



# Update News

by Timothy McTighe, Dr. H.S. (hc)

Executive Director, JISRF

[www.jisrf.org](http://www.jisrf.org)

## Short Learning Curve

*Dr. Bradley Walter, Thomasville, GA*



Dr. Bradley Walter has been highlighted in our past February 2010 Newsletter with his stepping up to the disaster in Haiti.

He practices Orthopedic Surgery in Thomasville, Georgia. Dr. Walter is 42 years old and graduated from medical school 17 years ago. He is a general orthopaedist with special interest in total joints and sport medicine. He is married with six children.

He has developed in a very short time a significant reputation for his expertise in performing the single incision anterior approach for his THA. I am pleased to have had the opportunity to work with Brad over the past year on adapting his technique to implanting the ARC™ tissue conservative stem.



The ARC™ Stem has had a great introductory year 2010 after receiving its FDA 510K approval.

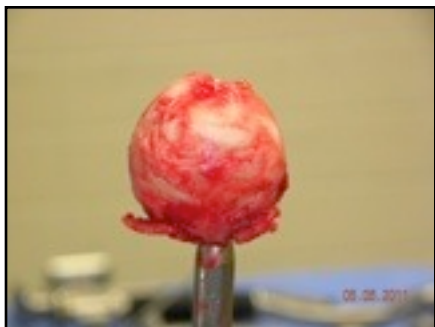
Over 450 stems have been implanted over a controlled release of the product into the market place. JISRF is in the process of conducting an interview with the core group of surgeons about their early impressions on this interesting and novel Total Hip Design.

This interview will be highlighted in our next newsletter.





## COMMITMENT TO LEARNING



*Neck retention cut does not hinder exposure of the socket in a single incision approach.*

It is refreshing to see and work with a bright young surgeon who recognizes the importance of learning. Before his undertaking a new stem and a slight modification to his standard approach Brad was open to discussion of how best to learn about this new hip technology.

We spend considerable time in reviewing the work that was done both on design and surgical technique as a first step process.

Upon his review and decision that this indeed was a device and technology he thought had merit we continued with our second step.

This was the beginning of evaluation of the surgical technique. Since Dr. Walter does the Micro Plasty Stem which

requires a conventional neck resection and the ARC stem is a neck retaining device he felt their was no inherent risk in an intraoperative evaluation of the surgical preparation for the ARC stem with a conversion to the Micro Plasty stem. This provided him the opportunity to see what he might come across with a high neck resection and any difficulty with exposure on the acetabular socket. Step two persuaded him to learn more.



Step three was to take a short trip down to Tampa, FL for a cadaver training session. This again reinforced to Dr. Walter that this indeed was a device and technology that he would considering for his patients.

Now at this point most surgeons would schedule a case and begin clinical/surgical evaluation of this device and technology in their practice.

Brad and I discussed one more step before his evaluation and that was to visit Dr. John Keggi a leader in the anterior single incision technique and one of the clinical/surgical members of the ARC team.

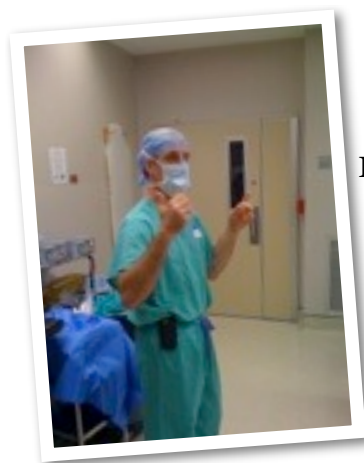
**Twin Areostar and pilot Dr. Louis Keppler**

Ryan King, Brad Walter, Louis Keppler, McTighe



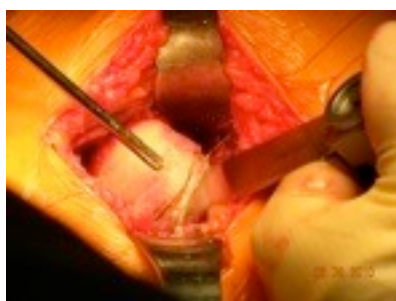


FOURTH STEP TAKEN VISIT WITH DR. JOHN KEGGI, WATERBURY, CT



Dr. Bradley Walter

Dr. Lee Rubin, Dr. John Keggi and Dr. Walter



**Single incision anterior approach does not require any special tables or expensive tools for performing an ARC™ tissue conservative stem.**

**Taking time to learn about new technologies provides for the best possible outcome when this technology is adopted for your own patients. As a developer of new technology I can assure you that I prefer to see a logic step by step learning process as compared to a quick surgical application.** McTighe



STEP FIVE

With as much preparation as possible the next step was to begin a slow clinical/surgical evaluation. Regardless of your learning process let's not forget about your surgical team. New devices alter their intraoperative procedures so make sure you are keeping them informed on your decision making. This will aid in a smooth transition during surgery.



---

ALL NEW DEVICES AND SURGICAL APPROACHES HAVE A LEARNING CURVE!

Proper appreciation of learning curves are important to reduce risk to our patients and the reputation of the new technology.

Learning a new surgical approach should be undertaken before leaning a new device. Trying to adapt to a new approach with a new device increases the chances of something going wrong.

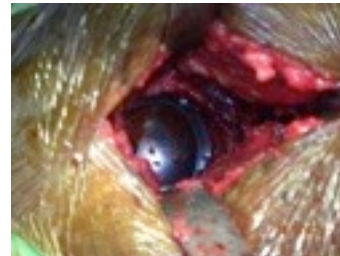
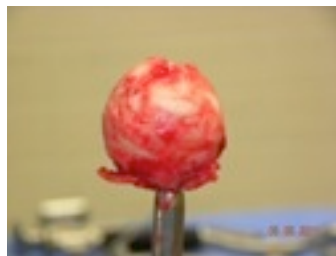
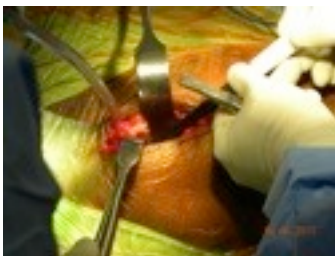
There has been significant movement in adapting the single incision anterior approach to ones treatment modality. Even though the ARC stem has been designed with this approach in mind, I cringe when I hear someone wants to learn the single incision technique with this stem. Too often something is going to go wrong. The anterior approach is a difficult approach to learn. Learning curves have been reported from 20 to 50 cases.

The ARC stem has a low learning curve 3-4 cases but it is a definitive learning process.

So my advice is to take your time do your homework and don't let outside pressure you into adapting new technology prematurely.



---

SINGLE INCISION BY DR. BRADLEY WALTER

The retention of the neck does not hinder exposure on the socket.

Use of the Aquamantys™ system is very helpful in controlling bleeding.



Making sure you do your posterior releases is helpful and as you can see from these shots there is no lack of exposure of the acetabulum.

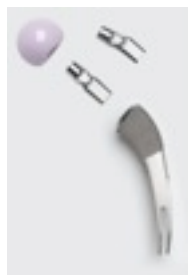
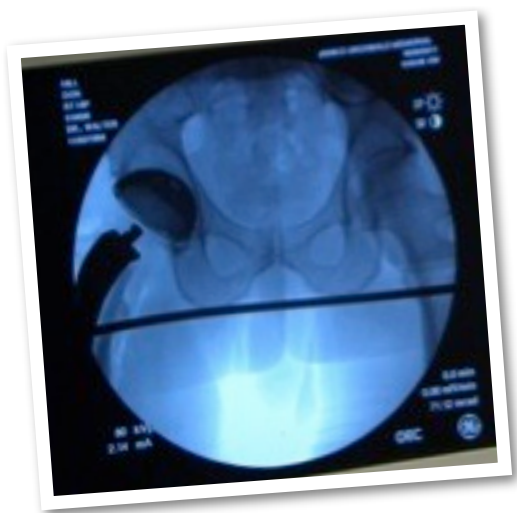


The femur has excellent exposure with no special tools or table required.





## INTRAOPERATIVE X-RAYS OR FLUOROSCOPY CAN BE HELPFUL



Even with the definitive implants in place the surgeon has the opportunity to fine tune joint mechanics with the use of modular necks. Necks are available in neutral, 8° varus/Valgus, 12° varus/valgus and 15° version. This along with modular heads provides for optimum flexibility in restoring joint mechanics.

---

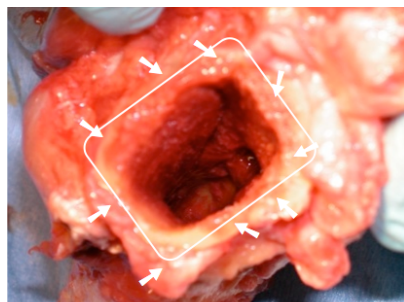
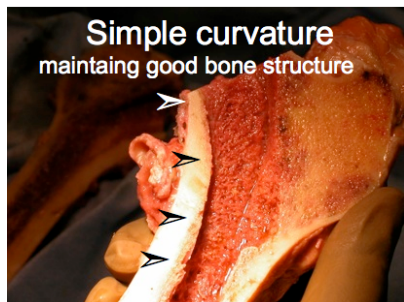
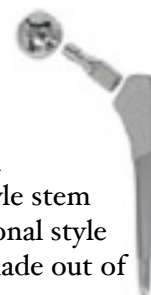
**THERE HAS BEEN SOME CONCERNS OVER THE POTENTIAL RISK OF MODULAR NECKS**

It is important to recognize that all modular junctions are not design with the same features and benefits. Do not lump all modular necks into the same over all performance ratio.

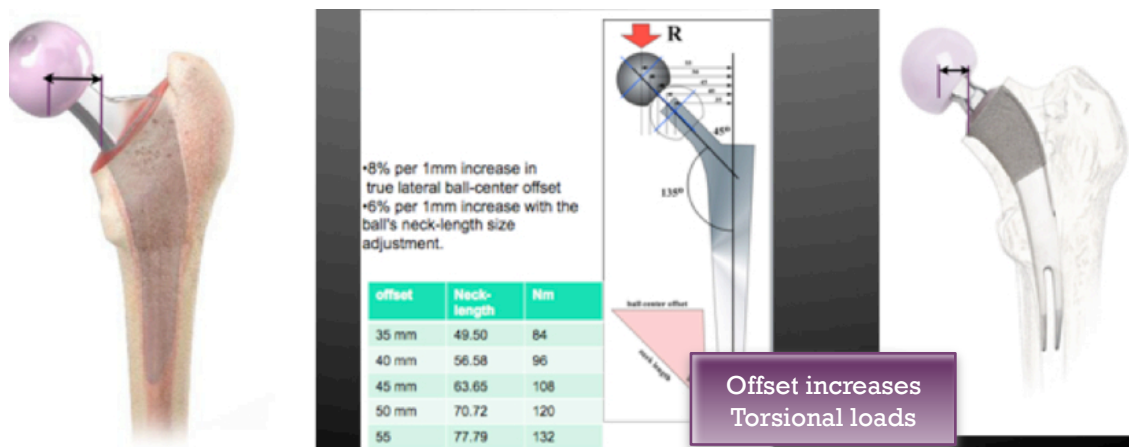
Modular necks in neck sparing designs have a significant advantage over the same style modular neck in a conventional style stem.



An example of a conventional style stem with a conventional style modular neck made out of titanium alloy.



The femoral neck often has some of the best quality bone available for load transfer. Retention of the neck has significant mechanical benefits.

**NECK RETENTION REDUCES BOTH TORSIONAL AND BENDING MOMENTS**

WORK DONE BY JISRF AND PRESENTED AT THE MINI SYMPOSIUM HELD PRIOR TO AAHKS ANNUAL MEETING NOVEMBER 2011 ON “**LESSONS LEARNED: TISSUE SPARING THA**”

**FEA Analysis of TSI™ Neck Stabilization Stem**

By

**Declan Brazil, PhD, Co-Director of Research, JISRF**

&

**Timothy McTighe, Dr. H.S. (hc)**

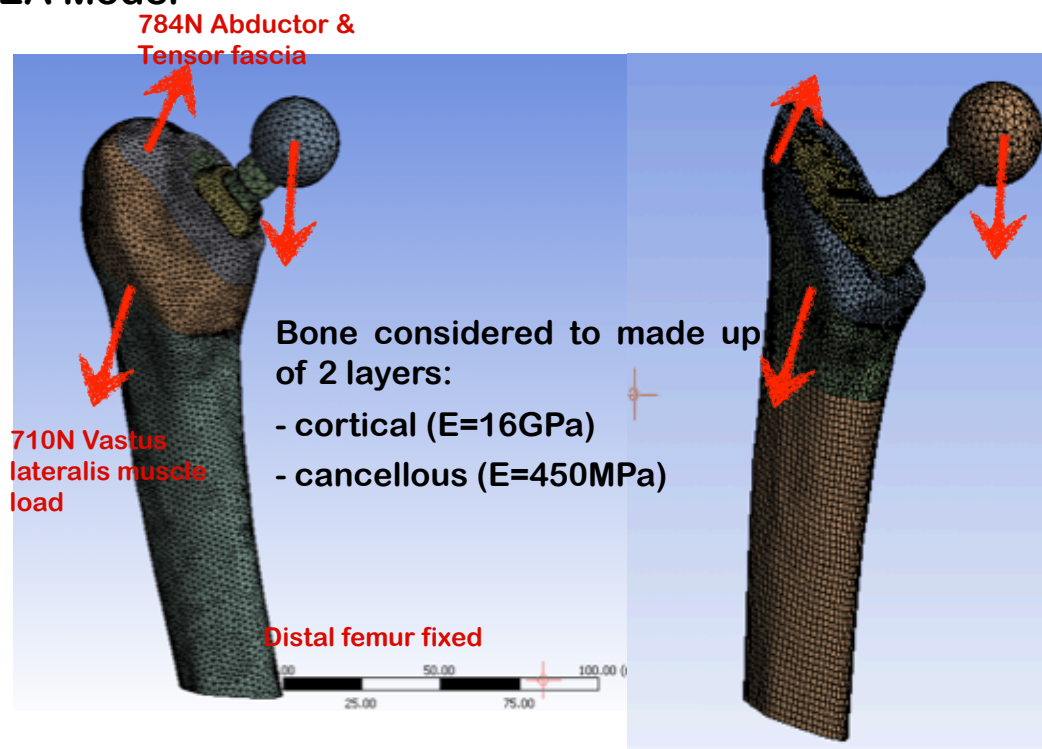
**Objectives**

- Compare stresses generated in conventional stem compared to neck stabilization stem when restoring same head centre.
- Compare strain in bone.
- Consider the effect of varus / valgus tilting both stem designs.



## Model Set Up

### FEA Model



## Components

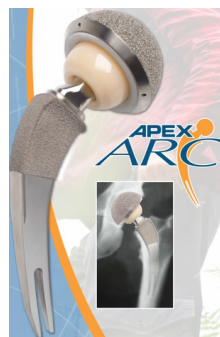
Components used to restore head centre

- TSI implant size 1 (range supplied is 1 through to 5),
- 22mm neck with +8mm head.
- Taperloc Stem Size 3, high offset with +8mm head.

Both Stems have Plasma coated proximal bodies and uncoated distally. Both implants were bonded to bone in coated region and frictionless conditions of remaining part of stem.

Implant Materials:

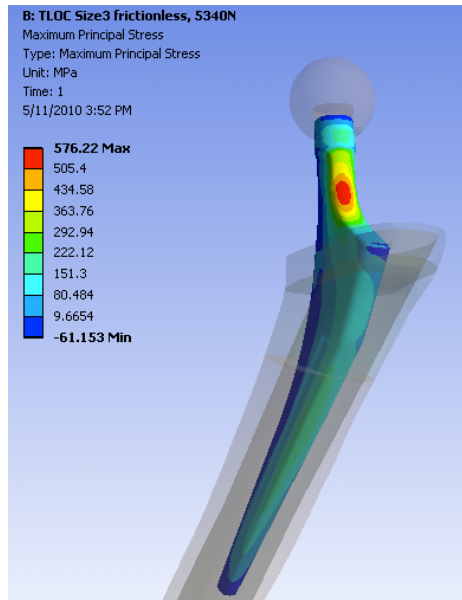
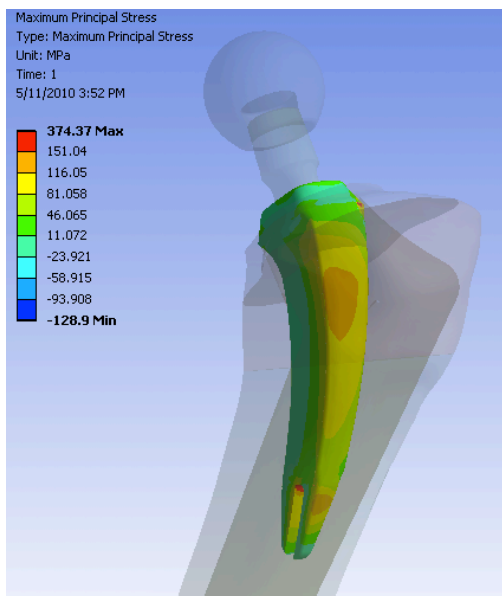
- Neck Stabilization implant Titanium Stem, CoCr Neck.
- Conventional Stem, Monoblock Titanium



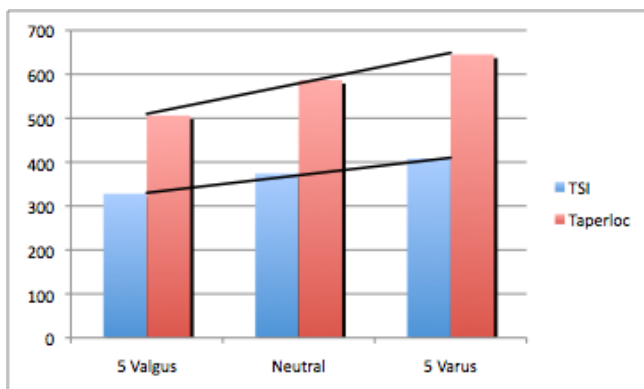


## Stress in Stem

- The maximum principal tensile stress in the neck stabilization stem was 35% less than that of the monoblock design.



- The effect of Varus tilting Stem was much less for the neck stabilization stem compared to the monoblock design.



### Head Center

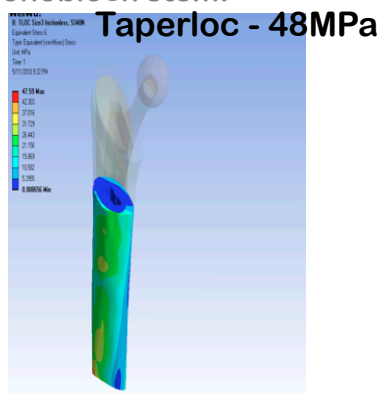
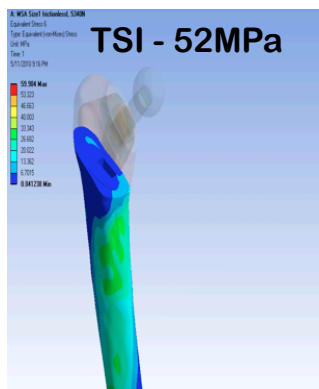






## Stress in Femur

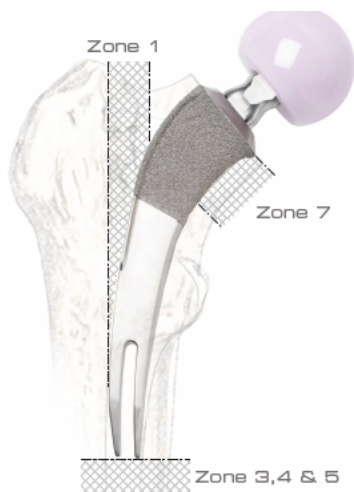
- The equivalent stress in the distal femur was similar for both the neck stabilization and the monoblock stem.



Stiffening effect of long stem in femoral canal is equivalent to additional structural support achieved by neck stabilization.

## Conclusions

- Biomechanical advantage of neck stabilization stem produces lower stress in stem compared to monoblock equivalent.
- Stress in bone is comparable for both neck stabilization and monoblock design.
- Effect of varus tilting on monoblock design has more than double effect on stem stress.



The basic science behind this stem along with the bone preserving features provides for the potential of increased survivorship.

The initial clinical/surgical impression are all very encouraging. Additional studies are underway and we will continue to follow this technology with great interest.



# New TSI™ Members

We are always pleased to add new members to our group.

Dr. Michael Christie, Southern Joint Replacement Institute, Nashville, TN

Dr. Harry Rubash, MGH, Boston, MA

Dr. Henrik Malchau, MGH, Boston, MA

Dr. Javad Parvizi, MD, Rothman Institute, Philadelphia, PA

Dr. Kirby D. Hitt, Texas A&M University, Temple TX

Dr. Ormonde M. Mahoney, Athens Orthopaedic Clinic, Athens, GA

Dr. Michael P. Bolognesi, Director Adult Reconstruction Duke University

Dr. Stefan Kreuzer, Memorial Bone & Joint Clinic, Houston, TX

You can learn more about the International TSI™ Study Group by visiting our web site:

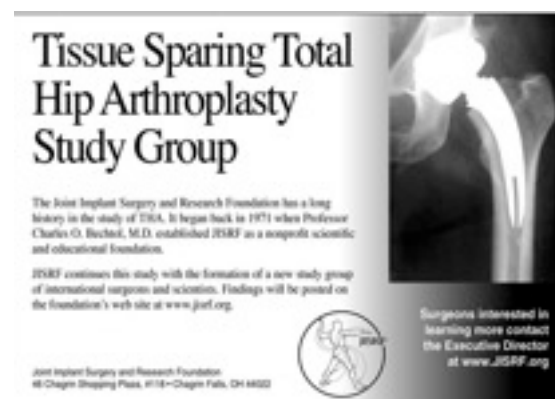
[www.jisrf.org/orthopaedic\\_study\\_groups/tissue\\_sparing\\_stem\\_designs.htm](http://www.jisrf.org/orthopaedic_study_groups/tissue_sparing_stem_designs.htm)

We strive to keep this site update with the latest findings, and we welcome contributions for posting consideration.

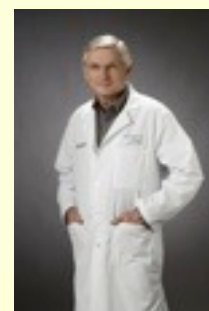
We have recently added a new surgical video by Dr. Charles Bryant from OKC, OK showing his single anterior approach to the hip.

A case report on proximal modularity by Louis Keppler, MD

Also a talk I presented at the RLO:  
Charleston Joint Replacement Surgery 2011  
“Short Stems for THA”



Dr. Charles Bryant



FEA Analysis on TSI Stem





Page 1

MID-AMERICA ORTHOPAEDIC ASSOCIATION MEMBERS  
As of June 1, 2010

## MEMBERSHIP BY STATE

Alabama	22	Missouri	99
Arkansas	32	Nebraska	39
Illinois	174	North Dakota	6
Indiana	83	Ohio	156
Iowa	47	Oklahoma	30
Kansas	61	South Dakota	17
Kentucky	25	Tennessee	57
Louisiana	42	Texas	87
Michigan	149	Wisconsin	94
Minnesota	116	Outside geographical area	127
Mississippi	21	<b>TOTAL</b>	<b>1,464</b>

## MEMBERSHIP BY CLASSIFICATION

Active	925
Candidate	97
Associate	7
Affiliate	7
Emeritus	373
Inactive	1
Honorary	60
Corresponding	4
<b>TOTAL</b>	<b>1,464</b>



May 2011

Mid-America Orthopaedic Association Newsletter

## WELCOME NEW MEMBERS

Welcome to the following new members who were approved by the Membership Committee and Board of Directors on February 18, 2011, and April 6, 2011:

## ACTIVE Members

John R. Babb, M.D. Wichita, KS	David Rispler, M.D. Grand Rapids, MI	Timothy E. Iorio, M.D. Detroit, MI
Christopher M. Bieniek, M.D. Hannibal, MO	Peter S. Rose, M.D. Rochester, MN	Todd C. Johnson, M.D. Minneapolis, MN
Julie Y. Bishop, M.D. Columbus, OH	William R. Sterba, M.D. Warrenville, IL	Richard W. Kang, M.D. Chicago, IL
Brett D. Crist, M.D., FACS Columbia, MO	Andrew G. Todd, M.D. New Orleans, LA	Thomas J. Kesman, M.D. Rochester, MN
Brian C. de Beaubien, M.D. Saginaw, MI	Gregory R. Vrabec, M.D., FRCS Akron, OH	Benjamin Kleinhenz, M.D. Dayton, OH
Michael J. Gardner, M.D. St. Louis, MO	Lisa Wasserman, M.D. Edina, MN	Peter A. Knoll, M.D. Miamisburg, OH
Jeffrey F. Granger, M.D. Columbus, OH	David A. Weimer, M.D. Canfield, OH	James Leonard, M.D. Chicago, IL
Robert J. Groya, M.D. LeGrange Park, IL	<b>AFFILIATE Member</b>	Thomas Roy Lewis, M.D. Oklahoma City, OK
Nathan A. Hoekzema, M.D. Eau Claire, WI	Richard A. Brash, M.D. Oak Brook, IL	Vincent Yu-hin Ng, M.D. Columbus, OH
Jason O. Holcomb, M.D. Wyandotte, MI	Mr. Timothy McTigue Chagrin Falls, OH	Matthew Noyes, M.D. Dayton, OH
Grant L. Jones, M.D. Columbus, OH	<b>CANDIDATE Members</b>	Peter C. Rhee, D.O. Rochester, MN
Beau S. Konigsberg, M.D. Omaha, NE	Robert B. Bartelt, M.D. Rochester, MN	Seth D. Rosenzweig, M.D. New Iberia, LA
Tad M. Mabry, M.D. Rochester, MN	Christopher R. Boone, M.D. Royal Oak, MI	Vani J. Sabesan, M.D. Kalamazoo, MI
Guido Marra, M.D. Maywood, IL	Adrian T. Davis, M.D. St. Louis, MO	Matthew D. Saltzman, M.D. Chicago, IL
Jeffrey R. McLaughlin, M.D. Oshkosh, WI	Matthew F. Dilisio, M.D. Akron, OH	J. Paul Schroepel, M.D. Kansas City, KS
Ryan M. Nunley, M.D. St. Louis, MO	Ryan P. Finnan, M.D. Cincinnati, OH	Jaron P. Sullivan, M.D. Iowa City, IA
	Ian M. Gradsar, M.D. Akron, OH	Jason P. Sullivan, M.D. Forest Park, IL
	Carlos A. Higuera, M.D. Cleveland, OH	

With Brash and myself there are now a total of 9 affiliate members. In deed it is an honor to receive membership in this group.

## My Thanks

On a personal and professional note: I am pleased to have received notice of my recent acceptance into the Mid-American Orthopaedic Association.

May 1, 2011 marks my 41 year anniversary in the orthopaedic health care field. I have had the pleasure of being accepted into various professional societies over the years and look forward to participating in the Mid-American Orthopaedic association. I would like to encourage all to stay active and don't ever give up on reaching the next level. I look forward to the next ten years and hopefully continuing to make a contribution to the field of orthopaedics.

## Current Memberships

AAHKS

Australian Orthopaedic Association

ORS

Society of Biomaterials

OARSI

ISTA