



ORTHOPAEDIC
— TRAUMA —
ASSOCIATION

COURSE AGENDA



Basic Science Focus Forum



Basic Science Committee Chair
Edward J. Harvey, MD

Gaylord Palms in Kissimmee
(Orlando area), Florida

Wednesday
- Thursday
October 17-18
2018

CME
credits will
be awarded
for your
participation
at this activity.

OVERVIEW

The 2018 Basic Science Focus Forum Course is geared towards orthopaedic surgeons whose passion is basic science and how it relates or may affect their practice. Basic science researchers will also obtain valuable knowledge about translational opportunities and how their research may change orthopaedic care. This course will involve 6 main symposia and 29 papers that are targeted at basic science studies and their outcomes.

The attendees of the BSFF program will have the chance to combine with the attendees of the International Trauma Care Forum for an exchange of ideas during the symposium titled, "The Science of Bone Grafting." This combined session has proved to be a great collaboration and a chance to discuss ideas with our international colleagues.

TARGET AUDIENCE

Academic orthopaedic surgeons, community surgeons with an interest in clinically relevant basic science, basic and clinical researchers, residents and fellows will benefit most from this Basic Science Focus Forum.

LEARNING OBJECTIVES

Upon successful completion of this course, participants will be able to:

- ✓ Understand how precision medicine principles will change how we look at research
- ✓ Outline internal fixation principles to guide treatment
- ✓ Discover new options for treatment of soft tissue injuries
- ✓ Comprehend the patient parameters that make fracture healing difficult
- ✓ Explore the basic science and clinical applications of bone grafting
- ✓ Understand current concepts in cell based therapies for fracture healing

BASIC SCIENCE COMMITTEE

Edward J. Harvey, MD, *Chair*
 Michael T. Archdeacon, MD
 Mohit Bhandari, MD, PhD
 Joseph Borrelli, MD
 Todd O. McKinley, MD
 Tyler Morris, MD, *Resident Member*
 Aaron Nauth, MD
 Emil Schemitsch, MD

FEATURED SYMPOSIA

- Precision Medicine Approaches to Delivery and Analysis of Trauma Systems
- Optimal Internal Fixation Configuration
- Softer Tissue Issues
- Making Nonunions into Unions
- The Science of Bone Grafting – *Combined Session with International Trauma Care Forum*
- Cell-Based Therapies for Fractures



	OTA Member On/Before 10/1/18	OTA Member After 10/1/18	Non-Member On/Before 10/1/18	Non-Member After 10/1/18
Course Fee:	\$250	\$350	\$350	\$450

COURSE AGENDA

Wednesday, October 17, 2018

- 7:30 AM **INTRODUCTION**
Edward J. Harvey, MD
- 7:35–8:35 AM **SYMPOSIUM I**
Precision Medicine Applications to Manage Multiply Injured Patients with Orthopaedic Trauma
Moderators: *Todd O. McKinley, MD*
Samir Mehta, MD
- 7:35 AM **INTRODUCTION**
- 7:40 AM **Precision Methods for Wound Management**
Eric Elster, MD
- 7:53 AM **Precision Methods for Nonunions**
Annamarie Horan, PhD
- 8:06 AM **Precision Methods to State Orthopaedic Interventions**
Greg Gaski, MD
- 8:19 AM Discussion
- 8:35–9:15 AM **PAPER SESSION I**
New Techniques in Patient Care and Diagnosis
Moderators: *Todd O. McKinley, MD*
Samir Mehta, MD
- 8:35 AM **Overview**
Todd O. McKinley, MD
- 8:40 AM **Paper 1**
Quantifying Ionizing Radiation Dosage to Clinicians' Brains During Fluoroscopic-Guided Orthopaedic Surgery: Simulated Cadaver Experiment. QIRDOSC Study
Darryl Ramoutar, FRCS;
Yogesh Thakur, PhD; Vineet Batta, FRCS;
Petar Seslija; Vivian Chung;
Danmei Liu, PhD; Pierre Guy, MD
- 8:46 AM **Paper 2**
Infection and Biofilms After Washout In Braided Versus Barbed-Monofilament Sutures: A Murine Model
David Markel, MD;
Christopher Bergum, BS; Bin Wu, MD;
Therese Bou-Akl, PhD;
Weiping Ren, PhD
- 8:52 AM **Paper 3**
Can Dorsal Dermal Fascial Fenestrations Treat Acute Compartment Syndrome of the Foot?
Reuben Lufrano, MD; Matthew Nies, MD;
Benjamin Ebben, MD; Scott Hetzel, MS;
Robert O'Toole, MD; Christopher Doro, MD
- 8:58 AM **Paper 4**
Detection of Elevated Compartment Pressure in a Cadaver Model Using Standard Musculoskeletal Ultrasound
Meir Marmor, MD; Jonathan Charlu, BS;
Riley Knox, BS; Safa Herfat, PhD
- 9:04 AM Discussion
- 9:15–9:30 AM **Refreshment Break**
- 9:30–10:30 AM **SYMPOSIUM II**
Optimal Locking Plate Configuration
Moderator: *Emil H. Schemitsch, MD*
- 9:30 AM **Overview**
Emil H. Schemitsch, MD
- 9:35 AM **How Stiff Should The Construct Be?**
Michael Hast, PhD
- 9:43 AM **Role of Screw Location, Screw Type And Plate Working Length!**
Mark Heyland, PhD
- 9:51 AM **Role of Lag Screws and Miniplates**
Utku Kandemir, MD
- 9:59 AM **Are Active Plates Better than Conventional Locking Plates?**
Michael Bottlang, PhD
- 10:07 AM **How to Reduce the Risk of Implant Failure and Nonunion**
Brett D. Crist, MD
- 10:15 AM Discussion

- 10:30–
11:35 AM **PAPER SESSION II**
Biomechanics in Clinical Models
Moderator: *Emil H. Schemitsch, MD*
- 10:30 AM **Paper 5**
Fixation of Acetabular Fractures With Precontoured Plates Alone Causes Fracture Malreduction
Nicholas Alfonso, MD; Weston Ryan, BS; Todd Baldini, MSc; Christopher Joyce, MD; Michael Reiter, MD; Cyril Mauffrey, MD
- 10:36 AM **Paper 6**
Hybrid Screw Fixation for Femoral Neck Fractures: Does It Prevent Mechanical Failure?
Derly Cuellar, MD; J. Bledsoe, PhD; J. Tracy Watson, MD
- 10:42 AM **Paper 7**
Precontoured Quadrilateral Surface Acetabular Plate Fixation Demonstrates Increased Stability When Compared to Pelvic Reconstruction Plates: A Biomechanical Study
Weston Ryan, BS; Nicholas Alfonso, MD; Todd Baldini, MSc; Michael Reiter, MD; Christopher Joyce, MD; Wei Chen, MD; Ying-Ze Zhang, MD; Cyril Mauffrey, MD
- 10:48 AM **Paper 8**
Elevated Joint Contact Stress Is Associated With Radiographic Measures of Osteoarthritis in Operatively Treated Acetabular Fractures at 2 Years
Holly Thomas-Aitken, MS; Kevin Dibbern, MS; Tyler Carlee, MD; J Lawrence Marsh, MD; Michael Willey, MD; Jessica Goetz, PhD; Donald Anderson, PhD
- 10:54 AM Discussion
- 11:04 AM **Paper 9**
The Effect of a Dynamic Fixation Construct on Syndesmosis Reduction: A Cadaveric Study
M. Wesley Honeycutt, MD; John Riehl, MD
- 11:10 AM **Paper 10**
Calcar Screw Position in Proximal Humerus Fracture Fixation: Don't Miss High
Samir Mehta, MD; Matthew Chin, BS; Surena Namdari, MD; Michael Hast, PhD
- 11:16 AM **Paper 11**
Characterization of a Novel Murine Femur Fracture Model
Joseph Johnson, MD; Jeremy Truntzer, MD; P. Mansuripur, MD; Nathan Thomas, BS; Justin Kleiner, BS; Sarath Koruprolu, MS; Christopher Born, MD
- 11:22 AM Discussion
- 11:30 AM [Move down to Exhibit Hall D](#)
- 11:40 AM–
12:30 PM **INTERNATIONAL INDUSTRY LUNCH SESSION**
-  **ZIMMER BIOMET**
Innovative Concepts in External Fixation
FastFrame™ External Fixation System Overview & Early Clinical Experience
Faculty: *Jason Nascone, MD*
[Box Lunch Provided by OTA](#)
- 12:30 PM [Return to Sun Ballroom B](#)
- 12:40–
1:40 PM **SYMPOSIUM III**
Softer Tissue Issues
Moderators: *Aaron Nauth, MD; Edward J. Harvey, MD*
- 12:40 PM **Introduction**
Aaron Nauth, MD
- 12:45 PM **Joint Contractures following Intra-articular Fracture Surgery: Where are We Now?**
Ken Egol, MD
- 12:55 PM **Staged versus Early Definitive Fixation of High Energy Tibial Plateau and Plafond Fractures: What is Best for the Soft Tissues and the Patient?**
Henry Broekhuysse, MD

2018 BASIC SCIENCE FOCUS FORUM

1:05 PM **Soft Tissue Coverage Following Open Tibia Fractures: Timing and Flap Selection**
Martin I. Boyer, MD

1:15 PM **Heterotopic Ossification in Orthopaedic Trauma: State of the Art**
Jeffrey Anglen, MD

1:25 PM Discussion

1:40–2:14 PM **PAPER SESSION III**

Non-Bone Issues
Moderators: *Aaron Nauth, MD*
Edward J. Harvey, MD

1:40 PM **Paper 12**
Delayed Fixation of Intra-Articular Fractures Increased Cartilage Degeneration in a Large Animal Model
Jessica Goetz, PhD; Christopher Heck, BS; Emily Petersen, DVM; Douglas Fredericks, BS; Michael Willey, MD

1:46 PM **Paper 13**
Progression of Inflammation in Muscle and Callus in a Rat Model of a High-Energy Open Tibia Fracture
Kayla Delaney, BS; Kayla Delaney, BS; Natalie Taylor, BS; Hans-Christoph Pape, MD; Fletcher White, PhD; Todd McKinley, MD

1:52 PM **Paper 14**
Mitigating Pathologic Fibrosis Following Volumetric Muscle Loss Injury
Benjamin Corona, PhD; Jessica Rivera, MD; Sarah Greising, PhD

1:58 PM **Paper 15**
Inflammatory Cytokines Provide Unique Predictive Value Beyond Injury Severity: A Prospective Cohort Study of Orthopaedic Trauma Patients
Arun Aneja, MD PhD; Alejandro Marquez-Lara, MD; David Landy, PhD; Boshen Liu, MD; Peter Mittwede, MD; Seth Phillips, DO; Lusha Xiang, MD; George Russell, MD

2:04 PM Discussion

2:14–2:30 PM **Refreshment Break**

2:30–3:30 PM **SYMPOSIUM IV**
Making Nonunions into Unions
Moderators: *Michael T. Archdeacon, MD*
Joseph Hsu, MD

2:30 PM **Overview**
Michael T. Archdeacon, MD

2:35 PM **What Is the Role of Nutritional Optimization in the Treatment of Nonunions?**
Ivan Tarkin, MD

2:45 PM **Does Vitamin D Supplementation Impact Fracture Healing / Nonunion Surgery?**
Larry Kempton, MD

2:55 PM **Is the Endocrinologist an Integral Member of the Team for Improving Outcomes in Nonunion Surgery?**
Patrick Bergin, MD

3:05 PM **Do Perioperative NSAIDS Adversely Affect Fracture Healing and Are They Contraindicated in Nonunion Surgery?**
H. Claude Sagi, MD

3:15 PM Discussion

3:30–4:30 PM **PAPER SESSION IV**
Chemicals and Compounds in Fracture Optimization

Moderators: *Michael T. Archdeacon, MD*
Joseph Hsu, MD

3:30 PM **Overview**
Michael Archdeacon, MD

3:35 PM **Paper 16**
Beta-Blocker Treatment Prevents Delayed Fracture Healing Observed With Selective Serotonin Reuptake Inhibitors Treatment
Sooyeon Lee, PhD; Vivian Bradaschia Correa, PhD; Nury Yim, MD; Madeleine Wong, BS; Philipp Leucht, MD

3:41 PM **Paper 17**
Enhanced Healing of Rat Calvarial Bone Defect With Stem Cell-Seeded Collagen Nanofibers
Therese Bou-Akl, PhD; Bin Wu, MD; Conor Daly-Seiler, MS; Mario Rossi, BS; Weiping Ren, PhD; David Markel, MD

- 3:47 PM **Paper 18**
Effects of Powdered Rifampin and Vancomycin on Biofilm Production of Staphylococcus aureus on Orthopaedic Implants
Christian Douthit, MD;
Brent Gudenkauf, BS; Abdul Hamood, PhD;
Nithya Mudaliar, MS; Mark Jenkins, MD;
Cyrus Caroom, MD
- 3:53 PM Discussion
- 4:03 PM **Paper 19**
Serum 25(OH)D Alters Bone Turnover Marker Response After Hip Fracture: A Multihospital Prospective Cohort of 296 Elderly Patients
Christopher Stewart, BA;
Nathan O'Hara, MPH; Denise Orwig, PhD;
Marc Hochberg, MD MPH;
Sheila Sprague, PhD; Jay Magaziner, PhD;
Gerard Slobogean, MD MPH
- 4:09 PM **Paper 20**
Diagnosing Orthopaedic Infections: A Novel Serum Screening Tool
Aaron Johnson, MD; D. Marinos, BS;
Robert O'Toole, MD; Roman Natoli, MD;
R. Montalvo, BS; Timothy Zerhusen, BS;
Janette Harro, PhD; Manjari Joshi, MD;
Ted Manson, MD; Mark Shirliff, PhD
- 4:15 PM **Paper 21**
Differences in Local O₂ Supply and Consumption After Intramedullary Nailing Depends on the Degree of Injury: A Study in Hemodynamically Stable Pigs
Yannik Kalbas; Klemens Horst, MD;
Zhi Qiao, MD; Michel Teuben, MD;
Frank Hildebrand, MD;
Hans-Christoph Pape, MD;
Roman Pfeifer, MD
- 4:21 PM Discussion
- 4:30 PM **Adjourn for the Day**



COURSE AGENDA

Thursday, October 18, 2018

- 7:30 AM **INTRODUCTION** (Exhibit Hall D - Room 2)
Edward J. Harvey, MD
- 7:35–
 8:35 AM **JOINT SESSION** (Exhibit Hall D - Room 2)
The Science of Bone Grafting
 Moderators: *Peter V. Giannoudis, MD, FACS, FRCS*
Edward J. Harvey, MD
- 7:35 AM **Limitations of Autologous Bone Graft**
Joseph Borrelli Jr., MD
- 7:45 AM **Ant/Post Iliac Crest Graft Harvesting: Tips / Tricks**
Steven A. Olson, MD
- 7:55 AM **Distal Femur: How I Do It**
Paul Tornetta III, MD
- 8:05 AM **RIA Grafting: Technique–Issues–Solutions**
Brent L. Norris, MD
- 8:15 AM **Composite Grafting: What I Do and Why?**
Peter V. Giannoudis, MD, FACS, FRCS
- 8:25 AM Discussion
All Faculty
- 8:35 AM **Break**
 Remain in Exhibit Hall D
- 8:40–
 9:20 AM **PAPER SESSION V**
Making Bone Heal
 Moderators: *Paul Tornetta III, MD*
Steven A. Olson, MD
- 8:40 AM **Overview**
Joseph Borrelli Jr., MD

2018 BASIC SCIENCE FOCUS FORUM

8:45 AM **Paper 22**
Noninvasive Localized Cold Therapy Enhances Angiogenesis in Bone Defect Model
Marianne Comeau-Gauthier, MD;
Daniel Castano, MD; Geraldine Merle, PhD;
Justin Drager, MD MsC;
Edward Harvey, MD MsC

8:51 AM **Paper 23**
Biological Activity of Human-Induced Membranes: Differences Between Femoral and Tibial Sites
Vaida Glatt, PhD; Anna Woloszyk, PhD;
Kevin Tetsworth, MD

8:57 AM **Paper 24**
hPTH(1-34) Promotes Bone Fracture Healing in Multiple Diabetic Murine Models
Shasta Henderson, MD;
Francis Lee, MD PhD

9:03 AM **Paper 25**
Inflammatory Profile and Osteogenic Potential of Fracture Hematoma in Humans
Gavin Walters; Ippokratis Pountos, MD;
Peter Giannoudis, MD

9:09 AM Discussion

9:20–
9:35 AM **Refreshment Break**

9:35–
10:25 AM **SYMPOSIUM VI**
Cell Based Therapies for Fractures
Moderators: *Joseph Borrelli Jr., MD*
Gregory J. Della Rocca, MD, PhD, FACS

9:35 AM **Introduction**
Joseph Borrelli Jr., MD

9:40 AM **Osteoimmunology**
Prism Schneider, MD, PhD, FRCSC

9:48 AM **The Importance of Cell to Cell Communication and the Role of Extracellular Vesicles**
Hans-Christoph Pape, MD

9:56 AM **Stem Cell Based Therapy for Prevention of Delayed Fracture Union**
Yoram Weil, MD

10:04 AM **Bone Marrow Aspirate Concentration In the Treatment of Fractures**
J. Tracy Watson, MD

10:12 AM Discussion
All Faculty

10:25–
11:05 AM **PAPER SESSION VI**
Bone Healing by Treatment with Cells and Adjuncts

Moderators: *Joseph Borrelli Jr., MD*
Gregory J. Della Rocca, MD, PhD, FACS

10:25 AM **Overview**
Joseph Borrelli Jr., MD

10:30 AM **Paper 26**
Mesenchymal Stem Cell Spheroids Augment Myoblast Secretome to Increase Osteoblast Activity
Augustine Saiz, MD;
Marissa Gionet-Gonzales, BS;
Jonathan Leach, PhD; Mark Lee, MD

10:36 AM **Paper 27**
Biomarkers of Neutrophil Extracellular Trap Formation (NETosis) and Their Relationship to Wound Healing in Ankle Fracture Surgery
William Kent, MD; Mathew Whittaker, BS;
Vitor Martins, BS; Simon Schenk, PhD;
Paul Girard, MD; Alexandra Schwartz, MD

10:42 AM **Paper 28**
Are RIA-MSCs More Stressed and Proapoptotic Than Bone Marrow-MSCs?
Jehan El-Jawhari, PhD;
Payal Ganguly, MSc; Elena Jones, PhD;
Peter Giannoudis, MD

10:48 AM **Paper 29**
The Effect of Different Washing Solutions on the Growth and Function of Primary Human Osteoblasts In Vitro
Therese Bou-Akl, PhD; Jacob Markel, BA;
Alan Afsari, MD

10:54 AM Discussion

11:05 AM **Adjourn to Industry Symposia**