

## **Mark K. Bowen, M.D.**

### **BUSINESS**

Northwestern Orthopaedic Institute  
680 North Lake Shore Drive, Suite 924  
Chicago, Illinois 60611  
Phone (312) 664-6812  
Fax (312) 664-6940

### **EDUCATION**

New Trier East High School, Winnetka, Illinois  
Graduated 1977

Williams College, Williamstown, Massachusetts  
Graduated 1981

Cornell University Medical College, New York, New York  
Graduated 1985

### **PROFESSIONAL EXPERIENCE**

*General Surgery Internship*  
The New York Hospital - Cornell University Medical College  
July 1985 - June 1986

*Orthopaedic Surgery Residency*  
The Hospital for Special Surgery  
July 1986 - June 1990

**PROFESSIONAL  
EXPERIENCE (Cont'd)**

*Sports Medicine & Shoulder Fellowship*  
Director: Russell F. Warren, M.D.  
The Hospital for Special Surgery  
Associate Team Physician - New York Giants Football Team  
Team Physician - Marist College  
August 1990 - July 1991

**AWARDS / HONORS**

COLLEGE

Magna Cum Lauda - Chemistry  
Phi Beta Kappa - Elected as College Junior  
Mear's Prize - Outstanding Chemistry Major  
Hagedorn Premedical Prize  
Hutchins Memorial Fellowship - A President's Award

MEDICAL SCHOOL

Alpha Omega Alpha  
The David Drusin Memorial Prize in Medicine  
The Clarence C. Coryell Prize in Surgery  
The T. Campbell Thompson Prize for Excellence in Orthopaedic Surgery

FELLOWSHIP

Philip D. Wilson Award for Outstanding Research

OTHER

James K. Stack Teaching Award, 1994  
Woodward/White: Best Doctors in America, 2001-2002  
Best Doctors in America 2002-2003  
Best Doctors in America 2003-2004  
Best Doctors in America 2004-2005  
Castle Connolly Top Doctor 2007  
Best Doctors in America 2005-2006  
Best Doctors in America 2006-2007  
Best Doctors in America 2007-2008  
Presidents Citation Award Paper - AAPM&R: 2008

**MEDICAL SCHOOL  
APPOINTMENTS**

*Director of Residency Program*  
Department of Orthopaedic Surgery  
Northwestern University Medical School  
June 1997 - 1999

*Associate Professor of Orthopaedic Surgery*  
Northwestern University Medical School

**HOSPITAL  
APPOINTMENTS**

*Active Attending*  
Northwestern Memorial Hospital  
250 East Superior Street  
Chicago, Illinois 60611  
August 1991 – Present

*Active Attending*  
Rivernorth Sameday Surgery Center  
1 E. Erie  
Chicago, Illinois 60611

*Active Attending*  
Northshore University Hospital System  
Evanston, Illinois  
2005 - Present

**SOCIETIES**

American Academy of Orthopaedic Surgeons  
American Shoulder and Elbow Society  
American Orthopaedic Society for Sports Medicine  
National Football League Physician's Society  
National Hockey League Team Physicians Society  
Major League Baseball Physician's Society  
American Medical Association  
Illinois Orthopaedic Society  
Alpha Omega Alpha

**CERTIFICATION**

Diplomate - American Board of Orthopaedic Surgery	1993
* Recertification	2002
Diplomate - National Board of Medical Examiners	1986

**LICENSURE**

State of Illinois: #036-082429

**COMMITTEE SERVICE**

<i>American Academy of Orthopaedic Surgery</i>	
Shoulder & Elbow Sub-Committee	1998-Present
<i>Northwestern University Medical School</i>	
Quality Assurance	1995 - 1999
Managed Care Committee	1992 - 1999
Sports Medicine Service	1991 - Present
Orthopaedic Department Building Planning	1991 - 1999
<i>Northwestern University Medical School, Department of Orthopaedic Surgery</i>	
Educational Committee	1995 - Present
Institutional Review Board	1993 – 1998
<i>Northwestern Memorial Hospital</i>	
Quality Assurance	1993 -1999
<i>Northwestern Medical Faculty Foundation</i>	
Quality Management Committee	1992 - 1998
<i>American Shoulder and Elbow Surgery Program Committee Closed Meeting</i>	2005

**TEAM AFFILIATIONS**

Team Physician Chicago Blackhawks Hockey Team	1997 - 2005
Team Physician Chicago Bears Football Team	1992 - Present
Orthopaedic Consultant Chicago Cubs Baseball Team	1991 - 1999
Orthopaedic Consultant Moody Bible Institute, Chicago, Illinois	1991 - 1996
Orthopaedic Consultant Chicago Rockers Continental Basketball	1994 - 1996
Orthopaedic Consultant Big Ten Conference Tournament Mens Basketball, Chicago	1998 - 1999
Medical Consultant, Chicago Motor Speedway	1999

**EDITORIAL SERVICE**

Reviewer, American Journal of Sports Medicine	2002 – Present
Guest Editor: “Clinics in Sports Medicine, Acromioclavicular and Sternoclavicular Injuries” Philadelphia: W.B.Saunders April 2003, Vol.22 No.2.	

**BOOK CHAPTERS**

**Bowen MK**, Sieradzki J: “Open Repair of Posterior Shoulder Instability” In *Surgical Techniques of the Shoulder, Elbow and Knee in Sports Medicine*, Cole B, Sekiya (eds) Saunders Elsevier, Philadelphia, 2008

Nuber GW, **Bowen MK**: “Disorders of the Acromioclavicular Joint: Pathophysiology, Diagnosis and Management.” in *Disorders of the Shoulder – Diagnosis and Management 2<sup>nd</sup> Ed*, Ianotti JP, Williams GR (eds) Lippincott Williams and Wilkins, Philadelphia, 2006

**Bowen MK**: “Pectoralis Major Injuries” In: *Pocket Sports Medicine*, Drez DJ, Bach B (eds) April 2003

**Bowen MK**: “Axillary Vein Thrombosis” In: *Pocket Sports Medicine*, Drez DJ, Bach B (eds) April 2003

Nuber GW, **Bowen MK**: “Arthroscopic Treatment of Acromioclavicular Joint Injury and Results in Clinics in Sports Medicine: Philadelphia, W.B. Saunders, April 2003, Vol. 22(2), Pg. 301-317.

**Bowen MK**, DeFelice A: “Open Acromioplasty” in *Key Techniques in Orthopaedic Surgery*, S. Stern (ed.). Thieme, New York: 2001.

**Bowen MK**, DeFeliceA: “Rotator Cuff Repair” in *Key Techniques in Orthopaedic Surgery*, S. Stern (ed.). Thieme, New York: 2001.

**Bowen MK**, DeFeliceA: “Proximal Humerus Fracture (Hemiarthroplasty)” in *Key Techniques in Orthopaedic Surgery*, S. Stern (ed.). Thieme, New York: 2001.

Nuber GW, **Bowen MK**: “Unusual Injuries to the Upper Torso in Athletes” in *Orthopaedic Knowledge Update: Sports Medicine*, Arendt E (ed.). Rosemont, IL 2nd Edition: American Academy of Orthopaedic Surgeons, 1999.

**Bowen MK**, Warren RF: “Recurrent Posterior Subluxation: Open Surgical Treatment” in *The Unstable Shoulder*, Warren RF, Craig E, and Altchek D (eds.). Philadelphia, Lippincott-Raven, 1999.

Nuber GW, **Bowen MK**: “Disorders of the Acromioclavicular Joint: Pathophysiology, Diagnosis, and Management” in *Disorders of the Shoulder*, JP Iannotti (ed.). New York, Raven Press, 1999.

Nuber GW, **Bowen MK**: “Olecranon Stress Fractures in Throwers,” in Torg JS and Shephard RJ (eds.): *Current Therapy in Sports Medicine*, 3rd Edition. Philadelphia, Mosby-Year Book, Inc., 1995.

Nuber GW, **Bowen MK**, Schafer MF: “Diagnosis and Treatment of Lumbar and Thoracic Spine Injuries in Athletes,” in Nicholas JA, and Hershman EB (eds.): *The Lower Extremity and Spine in Sports Medicine*, 2nd Edition, Vol. 2, St. Louis, Mosby-Year Book, 1995, pp.1153-1170.

**Bowen MK**, Warren RF: “Injuries to the Posterior Cruciate Ligament,” in Insall JN (ed.): *Surgery of the Knee*, New York, Churchill Livingstone, 1995.

**Bowen MK**, Warren RF: "Injuries of the Rotator Cuff," in Stanish WD (ed.): Oxford Textbook of Sports Medicine, Amersham, UK, Oxford University Press.

## PUBLICATIONS

Brander V, **Bowen MK**, Chambers M, Gomberwalla A, Nuber GW, "Prospective, Single Arm Pilot Study Evaluation., The Safety and Efficacy of Two Hylan G\_F 20 Injections in Patients with Advanced Painful Glenohumeral Osteoarthritis with or without Rotator Cuff Tear." Archives of Physical Medicine and Rehabilitation; Vol. 89, Issue 11, Pg. E37, November 2008 *Abstract*

Nam E.L., Makhsous M., Koh J.L., **Bowen M.K.**, Nuber G.Q., Zhang L.Q.: "Biomechanical and Histological Evaluation of Osteochondral Transplantation in a Rabbit Model." American Journal of Sports Medicine, Vol. 32(2), March 2004 pg. 308-316

Nuber GW, **Bowen M K**: "Arthroscopic Treatment of the Acromioclavicular Joint." Clinics in Sports Medicine, 22 (2):, April 2003. pg. 301-317.

Anderson K, **Bowen MK**, Nuber GW: "Outcome of Distal Clavicle Fracture (Type II) Treated Non-Operatively." Journal of Shoulder and Elbow Surgery, Vol. 8(6), Pg 666 November, December 1999. *Abstract*

Zhang LQ, Nuber GW, **Bowen M**, Koh J, Butler JP: " Multi-Axis Muscle Strength in Anterior Cruciate Ligament Injured and Reconstructed Knees: Compensatory Mechanism." Med. Science Sports Exercise, Vol. 34 Pg. 2-8, February, 2001.

Zhang LLLQ, Portland GH, Wang G, DiRaimondo CA, Nuber GW, **Bowen MK**, Hendrix RW: "Stiffness, Viscosity, and Upper-limb Inertia about the Glenohumeral Abduction Axis." Journal of Orthopaedic Research, W98-118.

Cummins C, Anderson K, **Bowen M**, Nuber G, Roth JI.: "Anatomy and Histological Characteristics of the Spinoglenoid Ligament." Journal of Bone and Joint Surgery, Vol. 80-A, No 11, 1622-1625.

Warner Jon JP, **Bowen M**, Deng X, Hannafin JA, Arnoczky SP, Warren RF: "Articular Contact Patterns of the Normal Glenohumeral Joint." Journal of Shoulder and Elbow Surgery, Vol. 7, No 4, 381; July/August 1998.

Cummins CA, **Bowen MK**, Anderson K, Messer T. "Suprascapular Nerve Entrapment at the Spinoglenoid Notch in a Professional Baseball Pitcher." The American Journal of Sports Medicine, 27(6):1999.

Butler J, Zhang LQ, Nuber G, **Bowen M**, Rymer W: "In Vivo Human Knee Joint Dynamic Properties as Functions of Muscle Contraction and Joint Position." Northwestern U Med School, Dept Orthop Surg Journal, Vol 3, 1998.

Nuber GW, Assenmacher J, **Bowen MK**: "Neurovascular Problems in the Forearm, Wrist, and Hand." Clinics in Sports Medicine, 17(3):585-610, July 1998.

Zhang LQ, Nuber GW, Butler J, **Bowen MK**, Rymer WZ: "In Vivo Human Knee Joint Dynamic Properties as Functions of Muscle Contraction and Joint Position." Journal of Biomechanics, 31:71-76, 1998.

**PUBLICATIONS (Cont'd)**

Zhang LQ, Portland GH, Wang G, DiRaimondo CA, Nuber GW, **Bowen MK**, Hendrix RW: "Stiffness, Viscosity, and Upper-limb Inertia about the Glenohumeral Abduction Axis." Journal of Orthopaedic Research W98-118.

Nuber GW, **Bowen MK**: "Acromioclavicular Joint Injuries and Distal Clavicle Fractures." Journal of the American Academy of Orthopaedic Surgeons, 5(1):11-18;1997.

Nuber GW, **Bowen MK**: "Instability of the Shoulder and Elbow." Current Opinion in Orthopedics, 6(IV):79-87;1995.

**Bowen MK**, Warren RF: "Surgical Approaches to Posterior Instability of the Shoulder." in David W. Atchek, M.D. (ed.): Operative Techniques in Sports Medicine, 1(4):301-310;1993.

**Bowen MK**, Nuber GW: "Management of Associated Instabilities in PCL Surgery." in Daniel E. Cooper, M.D. (ed.): Operative Techniques in Sports Medicine, 1(2):148-153;1993.

Nuber GW, **Bowen MK**: "Throwing Injuries of the Shoulder." Chicago Medicine, 15(10):27, 1992.

Marzo JM, **Bowen MK**, Warren RF, Wickiewicz TL, Altchek DW: "Intra-articular Fibrous Nodule as a Cause of Loss of Extension Following Anterior Cruciate Ligament Reconstruction." Arthroscopy, 8:10-18;1992.

**Bowen MK**, Warren RF: "Ligamentous Control of Shoulder Stability Based on Selective Cutting and Static Translation Experiments." Clinics in Sports Medicine, 10(4):757-782;1991.

Garvin KL, **Bowen MK**, Salvati EA, Ranawat CS: "Long Term Results of Total Hip Arthroplasty in Congenital Dislocation and Dysplasia of the Hip. A Follow-up Note." Journal of Bone and Joint Surgery, 73A:1348-1354;1991.

Stern SH, **Bowen MK**, Insall JI: "Cemented Total Knee Arthroplasty for Gonarthrosis in Patients 55 Years Old or Younger." Clinical Orthopaedics and Related Research, 260:124-129;1990.

Fronck J, Warren RF, **Bowen MK**: "Posterior Subluxation of the Glenohumeral Joint." Journal of Bone and Joint Surgery, 71A:205-216;1989.

**PUBLISHED ABSTRACTS**

Brander V, **Bowen MK**, Chambers M, Gomberwalla A, Nuber GW, “Prospective, Single Arm Pilot Study Evaluation., The Safety and Efficacy of Two Hylan G\_F 20 Injections in Patients with Advanced Painful Glenohumeral Osteoarthritis with or without Rotator Cuff Tear.” Archives of Physical Medicine and Rehabilitation; Vol. 89, Issue 11, Pg. E37, November 2008

Minorik J, DiFelice A, Xu D, Nuber GW, **Bowen MK**, Zhang LQ: “Comparison of Biceps Tenodesis and Anatomic Repairs for Posterolateral Knee Instability. Proceedings of 47<sup>th</sup> Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, February, 2001.

Anderson K, **Bowen MK**, Posewick JL, Nuber GW: “Outcome of Distal Clavicle (Type II) Fractures Treated Non-operatively.” Orthopaedic Transactions, Vol. 22(4) Pg 1093-94, 1998-99.

Nuber GW, Zhang LQ, Huang H, **Bowen MK**, Rymer WZ: “Patellar Tendon Reflex Following ACL Injury and Reconstruction.” Orthopaedic Transactions, Vol. 22, No.3, Pg.774-775, 1998-99.

Anderson K, **Bowen MK**, and Nuber GW: “Outcome of Distal Clavicle Fractures (Type II) Treated Non-Operatively.” Journal of Shoulder and Elbow Surgery, Vol.8(6) Pg 666 Nov/Dec. 1999

Elenz DR, Wang K, Thomas CH, Nam EK, Tsai DC, Healy KE, Nuber GW, **Bowen MK**: “Treatment of Experimental Bone Defects with Porous Bioabsorbable Copolymer Scaffolds.” Orthopaedic Transactions, 20(3):721-722, 1996-97.

Whang K, Elenz DR, Nam EK, Tsai DC, Thomas CH, Nuber GW, **Bowen MK**, Healy KE: “Bone Regeneration Using Emulsion Freeze-dried PLGA Scaffolds with Median Pore Sizes Less Than 50µm.” Fifth World Biomaterials Congress, June 1996.

**Bowen MK**, Deng X, Warren RF, Torzilli P: “The Role of the Inferior Glenohumeral Ligament Complex in Limiting Inferior Translation of the Glenohumeral Joint.” Orthopaedic Transactions, 16:773;1992-93.

**Bowen MK**, Warner JP, Deng X, Warren RF, Torzilli PA: “The Effect of Joint Compression of the Inferior Glenohumeral Joint.” Transactions of the 38th Annual Meeting of the Orthopaedic Research Society, 17:289;1992.

**Bowen MK**, Deng X, Warren RF, Torzilli P: “The Role of the Inferior Glenohumeral Ligament Complex in Limiting Inferior Translation of the Glenohumeral Joint.” Transactions of the 38th Annual Meeting of the Orthopaedic Research Society, 17:497;1992.

**Bowen MK**, Deng X, Hannafin JA, Arnoczky SP, Warren RF, Warner JP: “An Analysis of the Patterns of Glenohumeral Joint Contact and Their Relationships to the Glenoid ‘Bare Area.’” Transactions of the 38th Annual Meeting of the Orthopaedic Research Society, 17:496;1992.

**Bowen MK**, Warren RF, O’Brien SJ, Altchek DW: “Posterior Subluxation of the Glenohumeral Joint Treated by Posterior Stabilization.” Orthopaedic Transactions, 15(3):764-765;1991.



## **PUBLISHED ABSTRACTS (Cont'd)**

**Bowen MK**, Stern SH, Insall JN, Scuderi GR: "Total Knee Arthroplasty for Gonarthrosis in Patients 55 Years or Less." Orthopaedic Transactions, 14(3):622-623;1990.

**Bowen MK**, Garvin KL, Salvati EA, Ranawat CS: "Long-term Results of Total Hip Arthroplasty in Congenital Dislocation and Dysplasia of the Hip." Orthopaedic Transactions, 13(3):511;1989.

**Bowen MK**, Healy JH, Lane JM: "Osteogenic Marrow Grafting to Heal Refractory Unicameral Bone Cysts." Orthopaedic Transactions, 12(2):1988.

## **PAPERS SUBMITTED**

Anderson K, **Bowen MK**: "Spur Reformation After Arthroscopic Acromioplasty."

Anderson K, **Bowen MK**, Nuber GW, Posewick JL: "Outcome of Distal Clavicle Fractures (Type II) Treated Nonoperatively."

Elenz DE, Nuber GW, **Bowen MK**, Healy KE, Wang K, Thomas CH, Nam E: "Treatment of Experimental Bone Defects with Porous Bioabsorbable Copolymers."

**Bowen MK**, Warren RF, O'Brien SJ, Altchek DW: "Posterior Subluxation of the Glenohumeral Joint Treated by Posterior Stabilization."

**Bowen MK**, Deng X, Warren RF, Torzilli PA: "The Role of the Inferior Glenohumeral Ligament Complex in Limiting Inferior Translation of the Glenohumeral Joint."

**Bowen MK**, Warner JP, Deng X, Warren RF, Torzilli PA: "The Effect of Joint Compression on Inferior Stability of the Glenohumeral Joint."

**Bowen MK**, Warner JP, Deng X, Warren RF, Torzilli PA: "Glenohumeral Joint Kinematics: Coupled Translation Occurs with Glenohumeral Rotation."

**Bowen MK**, Patterson B, Warren RF: "Patella Fractures Following Anterior Cruciate Ligament Reconstruction."

## **PRESENTATIONS AT SCIENTIFIC MEETINGS**

“Knee Physical Exam” Sports Medicine and the The NFL: A Sideline Perspective, American Orthopaedic Society for Sports Medicine, The Palace Hotel, San Francisco, California, May 8, 2009.

“Patellar Tendinopathy” The Two-Minute Drill: A Potpourri of Musculoskeletal, Rehab, and Medical Case Presentations. Sports Medicine and the The NFL: A Sideline Perspective, American Orthopaedic Society for Sports Medicine, The Palace Hotel, San Francisco, California, May 9, 2009.

“Efficacy of Surgical Preparation Solutions in Shoulder Surgery, American Shoulder and Elbow Surgeons 2008 Annual Meeting, Santa Barbara, California, September 3, 2008 (Nuber)

“Hylan GF-20 Injections Reduce Pain and Improve Satisfaction in Active Patients with Advanced Shoulder Osteoarthritis.” 6<sup>th</sup> Biennial ISAKOS Congress. Florence, Italy. May 27-31, 2007. (Brander)

“Two Hylan GF-20 Injections Reduce Osteoarthritic Shoulder Pain and Improve Function for Six Months. Mid-American Orthopaedic Association 26<sup>th</sup> Annual Meeting. April 16-20, 2008. Orlando, Florida. (Brander)

“Medical and Legal Controversies in Athletics. Knee Injuries: Return to Play.” 2<sup>nd</sup> Annual Institute for Sports Medicine and Sports Law Conference. Northwestern Memorial Hospital, Chicago, IL. December 7-8, 2006.

“Orthopaedic Controversies.” 1<sup>st</sup> Annual Medical and Legal Controversies in Sports Medicine Conference: Dec 1-2, 2005. Sears Tower, Chicago IL.

“AAOS/ASES The Shoulder: An Arthroscopic Odyssey.” American Association of Orthopaedic Surgeons: Orthopaedic Learning Center, Rosemont IL. July 28.

“Interscalene Block (ISB) for Shoulder/Upper Arm Surgery: A Prospective Evaluation of 693 Consecutive Cases for Side Effects/Complications.” 21<sup>st</sup> annual Meeting of the American Shoulder and Elbow Surgeons. The Plaza Hotel, New York, Sept 29 – October 2<sup>nd</sup>, 2004. (Nuber,GW)

“Open Posterior Reconstruction for Instability.” American Academy of Orthopaedic Surgeons Course, The Shoulder: Advanced Management Options from Open to Arthroscopic, Rosemont IL, July 17, 2004.

“SLAP lesions and Injuries to the Biceps.” American Academy of Orthopaedic Surgeons Course, The Shoulder in 2003: An Open and Arthroscopic Surgical Odyssey, Rosemont IL, May 30, 2003.

“Computer Assisted Knee Reconstructive Surgery.” Department of Orthopaedic Surgery Grand Rounds, Northwestern University Medical School. Chicago, IL May 16, 2003.

“Reconstruction of the Adult Knee Using Computer Assisted Surgical Techniques.” Invited Rapp Lecture at the 21<sup>st</sup> Annual Meeting of the Mid-America Orthopaedic Association, Hilton Head, South Carolina, April 26, 2003.

“Biomechanical and Histological Evaluation of Osetochondral Transplanation in a Rabbit Model.”

International Cartilage Repair Society Meeting, Toronto, Ontario, Canada, June 15-18, 2002 (Nam, E)

## **PRESENTATIONS (Cont'd)**

“Biomechanical and Histological Evaluation of Osteochondral Transplantation in a Rabbit Model.” Orthopaedic Research and Education Foundation Meeting, Chicago, IL, May 17, 2002 (Nam, E)

“Osteochondral Transplantation in a Rabbit Model, a Biomechanical and Histological Evaluation.” Mid-America Orthopaedic Meeting, Tucson, Arizona, April 24, 2002. (Nam, E) Recipient of Mid-America Orthopaedic Association Multi-purpose Grant 2001.

“Posterior and Multidirectional Shoulder Instability.” American Academy of Orthopaedic Surgeons Course, Shoulder Review and Update, Rosemont, IL, July 20, 2002.

“Open Anterior Reconstruction.” American Academy of Orthopaedic Surgeons Course, Shoulder Review and Update, Rosemont, IL, July 20, 2002.

“Posterior Instability.” Sports Medicine 2001: An NFL Perspective, Biltmore Hotel, Phoenix, AZ, May 11, 2001.

“Complex Shoulder and Elbow Injuries.” Sports Medicine 2001: An NFL Perspective, Biltmore Hotel, Phoenix, AZ, May 11, 2001.

“Comparison of Biceps Tenodesis and Anatomic Repairs for Posterolateral Knee Instability.” 47<sup>th</sup> Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, February 2001.

“Arthroscopic Acromioplasty, Distal Clavicle Excision, Rotator Cuff Repair.” American Academy of Orthopaedic Surgeons Course, Rosemont, Illinois, May 6, 2000.

“Posterior Stabilization: Indications and Technique.” American Academy of Orthopaedic Surgeons Course, Rosemont, Illinois, April 29, 2000.

“Shoulder Arthroplasty: Results and Controversies.” American Academy of Orthopaedic Surgeons, Rosemont, Illinois, May 5-7, 2000.

“Superior Labral Lesion in a Professional Football Quarterback.” NFL Team Physicians Scientific Meeting, Indianapolis, Indiana, Feb. 25, 2000.

“Distal clavicle Resection: Open vs. Arthroscopic Results.” “Surgical Management for Common disorders of the Shoulder.” The American Academy of Orthopaedic Surgeons; Orthopaedic Learning Center (OCL), Rosemont, Illinois, December 11, 1999.

“Posterior Shoulder Instability: Indications for Open vs. Arthroscopic Stabilization.” “Surgical Management for Common disorders of the Shoulder.” The American Academy of Orthopaedic Surgeons; Orthopaedic Learning Center (OCL), Rosemont, Illinois, December 11, 1999.

“Posterior Instability.” Sports Medicine 1999, An NFL Perspective, Bal Harbour, Florida, May 7-9, 1999.

## **PRESENTATIONS (Cont’d)**

“Anatomy of the Spinoglenoid Ligament.” Seventeenth Annual Mid-America Orthopaedic Association Meeting, Southampton Princess, Bermuda, April 14,18, 1999.

“Examination Principles; Knee and Shoulder.” Rehabilitation Institute of Chicago, Chicago, Illinois, December 11-12, 1998.

“Surgical Treatment of ACL Injuries.” Rehabilitation Institute of Chicago, Chicago, Illinois, December 11-12, 1998.

“Outcome of Distal Clavicle Fractures (Type II) Fractures Treated Nonoperatively.” Fifteenth Annual American Shoulder and Elbow Surgeons Closed Meeting, New York, NY, Nov 5-8 1998.

“Outcome of Distal Clavicle Fractures (Type II) Fractures Treated Nonoperatively.” American Academy of Orthopaedic Surgeons Comprehensive Shoulder and Elbow Course and ASES First Open Shoulder and Elbow Meeting #425, Kiawah Island SC, April 23-26 1998.

“Posterior Instability: Diagnosis and Treatment” for “Open and Arthroscopic Shoulder Surgery: Advanced Anterior and Posterior Techniques.” American Academy of Orthopaedic Surgeons, Rosemont, Illinois, May 15-17, 1998.

“Hockey Injuries.” Rehabilitation Sports Medicine X: Sports Specific Injuries, Chicago, Illinois, December 12, 1997.

“Exam of the Shoulder & Knee.” Rehabilitation Sports Medicine X: Sports Specific Injuries, Chicago, Illinois, December 12, 1997.

“Return to Play Criteria for the Injured Athlete.” Rehabilitation Sports Medicine X: Sports Specific Injuries, Chicago, Illinois, December 11, 1997.

“ACL Injuries - Surgical vs. Non-Surgical Care.” Rehabilitation Sports Medicine X: Sports Specific Injuries, Chicago, Illinois, December 11, 1997.

“Proximal Humeral Fractures Hemiarthroplasty: Techniques and Indications” for “Open and Arthroscopic Shoulder Surgery: Current Concepts and Techniques #420.” American Academy of Orthopaedic Surgeons, Rosemont, Illinois, December 5-7, 1997

“Proximal Humeral Fractures Hemiarthroplasty: Techniques and Indications” for “One-day Shoulder ‘Course within a Course,’ #422.” American Academy of Orthopaedic Surgeons, Rosemont, Illinois, December 6, 1997.

“Athletic Injuries: Assessment, Treatment, and Outcomes.” The National Center for Advanced Medical Education, Orthopaedic Nursing, Chicago, Illinois, August 6, 1997.

“Hand Injuries” and “Forearm Fractures” for “Sports Medicine 1997: An NFL Perspective,” San Francisco, California, May 9-11, 1997.

## **PRESENTATIONS (Cont’d)**

“Biomechanics and the Role of the Rotator Cuff” for “Baseball Medicine: Injury Prevention and Treatment Techniques,” Chicago, Illinois, January 17, 1997.

“Rotator Cuff Injury: The Inside Out” for “Rehabilitation Sports Medicine IX. Controversies in Sports Medicine II.” Rehabilitation Institute of Chicago, Chicago, Illinois, December 13, 1996.

“Rotator Cuff Injury: Implications for Surgery” for “Rehabilitation Sports Medicine IX. Controversies in Sports Medicine II.” Rehabilitation Institute of Chicago, Chicago, Illinois, December 13, 1996.

“Posterior Stabilization of the Shoulder.” Live video surgical demonstration for “Strategic Management of the Shoulder and Rotator Cuff Instability and Decompression,” American Academy of Orthopaedic Surgeons, Rosemont, Illinois, November 9, 1996.

“Biomechanics of the Shoulder” for the 17th Annual Sports Medicine Physician-Therapist Team Concept Conference. Chicago, Illinois, October 20, 1996.

“Bone Regeneration Using Emulsion Freeze-Dried PLGA Scaffolds with Median Pore Size less than 50 micrometers.” Fifth World Biomaterials Congress, Toronto, Canada, May29-June2, 1996. (Elenz)

“Treatment of Experimental Bone Defects with Porous Bioabsorbable Copolymers” for Mid-American Orthopaedic Association 14th Annual Meeting. San Antonio, Texas, April 26, 1996 (Elenz).

“Evaluation of the Shoulder and Elbow” for Annual Meeting Professional Baseball Athletic Trainers Association Cactus League, Phoenix, Arizona, March 6, 1996.

“Patella Fractures Following Anterior Cruciate Ligament Reconstruction” for American Academy of Orthopaedic Surgeons, Atlanta, Georgia, February 20, 1996.

“Treatment of Experimental Bone Defects with Porous Bioabsorbable Copolymers” for Forty-Second Annual Meeting of the Orthopaedic Research Society, Atlanta, Georgia, February, 1996 (Elenz)

“Tibial Stress Fracture - Case Report” for the NFL Team Physicians and Athletic Trainers Scientific Meeting, Indianapolis, Indiana, February 9, 1996.

“Bone Regeneration Employing Bioabsorbable Scaffolds with Unique Microarchitecture.” 1996 Keystone Symposia Conference on Tissue Engineering, Taos, NM, Jan 23-29 1996 (Elenz)

“ACL Tears - When Operative Treatment is Better” for “Rehabilitation Sports Medicine VIII: Controversies in Sports Medicine.” Rehabilitation Institute of Chicago, Chicago, Illinois, December 15, 1995.

“Posterior and Multidirectional Repair: Indications and Technique” for “Arthroscopic and Open Approaches to Shoulder Surgery: The Debate Continues.” American Academy of Orthopaedic Surgeons, Rosemont, Illinois, November 11, 1995.

## **PRESENTATIONS (Cont'd)**

“Injuries of the Shoulder: Treatment and Rehabilitation.” Orthopedic Nursing. The National Center for Advanced Medical Education, Chicago, Illinois, August 7, 1995.

“Anterior Glenohumeral Instability: Open Surgery - Indications and Techniques” for “Surgical Techniques for Management of the Painful Shoulder.” American Academy of Orthopaedic Surgeons, Rosemont, Illinois, November 18, 1994.

“Solutions for Stiff Shoulders.” Community Health Education Classes, Northwestern Memorial Hospital, Chicago, Illinois, November 3, 1994.

“Wrestling Injuries.” Seminar for High School Wrestling Coaches. Chicago Public School Program. Chicago, Illinois, October 17, 1994.

“Prevention of Athletic Injuries.” Community Health Education Classes, Northwestern Memorial Hospital, Chicago, Illinois, August 4, 1994.

“Athletic Knee Injury: Orthotic Management” for “Upper and Lower Limb Orthotics and Prosthetics for Physicians and Surgeons.” Northwestern University Prosthetics and Orthotics Center, Rehabilitation Institute of Chicago, Chicago, Illinois, February 16, 1994 & March 23, 1994.

“Heat Illness in Athletes.” Chicago O’Hare Football Clinic, Rosemont, Illinois, January 22, 1994.

“Athletic Bracing” and Breakout Sessions, “Examination of the Shoulder, Knee, and Spine” and “Taping of the Knee and Ankle” for Sports Medicine seminar, National Center for Advanced Medical Education, Chicago, Illinois, November 18, 1993.

“Shoulder Pain and the Rotator Cuff” for “Primary Care of Orthopaedic Problems.” Southern Illinois University School of Medicine, Springfield, Illinois, October 28, 1993.

“Knee Pain: What to Do, When to Refer” for “Primary Care of Orthopaedic Problems.” Southern Illinois University School of Medicine, Springfield, Illinois, October 28, 1993.

“Athletic Knee Injury: Orthotic Management” for “Upper and Lower Limb Orthotics and Prosthetics for Physicians and Surgeons.” Northwestern University Prosthetics and Orthotics Center. Rehabilitation Institute of Chicago, Chicago, Illinois, October 20, 1993.

“Solutions for Stiff Shoulders/ Shoulder Screening.” Community Health Education Classes, Northwestern Memorial Hospital, Chicago, Illinois, September 9, 1993.

“Athletic Knee Injury: Orthotic Management” for “Upper and Lower Limb Orthotics and Prosthetics for Physicians and Surgeons.” Northwestern University Prosthetics and Orthotics Center, Rehabilitation Institute of Chicago, Chicago, Illinois, March 3, 1993.

## **PRESENTATIONS (Cont'd)**

“Athletic Bracing” and Breakout sessions, “Examination of the Shoulder, Knee, and Spine,” and “Taping of the Knee and Ankle” for “Sports Medicine” seminar, National Center for Advanced Medical Education, Chicago, Illinois, November 12, 1992.

“Posterior Instability of the Shoulder.” 1992 Sports Medicine Institute: Shoulder, Knee, and Spine. North Central College, Chicago, Illinois, October 29, 1992.

“Common Shoulder Problems. Mini-Screening.” Health Education Programs, Northwestern Memorial Hospital, Chicago, Illinois, October 15, 1992.

“Arthroscopic Surgery” for “Surgery in the 90’s,” Seminar of Health Care in the 90’s: Research, Treatment, and Prevention, Northwestern University, Chicago, Illinois, October 7, 1992.

“Modern Trends in Orthopaedic Surgery: Advances in Surgery of the Shoulder and the Knee.” The Continuing Evolution of Medicine at Northwestern: Medical Research, Education, and Care for the 1990’s, Chicago, Illinois, June 17, 1992.

“Oh, My Aching Back!” Health Issues for Women, Northwestern Memorial Hospital, Chicago, Illinois, March 18, 1992.

“Lower Extremity Injuries.” Illinois Youth Soccer Association Workshop, Arlington Heights, Illinois, March 14, 1992.

“The Role of the Inferior Glenohumeral Ligament Complex in Limiting Inferior Translation of the Glenohumeral Joint.” The Eighth Open Meeting of the American Shoulder and Elbow Surgeons, Washington DC, February 23, 1992.

“The Effect of Joint Compression on the Inferior Stability of the Glenohumeral Joint.” The Orthopaedic Research Society, Washington DC, February 20, 1992.

“Posterior Subluxation of the Glenohumeral Joint.” Chicago Orthopaedic Society, Chicago, Illinois, February 14, 1992.

“Glenohumeral Joint Stability.” Grand Round of the Department of Orthopaedic Surgery, Northwestern University Medical School, Chicago, Illinois, January 31, 1992.

“Inferior Stability of the Glenohumeral Joint.” The 73rd Annual Meeting of the Alumni Association of The Hospital for Special Surgery, New York, New York, November 8, 1991.

“Posterior Shoulder Instability - Current Concepts: Evaluation, Treatment, Results.” The Northern Illinois Fourth Annual Sports Medicine Institute, August 16, 1991.

“Factors Affecting Inferior Stability of the Glenohumeral Joint.” Fellow Thesis Day, The Hospital for Special Surgery, New York, New York, July 26, 1991.

## **PRESENTATIONS (Cont'd)**

“Proliferative Fibrous Nodule of the Anterior Cruciate Ligament Following Arthroscopic Anterior Cruciate Ligament Reconstruction.” The 10th Annual Meeting of the Arthroscopy Association of North America, San Diego, California, March 9, 1991.

“Patellofemoral Problems in the Athlete.” Third Annual Meadowlands Sports Medicine Symposium, Rutherford, New Jersey, December 1, 1990.

“Physical Examination of the Shoulder.” Third Annual Meadowlands Sports Medicine Symposium, Rutherford, New Jersey, November 30, 1990.

“Total Knee Arthroplasty in Gonarthrosis Patients Less Than 55 Years Old.” The American Academy of Orthopaedic Surgeons, New Orleans, Louisiana, February 13, 1990.

“Total Knee Arthroplasty in Gonarthrosis Patients Less Than 55 Years Old.” The Knee Society Meeting, New Orleans, Louisiana, February 11, 1990. (Dr. Stern)

“The Hospital for Special Surgery Experience with Uncemented Total Hip Replacement. Minimum Two Year Follow-up.” The Alumni Association of The Hospital for Special Surgery, New York, New York, November 4, 1989. (Dr. Pellici)

“Revision Total Hip Arthroplasty Using a Bias Femoral Component and Bone Graft Supplementation.” The International Hip Society, New York, New York, April 6, 1989.

“The Long-term Results of Total Hip Arthroplasty in Congenital Dislocation and Dysplasia of the Hip.” The American Academy of Orthopaedic Surgeons, Las Vegas, Nevada, February 10, 1989.

“Porous Femoral Component Revisions Using the Bias Stem.” Bias Total Hip: Contemporary Concepts and Bioskills Workshop, New York, New York, October 29, 1988.

“Healing of Refractory Unicameral Bone Cysts by Percutaneous Bone Marrow Grafting.” A.O.A. Resident's Meeting, Boston, Massachusetts, March, 1988.

“Osteogenic Marrow Grafting to Heal Refractory Unicameral Bone Cysts.” Orthopaedic Research Society, Atlanta, Georgia, February, 1988.



## SCIENTIFIC EXHIBITS

Elenz DR, Nuber GW, **Bowen MK**, Healy KE, Tsai DC, Whang K, Thomas CH, Nam EK:  
 “Treatment of Experimental Bone Defects with Porous Bioabsorbable Copolymers.” *American Academy of Orthopaedic Surgeons 42nd Annual Meeting*, Atlanta GA, Feb 1996.

## POSTERS

Brander VA, Gomberawalla A, Chambers M, **Bowen MK**, Nuber GW: Prospective, Single-arm Pilot Study Evaluating the Safety and Efficacy of Two Hylan G-F 20 Injections in Patients with Advanced Painful Glenohumeral OA With or Without Rotator Cuff Tear, 69<sup>th</sup> Annual AAPM&R Assembly and Technical Exhibition, San Diego, California, November 20-23, 2008.

Brander VA, Nuber GW, **Bowen MK**: “Intra-Articular Injection of Hylan G-F 20 for the Treatment of Shoulder Osteoarthritis.” 24<sup>th</sup> Annual Meeting of the Mid-America Orthopaedic Association, San Antonio Texas, April 19, 2006.

Nam EL., Makhsous M, Koh JL, Caparelli M, **Bowen MK**, Nuber GW, Zhang LQ: “Biomechanical and Histological Evolution of Osteochondral Transplantation in a Rabbit Model,” American Orthopaedic Society for Sports Medicine, San Diego CA, July 20-23, 2003.

Minorik J, DiFelelice A, Xu D, Nuber GW, **Bowen MK**, Zhang LQ: “Comparison of Biceps Tenodesis and Anatomic Repairs for Posterolateral Knee Instability.” Orthopaedic Research Society, San Francisco, CA, February, 2001.

Cummins CA, Anderson K, **Bowen MK**, Nuber GW: “Anatomy of the Spinoglenoid Ligament,” Seventeenth Annual Mid-America Orthopaedic Association Meeting, Southampton Princess, Bermuda, April 14-18, 1999.

Zhang LQ, Nuber GW, DiRaimondo CA, **Bowen MK**, Chundari : “Load Sharing Between the Supraspinatus and Deltoid Muscles in Glenohumeral Abduction.” Forty-Fifth Annual Meeting of the Orthopaedic Research Society, Anaheim CA, Feb 1-4, 1999.

Zhang LQ, Nuber GW, Wang G, Kahn LE, Portland GH, **Bowen MK**: “Does It Take a Longer Delay for the Vastus Medialis to Extend the Knee Than the Other Quadriceps Components?” Forty-Fifth Annual Meeting of the Orthopaedic Research Society, Anaheim CA, Feb 1-4, 1999.

Nuber GW, Zhang LQ, **Bowen M**, Whang G, Huang H, Butler J: “Muscle Strength of ACL Chronically Injured, Acutely Injured, Reconstructed and Uninjured Knees.” 44th Annual Meeting, Orthopaedic Research Society, New Orleans LA, Mar 16-19 1998.

Nuber GW, Zhang LQ, Huang H, **Bowen M**, Rymer WZ: “Patellar Tendon Reflex Following ACL Injury and Reconstruction.” 44th Annual Meeting, Orthopaedic Research Society, New Orleans LA, Mar 16-19 1998.

**POSTERS (Cont'd)**

Nuber G, Zhang LQ, **Bowen M**, Wang G, Huang H, Butler J: "Muscle Strength of ACL Chronically Injured, Acutely Injured, Reconstructed and Uninjured Knees." 44th Annual Meeting, Orthopaedic Research Society, New Orleans, Louisiana, March 16-19, 1998.

Nuber G, Zhang LQ, Huang H, **Bowen M**, Rymer WZ: "Patellar Tendon Reflex Following ACL Injury and Reconstruction." 44th Annual Meeting, Orthopaedic Research Society, New Orleans, Louisiana, March 15-19, 1998.

**Bowen MK**, Warner JP, Deng X, Warren RF, Torzilli PA: "The Effect of Joint Compression on Inferior Stability of the Glenohumeral Joint." Fifth International Conference of Shoulder Surgery, Paris, France, June 12-15, 1992.

**Bowen MK**, Deng X, Hannafin JA, Arnoczky SP, Warren RF, Warner JP: "An Analysis of the Patterns of Glenohumeral Joint Contact and Their Relationship to the Glenoid 'Bare Area.'" Fifth International Conference of Shoulder Surgery, Paris, France, June 12-15, 1992.

**Bowen MK**, Warner JP, Deng X, Warren RF, Torzilli PA: "Kinematics of the Glenohumeral Joint: Coupled Translation with Rotation." Fifth International Conference of Shoulder Surgery, Paris, France, June 12-15, 1992.

**Bowen MK**, Warner JP, Deng X, Warren RF, Torzilli PA: "The Effect of Joint Compression on Inferior Stability of the Glenohumeral Joint." The American Academy of Orthopaedic Surgeons, Washington DC, February 20, 1992.

**Bowen MK**, Warner JP, Deng X, Warren RF, Torzilli PA: "Glenohumeral Joint Kinematics: Coupled Translation Occurs with Glenohumeral Rotation." American Academy of Orthopaedic Surgeons, Washington DC, February 20, 1992.

**Bowen MK**, Deng X, Warren RF, Torzilli P: "The Role of the Inferior Glenohumeral Ligament Complex in Limiting Inferior Translation of the Glenohumeral Joint." Orthopaedic Research Society, Washington DC, February 17, 1992.

**Bowen MK**, Deng X, Hannafin JA, Arnoczky SP, Warren RF, Warner JP: "An Analysis of the Patterns of Glenohumeral Joint Contact and Their Relationship to the Glenoid 'Bare Area.'" Orthopaedic Research Society, Washington DC, February 17, 1992.

## **RESEARCH SUPPORT**

Co-Investigator: “Neuromuscular Compensation and Joint Dynamics Studies of Normal, Anterior Cruciate Ligament, Injured and Reconstructed Human Knee Joints.” (Li-Qun Zhang, PhD-Principal Investigator) The Whitaker Foundation 7/1/93 - 6/30/96, \$180,000.

Co-Investigator: “Selective and Differential Muscle Strengthening - A New Rehabilitation and Therapeutic Treatment after the Anterior Cruciate Ligament Reconstruction Surgery.” (Li-Qun Zhang, PhD-Principal Investigator) Northwestern Memorial Foundation, 8/94 - 12/96, \$20,000.

## **POSTGRADUATE COURSES**

Course Instructor: Sports Medicine and The NFL: A Sideline Perspective., American ORthopaedic Society for Sports Medicine., The Palace Hotel, San Francisco, California, May 7-9.

Course Instructor: AAOS/ASES Arthroscopic Management of rotator Cuff Disease and Instability #3206 , Orthopaedic Learning Center, April 3-5 2008 Rosemont, IL

Course Instructor, Lab Leader: AAOS/ASES Open and Arthroscopic Techniques in Shoulder Surgery #3201, Orthopaedic Learning Center, Rosemont, IL January 18-19, 2008

Course Director: The Shoulder: An Arthroscopic Odyssey. American Academy of Orthopaedic Surgeons, American Shoulder and Elbow Surgeons. Rosemont, Illinois, July 28-29, 2006.

Course Instructor: AAOS/ASES Open and Arthroscopic Techniques in Shoulder Surgery. Rosemont, IL Jan. 20-22, 2006.

Course Instructor: The Shoulder: Advanced Management Options from Open and Arthroscopic. American Academy of Orthopaedic Surgeons, Rosemont, IL July 16 – 18, 2004

Course Instructor: Arthroscopic and Open Techniques in Shoulder Surgery. American Academy of Orthopaedic Surgeons. Rosemont, IL Feb. 6-8, 2004 Lab Leader: Open Instability Repair

Course Instructor: The Shoulder in 2003: An Open and Arthroscopic Surgical Odyssey. American Academy of Orthopaedic Surgeons, Rosemont, IL May 30- June 1, 2003.

Course Instructor: Advanced Arthroscopic and Open Shoulder Surgery. American Academy of Orthopaedic Surgeons, Rosemont, Illinois July 19-21, 2002

Moderator: Shoulder Review and Update. . American Academy of Orthopaedic Surgeons, Rosemont, Illinois July 19-21, 2002

Course Instructor: Comprehensive Surgery for the Athletes Shoulder. American Orthopaedic Society for Sports Medicine, Rosemont, IL, Sept. 28-30, 2001

### **POSTGRADUATE COURSES (Cont'd)**

Course Instructor: Complex Shoulder and Elbow Injuries, Sports Medicine 2001: An NFL Perspective, Biltmore Hotel, Phoenix, AZ, May 11, 2001.

Course Instructor: Advanced Techniques in Open and Arthroscopic Shoulder Surgery. American Academy of Orthopaedic Surgeons, Rosemont, Illinois, May 5-7, 2000.

Lab and Course Instructor: Open and Arthroscopic Shoulder Surgeries. Approach for the New Millennium. American Academy of Orthopaedic Surgeons, Rosemont, IL, July 9-11, 1999.

Course Instructor: Rehabilitation Sports Medicine XI, Case Studies in Sports Medicine, Chicago, Illinois, December 11-12, 1998.

Course Instructor: Current Techniques in Open and Arthroscopic Shoulder Surgery. American Academy of Orthopaedic Surgeons, Rosemont, IL, Nov 13-15, 1998.

Moderator, Lab Leader, and Live Video Demonstration Moderator for Open and Arthroscopic Shoulder Surgery: Advanced Anterior and Posterior Techniques. American Academy of Orthopaedic Surgeons, Rosemont, Illinois, May 15-17, 1998.

Co-Chairman: Rehabilitation Sports Medicine X: Sports Specific Injuries, Chicago, Illinois, December 11-13, 1997.

Course Instructor: One-day Shoulder 'Course within a Course,' #422. American Academy of Orthopaedic Surgeons, Rosemont, Illinois, December 6, 1997.

Course Instructor: Open and Arthroscopic Shoulder Surgery: Current Concepts and Techniques #420. American Academy of Orthopaedic Surgeons, Rosemont, Illinois, December 5-7, 1997.

Course Instructor: Open and Arthroscopic Shoulder Surgery: Current Concepts and Techniques. American Academy of Orthopaedic Surgeons, Rosemont, Illinois, July 11-13 1997.

Course Moderator: American Orthopaedic Society for Sports Medicine 23rd Annual Meeting, Sun Valley, Idaho, June 22-25 1997.

Course Instructor: Strategic Management of the Shoulder and Rotator Cuff Instability and Decompression. The American Academy of Orthopaedic Surgeons, Rosemont, Illinois, November 9, 1996.

Course Instructor: "Strategic Approaches to Shoulder Instability, Fractures, and Reconstruction." American Academy of Orthopaedic Surgeons, Rosemont IL, Apr 19-21 1996.

Course Instructor: Arthroscopic and Open Approaches to Shoulder Surgery: The Debate Continues. The American Academy of Orthopaedic Surgeons, Rosemont, Illinois, November 11, 1995.

VII Annual Holiday Total Knee Course. New York, New York, December 7-8, 1995.

### **POSTGRADUATE COURSES (Cont'd)**

Course Instructor for Surgical Techniques for Management of the Painful Shoulder. The American Academy of Orthopaedic Surgeons, Rosemont, Illinois, November 18, 1994.

Comprehensive Trauma Solutions. Phoenix, Arizona, October 20-22, 1994.

Seventh Annual Intensive Clinical Orthopaedic Review Course. University of Pennsylvania, Department of Orthopaedic Surgery, Philadelphia, Pennsylvania, June 4-7, 1993.

Arthroscopic Surgery 1993, Snowbird, Utah, January 18-24, 1993.

Advances of the Knee and Shoulder. Hilton Head, South Carolina, May 26-30, 1991.

Diagnosis & Treatment of Subacromial Impingement and Rotator Cuff Tears. College of Physicians and Surgeons, New York, New York, April 15, 1989.

American Society for Surgery of the Hand. Regional Hand Course. The Hospital for Special Surgery, New York, New York, October 29-30, 1988.

Midas Rex Institute. Certified - September 1988.