35th ANNUAL INJURIES IN BASEBALL COURSE

Course Chairmen:
James R. Andrews, M.D.
Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.
Glenn S. Fleisig, Ph.D.

January 27–29, 2017

Renaissance Dallas Hotel
Dallas, TX
2017 Injuries in Baseball Course

Recognized by:

Organizing Committee:
James R. Andrews, M.D.
Michael J. Axe, M.D.
E. Lyle Cain, Jr., M.D.
Glenn Dortch
Jeffrey R. Dugas, M.D.
Benton Emblom, M.D.
Glenn S. Fleisig, Ph.D.
José O. Ortega, M.D.
Kevin E. Wilk, P.T., D.P.T.,
F.A.P.T.A.

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James R. Andrews, M.D.
Kevin E. Wilk, P.T., D.P.T.,
F.A.P.T.A.
Glenn S. Fleisig, Ph.D.

Course Coordinator:
Caroline May
ASMI gratefully acknowledges generous educational grants from:

Zimmer Biomet

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Sponsored by:

ASMI
American Sports Medicine Institute

ANDREWS
Sports Medicine and Orthopaedic Center
2017 Injuries in Baseball Course

Faculty

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American Sports Medicine Institute
Birmingham, Alabama

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Andrews Sports Medicine & Orthopaedic Center
Fellowship Director
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Ben Hogan Sports Medicine
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Coastal Therapy
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Injury Research Advisor
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NCAA Baseball Coach
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Chad Hanson, D.O.
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Gulf Breeze, Florida

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National Federation of State High School Associations
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Children’s Health Andrews Institute - Orthopaedics & Sports Medicine
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Vice President, Licensing
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USA Baseball Women’s National Team (2006 - Present)
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USA Baseball Medical & Safety Committee
Atlanta, Georgia

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Drexel and Jefferson University Hospital
Economics Chairman
Pennsylvania Academy of Dermatology
Advisory Board, American Academy of Dermatology
Founder
Major League Baseball Skin Cancer Program
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Physical Therapist
MedSport
Ann Arbor, Michigan

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Roseman Health Sciences University College of Dental Medicine
South Jordan, Utah
Adjunct Professor
Department of Pediatric Dentistry
University of Alabama at Birmingham School of Dentistry
Dental Consultant
Atlanta Braves Minor Leagues
Salt Lake City, Utah

Ron Wolforth
President and CEO
Texas Baseball Ranch
Pitching Central
The Can-Am Sports Academy
Montgomery, Texas
Needs:

The 2015 National Electronic Injury Surveillance System reported 120,234 emergency room visits due to baseball related shoulder, elbow, trunk, lower arm, head, neck, ankle and facial injuries. When we consider non-emergency room injuries from all age groups and skill levels, we conclude there is a major need to teach diagnosis, treatment and management of these injuries.
Course Description:
This three-day course is for athletic trainers, biomechanists, physical therapists, sports physicians, orthopaedic surgeons, physiologists, strength and conditioning coaches, certified personal trainers and others who work with athletes in baseball.

Course Objectives:
- Integrate shoulder anatomy with biomechanics, examination, treatment and rehabilitation of the unstable shoulder
- Apply current advances in treatment and rehabilitation to injuries of the throwing shoulder
- Review current advances in the rehabilitation of injuries to the throwing shoulder
- Recognize and report current trends associated with training procedures in baseball
- Examine current concepts relating to the anatomy, biomechanics, examination and treatment of the elbow
- Review current advances in the treatment and rehabilitation of injuries to the elbow
- Discuss the practical aspects of rehabilitation and conditioning techniques for today’s athlete
- Apply recent advances in biomechanics and surgical treatment to softball related injuries
- Review the practical aspects of developing a healthy pitcher
- Examine current concepts in prevention and treatment of injuries in youth baseball
- Review current advances in treatment and rehabilitation for the hip and core

Course Location:
Renaissance Dallas Hotel
2222 North Stemmons Freeway
Dallas, TX 75207
800-468-3571
General Information:

Registration:
Renaissance Dallas Hotel
Pre-Function Area
Thursday, January 26, 2017  4:00 p.m. – 6:00 p.m.
Friday, January 27, 2017  6:30 a.m. – 8:00 a.m.
Saturday, January 28, 2017  6:30 a.m. – 7:00 a.m.
Sunday, January 29, 2017  7:00 a.m. – 8:00 a.m.

Continental Breakfast:
Friday, Saturday and Sunday mornings in the ASMI Exhibit Area, during registration hours.

Lunch and Dinner:
On your own

Registrants’ Reception:
Friday, January 27, 2017 at 6:15 p.m. in the ASMI Exhibit Area

Course Cancellation:
We reserve the right to cancel this course.

Non-Discrimination Statement:
The American Sports Medicine Institute does not discriminate on the basis of race, color, national origin, religion, sex, disability, military status, sexual orientation or age. ASMI is committed to accessibility and non-discrimination in all aspects of its continuing education activities. Participants who have special needs are encouraged to contact program organizers so that all reasonable efforts to accommodate these needs can be made.
Accreditation:

CME
American Sports Medicine Institute is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The American Sports Medicine Institute designates this live activity for a maximum of 21 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

BOC
The American Sports Medicine Institute (BOC AP#P400) is approved by the Board of Certification, Inc. to provide continuing education to Athletic Trainers. EBP CEU(s) pending.

NSCA
The National Strength and Conditioning Association (NSCA) approved 1.3 CEU(s) for certified individuals attending this event.

PT
This continuing education program has been approved by the Alabama Physical Therapy Association for 21 contact hours, the Arkansas State Board of Physical Therapy for 21 contact hours, and the Louisiana Physical Therapy Board for 21 contact hours.

Pending Accreditation
Accreditation pending from the Texas Physical Therapy Association.
FRIDAY
January 27, 2017

8:00 a.m.  WELCOME
James R. Andrews, M.D.
Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.
Glenn S. Fleisig, Ph.D.

SESSION I – SHOULDER I

Objective:  Integrate shoulder anatomy with biomechanics, examination, treatment and rehabilitation of the unstable shoulder

8:05 a.m.  Moderator/Faculty Introductions
James R. Andrews, M.D.

8:10 a.m.  VIDEO DEMONSTRATION
Anatomy of the Shoulder
Moderator: Dustin Loveland, M.D.
Presenters:  Ajay Lall, M.D.
Michael K. Ryan, M.D.

8:30 a.m.  Biomechanics of the Throwing Shoulder
Glenn S. Fleisig, Ph.D.

8:50 a.m.  KEYNOTE ADDRESS
Examination of the Throwing Shoulder
Steve E. Jordan, M.D.
SESSION II – SHOULDER II

Objective: Apply current advances in treatment and rehabilitation to injuries of the throwing shoulder

10:25 a.m. Moderator/Faculty Introductions
Jeffrey R. Dugas, M.D.

10:30 a.m. KEYNOTE ADDRESS
Partial Thickness Rotator Cuff Tears in Throwers: Surgical Management
Neal S. ElAttrache, M.D.

10:50 a.m. Full Thickness Rotator Cuff Tear in Throwers
Christopher G. Mazoué, M.D.

11:10 a.m. Rehabilitation of Rotator Cuff Lesions in Throwers: Non-Op & Post-Op
Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.

11:30 a.m. Neurovascular Problems in the Thrower's Shoulder
Jeffrey R. Dugas, M.D.
Objective Criteria to Begin a Throwing Program
Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.

Panel Discussion
Moderator: Jeffrey R. Dugas, M.D.
Panelists: Neal S. ElAttrache, M.D.
Christopher G. Mazoué, M.D.
Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.

KEYNOTE ADDRESS
Skin Cancer in Baseball
Kenneth Wasserman, M.D.

SESSION III – REHABILITATION

Objective: Review current advances in the rehabilitation of injuries to the throwing shoulder

2:05 p.m. Moderator/Faculty Introductions
Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.

2:10 p.m. The Science and Clinical Application of Blood Flow Restriction During Therapy
Michael Bagwell, D.P.T.

2:25 p.m. Training for the Scapulothoracic Joint & Thoracic Spine
Russ Paine, P.T.

2:40 p.m. Rehabilitation of SLAP Lesions: Non-Op & Post-Op

2:55 p.m. Return to Play Criteria: A Quantitative and Qualitative Functional Testing Algorithm

3:10 p.m. Objective Progression Through the Interval Throwing Program (ITP)
Robert A. Williams Jr., P.T., D.P.T.

3:25 p.m. Breathing Exercises to Enhance Rehab & Performance
Ken Crenshaw, A.T., C., C.S.C.S.
3:40 p.m. **Panel Discussion**
Moderator: Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.
Panelists: Michael Bagwell, D.P.T.
Russ Paine, P.T.
George Davies, D.P.T., M.Ed., P.T., S.C.S.,
Robert A. Williams Jr., P.T., D.P.T.
Ken Crenshaw, A.T.,C., C.S.C.S.

4:10 p.m. **BREAK**

**SESSION IV – STRENGTH & CONDITIONING**

Objective: Recognize and report current trends associated
with training procedures in baseball

4:30 p.m. **Moderator/Faculty Introductions**
Michael J. Axe, M.D.

4:35 p.m. **Plyometric Training for the Thrower:
Techniques & Evidence**
Robert A. Williams Jr., P.T., D.P.T.

4:55 p.m. **The Effects of a 6 Week Weighted Ball
Throwing Program on Velocity & Arm Stress**

5:15 p.m. **Establishing a Neuromuscular Base for
Improving Baseball Performance**
James M. Ronai, M.S., P.T., A.T.,C., C.S.C.S.

5:35 p.m. **Interval Throwing Programs Revisited: Where
Are We Today?**
Michael J. Axe, M.D.

5:55 p.m. **Panel Discussion**
Moderator: Michael J. Axe, M.D.
Panelists: Robert A. Williams Jr., P.T., D.P.T.
James M. Ronai, M.S., P.T., A.T.,C., C.S.C.S.

6:15 p.m. **ADJOURN and REGISTRANTS’ RECEPTION**
SESSION V – ELBOW I

Objective: Examine current concepts relating to the anatomy, biomechanics, examination and treatment of the elbow

8:00 a.m. Moderator/Faculty Introductions
E. Lyle Cain, Jr., M.D.

8:05 a.m. VIDEO DEMONSTRATION
Anatomy of the Elbow
Moderator: Karim A. Meijer, M.D.
Presenters: Tariq Hendawi, M.D.
Andrew Morris, M.D.

8:25 a.m. Biomechanics of the Throwing Elbow
Rafael Escamilla, Ph.D., P.T., C.S.C.S., F.A.C.S.M.

8:45 a.m. LIVE VIDEO PRESENTATION
Physical Exam of the Elbow
Moderator: Steve E. Jordan, M.D.
Presenters: John E. Conway, M.D.
Neal S. ElAttrache, M.D.

9:05 a.m. Elbow Initial Evaluation and Treatment of Pain With Emphasis on Unusual Pathologies
Daryl C. Osbahr, M.D.

9:25 a.m. Augmented UCL Repair with Internal Brace: When and How?
Jeffrey R. Dugas, M.D.
Panel Discussion  
Moderator: E. Lyle Cain, Jr., M.D.  
Panelists: Karim A. Meijer, M.D.  
Rafael Escamilla, Ph.D., P.T., C.S.C.S., F.A.C.S.M.  
Steve E. Jordan, M.D.  
John E. Conway, M.D.  
Neal S. ElAttrache, M.D.  
Daryl C. Osbahr, M.D.  
Jeffrey R. Dugas, M.D.

SESSION VI – ELBOW II

Objective: Review current advances in the treatment and rehabilitation of injuries to the elbow

10:20 a.m. Moderator/Faculty Introductions  
James R. Andrews, M.D.

10:25 a.m. Case Presentation: Radial Stress Fractures in Professional Pitchers  
Karim A. Meijer, M.D.

10:35 a.m. UCL Reconstruction: Current Technique and Outcomes  
E. Lyle Cain, Jr., M.D.

10:55 a.m. UCL Reconstruction Utilizing a Muscle Splitting Approach  
Neal S. ElAttrache, M.D.

11:15 a.m. Revision UCL Reconstruction  
Christopher G. Mazoué, M.D.

11:35 a.m. KEYNOTE ADDRESS  
Posterior Elbow Pain: My Approach to Stress Fractures of Osteophytes  
John E. Conway, M.D.

11:55 a.m. Long Term Outcomes of UCL Reconstruction  
Daryl C. Osbahr, M.D.

12:15 p.m. Rehabilitation Following UCL Surgery: Reconstruction & Internal Brace  
Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.
12:35 p.m. **Panel Discussion and Case Presentations**  
Moderator: James R. Andrews, M.D.  
Panelists: Karim A. Meijer, M.D.  
E. Lyle Cain, Jr., M.D.  
Neal S. ElAttrache, M.D.  
Christopher G. Mazoué, M.D.  
John E. Conway, M.D.  
Daryl C. Osbahr, M.D.  
Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.

12:55 p.m. **JAMES R. ANDREWS AWARD FOR EXCELLENCE IN BASEBALL SPORTS MEDICINE**

1:00 p.m. **LUNCH**

**CONCURRENT SESSION VII-A REHABILITATION**

Objective: Discuss the practical aspects of rehabilitation and conditioning techniques for today’s athlete

2:00 p.m. **Moderator/Faculty Introductions**  

2:05 p.m. **Impact of Youth Baseball on MLB**  
Jamie Reed, A.T., C., L.A.T.

2:25 p.m. **Extended Throwing Programs for the Thrower Following UCL Surgery**  
Ron Porterfield, A.T., C.

2:45 p.m. **Training the Core**  
Ken Crenshaw, A.T., C., C.S.C.S.

3:05 p.m. **Abdominal Injuries in Baseball: Incidence & Prevention**  
Stan Conte, P.T., D.P.T., A.T., C.

3:25 p.m. **My Best Exercises for Strengthening the Throwers Shoulder**  
Russ Paine, P.T.

3:45 p.m. **Manual Therapy Techniques for the Throwers Shoulder**  
4:05 p.m.  **Science Meets Practice: Advanced Plyometrics Training for the Thrower**  

4:25 p.m.  **ACL Rehabilitation in Athletes: Is Delaying Return to Sports Better?**  
Lynn Snyder-Mackler, Sc.D., P.T., F.A.P.T.A.

4:45 p.m.  **Panel Discussion**  
**Moderator:** Michael M. Reinold, D.P.T., S.C.S., C.S.C.S.  
**Panelists:** Jamie Reed, ATC, L.A.T.  
Ron Porterfield, A.T.,C.  
Ken Crenshaw, A.T.,C., C.S.C.S.  
Stan Conte, P.T., D.P.T., A.T.,C.  
Russ Paine, P.T.  
Lynn Snyder-Mackler, Sc.D., P.T., F.A.P.T.A.

5:05 p.m.  **ADJOURN**

**CONCURRENT SESSION VII-B  SOFTBALL**

**Objective:** Apply recent advances in biomechanics and surgical treatment to softball related injuries

2:00 p.m.  **Moderator/Faculty Introductions**  
Gretchen Oliver, Ph.D., F.A.C.S.M., A.T.,C., C.E.S.

2:05 p.m.  **KEYNOTE ADDRESS**  
*Why Are Our Softball Players Getting Injured?*  
John D. Polousky, M.D.

2:25 p.m.  **Softball Pitching Biomechanics**  
Sherry Werner, Ph.D.

2:45 p.m.  **Windmill Pitching Biomechanics and Pain History**  
Gretchen Oliver, Ph.D., F.A.C.S.M., A.T.,C., C.E.S.

3:05 p.m.  **Conservative Treatment of Upper Extremity Injuries in Softball Players**  
Lynn Snyder-Mackler, Sc.D., P.T., F.A.P.T.A.
3:25 p.m.  Surgical Treatment of Shoulder & Elbow Injuries in Softball Pitchers
            Anthony Scillia, M.D.

3:45 p.m.  The Softball 10 Thrower's Program
            Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.

3:55 p.m.  Back Pain Management in Softball Players
            Andrew Robb, B.A., D.C., F.R.C.C.S.S.(C.), C.S.C.S.

4:15 p.m.  Recovery Time for Softball Pitchers Based Upon Pitch Volume and Passive ROM
            Gretchen Oliver, Ph.D., F.A.C.S.M., A.T.,C., C.E.S.

4:35 p.m.  Video Analysis and Intervention for Softball Pitching
            Sherry Werner, Ph.D.

4:55 p.m.  Panel Discussion
            Moderator: Gretchen Oliver, Ph.D., F.A.C.S.M., A.T.,C., C.E.S.
            Panelists: John D. Polousky, M.D.
            Sherry Werner, Ph.D.
            Lynn Snyder-Mackler, Sc.D., P.T., F.A.P.T.A.
            Anthony Scillia, M.D.
            Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.
            Andrew Robb, B.A., D.C., F.R.C.C.S.S.(C.), C.S.C.S.

5:10 p.m.  ADJOURN

CONCURRENT SESSION VII-C  COACHING

Objective: Review the practical aspects of developing a healthy pitcher

2:00 p.m.  Moderator/Faculty Introductions
            E. David Osinski, M.A.

2:05 p.m.  Comparison of Pitching Mechanics and Control Among Various Pitch Types
            Rafael Escamilla, Ph.D., P.T., C.S.C.S., F.A.C.S.M.

2:25 p.m.  The Six Primary Contributors to Injury or Performance Issues with Youth Pitchers
            Ron Wolforth
2:45 p.m.  
**Are Left-Handed Pitchers Really Different? A Biomechanical Investigation**  
Glenn S. Fleisig, Ph.D.

3:05 p.m.  
**Comparison of Coach Video Analysis to Biomechanical Analysis**  
E. David Osinski, M.A.

3:25 p.m.  
**The Mechanics of Hitting**  
Mike Gaski, M.A., M.F.A.

3:45 p.m.  
**Locker Room Dermatology**  
Kenneth Wasserman, M.D.

4:05 p.m.  
**A New Prototype Mouthguard**  
John Wisniewski, D.M.D., M.S.  
Ron Porterfield, A.T.,C.

4:35 p.m.  
**Panel Discussion**  
Moderator: E. David Osinski, M.A.  
Panelists: Rafael Escamilla, Ph.D., P.T., C.S.C.S., F.A.C.S.M.  
Ron Wolfarth  
Glenn S. Fleisig, Ph.D.  
Mike Gaski, M.A., M.F.A.  
Kenneth Wasserman, M.D.  
John Wisniewski, D.M.D., M.S.  
Ron Porterfield, A.T.,C.

5:00 p.m.  
**ADJOURN**
SUNDAY
January 29, 2017

7:15 a.m.  Strength & Conditioning Demonstration
(Note: wear comfortable workout clothes)
James M. Ronai, M.S., P.T., A.T.C., C.S.C.S.

GOLDBERG MUELLER KEYNOTE ADDRESS ON INJURY PREVENTION (Sponsored by USA Baseball)

8:00 a.m.  Introduction of Keynote Address
Glenn S. Fleisig, Ph.D.
Mike Gaski, M.A., M.F.A.
Fred Mueller, Ph.D.
James R. Andrews, M.D.

8:10 a.m.  KEYNOTE ADDRESS
Injury Patterns in Baseball: Predictions, Risk Factors, Analysis & Prevention
Stan Conte, P.T., D.P.T., A.T.C.

SESSION VIII  Youth & High School Baseball

Objective:  Examine current concepts in prevention and treatment of injuries in youth baseball

8:40 a.m.  Moderator/Faculty Introductions
Steve E. Jordan, M.D.

8:45 a.m.  Update on Risk Factors in Youth Baseball Pitchers
Steve E. Jordan, M.D.

9:05 a.m.  Longitudinal Changes in Pitching Mechanics from Youth to High School
Glenn S. Fleisig, Ph.D.

9:25 a.m.  Update on Safety Regulations and Issues in High School Baseball
B. Elliot Hopkins, M.L.D., C.A.A.

9:45 a.m.  Female Athletes in Amateur Baseball
Malaika Underwood

10:05 a.m.  Strength Training Principles for the Youth Baseball Player
James M. Ronai, M.S., P.T., A.T.C., C.S.C.S.
### Beyond Pitch Count: Five Additional Considerations that Youth Coaches and Parents Should Include in Managing Youth Pitchers
Ron Wolforth

### Panel Discussion
**Moderator:** Steve E. Jordan, M.D.
**Panelists:**
- Glenn S. Fleisig, Ph.D.
- B. Elliot Hopkins, M.L.D., C.A.A.
- Malaika Underwood
- James M. Ronai, M.S., P.T., A.T.C., C.S.C.S.
Ron Wolforth

### BREAK

### SESSION IX  HIP

**Objective:** Review current advances in treatment and rehabilitation for the hip and core

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>10:50 a.m.</td>
<td><strong>Moderator/Faculty Introductions</strong></td>
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<tr>
<td></td>
<td>Benton Emblom, M.D.</td>
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<tr>
<td>10:55 a.m.</td>
<td><strong>Femoroacetabular Impingement</strong></td>
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<td>Anthony Scillia, M.D.</td>
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<tr>
<td>11:15 a.m.</td>
<td><strong>Hip and Pelvic Function in Throwing</strong></td>
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<td>Andrew Robb, B.A., D.C., F.R.C.C.S.S.(C.), C.S.C.S.</td>
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<tr>
<td>11:30 a.m.</td>
<td><strong>Sports Hernia</strong></td>
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<td>Benton Emblom, M.D.</td>
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<tr>
<td>11:45 a.m.</td>
<td><strong>Rehabilitation of Selected Hip Pathologies</strong></td>
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<tr>
<td>12:00 p.m.</td>
<td><strong>Panel Discussion</strong></td>
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<td></td>
<td>Benton Emblom, M.D.</td>
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<td>Anthony Scillia, M.D.</td>
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<td>Andrew Robb, B.A., D.C., F.R.C.C.S.S.(C.), C.S.C.S.</td>
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<tr>
<td>12:20 p.m.</td>
<td><strong>CLOSING REMARKS</strong></td>
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<td></td>
<td>James R. Andrews, M.D.</td>
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<td>Kevin E. Wilk, P.T., D.P.T., F.A.P.T.A.</td>
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<td>Glenn S. Fleisig, Ph.D.</td>
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<tr>
<td>12:30 p.m.</td>
<td><strong>ADJOURN</strong></td>
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