**JRSI Foundation Research Projects**

**Balance Assessment Before and After Knee Arthroplasty, 2013-2014**Student: Brian Sutterer

**The Effect of Stem Length and Design on Strain and Micromotion in the Proximal Femur, 2013-2014**Students: Paige Cook, Becca Stevens, Sarah Hensley, Audrey Niverson, James Conwell, Brian McHugh, Ryan Seale, Jeff Elliott

**Evaluation of Stem Design Primary Stability in Revision THA, 2013**

**Development of a Specimen-Specific Finite Element Model of and Implanted UKA, 2012-2014**Student: Allan Che

**Transfer of Torsional Loads during Rotation in Fixed and Mobile Bearing TKA Tibial Component Designs: 2011-2012**Students: Derek Archer, Amanda Kingman, Jordan Oja, Betsy Jones

**Biomechanical Assessment of Tibial Component Rotation in Unicompartmental Knee Arthroplasty, 2011-2012**  
Students: Derek Archer, Amanda Kingman, Jordan Oja, Betsy Jones

**Acetabular Deformation in Mobile Bearing Acetabular Components: 2011-2012**Students: Derek Archer, Amanda Kingman, Jordan Oja, Betsy Jones

**Biomechanical Assessment of Tibial Component Slope in Unicompartmental Knee Arthroplasty, 2011**  
Students: Derek Archer, Kelsey Hughes, Amanda Kingman

**Analysis and Interpretation of Contact Loading Utilizing a Digital Pressure Transducer, 2011**  
Student: Hobey Tam

**Computational and Experimental Assessment of PMMA in Orthopaedic Applications, 2010-2011**Student: Nathan Elder

**Studies in Tibial Loading Utilizing Digital Image Correlation Techniques, 2010-2011**Students: Derek Archer, Kelsey Hughes

**Acetabular Cup Deformation Following Total Hip Arthroplasty, 2010**Students: Betsy Jones, Michael Volitich

**Thermal and Mechanical Optimization of PMMA Bone Cement, 2010**Students: Ryan Gergely, Betsy Jones

**Finite Element Modeling of the Tibia Following Unicompartmental Knee Arthroplasty, 2010**Students: C.J. Tuskan, Darcie Thomas

**Pelvic Loading Following Total Hip Arthroplasty: A Biomechanical Analysis of Cup Position, Design, and Loading During Simulated Gait, 2009-2010**Students: Leah Howard, Didem Tunc  
  
  
**Insertion and Removal Energy Requirements in THA Acetabular Components, 2009-2010**Students: Leah Howard

**Finite Element Analysis of a Composite Tibia Model using a CT-Generated Mesh, 2009-2010**Students: Susumu Tokunaga

**Comparison of Photoelastic and Strain Gage Measurement Techniques in a Total Joint Replacement Model, 2009**Students: Michael Volitich, Darcie Thomas

**Strain in the Proximal Tibia Following Unicompartmental Knee Arthroplasty: A Photoelastic Study of All-Polyethylene Designs, 2008-2009**Students: Michael Volitich, Sarah Younger

**Strain in the Proximal Tibia Following Unicompartmental Knee Arthroplasty : A Photoelastic Study of Mobile-Bearing Designs, 2007-2008**Students: Samantha (Dick) DeVries, Michael Lockhart, Luke Alvey, Natalie Dickman

**Monitoring the Insertion of the Femoral Stem Component During Total Hip Arthroplasty: A Replicate Composite Femur and Cadaveric Specimen Study, 2006-2007**Student: Andrew Crisman, Graduate Student, Biomedical Engineering

**A Photoelastic Study of the Effects of Resection Depth on Strain in the Proximal Tibia Following Total Knee Arthroplasty, 2006-2007**Student: Scott Small

**Initial Mechanical Stability of Acetabular Components with Screw Fixation, 2006**  
Students: Allison Stultz, Jill Watson

**Initial Mechanical Stability of Trabecular Metal versus Porous-Coated Titanium Acetabular Components: A Biomechanical Study, 2005-2006**Student: Christopher Meyer

**A Photoelastic Strain Analysis of the Proximal Tibia in Total Knee Arthroplasty, 2004-2005**Student: Kurt Dierking

**A Photoelastic Strain Analysis of the Proximal Tibia in Total Knee Arthroplasty, 2004-2005**Student: James Merk

**The Exploration of Damage Identification Techniques to Determine Placement of Femoral Component During Total Hip Arthroplasty, 2004-2005**Student: Seana Giardini