

## **Ashraf A. Ragab, M.D.**

1988 Gulf to Bay Blvd  
Clearwater, FL 33765  
Office: (727) 953-8090

### **PRESENT POSITION:**

Spine Surgeon  
Founder and Director  
Comprehensive Spine Institute  
Clearwater, Florida

### **FACULTY**

#### **STAFF APPOINTMENTS:**

University of Mississippi Medical Center  
Associate Professor of Orthopedic Surgery  
Jackson, Mississippi

Mississippi Methodist Rehabilitation Center  
Staff Orthopedic Surgeon  
Jackson, Mississippi

School of Health Related Professions  
University of Mississippi  
Jackson, Mississippi

#### **PREVIOUS APPOINTMENTS:**

MetroHealth System Medical Staff  
Cleveland, Ohio

MetroHealth Life Flight Program, Flight Physician

Concentra Medical Centers, Occupational Medicine Physician  
Cleveland, Ohio

Clinical Instructor, Musculoskeletal Anatomy Course  
Case Western Reserve University  
Cleveland, Ohio

### **ACADEMIC**

#### **APPOINTMENTS:**

Associate Professor  
Department of Orthopedic Surgery and Rehabilitation  
University of Mississippi Medical Center

Faculty  
School of Health Related Professions (SHRP)  
University of Mississippi

**EDUCATION AND TRAINING :**

Fellowship:	Spine Surgery University of Wisconsin Hospitals and Clinics University of Wisconsin-Madison	2001 - 2002
Residency:	Orthopedic Surgery University Hospitals of Cleveland Case Western Reserve University	1995 - 2001
Fellowship:	Orthopedic Research Fellow Department of Orthopedics University Hospitals of Cleveland Case Western Reserve University	1994 - 1995
Internship:	General Surgery St. Elizabeth's Medical Center of Boston Tuft's University	1993 - 1994
Resident:	Orthopedic Surgery Alexandria University Hospitals, Egypt	1987 - 1991
Externship:	Pediatric Clinical Externship, Commendation. Alder Hey Children's Hospital Liverpool, England	1984
Medical School:	Alexandria University School of Medicine Alexandria, Egypt	1980 – 1986

**SPECIALTY CERTIFICATION:**

American Board of Orthopedic Surgery Certification	2006 – 2016
Advanced Cardiac Life Support Certification	
Advanced Trauma Life Support Certification	

**LICENSURE:**

Florida State Board of Medical Licensure (current)  
Mississippi State Board of Medical Licensure

State of New York Board of Medical Licensure

Iowa Board of Medical Examiners

Wisconsin Board of Medical Licensure

Ohio State Board of Medical Licensure

**PROFESSIONAL  
SOCIETIES:**

Cervical Spine Research Society  
North American Spine Society  
AO Spine North America/ASIF  
American Academy of Orthopedic Surgeons  
North American Neuromodulation Society  
Herndon Society

**COMMITTEES:**

Hospital

Multi-disciplinary Pain Fellowship Oversight Committee (January 2009 to 2010)

Physicians Advisory Board (January 2008 to 2010)

Capital Equipment/Products Committee (October 2007 to 2010)

Medical Record Committee (July 1, 2006 to July 2008)

Risk Management Liaison Committee (July 2003 to 2010)

Procedures and Review Committee (October 2002 to 2010)

School of Graduate Studies' Graduate Faculty  
Dissertation Advisory Committee for Patricia Sealy

School of Graduate Studies' Graduate Faculty  
Dissertation Advisory Committee for Jim Barron

State

Mississippi Orthopedic Society Annual Meeting  
Program Director (April 2003)

Southern Remedy Radio Program with Dr. Richard de Shazo

Mini-Med Lectures to Community

National

North American Spine Society, Committee on Spine Biologics, (Sept 2009- 2010)

AOSpine North America, Head Editor for Case Library Editorial Board (August 2008-Current)

American Board of Orthopedic Surgery, Part I Standard Setting Committee (July 2009)

Journal of Spinal Disorders and Techniques Advisory Editorial Review Board

The Journal of Spinal Cord Medicine Editorial Manager of Online Submission and Peer Review Tracking

**EDITORIAL RESPONSIBILITIES:**

Chief Editor, North America Chapter/Division,  
AOSpine Editorial Board for Case Library,

Regional Editor, North America, AO Spine Journal,  
Evidence-Based Spine Surgery, Vol 4, Number1, Feb 2008

Associate Editor, Journal of Spinal Disorders and Techniques,  
August 1, 2003 to current

**PROFESSIONAL HONORS AND AWARDS:**

Zimmer Orthopedic Career Development Award  
The Orthopedic Research and Education Foundation  
2006

Kappa Delta Award for Outstanding Orthopedic Research.  
Does Endotoxin Contribute to Aseptic Loosening?  
E Greenfield, Y Bi, A Ragab, V Goldberg, J Nalepka, J Seabold  
American Academy of Orthopedic Surgery  
2003

Eleventh Annual Barry Friedman Orthopedic Award for Scholarship in  
Orthopedic Research

2001

Ohio Orthopedic Society Resident Paper Award  
1999

Ninth Annual Barry Friendman Orthopedic Award for Scholarship in Orthopedic Research  
1999

Orthopedic Research Society (ORS) William Harris Hip Award, The Role of Osteoclast Differentiation in Aseptic Loosening. E Greenfield, ^ Bi, A Ragab, V Goldberg, R Van De Motter  
1999

Cleveland Orthopedic Society Resident's Research Contest  
Second Place Award  
1998

M.S., Orthopedic Surgery, Alexandria University School of Medicine, Egypt. Master degree thesis titled "A Study on the Correlation between Low Back Pain and Lumbar Spine Instability in Spondylolisthesis".  
1991

Medical School Scholarship for Academic Excellence  
Alexandria University School of Medicine, Alexandria, Egypt  
1980 - 1986

## **GRANTS:**

\$5,000.00, Orthopedic Research and Education Foundation, Journal of Bone and Joint Surgery, Resident Journal Club Grant, 7/1/2008 – 6/30/2009

\$2,500.00, Orthopedic Research and Education Foundation, Journal of Bone and Joint Surgery, Resident Journal Club Grant, 9/1/2007 - 2008

\$3,000.00 Orthopedic Research and Education Foundation, Journal of Bone and Joint Surgery, Resident Journal Club Grant, 9/1/2006 – 6/30/2007

\$45,838.50 Chondrocyte Response to Sustained Release of Growth Factors in a Degenerative Intervertebral Disc Rat Model. Zimmer Orthopedic Career Development Award and Grant, 7/1/2006 – 6/30/2007

\$10,464.88 The Use of Demineralized Bone Matrix (DBM) Putty in a Segmental Fracture Model. Grant from Globus Medical, 5/1/2006 – 4/30/2007

\$14,000 Chondrocyte Response to Sustained Release of Growth Factor in a Degenerative Intervertebral Disc Rat Model. UMC Institutional Grant, 9/2004 – 9/2005

NIH T32 Grant. Training Program in Musculoskeletal Research, 1996 – 1997

## **NATIONAL/INTERNATIONAL TEACHING ASSIGNMENTS / LECTURE INVITATIONS:**

Faculty, Principles & Treatment of Spinal Disorders for Residents and Fellows Course,  
AO Spine North America  
Las Vegas, Nevada  
August 28-30, 2009

Faculty, Advanced Concepts In The Management of Spinal Disorders  
AO Spine North America  
Miami, Florida  
August 6-9, 2009

Faculty, NASS Spring Break Meeting,  
The Aging Spine,  
Symposium: Adjusting Treatments in the Osteoporotic Spine and Novel Technologies in the  
Aging Spine  
Rio Grande, Puerto Rico  
April 23-25, 2009

Family Medicine Update Symposium,  
Minimally Invasive Spine Surgery,  
University of Mississippi, Jackson, MS  
April 14-17, 2009

Faculty, Caribbean Neurosciences Symposium,  
Minimally Invasive Spine Surgery  
University of the West Indies,  
Montego Bay, Jamaica  
January 22-24, 2009

Faculty, Principles & Treatment of Spinal Disorders for Residents and fellows course,  
AO Spine North America,  
Las Vegas, Nevada  
January 16-18, 2009

Chairperson, The Aging Spine Symposium, AO Spine North America Meeting,  
Philadelphia, PA  
November 22-23, 2008

Faculty, Complications in Spine Surgery, A case based approach,  
Musculoskeletal and Research Center, New Orleans, LA  
November 14-15, 2008

Faculty, Cervical Spine Forum, Birmingham, Alabama  
September 27-28, 2008

Faculty, Principles & Treatment of Spinal Disorders for residents and fellows course,  
AO Spine North America,  
Baltimore, Maryland  
September 5-7, 2008

Faculty, Fundamental Principles and Techniques in Spinal Surgery Course,  
August 8-9, 2008  
Medtronics, San Diego, CA

Faculty, Cleveland Clinic Spine Hands-On Review Course,  
Cleveland, Ohio, July 16 – 22, 2008  
Faculty, AO Spine North America Strategy Summit,  
Coronado, CA, June 26 2008

Guest Lecturer, Globus Medical Meeting Training Course  
Sandestin FL, Aug 22-24, 2008

Faculty, Principles of Spinal Disorders for Operating Room Personnel, AO North America  
Atlanta, GA, May 31 – June 1, 2008

North American Spine Society, Pre-meeting: Section on Spine Biologics and Disc  
Regeneration: Biologics for the Treatment of Spinal Disorders,  
Austin, TX, October 23, 2007

Faculty, Degenerative Spine Symposium, AO Spine North America,  
Coronado, California, June 1-3, 2007

Faculty and Section Moderator, Cervical Spine Conference, Symposium on Minimally  
Invasive Spinal Surgery, Alexandria University,  
Alexandria, Egypt, March 17-18, 2007

Faculty, Fundamental Principles and Techniques in Spinal Surgery Course,  
Medtronics, San Diego, CA,  
February 2-3, 2007

Faculty, Advanced Concepts in the Management of Spinal Disorders,  
AO Spine North America,  
Scottsdale, Arizona, October 26-28, 2006

Guest Lecturer, Training Course, Globus Medical, Inc  
October 19, 2006

Faculty, Symposium on Minimally Invasive Spinal Surgery, Alexandria University,  
Alexandria, Egypt,  
March 13, 2006

Faculty, Fundamental Principles & Techniques in Spinal Surgery Course,  
Medtronic, Henderson, NV  
February 16-18, 2006

Faculty, Fundamental Principles & Techniques in Spinal Surgery Course, Medtronic,  
Memphis, TN,  
August 10-13, 2005

Faculty, Spine Operating Room Personnel Course, AO Spine North America,  
Pittsburg, PA, June 24-25, 2005

## **PRESENTATIONS:**

“Thoracolumbar Trauma, History, Physical and Imaging Studies”, Principles & Treatment of Spinal Disorders, Residents and fellows course, AO Spine North America, Las Vegas, Nevada, August 26-28, 2009

“Cervical Anatomy”, Principles & Treatment of Spinal Disorders, Residents and fellows course, AO Spine North America, Las Vegas, Nevada, August 26-28, 2009

“Decompression and fusion, Debate; Degenerative Spondylolisthesis”, Advanced Concepts in the Management of Spinal Disorders, AO Spine North America, Miami Florida, Aug 9, 2009

“MIS for Degenerative Lumbar Disc Disease”, Advanced concepts in the Management of Spinal Disorders, AO Spine North America, Miami Florida, Aug 6, 2009

“Constrained Versus Semi-Constrained Anterior Cervical Plating, A Prospective Comparative Study in Anterior Cervical Discectomy and Fusion”, AO Spine Global Spine Congress, San Francisco, CA, June 23-26, 2009

“Natural History and Biomechanics of the Aging Spine”, Symposium: Adjusting Treatments in the Osteoporotic Spine and Novel Technologies in the Aging Spine, NASS Spring Break Meeting, Rio Del Mar Beach Resort, Rio Grande, Puerto Rico, April 25, 2009

“Minimally Invasive Spine Surgery”, Family Medicine Update Symposium, University of Mississippi, Jackson, MS, April 16, 2009

“Argument against traditional open spine surgery”, Seventh Caribbean Neurosciences Symposium, University of the West Indies, Montego Bay, Jamaica, January 23-24, 2009

“Anterior Lumbar Interbody fusion”, Principles & Treatment of Spinal Disorders, Residents and fellows course, AO Spine North America, Las Vegas, Nevada, January 16-18, 2009



“Natural History of the Aging Spine”, The Aging Spine Symposium, AO Spine North America Meeting, Philadelphia, PA, November 22-23, 2008

“New Technologies and Industry R&D with Regards to the osteoporotic Spine”, The Aging Spine Symposium, AO Spine North America Meeting, Philadelphia, PA, November 22-23, 2008

“Vertebral Artery Injury - Diagnosis, Avoidance & Treatment”, Complications in Spine Surgery, A case based approach, Musculoskeletal and Research Center, New Orleans, LA, November 14-15, 2008

“Complications of Tumor”, Complications in Spine Surgery, A case based approach, Musculoskeletal and Research Center, New Orleans, LA, November 14-15, 2008

Cervical Spine Forum, Birmingham, Alabama, September 27-28, 2008

Principles & Treatment of Spinal Disorders for residents and fellows course, AO Spine North America, Baltimore, Maryland, September 5-7, 2008

“Surgical Anatomy of the Cervical Spine”, Fundamental Principles and Techniques in Spinal Surgery Course, Medtronic, San Diego, CA, August 8-9, 2008

“Biologics and Fusion Extenders in Spine Surgery”, Guest Lecturer, Globus Medical Meeting Training Course, Sandestin FL, Aug 22-24, 2008

“Patient Positioning/Thoracolumbar fractures”, Principles of Spinal Disorders for Operating Room Personnel, AO North America Atlanta, GA, May 31 – June 1, 2008

North American Spine Society, Pre-meeting: Section on Spine Biologics and Disc Regeneration: Biologics for the Treatment of Spinal Disorders, Austin, TX, October 23, 2007

“Effect of In Vivo Sustained Release of Growth Factors on Degenerated Discs Using a Rat Model”, North American Spine Society, Austin, TX, October 23, 2007

“Posterior Approach: Laminoplasty”, Degenerative Spine Symposium Principles and Emerging Technologies, AOSpine North America, Coronado, CA, June 2-3, 2007

“Corpectomy for Cervical Myelopathy”, Annual Scientific Conference on Spine Surgery, Alexandria University, Alexandria, Egypt, March 17, 2007

“Anterior Cervical Spine Fusion and Fixation Techniques”, Fundamental Principles and Techniques in Spinal Surgery, San Diego, CA, February 2-3, 2007

AO Spine North America, Principles and Treatment of Spinal Disorders, Redondo Beach, CA, January 6, 2007

Cervical Spine Research Society 11<sup>th</sup> Instructional Course, Controversies, Updates, Surgical Techniques & Complications, Palm Beach, FL, November 29, 2006

“The Lumbar Spine”, Globus Medical, Inc., Representative Training Course, Guest Lecturer, October 2006

“Kyphoplasty”, Minimally Invasive Spinal Surgery, Alexandria University, Alexandria, Egypt, March 13, 2006

“Surgical Anatomy of the Cervical Spine”, Fundamental Principles & Techniques in Spinal Surgery, Henderson, NV, February 16-18, 2006

“Anterior Cervical Spine Fusion and Fixation Techniques”, Fundamental Principles & Techniques in Spinal Surgery, Memphis, TN, August 28, 2005

“Interbody Fusion”, AO ASIF Spine Operating Room Personnel, Pittsburgh, PA, June 25, 2005

“Degeneration of the Lumbar Spine”, AO ASIF Spine Operating Room Personnel, Pittsburgh, PA, June 24, 2005

“Chondrocyte Proliferation is Stimulated by Cortisol in Traumatic Disc Degeneration – A Novel In-vivo Rat Model of Disc Degeneration”, Cervical Spine Research Society, Boston, MA, December 9-11, 2004

“Interbody Fusion: Anterior vs. Posterior”, AO ASIF Spine Operating Room Personnel, Lewis Center, OH October 3, 2004

“Anterior Cervical Spine and Fixation Techniques”, Fundamental Principles & Techniques in Spinal Surgery. Memphis, Tennessee, August 26-28, 2004

“Dynamic vs Static Plates in ACDF, A Prospective Study”, Mississippi Orthopedic Society Annual Meeting, Natchez, Mississippi, April 8-10, 2004

“The Spine”, Orthopedic and Sports Medicine Conference at Ole Miss, Oxford, Mississippi, February 21, 2004.

“A quantitative analysis of strain at adjacent segments following segmental immobilization of the cervical spine”, Mississippi Orthopedic Society Annual Meeting, Biloxi, Mississippi, April 11-13, 2003.

“Implications of Subtalar Joint Anatomic Variation in Calcaneal Lengthening Osteotomy”, American Academy of Orthopedic Surgeons 68<sup>th</sup> Meeting, San Francisco, California, February 28-March 4, 2001.

”Clinical and Radiographic Outcomes of Total Hip Arthroplasty with Insertion of an Anatomically Designed Femoral Component without Cement for the Treatment of Primary Osteoarthritis”,. The Ohio Orthopedic Society 60<sup>th</sup> Annual Meeting, Dayton, Ohio, 1999.

“Lumbar Spine Surgery for Spinal stenosis in patients age 70 years or more: Clinical and radiographic outcomes”, North American Spine Society 12<sup>th</sup> annual meeting, New York City, New York, 1997.

“Mesenchymal Cells Promote Osteoclast Differentiation by Producing an Ascorbic Acid Dependent Extracellular Matrix”, Orthopedic Research Society 42<sup>nd</sup> Annual Meeting, Atlanta, Georgia, 1996.

“An Ascorbic Acid Dependent Extracellular Matrix is Essential for Osteoclast Differentiation”, Combined Orthopedics and Rheumatology Research Conference, Case Western Reserve University, Cleveland, Ohio, 1995.

“Biological Effects of Orthopedic Implants”, Combined Orthopedics and Rheumatology Research Conference, Case Western Reserve University, Cleveland, Ohio, 1994.

## **PUBLICATIONS:**

### **Chapters**

McGuire, RA, **Ragab, AA** Spine Surgery: Techniques, Complication Avoidance, and Management, Second Edition, Vol. I, Elsevier, Inc., 2004, pp. 259-268.

### **Articles:**

**Ragab AA**, Hodges FS, Hill C, McGuire RA, Haley K, Constrained Versus Semi-Constrained Anterior Cervical Plating, A Prospective Comparative Study in One Level Anterior Cervical Discectomy and Fusion (in preparation to be submitted in Feb.)

**Ragab AA**, Hodges FS, Hill C, McGuire RA, Haley K, Constrained Versus Semi-Constrained Anterior Cervical Plating, A Prospective Comparative Study in Two Level Anterior Cervical Discectomy and Fusion (in preparation to be submitted in Feb.)

**Ragab AA**, Woodall Jr JW, Tucci MA, Wingerter SA, Fosnaugh AW, Franklin LN, Benghuzzi HA, A Preliminary Report on the Effects of Sustained Administration of Corticosteroid on Traumatized Disc Using the Adult Male Rat Model. J Spinal Disord Tech, 2009 Oct;22(7):473-8.

Adah F, Benghuzzi H, Wingerter S, Woodall Jr J, Tucci M, Russell G, **Ragab A** and Greenwald N. Effects of Low Power Laser Treatment on a Traumatized Disc in a Rat Model. *Biomed Sci Instrum.* 2008;44:34-40.

**Ragab A**, Deshazo RD, Management of Back Pain in Patients with Previous Back Surgery, *Am J Med.*2008 Apr;121(4):272-8. Review.

Russell G, Tucci M, Conflitti J, Graves M, Wingerter S, Woodall Jr J, **Ragab A**, Benghuzzi H, Characterization of a Femoral Segmental Nonunion Model in Laboratory Rats: Report of a Novel Surgical Technique. *J Invest Surg*, 2007 Jul-Aug; 20(4): 249-255

Price V, Wells P, Tucci M, Cameron JA., **Ragab A**, and Benghuzzi H. Effects of Sustained Delivery of IGF-1 in a Rat Degenerative Disc Model. *Biomed Sci Instrum*, 2007;43:384-9

**Ragab AA**, Escarcega AJ, Zdeblick TA, A quantitative analysis of strain at adjacent segments after segmental immobilization of the cervical spine. *J Spinal Disord Tech*, 2006 Aug; 19(6): 407-10

Benghuzzi H, Tucci M, Russell G, **Ragab A**, Graves M, Conflitti J., Targeted sustained delivery of tobramycin at the site of a femoral osteotomy, *Biomed Sci Instrum*, 2006; 42:530-5

Franklin L, Haynie L, Davis J, Tucci M, Benghuzzi H, Russell G, **Ragab, A**, Evaluation of Insulin-Like Growth Factor-1 and Parathyroid Hormone on Growth Characteristics of MG-63 cells. *Biomed Sci Instrum*, 2005;41:217-22

Greenfield EM, Bi Y, **Ragab AA**, Goldberg VM, Nalepka JL, Seabold JM, Does endotoxin contribute to aseptic loosening of orthopedic implants? *J Biomed Mater Res B Appl Biomater*, 2005 Jan 15;72 (1):179-85. Review.

Tucci M, Benghuzzi H, Russell G, **Ragab A**, Franklin L, Tsao A, Rishi R, Patel R, Conflitti J, et al, *Journal of Investigative Surgery* 2004; 17 (6): 345-362

Benghuzzi H, Tucci M, Tsao A, Russell G, England B, **Ragab A**, Stimulation of Osteogenesis by means of Sustained Delivery of Various Natural Androgenic Hormones. *Biomed Sci Instrum.* 2004;40:99-104

**Ragab AA**: Surgical Exposures of the Cervical Spine. *Contemporary Spine Surgery*, Volume 5(6), June 2004.

**Ragab AA**, Validity of Self-Assessment Outcome Questionnaires: Patient-Physician Discrepancy in Outcome Interpretation. *Biomed Sci Instrum.* 2003;39:579-84

**Ragab AA**, Fye M, Bohlman HH, Surgery of the Lumbar Spine for Spinal Stenosis in 118 patients 70 years of age or older, *Spine*. February 15, 2003, 28(4):348-53.

**Ragab AA**, Stewart S, Cooperman DR, Implications of Subtalar Joint Anatomic Variation in Calcaneal Lengthening Osteotomy. *J Pediat Orthop* 2003, Jan-Feb;23(1):79-83.

**Ragab AA**, Flanum MA, Galanis C, Zdeblick TA, Anterior Lumbar Interbody Fusion for Treatment of Low Back Pain: Internal Disc Disruption versus Degenerative Disc Disease, *The Spine Journal*, November 2002, Volume 2, Issue 5, Page 102

Chin KR, **Ragab AA**, Roh A, Bohlman HH, Piriformis Syndrome: a controversial and undertreated cause of sciatica, *The Spine Journal*, 2002, Volume 5, Issue 4, Page S116

**Ragab AA**, Nalepka JL, Bi Y, Greenfield EM, Cytokines Synergistically Induce Osteoclast Differentiation: Support by I or Normal Calvarial Cells, *American Journal of Physiology: Cell Physiology*, September 2002.;283 (3): C679-87.

Greenfield EM, Bi Y, **Ragab AA**, Goldberg VM, Van De Motter RR, The Role of Osteoclast Differentiation in Aseptic Loosening, *J Orthop Res*, 2002 Jan;20(1):1-8. Review

Bi Y, Seabold JM, Kaar SG, **Ragab AA**, Goldberg VM, Anderson JM, Greenfield EM, Adherent Endotoxin on Orthopedic Wear Particles Stimulates Cytokine Production and Osteoclast Differentiation, *J Bone Min Res* 2001 Nov;16(11): 2082-91

Kaar SG, **Ragab AA**, Kaye SJ, Kilic BA, Jinno T, Goldberg VM, Bi Y, Stewart MC, Carter J, Greenfield EM, Rapid Repair of Titanium Particle-Induced Osteolysis is Dramatically Reduced in Aged Mice, *J Orthop Res*, 2001 Mar;19(2):171-178

Bi Y, Van De Motter R, **Ragab AA**, Goldberg VM, Anderson JM, Greenfield EM, Titanium Particles Stimulate Bone Resorption by Inducing Differentiation of Murine Osteoclasts, *J Bone Joint Surg Am*. 2001 Apr;83-A(4):501-8

**Ragab AA**, Van De Motter R, Lavish SA, Goldberg VM, Ninomiya JT, Carlin CR, Greenfield EM, Measurement and Removal of Adherent Endotoxin from Titanium Particles and Surfaces, *J Orthop Res*. 1999 Nov;17(6):803-9.

**Ragab AA**, Kraay MJ, Goldberg VM, Clinical and Radiographic Outcomes of Total Hip Arthroplasty with Insertion of an Anatomically Designed Femoral Component without Cement for the Treatment of Primary Osteoarthritis. A study with a minimum of six years of follow-up, *J Bone Joint Surg Am.*, 1999 Feb; 81(2): 210-8

**Ragab AA**, Lavish SA, Banks MA, Goldberg VM, Greenfield EM, Osteoclast Differentiation Requires Ascorbic Acid. *J Bone Min Res*.1998 Jun;13(6):970-7

## Abstracts and Poster Presentations

Brown J, Fosnaugh A, Tucci M, **Ragab A**, Benghuzzi H. Evaluation of Growth Factors for Treatment of Degenerative Disc Disease Using the Adult Male Rat as a Model. 13<sup>th</sup> Annual School of Health Related Professions Research Day, May 1, 2008

Adah F, Benghuzzi H, Tucci M, Ragab A, Greenwald N. Effect of Low Power Laser Treatment on a Traumatized Disc in a Rat Model. 45<sup>th</sup> Annual Rocky Mountain Bioengineering Symposium, Vol 44, pg 34-40, Copper Mountain, Co April 4-6, 2008

Brown J, Tucci M, Ragab A, Benghuzzi H. Evaluation of Growth Factors for Treatment of Degenerative Disc Disease Using the Adult Male Rat as a Model. Mississippi Academy of Sciences 72<sup>nd</sup> Annual Meeting, Vol 53, No 1, pg81, Olive Branch, MS February 20-22, 2008

Wingerter S, Woodall J, Tucci M, **Ragab A**, Benghuzzi H. Effect of In Vivo Sustained Release of Growth Factors on Degenerated Discs Using a Rat Model. North American Spine Society, Austin, Texas, October 24, 2007

Benghuzzi HA, Tucci MA, Cameron JA, **Ragab A**. Effects of Sustained Delivery IGF-1 on Annulus Repair, Vital Organs and Reproductive Organs in a Rat Degenerative Disc Model. Endocrine Society, Toronto, Canada, June 2-5, 2007

Brown J, Wingerter S, Tucci M, **Ragab A**, Benghuzzi H. The Effects of Sustained Delivery on TGF-1 on Chondrocyte Proliferation in a Rat Degenerative Disc Model. 12<sup>th</sup> Annual School of Health Related Professions Research Day, April 27, 2007

Price V, Wells P, Tucci M, Cameron JA., **Ragab AA**, and Benghuzzi H. Effects of Sustained Delivery of IGF-1 in a Rat Degenerative Disc Model. Biomedical Sciences Instrumentation, Vol. 43, pp 384-389, Denver, CO, April 2007

Wingerter S, Woodal Jr. J, Franklin L, Davis J, Tucci M, Ragab A, Benghuzzi H. The effects of Sustained Administration of Growth Factors on Traumatized Disc Using the Adult Male Rat as a Model. Mississippi Academy of Sciences, 71<sup>st</sup> Annual Meeting, Vol.52, Number 1, Starkville, MS, February 21-22, 2007

Fosnaugh A, Wingerter S, Davis J, Tucci M, **Ragab A**, Benghuzzi H. The Effects of Sustained Administration of Corticosteroid on Traumatized Disc Using the Adult Male Rat as a Model, Eleventh Annual School of Health Related Professions Research Day, Vol. 10, April 20, 2006

Fosnaugh A, Wingerter S, Davis J, Tucci M, **Ragab A**, Benghuzzi H. The Effects of Sustained Administration of Corticosteroid on Traumatized Disc Using the Adult Male Rat as a Model, Mississippi Orthopaedic Society, April 7, 8 and 9, 2006

Benghuzzi H, Tucci M, Russell G, **Ragab A**, Graves M, Conflitti J. Targeted Sustained Delivery of Tobramycin at the Site of a Femoral Osteotomy. Biomedical Sciences Instrumentation, Volume 42, pg. 530-535, Terre Haute, Indiana, April 7-9, 2006

Minimally Invasive Spinal Surgery, “Kyphoplasty”, Alexandria University, Alexandria, Egypt, March 13, 2006

Chin K, **Ragab AA**, Roh J, Bohlman H, Piriformis syndrome a controversial and undertreated cause of sciatica, North American Spine Society, September 27 – October 1, 2005

Franklin L, Tucci M, Benghuzzi H, Russell G, **Ragab A** and Tsao A. Evaluation of Insulin-Like Growth Factor-1 and Parathyroid Hormone on Growth Characteristics of MG-63 Cells, Rocky Mountain 42nd Annual Biomedical Engineering Symposium, Copper Mountain, CO, April, 2005.

Franklin L, Tucci M, Benghuzzi H, Russell G, **Ragab AA**, and Tsao A. Evaluation of Insulin-Like Growth Factor-1 and Parathyroid Hormone on Growth Characteristics of MG-63 Cells, Abstract #20, Vol 9, Tenth Annual SHRP Research Day, University of Mississippi Medical Center, April 2005.

Franklin L, Tucci M, Benghuzzi H, Russell G, **Ragab, AA**, and Tsao A. Evaluation of Insulin-Like Growth Factor-1 and Parathyroid Hormone on Growth Characteristics of MG-63 Cells. Mississippi Academy of Sciences, 69<sup>th</sup> Annual Meeting, Vol 50, No. 1, January 2005.

Benghuzzi H, Tucci M, Tsao A, Russell G, England B, **Ragab AA**, Stimulation of Osteogenesis by Means of Sustained Delivery of Various Natural Androgenic Hormones. Abstract #99, Ninth Annual SHRP Research Day, University of Mississippi Medical Center, April 29, 2004.

Franklin L, Tucci M, Benghuzzi H, Russell G, **Ragab AA**, and Tsao AK. The Effects of Insulin-Like Growth Factor-1 on a MG63 (Osteosarcoma) Cell Line. Abstract #80, Ninth Annual SHRP Research Day, University of Mississippi Medical Center, April 29, 2004.

Franklin L, Tucci M, Benghuzzi H, Russell G, **Ragab AA**, and Tsao AK. The Effects of Insulin-Like Growth Factor-1 on a MG-63 (OSTEOSARCOMA) Cell Line. Mississippi Academy of Sciences, Sixty-Eighth Annual Meeting. Volume 49:1, Page 76, January 2004.

Roy R, Tucci M, Patel R, **Ragab AA**, Russell G, and Benghuzzi H. Development of a Novel Image Guided Technique for the Assessment of Osteogenesis Using a Rat Model with Induced Bone Trauma in Pre-Clinical Model. Mississippi Academy of Sciences. Sixty-Eighth Annual Meeting, Vol 49 No. 1, Page 82, January 2004.

Tucci M, Benghuzzi H., Russell G. **Ragab A**, Franklin L, Tsao A, et al, 20<sup>th</sup> Annual Scientific Session, Academy of Surgical Research, Minneapolis, MN, October 7-9, 2004

**Ragab AA**, Validity of self-assessment outcome questionnaires: Patient-Physician discrepancy in outcome interpretation. 40th Rocky Mountain Bioengineering Symposium, 2003.

Davis R, **Ragab AA**, Trost G, Zdeblick T, Translational cervical plate with patellar allograft for anterior cervical discectomy and fusion. Proceedings of the thirteenth annual meeting of the cervical spine research society, 199, 2002.

**Ragab AA**, Flanum M, Galanis C, Zdeblick TA, Anterior Lumbar Interbody Fusion for Treatment of Low Back Pain: Internal Disc Disruption versus Degenerative Disc Disease. Proceedings of the 17th annual meeting of the North American Spine Society, 320, 2002.

Curylo LJ, **Ragab AA**, Bohlman HH, Same level revision lumbar surgery: Analysis of outcome in 63 patients with a 2 to 21-year follow-up. American Academy of Orthopedic Surgeons 67<sup>th</sup> Meeting, Orlando, Florida, 2000.

Greenfield E, Bi Y, Van De Motter R, **Ragab A**, Anderson J, Ninomiya J, Goldberg V, The role of adherent endotoxin in aseptic loosening induced by wear particles. Proceedings of the 67th annual meeting of the American Academy of Orthopedic Surgeons 67<sup>th</sup> Meeting, 507, 2000.

Bi, Van De Motter R, **Ragab A**, Goldberg V, Greenfield E, The role of adherent endotoxin in stimulation of osteoclast differentiation by Orthopedic wear particles, Trans Orthop Res Soc, 24:5, 1999.

Van De Motter R, **Ragab A**, Greenfield E, Synergistic Stimulation of osteoclast differentiation by bone resorptive hormones and cytokines in the presence of conditionally immortalized murine calvarial (CIMC) cells, Trans Orthop Res Soc, 24: 589, 1999.

Van De Motter R, **Ragab A**, Greenfield E, Synergistic Stimulation of osteoclast differentiation by bone resorptive hormones and cytokines in the presence of conditionally immortalized murine calvarial (CIMC) cells, Bone, 23: 5S: 330, 1998.

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**Ragab AA**, Fye MA, Bohlman HH, Lumbar spine surgery for spinal stenosis in patients age 70 years or more: Clinical and radiographic outcomes. American Academy of Orthopedic Surgeons 65<sup>th</sup> Meeting, New Orleans, Louisiana 1998.

**Ragab A**, Bi Y, Lavish S, Van De Motter R, Goldberg V, Greenfield E, Stimulation of cytokine production by titanium wear particles is due to adherent endotoxin, Trans Orthop Res Soc, 23: 355, 1998.

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Fye MA, **Ragab AA**, Bohlman HH, Lumbar spine surgery for spinal stenosis in patients age 70 years or more: Clinical and radiographic outcomes. Proceedings of the 12<sup>th</sup> annual meeting of the North American Spine Society, 320, 1997.

Greenfield EM, Blaha MJ, Lavish SA, Ninomiya JT, **Ragab AA**, Cotton CU, Goldberg VM, The effect of orthopedic wear debris on osteoclast differentiation. Trans Orthop Res Soc, 22: 743, 1997.

**Ragab A**, Gornik S, Banks M, Goldberg V, Greenfield E, Mesenchymal cells promote osteoclast differentiation by producing both cell surface and extracellular matrix molecules. Orthop Trans 20:583-584, 1997.

**Ragab A**, Lavish S, Greenfield E, Ascorbic acid deficiency blocks osteoclast differentiation by inhibiting fusion of osteoclast precursors and reducing the life span of both osteoclasts and their precursors, J Bone Min Res, 12 S1: 197, 1997.

Greenfield E, Lavish S, **Ragab A**, Mesenchymal cells promote osteoclast differentiation by producing both cell surface and extracellular matrix molecules. J Bone Min Res. 11:S1:283, 1996.

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Greenfield EM, **Ragab AA**, Gornik SA, Banks MA, Goldberg VM, Osteoblastic mesenchymal cells promote osteoclast differentiation by producing an ascorbic acid dependent extracellular matrix, Keystone Symposia on The Hematopoietic Microenvironment, 1996.

Goldberg VM, **Ragab AA**, Greenfield EM, The effect of wear debris on osteoclast differentiation. International Hip Society Meeting, 1996.

**Ragab AA**, Banks MA, Goldberg VM, Greenfield EM, Osteoclast differentiation is inhibited by titanium wear debris but is stimulated by bone particles. Transactions of the 2<sup>nd</sup> Combined Meeting of the Orthopedic Research Societies USA, Japan, Canada and Europe, p. 216 and Poster presentation, 1995.

**Ragab A**, Banks M, Goldberg V, Greenfield E, An Ascorbic acid dependent extracellular matrix is essential for osteoclast differentiation. J Bone Min Res, 10: S1: 427, 1995.

**Ragab AA**, Banks MA, Goldberg VM, Greenfield EM, Ascorbic acid is essential in the process of osteoclast differentiation. Cell Biology Retreat, Case Western Reserve University, Poster presentation 1994.

#### **COURSES/MEETINGS ATTENDED:**

American Academy of Orthopedic Surgeons, New Orleans, Louisiana, March, 1997

American Academy of Orthopedic Surgeons, 67<sup>th</sup> Annual Meeting, Orlando, Florida, March 15-19, 2000

AAOS 68<sup>th</sup> Annual Meeting, San Francisco, CA, February 28 – March 4, 2001

AAOS 69<sup>th</sup> Annual Meeting, Dallas, Texas, February 13-17, 2002

MOS Annual Meeting, Natchez, Mississippi, April 12, 2002

30<sup>th</sup> Annual CSRS, Miami Beach, Florida, December 4-8, 2002

CSRS 31<sup>st</sup> Annual Meeting, Scottsdale, Arizona, December 11-13, 2003

AAOS 71<sup>st</sup> Annual Meeting, San Francisco, California, March 10-14, 2004

Mississippi Orthopedic Society, 2004 Annual Meeting, Natchez, Mississippi, April 16-18, 2004

Cervical Spine Research Society, 32<sup>nd</sup> Annual Meeting, Boston, Massachusetts, December 9-12, 2004

AAOS 72<sup>nd</sup> Annual Meeting, Washington, DC, February 23-27, 2005

Seventh International Congress on Spinal Surgery, Belek-Antalya, Turkey, April 14-17, 2005

AO ASIF, Spine Operating Room Course, Pittsburgh, PA, June 24-25, 2005

Fundamental Principles & Techniques in Spinal Surgery, Memphis, TN, August 10-13, 2005

North American Spine Society, Annual Meeting, Philadelphia, PA, September 27 – October 1, 2005

Fundamental Principles & Techniques in Spinal Surgery, Memphis, TN, February 16-18, 2006

Symposium on Minimally Invasive Spinal Surgery, Alexandria, Egypt, March 3, 2006

AAOS 73<sup>rd</sup> Annual Meeting, Chicago, Illinois, March 22-26, 2006

Federation of Spine Associations, Chicago, Illinois, March 25, 2006

Mississippi Orthopedic Society Annual Meeting, Jackson, Mississippi, April 7-9, 2006

AO ASIF Spinal Disorders Course, Scottsdale, Arizona, October 26-29, 2006  
Cervical Spine Research Society, San Diego, California, November 29 - December 2, 2006

AO North America, Principles & Treatment of Spinal Disorders, Redondo Beach, California, January 5-7, 2007

Fundamental Principles and Techniques in Spinal Surgery, San Diego, California, February 2-3, 2007

AAOS 74<sup>th</sup> Annual Meeting, San Diego, California, February 13-18, 2007

Egypt Annual Scientific Conference, Alexandria, Egypt, March 17-18, 2007

Mississippi Orthopedic Society, Point Clear, Alabama, May 3-5, 2007

AO North America Meeting, Coronado, California, June 1-3, 2007

NASS Spine Biologics Course, Spine Biologics and Disc Regeneration: Biologics for the Treatment of Spinal Disorders, Austin, Texas, October 23, 2007

Steamboat Springs Orthopaedic Annual Meeting, Steamboat, CO, February 28 – March 2, 2008

AAOS 75<sup>th</sup> Annual Meeting, San Francisco, California, March 5-9, 2008

AOSpine North America 6<sup>th</sup> Annual Meeting, Banff, Alberta, Canada, April 3-6, 2008

Mississippi Orthopaedic Society, Destin, FL, May 1-4, 2008

AO North America Meeting, Atlanta, GA, May 31 – June 1, 2008

AO Spine North America Meeting, Coronado, CA, June 26-28, 2008

Cleveland Clinic Spine Review, Independence, OH, July 16-22, 2008

Fundamental Principles & Techniques in Spinal Surgery, San Diego, CA, Aug. 8-9, 2008

AO Spine North America, Baltimore MD, Sept. 5-7, 2008

Cervical Spine Forum, Birmingham, AL, Sept. 27-28, 2008

Mississippi Orthopedic Society Socio-economic Meeting, Jackson, MS, Nov. 6, 2008

Musculoskeletal and Research Center Meeting, New Orleans, LA, November 14-15, 2008

AO Spine North America Meeting, Philadelphia, PA, Nov. 22-23, 2008

AO Spine North America, Las Vegas, NV, Jan 15-17, 2009

Caribbean Neuroscience Symposium, Montego Bay, Jamaica, Jan 22-23, 2009

American Academy of Orthopedic Surgeons 76<sup>th</sup> Annual Meeting, Las Vegas Nevada, Feb 25-28 2009

North American Spine Society Spring Break Symposium, San Juan, Puerto Rico, April 23-25, 2009

Advanced Surgical Solutions, Prodisc-C forum, Charlotte, NC May 17, 2009

AOSpine Global Spine Congress, San Fransisco, CA June 23-26, 2009

American Orthopedic Association, Kellog Leadership Series, Evanston, IL, July 17-19, 2009

Advanced concepts in the management of spinal disorders, AO Spine North America, Miami, Florida, August 6-9, 2009

AO Spine North America, Las Vegas, Nevada, August 28-30, 2009

CSRS 39<sup>th</sup> Annual Meeting, Scottsdale, AZ, December 8-10, 2011

AO Spine North America, San Diego, CA, October 2012

American Academy of Orthopedic Surgeons 2013 Annual Meeting, Chicago, IL, March 20-23, 2013

American Academy of Orthopedic Surgeons 2014 Annual Meeting, New Orleans, LA March 14-15, 2014

American Academy of Orthopedic Surgeons 2015 Annual Meeting, Las Vegas, NV March 26-28, 2015

NASS 30<sup>th</sup> Annual Meeting, Chicago, IL October 14-17, 2015

CSRS 43<sup>rd</sup> Annual Meeting, San Diego, CA December 3-5, 2015

American Academy of Orthopedic Surgeons 2016 Annual Meeting, Orlando, FL March 2-5, 2016

NASS 31<sup>st</sup> Annual Meeting, Boston, MA October 26-29, 2016

20<sup>th</sup> Annual Meeting of the North American Neuromodulation Society, Las Vegas, NV, January 19-22, 2017

American Academy of Orthopedic Surgeons 2017 Annual Meeting, San Diego, CA, March 14-18, 2017

NASS 32<sup>nd</sup> Annual Meeting, Orlando, FL, October 26, 2017

### **TEACHING CONTRIBUTIONS:**

Teaching orthopedic residents on a daily basis and when on call. Also teaching spine surgery techniques, indications, approaches and contraindications.

Teaching and training spine fellows techniques, indications, approaches, and contraindications of spine surgery

Teaching first year medical students anatomy, biomechanics, physiology and disease process and pathophysiology of the lumbar spine.

Lecturing to physical therapists and dental school personnel the basics of spine biomechanics and the disease process.

Facilitator and Coordinator of Orthopedic Residents Journal Club. Finalizes the Journal Club outline, appoints faculty to designate assignments, ensures standards are upheld and oversees Journal Club implementation.

### **RESEARCH PROJECTS/PARTICIPATION:**

Intervertebral disc degeneration, mechanisms, pathophysiology and preventive techniques. This work is being performed in collaboration with Dr. M .A. Tucci and Dr. H. A. Benghuzzi, Institutional grants and an OREF grant was obtained to fund this research.

Mechanism of sustained delivery systems using a ceramic capsule and investigation of the effects of various hormones and cytokones on bone healing in a rat osteotomy model and also in a rat degenerative disc model. This work is being performed in collaboration with Dr. M. A. Tucci, Dr. G. Russell and Dr. H. A. Benghuzzi.

Effect of dynamic cervical plates on fusion rates and load sharing and subsidence after anterior cervical discectomy and fusion. Prospective randomized study with Institution Review Board. Studies finalized and data analysis in progress.

Study the effects of load sharing of intervertebral grafts on lumbar spine fusion after interbody lumbar fusion. Biomechanical load sharing in collaboration with Doug Parcell, Ph.D.

Effect of platelets (PRP) on degenerative disc disease.

Randomized, Controlled, Single Blinded, Prospective, Multicenter Study Evaluating the Effect of a Multi-Therapy Trial System on Neurostimulation Trial Outcomes. In progress.

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