplasty Using  
POSNA, Albuquerque, NM.

School, Boston, MA.

June 21- LPA, Detroit, MI.

June 21-  
Detroit, MI.

July 11- <sup>th</sup> Annual  
Scientific Meeting of the Limb Lengthening & Reconstruction Society, Albuquerque, NM.

<sup>th</sup> Baltimore Limb Deformity  
Course, Baltimore, MD.





May 4-7, 2010 Invited Faculty, Pediatric Orthopaedic Society of North America, Spine Symposium  
Waikoloa, Hawaii

May 8-9, 2010 Invited Panel, Little People of America Regional Conference, Honolulu, Hawaii

July 2-7, 2010 Invited Panel, Organized Medical Panels, Chaired Medical Advisory Board Meeting,  
Little People of America National Conference, Nashville, TN



September 12 15, 2013 Invited Faculty, Teton Valley Pediatric Orthopaedic Meeting,  
Driggs, Idaho

International:

November 10-12, 1989 Scoliosis, Pediatric applications of the Ilizarov apparatus, Intoeing-Outtoeing  
and C.D.H. Yukon Medical Association Annual Meeting, Whitehorse, Yukon, Visiting Professor.

October 1991 Combined Meeting of the Orthopaedic Research Societies of Canada, Japan and USA.  
pediatric

December 1991 12th International Congress of Biomechanics. Perth, Australia "Assessment of long  
bone angulation."

December 1991 12<sup>th</sup> Internation

April 15-17, 1998 Ste. Justine Pediatric Orthopaedic Review Course and Ilizarov Workshop, Montreal, Canada.

April 6-10, 1999 Ste. Justine Pediatric Orthopaedic Review Course and Ilizarov Workshop, Montreal, Canada.

October 28-29, 1999 Visiting Professor Annual Orthopaedic Symposium, The University of Manitoba, Winnipeg, Manitoba, Canada.

November 10-15, 1999 Visiting Professor, XV Congreso Nacional De Ortopedia Y Traumatologia, AMOT 99, Guadalajara, Mexico,.

April 12- le

as, USVI.

October 4-  
Musculoskeletal Ultrasonography (ISMUS), Prague, Czech Republic, Pg. 32 Program Abstract Book.  
th Congress of International Society of

October 4-  
Musculoskeletal Ultrasonography (ISMUS), Prague, Czech Republic, Pg. 40 Program Abstract Book.  
th Congress of International Society of

October 26- in

April 18-

Management of Limb Length Discrepancy Montreal

Montreal

April 10-14, 2002 Ste. Justine Pediatric Orthopaedic Review

September 12-14, 2002 Smith & Nephew: First European Master Class on Pediatric Ilizarov Surgery, France.

March 26-

esented at the 16<sup>th</sup> Annual Ste. Justine

Pediatric Orthopaedic Review Course.

October 24-28, 2003, Visiting Professor,  
Zealand Conference.

March 24-26, 2004 St. Justine Pediatric Orthopaedic Review Course

July 23-

t in Ellis Van

Creveld syndrome, Toronto, Canada.

September 3-

October 14-15, 2004 Assessment of the Child with Skeletal Dysplasia; Management of Limb and Spine Deformity in Skeletal Dysplasia; Congenital Femoral Abnormalities; Anticipating, Diagnosing and Managing Growth Arrest After Skeletal Injury, 32<sup>nd</sup> Annual Paediatric Orthopaedic Seminar &

March 30-April 1, 2005, Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course, How to  
D:  
Guidelines for Assessment and Treatment, Montreal, Canada.

April 4-

April 6-  
Spain. Poster Presentation #88.

April 19-21, 2006 Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course, How to Recognize  
for Assessment and Treatment, Montreal, Canada.

November 3-4, 2006 Invited Presenter,

Jornadas de Actualizacion, Instituto de Ortopedia Infantil Roosevelt, Bogota, Columbia.

February 2-4, 2007, Invited Presenter, An Overview

Pediatric Orthopaedic Society of India, Jaipur.



Shriners Hospital for

Children, Montreal, Canada

March 24 - 26, 2010 Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course,

Assessing and Planning its Treatment

April 6





2004-2005 Program Chairman, Annual Meeting Limb Lengthening and Reconstruction

## **Bibliography:**

### Publications, peer reviewed:

1. Mackenzie, W.G., Scientific Consultants. *Science* 1962 Mar 16;135(3507):999.
2. Day, B., Mackenzie, W.G., Shim, S.S., Leung, G. "The vascular and nerve supply of the human meniscus." *Arthroscopy* 1 (1):58-62, 1985.
- 3  
1(4):264-267, No. 4, July 1988.
4. Mackenzie, W.G., Bassett, G.S., Mandell, G.A., Scott, C.I., Jr. "Avascular necrosis of the -671, 1989.
5. Mandell, G.A., Mackenzie, W.G., Scott, C.I., Jr., Harche, H.T., Wills, J.S., Bassett, G.S.  
*Radiology* 18:273-281, 1989.
6. Bray, H., Stringer, D., Poskitt, K., Newman, D.E., Mackenzie, W.G. "Maple tree knee: A  
21:457-458, 1991.
7. Cairns, R.A., Mackenzie, W.G., Culham, J.A.G., "Urokinase Treatment of Forearm Ischemia Complicating Supracondylar Fracture of the Humerus in Three Children." *Pediatric Radiology* 23: 391-394, 1993.
8. Younger, A.S.E., Tredwell, S.J., Mackenzie, W.G., Orr, J.D., King, P.M., Tennant, W. "Accurate Prediction of Outcome After Pediatric Forearm Fracture." *Journal of Pediatric Orthopaedics* 14: 200-206, 1994.
9. Younger, A.S.E., Mackenzie, W.G., Morrison, J.B., "Femoral Forces During Limb Lengthening in Children." *Clinical Orthopaedics and Related Research* 301: 55-63, 1994.
10. Younger, A.S.E., Tredwell, S.J., Mackenzie, W.G., Letter to the Editor, *JBJS* 77A: 488-489, 1995, in response to Green, S.A., Gibbs, P., "The Relationship of Angulation to Translation in Fracture Deformities,"

444, 1996.

rickets in adopted children from the former Soviet Union: an uncommon problem with  
-8, December, 2000.

25. DePellegrin M.P., Mackenzie W

39. Choudhry D.K., Mackenzie W.G.: Anesthetic issues with a hyperextended cervical spine in a child with Emery-Dreifuss syndrome. *Anesth Analg* 103(6):1611-1613, 2006.
40. Harcke H.T., Kecskemethy H.H., Conklin D., Scavina M., Mackenzie W.G., MacKay C.P.: Assessment of bone mineral density in Duchenne Muscular Dystrophy using the lateral distal femur. *J Clin Neuromusc Dis* 8:1-6, 2006.
41. Borowski A., Thacker M.M., Mackenzie W.G., Littleton A.G., Grissom L.: The use of computed tomography to assess acetabular morphology in Morquio-Brailsford syndrome. *J Pediatr Orthop* 27(8):893-897, December 2007.
42. Hamby, R.C., Montpetit K., Ruck-Gibis J., Thorstad K., Raney E., Aiona M., et al. Safety and efficacy of botox injection in alleviating post-operative pain and improving quality of life in lower extremity limb lengthening and deformity correction. *Trials* 2007 Sep 28;8:27.:27.
43. Kupcha P.C., Mackenzie W.G., Percutaneous Achilles tendon repair using ring forceps. *Am J Orthop* 2008 Nov;37(11):586.
44. Borkhuu B., Nagaraju D.K., Chan G., Holmes L., Jr., Mackenzie W.G. Factors related to progression of thoracolumbar kyphosis in children with achondroplasia: a retrospective cohort study of forty-eight children treated in a comprehensive orthopaedic center. *Spine, Phila Pa* 2009;34(16):1699-705.
45. Mackenzie W.G.: The Spine In Children With Short Stature. POSITIVE (POSI newsletter for Pediatric Orthopaedics) 2009.
46. Rodriguez A.R., Thacker M., Becerra L.C., Riddle E., Mackenzie W.G.  
and Congenital Limb An JPO-B 2009
47. Domzalski M., Mackenzie W., Growth Arrest of the Proximal Tibial Physis with Recurrvatum and Valgus Deformity of the Knee. *Knee* 2009 May 13.
48. Hamby R.C., Montpetit K., Raney E

51. Szoke G., Mackenzie W.G., Domos G., Berki S., Kiss S., Bowen J.R. es in
52. Wee J., Rahman T., Seliktar R., Levine D., Richardson D., et al. Force feedback in limb lengthening. *Conf Proc IEEE Eng Med Biol Soc* 2010;1:5109-12.:5109-12.
53. Rodriguez-  
Discrepancy and Congenital Limb Anomalies in Fibular Hemimelia, *J Pediatr Orthop B.*, 2010 May.
54. Wee J., Rahman T., Akins R.E., Seliktar R., Levine D.G., Richardson D.W., Dodge G.R., Thabet A.M., Holmes L., Mackenzie, W.G., Using distraction forces to drive an autodistractor during limb lengthening, *Med Eng Phys.* 2011 April 29
55. Rahman T, Atkins RE, Wee J, Mackenzie WG, Continuous Force Measurement in Limb Lengthening. *J Bioengineer & Biomedical Science*, Vol 1, Issue 2, December 2011.
56. Tomatsu S, Montano AM, Oikawa H, Smith M, Barrera L, Chinen Y, Mackenzie W. , et al Mucopolysaccharidosis type IVA (Morquio A disease): clinical review and current treatment. *Curr Pharm Biotechnol* 2011, Jun;12(6):931-45.
57. Thacker MM, Dabney KW, Mackenzie WG., Osteochondritis dissecans of the talar head: natural

growing rod implantation

-212, 2012.

65. Mackenzie WG, Dhawale AA, Demczko MM, Ditro C, Rogers KJ, Bober MB, Campbell JW, Grissom LE. Flexion-extension cervical spine MRI in children with skeletal dysplasia: is it safe and effective? *J Pediatr Orthop.* 2013 Jan;33(1):91-8, PMID:23232386
66. Dhawale AA, Shah SA, Reichard S, Holmes L Jr, Brislin R, Rogers K, Mackenzie WG. Casting for infantile scoliosis: the pitfall of increased peak inspiratory pressure. *J Pediatr Orthop.* 2013. Jan;33(1):63-7.PMID:23232382
67. Solanki GA, Martin KW, Theroux MC, Lampe C, White KK, Shediak R, Lampe CG, Beck M, Mackenzie WG, He (Morquio-Brailsford or Morquio A syndrome): presentation, diagnosis and management. *J Inherit*

75. Baratela WA, Bober MB, Thacker MM, Belthur MV, Oto M, Rogers KJ, Mackenzie WG.

Pediatr Orthop. 2013 Oct 3, PMID: 24096444

a 1976). 2013 Oct 22 PMID:24153164

Publications, non-peer reviewed:





Editorials, Reviews, Chapters, including participation in committee reports:

1. Beauchamp, R.D., Mackenzie, W.G., Stewart, A.K., Chapter

Chapter 85, 2007, Mosby.

14.

of Spinal Deformities, Chapter 16, ed Errico, Lonner, Moulton, 2009, Saunders Elsevier.

<sup>th</sup> Edition,

Chapter, 2009, McGraw Hill.

16. Mackenzie, WG  
of Limb-

Alfred I. duPont Hospital for Children, Protocol #96-  
-Investigator 2002.

Alfred I. duPont Hospital for Children, Protocol #2001-  
-Investigator 2002.

Alfred I. duPont Hospital for Children, Protocol #2001-  
Significance of Pedia  
Investigator 2002.

Protocol No. OXP3004: Multicenter, Open-Label, Multiple-Dose Study of the Conversion From Immediate Release Oxycodone (OxylR ) to Controlled Released Oxycodone (OxyContin ) to Evaluate Pharmacokinetics and to Characterize Safety and Efficacy in Pediatric Patients 6 to 16 Years of Age Co-Investigator. 2003.

- Principal Investigator. 2003.

Nemours Children Clinic/Alfred I. duPont Hospital for Children: Effect of Surgery on Seating Pressures in wheelchair bound patients with neuromuscular scoliosis, 2004.

Shriners Hospitals for Children/Alfred I. duPont Hospital for Children: Multi-Center Pilot Study: Safety and Efficacy of Botox Injection in Alleviating Pain and Improving Quality of Life in Lower Extremity Limb Lengthening and Deformity Correction (BOLLDD Study) Principal Investigator. 2005

Shriners Hospitals for Children/Alfred I. duPont Hospital for Children: Multi-Center Pilot Study: Safety and Efficacy of Botox Injection in Alleviating Pain and Improving Quality of Life in Lower Extremity Limb Lengthening and Deformity Correction (BOLLDD Study) Principal Investigator. 2006