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# Stephen Miller Howell, MD

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## Academic Affiliations

- Adjunct Professor Department of Biomedical Engineering, University of California Davis, Davis, CA
- Member of Biomedical Graduate Group, University of California Davis, Davis, CA

## • Hospital Affiliations

- Methodist Hospital of Sacramento, 7500 Hospital Drive, Sacramento, CA 95823
- Mercy General Hospital, 4001 J Street, Sacramento, CA 95819

## • Business Affiliations

- Consultant Zimmer Biomet, Inc., PO box 708, 1800 West Center Street, Warsaw, IN 46581-0708 Telephone: 800-613-6131 ([www.zimmerbiomet.com](http://www.zimmerbiomet.com))
- Consultant THINK Surgical, 47320 Mission Falls Ct, Fremont, CA 94539 ([www.thinksurgical.com](http://www.thinksurgical.com))
- Cofounder OtisMed Inc., Former Chief Technical Officer and Chief Medical Officer, 1600 Harbor Bay Parkway, Ste 200 Alameda CA 94502 (sold to Stryker Orthopedics 2009)

## • Military Service

- Lieutenant Colonel, United States Air Force Reserves, Clinical Investigation Facility, David Grant Medical Center, Travis AFB, CA 94535-5300, October 1989 to December 2000
- Reactivated for Operation Desert Storm, February 1991 to April 1991
- Active duty, United States Air Force, Travis AFB, CA, August 1986 to September 1989

- **Education**

- Doctor of Medicine, 1981, Northwestern University Medical School, Chicago, IL
- Bachelor of Science in Premedicine, 1976, Pennsylvania State University, University Park, PA

- **Post-Graduate Training**

- Resident in Orthopedic Surgery, Thomas Jefferson University, Philadelphia, PA July 1982 through June 1986
- Resident in Pediatric Orthopaedic Surgery, Alfred I. DuPont, Institute, Wilmington, DE January 1985 through December 1985
- General Surgery Intern, Graduate Hospital of the University of Pennsylvania, Philadelphia, PA, June 1981 through June 1982
- House Officer in Physical Medicine and Rehabilitation, The Rehabilitation Institute of Chicago, Chicago, IL, February 1981 through May 1981

- **Previous Employment**

- Orthopaedic Surgeon, California Medical Facility, Vacaville, CA June 1987 to September 1989
- Data Processor, Merck, Sharpe, and Dohme Pharmaceuticals, West Point, PA January 1977 through September 1977

- **License, Certification, Memberships, and Societies**

- Member of American Association of Hip and Knee Surgeons, 2008
- Honorary Member of the American Osteopathic Academy of Orthopedics, October 2007
- President International Anterior Cruciate Ligament Study Group, 2006-2008
- Chair of Arthroscopy Committee, International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine, since 2006
- Member, International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine, since 1999
- Member, Arthroscopy Association of North America, since 1998
- Member, Herodicus Society, since 1997

- Member, International ACL Study Group, since 1992
- Member, American Shoulder and Elbow Surgeons, since 1990
- Member, American Academy of Orthopaedic Surgery, since 1989
- Member, American Medical Association, since 1989
- Member, California Medical Society, since 1989
- Board Certified, American Academy of Orthopaedic Surgeons, since 1988
- Licensed to practice medicine in the State of California, since 1988
- Certified Instructor, Advanced Trauma Life Support, 1987-1989
- Society of Military Orthopaedic Surgeons, 1988
- Diplomate, National Board of Medical Examiners, 1982

## **Administration**

1. Decision maker in all aspects of a successful private orthopedic practice including, contract negotiations with insurance companies and medical groups, and managing billing, front and back office personnel, computer system, and transcription. Responsible for hiring, motivating, disciplining, firing and deciding pay scale for office personnel. I coordinated decisions with three associates.
2. Elected and served as Chief of Orthopedic Surgery for the Hill Physician Medical Group, 1994-1997. I was responsible for credentials, quality assurance, budget preparation and implementation.
3. Responsible for coordinating multiple research projects between UC Davis Department of Mechanical Engineering, Mercy-Methodist Hospital with Catholic HealthCare West, Biomet Sports Medicine, and OtisMed Inc.

## **Teaching**

- Internationally recognized authority in the treatment of sports related injuries to the knee that has afforded the opportunity to educate orthopedic surgeons in five continents through lectures and surgical demonstrations.
- Instructor responsible for educating family practice residents at Methodist Hospital in office-based orthopedic care since 1995.

- Supervised Masters (24) and Doctoral (3) students in the Mechanical Engineering and the Biomedical Engineering Graduate Programs at UC Davis from 1993 until present
1. Eric McKee, “Telemetry System For Measuring ACL Graft Forces In Vivo,” MS thesis completed 1995. Employed by J. Gordon Electronic Design in Minneapolis, MN as Vice President of Engineering
  2. Todd Martens, “In Vitro Osteotomy Method To Expose The Medial Compartment Of The Human Knee,” MS thesis completed 1995. Employed by Smith and Nephew Richards in Memphis, TN as a Project Engineer.
  3. Jeff Wolchok, “The Effect Of Intersegmental Knee Moments On Patellofemoral Contact Mechanics In Cycling,” MS thesis completed 1995. Employed by the Medical Offices of David A. McGuire MD in Anchorage, AK as a Research Assistant.
  4. Mike Wallace, “In Vivo Measurement Of Autograft Tension And Suture Isometry During ACL Reconstructive Surgery,” MS thesis completed 1995. Employed by Target Therapeutics in Fremont, CA as a Project Engineer.
  5. John To, “Biomechanical Properties Of The Double Looped Hamstrings Graft And Three Anterior Cruciate Graft Fixations,” MS thesis completed 1996. Employer and position unknown.
  6. Ben Goss, “Injury Mechanisms In Anterior Cruciate Ligament Grafts As A Result Of Intercondyler Roof Impingement,” MS thesis completed 1996. Employed by the Hand Biomechanics Laboratory in Sacramento, CA as a Research Engineer.
  7. Christine Ventura, “Fixation Device Transducer For Anterior Cruciate Ligament Graft Tensile Load Measurement,” MS thesis completed 1996. Employed by Modified Polymer Components in Sunnyvale, CA as a Project Engineer.
  8. Tammy Haut, “Use Of Roentgenography And MRI To Predict The Size And Shape Of Menisci For Transplantation,” MS thesis completed 1997. Employed as an Assistant Professor in the Department of Mechanical Engineering at Michigan Technological University, Houghton, MI.
  9. Mohammad Alhalki, “A Comparison Between The Current Techniques For Implanting A Medial Meniscus And An Evaluation Of The Current Sizing Protocols,” MS thesis completed 1997. Employed by ARAMCO in Saudi Arabia as a Project Engineer.
  10. Hugh Magen, “Structural Properties Of Six Tibial Fixation Methods For Anterior Cruciate Ligament Soft Tissue Grafts,” MS thesis completed 1997. Employed by Vascular Therapies in San Mateo, CA as a Project Engineer.

11. Derek Lindsey, "A Telemetry Fixation Device Transducer to Measure Anterior Cruciate Ligament Graft Tension in vivo," MS thesis completed 1998. Employed by the VA Hospital in Palo Alto, CA as a Research Engineer.
12. Kate Lechner, "Is the Circumferential Tensile Modulus Within a Human Medial Meniscus Affected by Sample Location and Thickness?" MS thesis completed 1999. Employed by Oratec in San Jose, CA as a Project Engineer.
13. Paul Eagar, "Load Displacement Behavior of the Normal and ACL Deficient Knee and the Effects Of Graft Fixation Stiffness and Pretension on ACL Reconstruction," MS thesis completed 1999. Employed by Hewlett-Packard in Santa Rosa, CA as a Manufacturing Engineer.
14. Isaac Zacharias, "In vivo Calibration in an Ovine Model and Structural Testing of Femoral Fixation Device Transducer for Measuring Anterior Cruciate Ligament Graft Tension," MS thesis completed 1999. Employed by Triad Vascular in Petaluma, CA as a Development Engineer.
15. Wamis Singhatat, "The Effect of Fixation Method, Time, and Slippage on the Structural Properties of a Tendon Graft in a Bone Tunnel: An in vivo Study in an Ovine Model," MS thesis completed 1999. Employed by Livatec in Tampa, FL as a Development Engineer.
16. Vijay Sekaran, "Non-Anatomic Location of the Posterior Horn of a Medial Meniscus Autograft Affects Tibial Contact Mechanics in Human Cadaveric Knees," MS thesis completed 1999. Employed by Accuray, Inc, in Sunnyvale, CA as a Manufacturing Engineer.
17. Arthur Huang, "The Level of Compressive Loading Determines Whether a Lateral Meniscal Autograft Restores Normal Contact Mechanics in the Human Cadaveric Knee," MS thesis completed 2000. Employed by Hewlett Packard in Santa Rosa, CA as a Project Engineer.
18. Ari Karchin, "Effect of Fixation Stiffness on the Initial Tension, Anterior Limit, and Posterior Limit of Cadaveric Knees Reconstructed with a Double Loop Anterior Cruciate Ligament Graft," MS thesis completed 2001. Employed by Department of Bioengineering at the University of Washington in Seattle as a Research Engineer.
19. Phil Roos, "How cyclic loading affects the migration of radio-opaque markers attached to tendon grafts using a new method: A study using roentgen stereophotogrammetric analysis (RSA)," MS thesis completed 2002. Employed by Scient'x USA, FL as a product manager in the spinal implant division.
20. Dustin Grover, "There is an Early Tension Loss in a Tendon ACL Graft That Increases the Anterior Limit of Motion: A Cadaveric Study of Four Tibial Fixation Devices," MS thesis completed 2004. Employed by Orthopedic Research Laboratory, UC Davis as Research Assistant.

21. Shana Bailey, "Foam-Reinforced Elderly Human Tibia Approximates Young Human Tibia Better than Porcine Tibia: A Study of the Structural Properties of Three Soft-Tissue Fixation Devices," MS thesis completed 2004. Employed by Boston Scientific in Fremont CA as a Project Engineer.
22. Dustin Thompson, "Does Attachment of a Graft Tensioning Device to the Tibia Improve Improve Knee Stability in Anterior Cruciate Ligament Reconstruction?" MS Thesis, 2004. Employed by MedTronic Inc.
23. Akio Matsumoto, MD, Visiting Fellow in Knee Surgery, Kobe, Japan, January-March 2005.
24. David Liu-Barba, "Fixation Level and Laxity in ACL Reconstruction and Coupled Motions Under Compressive Loading: A Two-Part Study", MS Thesis 2006. Employed by Johnson and Johnson, Sr. Electromechanical Engineer.
25. Jibanananda Satpath, Visiting Fellow in Knee Surgery from United Kingdom, April 2008
26. Conrad Smith "Lengthening at the Sites of Fixation and an Increase in Anterior Laxity Following Anterior Cruciate Ligament Reconstruction: An In Vivo Study using Roentgen Stereophotogrammetric Analysis", PhD Thesis 2009. Employed by Stryker Endoscopy San Jose CA.
27. Michelle Roland "Virtual Axis Finder: A New Method to Determine the Two Kinematic Axes of Rotation for the Tibio-Femoral Joint, MS thesis 2010
28. Daniel Bonny "Design, Calibration, and Validation of an Instrumented Spatial Linkage that Accurately Measures Changes in the Rotational Axes of the Tibiofemoral Joint" MS thesis 2013. Employed by Curexo, Hayward, CA
29. Stephanie Gu "Does Mechanical Alignment in Total Knee Arthroplasty Cause Collateral Ligament Instability and Change Limb and Knee Alignment from Normal?" MS thesis 2014. Employed by OtisMed a subsidiary of Stryker, Alameda CA.

## **Grants and Funding**

1. "Scientific Evaluation of a New Method for Aligning Components in Total Knee Replacement Surgery. National Science Foundation Award# CBET-1067527, September 1, 2011 - August 31, 2014, \$348,000
2. "Does Kinematic Alignment in Total Knee Arthroplasty Restore Knee Motion and Contact Forces Closer to Normal than Mechanical Alignment" Stryker Orthopedics, Principal Investigator – Maury Hull and Stephen M. Howell, 6/11 to 6/13, \$628,335

3. "Timing and Cause(s) if an Increase in Anterior Laxity in Knees Reconstructed with a Soft-Tissue Anterior Cruciate Ligament Allograft"- Musculoskeletal Transplant Foundation Grant Principal Investigator – Maury Hull, Co- Principal Investigator – Stephen M. Howell, 1/07 to 12/03, \$132,962
4. "Increases in Anterior Laxity and Graft Slippage During Aggressive Rehabilitation in Knees Reconstructed with Bone-Patellar Tendon-Bone and Double Loop Hamstrings Grafts," Aircast Foundation, Co-Principle Investigator – Stephen M. Howell, 8/02 to 7/05, \$100,000.
5. "How the Method of Application of Initial Tension During Anterior Cruciate Ligament Reconstruction Affects the Intraarticular Graft Tension and Knee Stability," Linvatec Corporation, Orlando, FL, Principle Investigator – Stephen M. Howell, 9/03 to 12/04, \$27,000.
6. "Telemetric Fixation Device Transducer To Measure Anterior Cruciate Ligament Forces In An In Vivo Sheep Model," United States Air Force (Travis Air Force Base, CA), Principal Investigator – Stephen M. Howell, 10/97 - 9/99, \$41,562.
7. "Effect of Fixation Methods on the Structural Properties of Soft Tissue Tendon Fixation During Biological Incorporation," United States Air Force (Travis Air Force Base, CA), Principal Investigator – Stephen M. Howell, 11/98 to 9/99, \$43,903.
8. "Use Of Roentgenograms And MRI To Determine The Size And Shape Of A Meniscal Allograft For Transplantation," United States Air Force (Travis Air Force Base, CA), Principal Investigator – Stephen M. Howell, 6/96 to 12/96, \$27,221
9. "In Vivo Measurement Of ACL Graft Tension," Mercy Medical Foundation, Principal Investigator – Stephen M. Howell, 7/94 to 6/97, \$108,000
10. "A Fixation Device Transducer To Measure ACL Graft Tension," Arthrotek Corporation, Principal Investigator – Stephen M. Howell, 7/95, \$10,000
11. "Biomechanical Properties Of Three ACL Femoral Fixation Devices," United States Air Force (Travis Air Force Base, CA), Principal Investigator – Stephen M. Howell, 7/95 to 12/95, \$23,045
12. "Biomechanical Properties Of The Double-Looped Hamstring Attached By Six Tibial Fixation Methods," United States Air Force (Travis Air Force Base, CA), Principal Investigator – Stephen M. Howell, 6/96 to 12/96, \$24,058

## **Research Interests**

1. The biomechanics, surgical technique innovation, component design, and clinical outcome of total knee arthroplasty

2. The biomechanics, surgical technique innovation, fixation device design, and clinical outcome of anterior cruciate ligament reconstruction
3. Meniscal function, transplantation, repair

### **Patents Applied and Pending-United States**

1. Generating MRI Images Usable for the Creation of 3D Bone Models Employed to Make Customized Arthroplasty Jigs - Inventor: Stephen M. Howell, Ilwan Park; U. S. Patent Number: 20090138020, Date of Patent: May 28, 2009.
2. Generation of a Computerized Bone Model Representative of a Pre-Degenerated State and Usable in the Design and Manufacture of Arthroplasty Devices - Stephen M. Howell, Ben Ilwan Park, Charlie Chi, Date of Patent Application: April 29, 2008

### **Patents-United States (Total 19)**

1. **Arthroplasty Devices and Related Methods-** Ben Ilwan Park, Charlie Chi, Stephen M. Howell, U. S. Patent Number 9017336, Date of Patent Issue: April 28, 2015.
2. **System and Method for Manufacturing Arthroplasty Jigs-** Ben Ilwan Park, Stephen M. Howell, U. S. Patent Number 8968320, Date of Patent Issue: Mar 3, 2015.
3. **Arthroplasty System and Related Methods-** Ben Ilwan Park, Charlie Chi, Stephen M. Howell, U. S. Patent Number 8545509, Date of Patent Issue: Oct 1, 2013.
4. **Generation of a computerized bone model representative of a pre-degenerated state and useable in the design and manufacture of arthroplasty devices-** Ben Ilwan Park, Charlie Chi, Stephen M. Howell, U. S. Patent Number 8480679, Date of Patent Issue: July 9, 2013.
5. **System and Method for Manufacturing Arthroplasty Jigs-** Ben Ilwan Park, Stephen M. Howell, U. S. Patent Application Number 20120310400, Date of Patent Issue: Dec 6, 2012.
6. **System and Method for Manufacturing Arthroplasty Jigs-** Stephen M. Howell, Ben Ilwan Park, U. S. Patent Number 8221430, Date of Patent Issue: July 17, 2012.
7. **Arthroplasty System and Related Methods-** Ben Ilwan Park, Charlie Chi, Stephen M. Howell, U. S. Patent Application Number: 20100049195, Date of Patent Issue: Feb 25, 2010.



8. **Generation of a computerized bone model representative of a pre-degenerated state and useable in the design and manufacture of arthroplasty devices-** Ben Ilwan Park, Charlie Chi, Stephen M. Howell, U. S. Patent Application Number: 20090270868, Date of Patent Issue: Oct, 29 2009.
9. **Apparatus and method for tibial fixation of soft tissue** - Inventor: Stephen M. Howell, James A. Boucher, James Marcinek; U. S. Patent Number: 721111, Date of Patent: May 1, 2007.
10. **Apparatus and method for tibial fixation of soft tissue** - Inventor: Stephen M. Howell, James A. Boucher, James Marcinek; U. S. Patent Number: 6755840, Date of Patent: June 29, 2004
11. **Apparatus and method for tibial fixation of soft tissue** - Inventor: Stephen M. Howell, James A. Boucher, James Marcinek; U. S. Patent Number: 6482232, Date of Patent: November 19, 2002
12. **Apparatus and method for tibial fixation of soft tissue** - Inventor: Stephen M. Howell, James A. Boucher, James Marcinek; U. S. Patent Number: 6280472, Date of Patent: August 28, 2001
13. **Tibial Guide** - Inventor: Stephen M. Howell, U. S. Patent Number: 6,254,605, Date of Patent: July 3, 2001
14. **Tibial Guide** - Inventor: Stephen M. Howell, U. S. Patent Number: 6,254,604, Date of Patent: July 3, 2001
15. **Tibial Guide** - Inventor: Stephen M. Howell, U. S. Patent Number: 6,019,767, Date of Patent: February 1, 2000
16. **Apparatus and method for tibial fixation of soft tissue** - Inventor: Stephen M. Howell, James A. Boucher, James Marcinek; U. S. Patent Number: 5,931,869, Date of Patent: August 3, 1999
17. **Bone mulch screw assembly for endosteal fixation of soft tissue grafts and method for using same** - Inventor: Stephen M. Howell, Roy C. Wiley; U. S. Patent Number: 5,674,224, Date of Patent: October 7, 1997
18. **Method for ACL reconstruction** - Inventor: Stephen M. Howell; U. S. Patent Number: 5,570,706, Date of Patent: November 5, 1996
19. **Method and instruments for ACL reconstruction** - Inventor: Stephen M. Howell; U. S. Patent Number: 5,300,077, Date of Patent: April 5, 1994. Continuation of No. 5,300,077, Jul. 16, 1990

## **Patents-European**

1. **Apparatus and method for tibial fixation of soft tissue** - Inventor: Stephen M. Howell, James A. Boucher, James Marcinek; U. S. Patent Number:00306127.2-2310, Date of Patent: October 4, 2000
2. **Apparatus and method for tibial fixation of soft tissue graft** - Inventor: Stephen M. Howell, James A. Boucher, James Marcinek; European Patent Number: 98305900.7-2310, Date of Patent: November 25, 1998

## **Professional Activities**

1. Chairman of Arthroscopy Committee International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine, 2007
2. Member of Knee Committee International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine, 2003-07
3. Member of Scientific Research Committee International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine, 1999-2002
4. Editorial Board for the American Journal of Sports Medicine, 1992 to present
5. Editorial Board for the American Journal of Knee Surgery, 2003 to present
6. Reviewer for the Journal of Bone and Joint Surgery, 2004 to present
7. Reviewer for the Knee Surgery Sports Traumatology Arthroscopy, 2003 to present
8. Reviewer for the Journal of Orthopedic Research, 1999 to present
9. Reviewer for the American Shoulder and Elbow Surgeons, 1998 to present
10. Reviewer for Clinical Orthopedics and Related Research, 1994 to present
11. Editor-in-Chief, Jefferson Orthopaedic Journal, 1985-1986
12. Assistant Editor, Jefferson Orthopaedic Journal, 1984-1985

## **Awards and Honors**

1. President's Award, Methodist Hospital, Hospital Drive, Sacramento, CA 2008
2. Best Research Paper Award, Clinical Investigation Facility, David Grant Medical Center, Travis AFB, CA, 1999
3. Best Research Paper Award, Clinical Investigation Facility, David Grant Medical Center, Travis AFB, CA, 1998

4. Resident's award for the outstanding scientific paper at the American Orthopedic Association's annual meeting, Hot Springs, VA, 1995
5. Young Investigator's Award, International Society of Biomechanics, October 1991
6. Resident's award for the outstanding scientific paper at the Eastern Orthopaedic Society's Meeting, Hot Springs, VA, 1987
7. Outstanding Surgical Intern of the Year, The Graduate Hospital of the University of Pennsylvania, Philadelphia, PA, 1982
8. Graduated "With Distinction", BS in Pre-Medicine, The Pennsylvania State University, 1976

### **Publications in Archival Journals (Total 125)**

1. Campanelli V; Hull M; **Howell SM**. Accuracy Evaluation of a Lower-Cost and Four Higher-Cost Laser Scanners. *Journal of Biomechanics*. In Press.
2. Nedopil AJ; **Howell SM**; Hull ML. Does Malrotation of the Tibial and Femoral Components Compromise Function in Kinematically Aligned Total Knee Arthroplasty? *Orthopedic Clinics of North America*. In Press;47(1).
3. Barad SJ; **Howell SM**; Tom J. Is a shortened length of stay and increased rate of discharge to home associated with a low readmission rate and cost-effectiveness after primary total knee arthroplasty? *Arthroplasty Today*. In Press.
4. Roth JD; Hull ML; **Howell SM**. The limits of passive motion are variable between and unrelated within normal tibiofemoral joints. *J Orthop Res*. 2015 Nov;33(11):1594-602, doi: 10.1002/jor.22926.
5. Roth JD; **Howell SM**; Hull ML. Native Knee Laxities at 0 degrees , 45 degrees , and 90 degrees of Flexion and Their Relationship to the Goal of the Gap-Balancing Alignment Method of Total Knee Arthroplasty. *J Bone Joint Surg Am*. 2015 Oct 21;97(20):1678-84, doi: 10.2106/JBJS.N.01256.
6. Pearle AD, McAllister D, **Howell SM**: Rationale for Strategic Graft Placement in Anterior Cruciate Ligament Reconstruction: I.D.E.A.L. Femoral Tunnel Position. *American Journal of Orthopedics* 2015;44:253-258.
7. **Howell SM**, Papadopoulos S, Kuznik K, Ghaly LR, Hull ML: Does varus alignment adversely affect implant survival and function six years after kinematically aligned total knee arthroplasty? *International Orthopaedics* 2015:1-8.
8. Gu Y, Roth JD, **Howell SM**, Hull ML: How Frequently Do Four Methods for Mechanically Aligning a Total Knee Arthroplasty Cause Collateral Ligament Imbalance and Change Alignment from Normal in White Patients? *The Journal of Bone & Joint Surgery* 2014;96:e101.

9. Nam, D.; Lin, K.; **Howell, S. M.**; and Hull, M.: Femoral bone and cartilage wear is predictable at 0° and 90° in the osteoarthritic knee treated with total knee arthroplasty. *Knee Surgery, Sports Traumatology, Arthroscopy*: 1-7, 2014.
10. **Howell, S. M.**; Papadopoulos, S.; Kuznik, K. T.; and Hull, M. L.: Accurate alignment and high function after kinematically aligned TKA performed with generic instruments. *Knee Surg Sports Traumatol Arthrosc*, 21(10): 2271-80, 2013.
11. **Howell, S. M.**: Kinematic Alignment in Total Knee Arthroplasty. Definition, History, Principle, Surgical Technique, and Results of an Alignment Option for TKA. *Arthropaedia*, (1): 44-53, 2014.
12. Bonny DP, Hull ML, **Howell SM**: Design, Calibration, and Validation of a Novel 3-D Printed Instrumented Spatial Linkage that Measures Changes in the Rotational Axes of the Tibiofemoral Joint. *J Biomech Eng (Accepted June 2013)* 2013.
13. Bonny, D. P.; Hull, M. L.; and **Howell, S. M.**: Optimized Design of an Instrumented Spatial Linkage that Minimizes Errors in Locating the Rotational Axes of the Tibiofemoral Joint: A Computational Analysis. *J Biomech Eng*, 135(3): 031003-11, 2013.
14. Thienpont E, Paternostre F, Pietsch M, Hafez M, **Howell, S. M.**: Total knee arthroplasty with patient-specific instruments improves function and restores limb alignment in patients with extra-articular deformity. *The Knee*, <http://dx.doi.org/10.1016/j.knee.2013.07.001>
15. Nedopil, A. J.; **Howell, S. M.**; Rudert, M.; Roth, J.; and Hull, M. L.: How Frequent Is Rotational Mismatch Within 0±10 in Kinematically Aligned Total Knee Arthroplasty? *Orthopedics*, 36(12): e1515-e1520, 2013.
16. **Howell, S. M.**; Papadopoulos, P.; Kuznick, K.; and Hull, M. L.: How Frequent are Six Measures of Alignment After Kinematically-Aligned TKA Performed with Generic Instruments Categorized In-Range and Does the Category Adversely Affect Function? . *Knee Surg Sports Traumatol Arthrosc*, In Press.
17. Johnson, A. J.; **Howell, S. M.**; Costa, C. R.; and Mont, M. A.: The ACL in the arthritic knee: how often is it present and can preoperative tests predict its presence? *Clin Orthop Relat Res*, 471(1): 181-8, 2013.
18. **Howell, S. M.**; Hull, M.; and McAllister, D.: Be Sensible and Cautious About Criticizing Tunnel Placement in ACL Reconstruction-Commentary on an article by Duncan E. Meuffels, MD, PhD, et al.: , Computer-Assisted Surgery Is Not More Accurate or Precise Than Conventional Arthroscopic ACL Reconstruction. A Prospective Randomized Clinical Trial. *The Journal of Bone & Joint Surgery*, 94(17): e133 1-2, 2012.
19. **Howell, S. M.**; Howell, S. J.; Cohen, J.; and Hull, M. L.: Does kinematically-aligned total knee arthroplasty restore function without failure regardless of alignment category? *Clin Orthop Relat Res*, In Press.

20. **Howell, S. M.**; Hodapp, E. E.; Vernace, J. V.; Meade, T. D.; and Hull, M. L.: Are undesirable contact kinematics minimized after kinematically-aligned total knee arthroplasty? . *Knee Surg Sports Traumatol Arthrosc*, In Press.
21. Lawhorn, K. W.; **Howell, S. M.**; Traina, S. M.; Gottlieb, J. E.; Meade, T. D.; and Freedberg, H. I.: The effect of graft tissue on anterior cruciate ligament outcomes: a multicenter, prospective, randomized controlled trial comparing autograft hamstrings with fresh-frozen anterior tibialis allograft. *Arthroscopy*, 28(8): 1079-86, 2012.
22. **Howell SM**, Chen J, Hull ML. Variability of the location of the tibial tubercle affects the rotational alignment of the tibial component in kinematically aligned total knee arthroplasty. *Knee Surgery, Sports Traumatology, Arthroscopy*. 2012.
23. Nunley, R. M.; Ellison, B. S.; Zhu, J.; Ruh, E. L.; **Howell, S. M.**; and Barrack, R. L.: Do patient-specific guides improve coronal alignment in total knee arthroplasty? *Clinical Orthopaedics and Related research*, 470(3): 895-902, 2012.
24. **Howell, S. M**, and Hull, M. L.: Kinematic Alignment in TKA: Definition, Surgical Technique, and Challenging Cases *Orthopedic Knowledge Online*, 10(7), [http://orthoport.aaos.org/oko/article.aspx?article=OKO\\_ADU050](http://orthoport.aaos.org/oko/article.aspx?article=OKO_ADU050), 2012.
25. Roland, M., Hull, M. L, **Howell, S. M.**: Validation of a New Method for Finding the Rotational Axes of the Knee Using Both Marker-Based Roentgen Stereophotogrammetric Analysis and 3D Video-Based Motion Analysis for Kinematic Measurements. *Journal of Biomechanical Engineering* 2011;133:051003.
26. **Howell, S. M.**: The role of arthroscopy in treating osteoarthritis of the knee in the older patient. *Orthopedics*, 33(9): 652, 2010.
27. Smith, C.; **Howell, S. M.**; and Hull, M. L.: Does Does graft construct lengthening at the fixations cause an increase in anterior laxity following anterior cruciate ligament reconstruction in vivo? *J Biomech Eng* 2010;132:081001.
28. Smith, C. K.; **Howell, S. M.**; and Hull, M. L.: Anterior Laxity, Slippage, and Recovery of Function in the First Year After Tibialis Allograft Anterior Cruciate Ligament Reconstruction. *Am J Sports Med*, 2010.
29. Smith, C. K.; Chen, J. A.; **Howell, S. M.**; and Hull, M. L.: An in vivo study of the effect of distal femoral resection on passive knee extension. *J Arthroplasty*, 25(7): 1137-42, 2010.
30. Roland, M.; Hull, M. L.; and **Howell, S. M.**: Virtual axis finder: a new method to determine the two kinematic axes of rotation for the tibio-femoral joint. *J Biomech Eng*, 132(1): 011009, 2010.
31. Smith, C. K.; Hull, M. L.; and **Howell, S. M.**: Does graft construct lengthening at the fixations cause an increase in anterior laxity following anterior cruciate ligament reconstruction in vivo? *J Biomech Eng*, 132(8): 081001, 2010.

32. **Howell, S. M.**; Howell, S. J.; and Hull, M. L.: Assessment of the radii of the medial and lateral femoral condyles in varus and valgus knees with osteoarthritis. *J Bone Joint Surg Am*, 92(1): 98-104, 2010.
33. **Howell, S. M.**; Kuznik, K.; Hull, M. L.; and Siston, R. A.: Longitudinal shapes of the tibia and femur are unrelated and variable. *Clin Orthop Relat Res*, 468(4): 1142-8, 2010.
34. **Howell, S. M.**; Hull, M.; and Smith, C.: Management of a patient with an anterior cruciate ligament rupture. *Operative Techniques in Sports Medicine*, 17(1): 39-46, 2009.
35. **Howell, S. M.** and Rogers, S. L.: Method for quantifying patient expectations and early recovery after total knee arthroplasty. *Orthopedics*, 32(12): 884-90, 2009.
36. **Howell, S. M.**, Hull ML. Checkpoints for judging tunnels and anterior cruciate ligament graft placement. *Journal of Knee Surgery*. 22(2): 161-170, 2009.
37. **Howell, S. M.**, Hodapp EE, Kuznick K, Hull ML. In vivo adduction and reverse axial rotation (external) of the tibial component can be minimized during standing and kneeling. *Orthopedics*. *Orthopedics*, 32(5): 319, 2009.
38. Smith C, Hull, M. L., **Howell, S. M** Can markers injected into a single-loop anterior cruciate ligament graft define the axes of the tibial and femoral tunnels? A cadaveric study using roentgen stereophotogrammetric analysis. *J Biomech Eng*. 2008 Aug;130(4):044503.
39. Smith C, Hull, M. L., **Howell, S. M** Roentgen stereophotogrammetric analysis methods for determining ten causes of lengthening of a soft-tissue anterior cruciate ligament graft construct. *J Biomech Eng*. 2008 Aug;130(4):041002.
40. **Howell, S. M.**; K. Kuznik; Hull, M. L.; and R. Siston: Results of an initial experience with custom-fit positioning total knee arthroplasty in a series of 48 patients. *Orthopedics*, 31(9): 857-63, 2008.
41. Prodromos, C. C.; Fu, F. H.; **Howell, S. M.**; Johnson, D. H.; and Lawhorn, K.: Controversies in Soft-tissue Anterior Cruciate Ligament Reconstruction: Grafts, Bundles, Tunnels, Fixation, and Harvest. *J Am Acad Orthop Surg*, 16(7): 376-84, 2008.
42. Smith, C. K.; Hull, M. L.; and **Howell, S. M.**: Ten causes of lengthening of a soft tissue anterior cruciate ligament graft determined in cadaveric knees using roentgen stereophotogrammetry. *Journal of Biomechanical Engineering*, In Press.
43. Smith, C. K.; Hull, M. L.; and **Howell, S. M.**: Migration of radio-opaque markers injected into tendon grafts: A study using roentgen stereophotogrammetric analysis (RSA). *Journal of Biomechanical Engineering*, In Press.
44. Liu-Barba, D.; Hull, M. L.; and **Howell, S. M.**: Coupled motions under compressive load in intact and ACL-deficient knees: A cadaveric study. *Journal of Biomechanical Engineering*, In Press.

45. Lawhorn, K. W., and **Howell, S. M.**: Principles for using hamstring tendons for anterior cruciate ligament reconstruction. *Clin Sports Med*, 26(4): 567-85, 2007.
46. Liu-Barba, D.; **Howell, S. M.**; and Hull, M. L.: High-stiffness distal fixation restores anterior laxity and stiffness as well as joint line fixation with an interference screw. *Am J Sports Med*, 35(12): 2073-82, 2007
47. Smith, C. K.; Hull, M. L.; and **Howell, S. M.**: Migration of radio-opaque markers injected into tendon grafts: A study using roentgen stereophotogrammetric analysis (RSA). *J Biomech Eng*, In Press.
48. Donahue, T. L.; Hull, M. L.; and **Howell, S. M.**: New algorithm for selecting meniscal allografts that best match the size and shape of the damaged meniscus. *J Orthop Res*, In Press.
49. Thompson, D. M.; Hull, M. L.; and **Howell, S. M.**: Does a tensioning device pinned to the tibia improve knee anterior-posterior load-displacement compared to manual tensioning of the graft following anterior cruciate ligament reconstruction? A cadaveric study of two tibial fixation devices. *J Orthop Res*, 24(9): 1832-41, 2006.
50. Matsumoto, A.; **Howell, S. M.**; and Liu-Barba, D.: Time-related changes in the cross-sectional area of the tibial tunnel after compaction of an autograft bone dowel alongside a hamstring graft. *Arthroscopy*, 22(8): 855-60, 2006.
51. **Howell, S. M.**: Loss of motion due to graft impingement (Roof impingement and posterior cruciate ligament impingement). *Operative Techniques in Sports Medicine*, 14(2), In Press
52. Smith, C. K.; Hull, M. L.; and **Howell, S. M.**: Migration of radio-opaque markers injected into tendon grafts: A study using roentgen stereophotogrammetric analysis (RSA). *J Biomech Eng*, In Press.
53. Smith, C. K.; Hull, M. L.; and Howell, S. M.: Lengthening of a single-loop tibialis tendon graft construct after cyclic loading: a study using roentgen stereophotogrammetric analysis. *J Biomech Eng*, 128(3): 437-42, 2006
54. Matsumoto, A., and **Howell, S. M.**: Avoiding posterior cruciate ligament and roof impingement with transtibial anterior cruciate ligament reconstruction: Keys to correct tunnel placement. *Techniques in Orthopaedics*, 20(3): 211-217, 2005.
55. Matsumoto, A., and **Howell, S. M.**: EZLoc: A simple, rigid, femoral fixation device for a soft tissue anterior cruciate ligament graft. *Techniques in Orthopaedics*, 20(3): 238-244, 2005.
56. Matsumoto, A., and **Howell, S. M.**: WasherLoc and Bone Dowel: A rigid, slippage

resistant, tibial fixation device for a soft tissue anterior cruciate ligament graft. *Techniques in Orthopaedics*, 20(3): 278-282, 2005.

57. **Howell, S. M.;** Roos, P.; and Hull, M. L.: Compaction of a bone dowel in the tibial tunnel improves the fixation stiffness of a soft tissue anterior cruciate ligament graft: an in vitro study in calf tibia. *American Journal of Sports Medicine*, 33(5): 719-25, 2005.
58. Karchin, A.; Hull, M. L.; and **Howell, S. M.:** Tension in a double loop tendon anterior cruciate graft during a simulated open chain knee extension exercise. *Journal of Orthopedic Research*, 23(1): 77-83, 2005.
59. Grover, D. M.; **Howell, S. M.;** and Hull, M. L.: Early tension loss in an anterior cruciate ligament graft. A cadaver study of four tibial fixation devices. *Journal of Bone and Joint Surgery American Volume*, 87(2): 381-90, 2005.
60. Roos, P. J.; Neu, C. P.; Hull, M. L.; and **Howell, S. M.:** A new tibial coordinate system improves the precision of anterior-posterior knee laxity measurements: a cadaveric study using Roentgen stereophotogrammetric analysis. *Journal of Orthopedic Research*, 23(2): 327-33, 2005.
61. Lawhorn, K. W., and **Howell, S. M.:** Correct placement of tibial and femoral tunnels for anterior cruciate ligament reconstruction using the transtibial technique. *Techniques in Knee Surgery*, (1): 19-3, In Press.
62. **Howell, S. M.;** Lawhorn, K.W.: Gravity reduces the tibia when using a tibial guide that targets the intercondylar roof. *American Journal of Sports Medicine*, 32(7): 1702-1710, 2004.
63. Karchin, A.; Hull, M. L.; and **Howell, S. M.:** Initial tension and anterior load-displacement behavior of high-stiffness anterior cruciate ligament graft constructs. *Journal of Bone and Joint Surgery American Volume*, 86-A: 1675-83, 2004
64. Roos, P. J.; Hull, M. L.; and **Howell, S. M.:** How cyclic loading affects the migration of radio-opaque markers attached to tendon grafts using a new method: a study using roentgen stereophotogrammetric analysis (RSA). *Journal of Biomechanical Engineering*, 126(1): 62-9, 2004.
65. Roos, P. J.; Hull, M. L.; and **Howell, S. M.:** Lengthening of double-looped tendon graft constructs in three regions after cyclic loading: a study using Roentgen stereophotogrammetric analysis. *Journal of Orthopedic Research*, 22(4): 839-46, 2004.
66. Eagar, P.; Hull, M. L.; and **Howell, S. M.:** How the fixation method stiffness and initial tension affect anterior load-displacement of the knee and tension in anterior



cruciate ligament grafts: a study in cadaveric knees using a double-loop hamstrings graft. *Journal of Orthopedic Research*, 22(3): 613-24, 2004.

67. Bailey S. B., Grover D. M., **Howell, S. M.** and Hull, M. L.: Foam-reinforced elderly human tibia approximates young human tibia better than porcine tibia: a study of the structural properties of three soft tissue fixation devices. *American Journal of Sports Medicine* 32: 755-64, 2004.
68. Simmons, R.; **Howell, S. M.;** and Hull, M. L.: Effect of the angle of the femoral and tibial tunnels in the coronal plane and incremental excision of the posterior cruciate ligament on tension of an anterior cruciate ligament graft: an in vitro study. *Journal of Bone and Joint Surgery American Volume*, 85-A(6): 1018-29, 2003.
69. Lawhorn, K. W., **and Howell, S. M.:** Correct placemnt of tibial and femoral tunnels for anterior cruciate ligament reconstruction using transtibial technique. *Techniques in Knee Surgery*, 2(1): 43-52, 2003.
70. Lawhorn, K. W., and **Howell, S. M.:** Scientific justification and technique for anterior cruciate ligament reconstruction using autogenous hamstring tendons and allogeneic soft tissue grafts. *Orthopedic Clinics of North America*, 34(1): 19-30, 2003.
71. Huang, A.; Hull, M. L.; and **Howell, S. M.:** The level of compressive load affects conclusions from statistical analyses to determine whether a lateral meniscal autograft restores tibial contact pressure to normal: a study in human cadaveric knees. *Journal of Orthopedic Research*, 21(3): 459-64, 2003.
72. Huang, A.; Hull, M. L.; **Howell, S. M.;** and Haut Donahue, T.: Identification of cross-sectional parameters of lateral meniscal allografts that predict tibial contact pressure in human cadaveric knees. *Journal of Biomechanical Engineering*, 124(5): 481-9, 2002.
73. Singhatat, W.; Lawhorn, K. W.; **Howell, S. M.;** and Hull, M. L.: How four weeks of implantation affect the strength and stiffness of a tendon graft in a bone tunnel: a study of two fixation devices in an extraarticular model in ovine. *American Journal of Sports Medicine*, 30(4): 506-13, 2002.
74. Haut Donahue, T. L.; **Howell, S. M.;** Hull, M. L.; and Gregersen, C.: A biomechanical evaluation of anterior and posterior tibialis tendons as suitable single-loop anterior cruciate ligament grafts. *Arthroscopy*. 18(6): 589-97, 2002.
75. Sekaran, S. V.; Hull, M. L.; and **Howell, S. M.:** Nonanatomic location of the posterior horn of a medial meniscal autograft implanted in a cadaveric knee adversely affects the pressure distribution on the tibial plateau. *American Journal of Sports Medicine* 30(1): 74-82, 2002

76. **Howell, S.M.**, Autogenous graft choices in ACL reconstruction. *Current Opinion in Orthopedics*, 12 (2): 149-155, 2001.
77. **Howell, S. M.**; Gittins, M. E.; Gottlieb, J. E.; Traina, S. M.; and Zoellner, T. M.: The relationship between the angle of the tibial tunnel in the coronal plane and loss of flexion and anterior laxity after anterior cruciate ligament reconstruction. *American Journal of Sports Medicine*, 29(5): 567-74., 2001.
78. Zacharias, I., **Howell, S. M.**, Hull, M. L., and Lawhorn, K. W.: In vivo calibration of a femoral fixation device transducer for measuring anterior cruciate ligament graft tension: a study in an ovine model. *Journal of Biomechanical Engineering*, 123(4): 355-61, 2001.
79. Eagar P, Hull ML, **Howell, S.M.** A method for quantifying the anterior load-displacement behavior of the human knee in both the low and high stiffness regions. *Journal of Biomechanics*. 34 (12): 1655-60, 2001.
80. Donahue-Haut TL, Gregerson C, Hull ML, **Howell, S.M.** Comparison of viscoelastic, structural, and material properties of double-looped anterior cruciate ligament grafts made from bovine digital extensor and human hamstring tendons. *Journal of Biomechanical Engineering*, 123(2): 162-169, 2001
81. Lechner, K., Hull, M. L., and **Howell, S. M.**: Is the circumferential tensile modulus within a human medial meniscus affected by the test sample location and cross-sectional area? *Journal of Orthopedic Research*, 18(6): 945-51, 2000.
82. Zacharias, I., Hull, M. L., and **Howell, S. M.**: Static and fatigue strength of a fixation device transducer for measuring anterior cruciate ligament graft tension. *Journal of Biomechanical Engineering*, 122(6): 600-3, 2000.
83. Alhlaki, M., Hull, M.L., and **Howell, S.M.** Contact mechanics of the medial tibial plateau after implantation of a medial meniscal allograft. a human cadaveric study. *American Journal of Sports Medicine*, 28: 370-376, 2000.
84. Haut, T.L., Hull, M.L., and **Howell, S.M.** Use of roentgenography and magnetic resonance imaging to predict meniscal geometry determined with a three-dimensional coordinate digitizing system. *Journal of Orthopedic Research*, 18: 228-37, 2000.
85. **Howell, S.M.**, and Deutsch, M.L. Comparison of endoscopic and two-incision technique for reconstructing a torn anterior cruciate ligament using hamstring tendons. *Journal of Arthroscopic & Related Surgery*, 15:594-606, 1999.
86. To, J., **Howell, S.M.**, and Hull, M.L. Factors affecting the stiffness of anterior cruciate ligament replacements and implantation. *Journal of Arthroscopic & Related Surgery*, 15:379-387, 1999.

87. Alhlaki, M., **Howell, S.M.**, and Hull, M. How three methods for fixing a medial meniscal autograft affect tibial contact mechanics. *American Journal of Sports Medicine*, 27:320-328, 1999.
88. **Howell, S.M.**, Wallace, M.P., Hull, M.L. Evaluation of the single-incision arthroscopic technique for anterior cruciate ligament reconstruction: A study of tibial tunnel placement, intraoperative graft tension, and stability. *American Journal of Sports Medicine*, 27:285-293, 1999.
89. Magen, H.E., **Howell, S.M.**, and Hull, M.L. Structural properties of six tibial fixation methods for anterior cruciate ligament soft tissue grafts. *American Journal of Sports Medicine*, 27:35-43, 1999
90. **Howell, S.M.** Principles for placing the tibial tunnel and avoiding roof impingement during reconstruction of a torn anterior cruciate ligament. *Knee Surgery Sports Traumatology Arthroscopy*, 6 [Suppl 1] 49-55, 1998.
91. **Howell, S.M.** Rationale and endoscopic technique for anatomic placement and rigid fixation of a double-looped semitendinosus and gracilis graft. *Techniques in Orthopedics*, 13:319-328, 1998
92. Wolchok, J., Hull, M.D., and **Howell, S.M.** Effect of intersegmental knee moments on patellofemoral contact mechanics during cycling. *Journal of Biomechanics*, 31:677-683, 1998.
93. Wallace, M., **Howell, S.M.**, and Hull, M.L. Can an isometer predict the tensile behavior of a double-looped hamstring graft during anterior cruciate ligament reconstruction? *Journal of Orthopedic Research*, 16:386-393, 1998.
94. McKee, E., Lindsey, D., Hull, M.L., and **Howell, S.M.** Telemetry system for monitoring anterior cruciate ligament graft forces in vivo. *Medical and Biological Engineering and Computing*, 36:330-336, 1998.
95. Ventura, C., Wolchok, J., Hull, M.L., and **Howell, S.M.** An implantable transducer for measuring tension in an anterior cruciate ligament graft. *Journal of Biomechanical Engineering*, 120:327-333, 1998.
96. Goss, B., **Howell, S.M.**, and Hull, M.L. Quadriceps load aggravates and roofplasty mitigates active impingement of anterior cruciate ligament grafts against the intercondylar roof. *Journal of Orthopedic Research*, 16:611-617, 1998.
97. **Howell, S.M.** and Hull, M.L. Aggressive rehabilitation using hamstring tendons: graft construct, tibial tunnel placement, fixation properties, and clinical outcome. *American Journal of Knee Surgery*, 11:120-127, 1998.

98. Lindsey, D., McKee, E., Hull, M.L., and **Howell, S.M.** A new technique for transmission of signals from implantable transducers. *IEEE Transactions on Biomedical Engineering*, 45(5):614-619, 1998.
99. Haut, T.L., Hull, M.L., and **Howell, S.M.** A high accuracy three dimensional coordinate digitizing system for reconstructing the geometry of diarthrodial joints. *Journal of Biomechanics*, 31:571-577, 1998.
100. Wallace, M., **Howell, S.M.**, and Hull, M.L. In vivo tensile behavior of a four-bundle hamstrings graft as a replacement for the anterior cruciate ligament. *Journal of Orthopedic Research*, 15(4):539-545, 1997.
101. Martens, T., Hull, M.L., and **Howell, S.M.** An in vitro osteotomy to expose the medial compartment of the human knee joint. *ASME Journal of Biomechanical Engineering*, 119(4):379-385, 1997.
102. Goss, B., Hull, M.D., and **Howell, S.M.** Contact pressure and tension in anterior cruciate ligament grafts subjected to roof impingement during passive extension. *Journal of Orthopaedic Research*, 15:263-268, 1997.
103. **Howell, S.M.**; and Gottlieb, J.E.: Endoscopic fixation of a double-looped semitendinosus and gracilis anterior cruciate ligament graft using bone mulch screw. *Operative Techniques in Orthopaedics*, 6:152-160, 1996.
104. **Howell, S.M.**; and Taylor, M.A.: Knee reconstruction with a double-looped semitendinosus and gracilis graft, rehabilitated without a brace, and returned to activities at four months. *Journal of Bone and Joint Surgery*, 78-A:814-825, 1996.
105. Watanabe, B.M. and **Howell, S.M.**: Arthroscopic findings associated with roof impingement of an anterior cruciate ligament graft. *American Journal of Sports Medicine*, 23:616-625, 1995.
106. **Howell, S.M.**; Knox, K.E.; Farley, T.E.; and Taylor, M. A.: The blood supply of a human anterior cruciate ligament graft during the first two years of implantation. *American Journal of Sports Medicine*, 23:42-49, 1995.
107. **Howell, S.M.**; and Barad, S.J.: Knee extension and its relationship to the slope of the intercondylar roof: implications for positioning the tibial tunnel in anterior cruciate ligament reconstructions. *American Journal of Sports Medicine*, 23:288-294, 1995.
108. **Howell, S.M.**; and Taylor, M.A.: Roof impingement: failure of reconstruction of the anterior cruciate ligament due to impingement by the intercondylar roof. *Journal of Bone and Joint Surgery*, 75-A:1044-1055, 1993.
109. **Howell, S.M.**: Arthroscopically assisted technique for preventing roof impingement of an anterior cruciate ligament graft illustrated by the use of an

autogenous double-looped semitendinosus and gracilis graft. *Operative Techniques in Sports Medicine*, 1:58-65, 1993.

110. Berns, G.S. and **Howell, S.M.**: Roofplasty requirements in vitro for different tibial hole placements in anterior cruciate ligament reconstructions. *American Journal of Sports Medicine*, 21:292-298, 1993.
111. Berns, G.S.; **Howell, S.M.**; and Farley, T.E.: The accuracy of signal intensity measurements in magnetic resonance imaging as evaluated within the knee. *Magnetic Resonance Imaging*, 10:573-578, 1992.
112. **Howell, S.M.**: Arthroscopic roofplasty: A method for correcting an extension deficit caused by roof impingement of an anterior cruciate ligament graft. *Arthroscopy*, 8:375-379, 1992.
113. **Howell, S.M.**; Clark, J.A.; and Farley, T.E.: Serial magnetic resonance imaging study of the effects of impingement on the MR image of the patellar tendon graft. *Arthroscopy*, 3:350-358, 1992.
114. **Howell, S.M.**; and Clark, J.A.: Tibial tunnel placement in isometric anterior cruciate ligament reconstructions and its role in producing graft impingement. *Clinical Orthopaedics and Related Research*, 283:187-195, 1992.
115. Deutsch, A.L.; Mink, J.H.; Fox, J.M.; Friedman, M.J.; and **Howell, S.M.**: The postoperative knee. *Magnetic Resonance Quarterly*, 8:23-54, 1992.
116. **Howell, S.M.**; Berns, G.S.; Farley, T.E.: Unimpinged and impinged anterior cruciate ligament grafts: MRI signal intensity measurements. *Radiology*, 179:639-643, 1991.
117. Farley, T.E.; **Howell, S.M.**; Love, K.F.; Wolfe, R.D.; and Neumann, C.H.: Arthrographic vs magnetic resonance imaging of the meniscus following suture repair. *Radiology*, 180:517-522, 1991.
118. **Howell S.M.**, Clark J.A., and Blasier R.D.: Serial magnetic resonance imaging of hamstring acl autografts during the first year of implantation a preliminary study. *American Journal of Sports Medicine*, 19:42-47, 1991.
119. **Howell, S.M.**; Clark, J.A.; and Farley, T.E.: A rationale for predicting anterior cruciate graft impingement by the intercondylar roof; an mri study. *American Journal of Sports Medicine*, 19:276-282, 1991.
120. **Howell, S.M.**; and Kraft, T.A.: The role of the supraspinatus and infraspinatus muscles in controlling glenohumeral mechanics in patients with anterior shoulder instability. *Clinical Orthopaedics and Related Research*, 263:128-134, 1991.

121. **Howell, S.M.:** Anterior tibial translation during a maximum quadriceps contraction: is it clinically significant? *American Journal of Sports Medicine*. 18:573-578, 1990.
122. **Howell, S.M.** and Galinat, B.J.: The glenoid-labral socket: a constrained, articular surface. *Clinical Orthopaedics and Related Research*, 243:122-125, 1989.
123. **Howell, S.M.**, Galinat, B.J., Marone, P.J.; and Renzi, A.J.: The normal and abnormal mechanics of the glenohumeral joint in the horizontal motion plane. *Journal of Bone and Joint Surgery*, Vol. 70-A, No. 2, 227-232, 1988.
124. **Howell, S.M.;** Lee, S.M.; MacEwen, G.D.: Compression fracture: an unusual cause of back pain in a patient with a stable posterior spinal fusion. *Spine*, 12:9:946-948, 1987.
125. **Howell, S.M.;** Imoberstag, M.; Segar, D.; and Marone, P.J: Clarification of the role of the supraspinatus muscle in shoulder function. *Journal of Bone and Joint Surgery*, Vol. 68-A, No. 3, 398-404, 1986.

## **Books**

1. Prodrornos, C.; Brown, C.; Fu, F.; Georgoulis, A.; Gobbi, A.; Howell, S.; Johnson, D.; Paulos, L.; and Shelbourne, D.: *The Anterior Cruciate Ligament: Reconstruction and Basic Science*. Edited by Prodrornos, C.; Brown, C.; Fu, F.; Georgoulis, A.; Gobbi, A.; **Howell, S.M.**; Johnson, D.; Paulos, L.; and Shelbourne, D., 672 pages, Philadelphia, PA, Elsevier, 2007.

## **Book Chapters (Total 9)**

1. Vernace, J.V, **Howell, S. M.:** Kinematically Aligned Total Knee Arthroplasty with Patient-Specific Cutting Guides. In *Knee Reconstruction, Replacement, and Revision*. Edited by Javad Parvizi, Data Trace Publishing Company, Towson, MD. In Press.
2. **Howell, S. M.**, and Hull, M. L.: Kinematically Aligned TKA With Use of MRI Based Guides OtisMed Type. In *Improving Accuracy in Knee Arthroplasty*. Edited by Thienpont, E., New Delhi, India, Jaypee Brothers Medical Publishers (P) Ltd., In Press.
3. **Howell, S. M.:** Principles of Kinematic Alignment in Total Knee Arthroplasty With and Without Patient Specific Cutting Blocks (OtisKnee). In *Insall and Scott Surgery of the Knee*. Edited by Scott, S., Philadelphia, PA, Elsevier, In Press.
4. Lawhorn, K., and **Howell, S.M.:** Avoiding ACL Graft Impingement: Principles for Tunnel Placement Using the Transtibial Tunnel Technique. In *Master Techniques in Orthopaedic Surgery: Reconstructive Knee Surgery*. 3rd ed., pp. 566. Edited by Jackson, D. W., 566, Lippincott Williams & Wilkins, 2007.

5. Lawhorn, K.W., and **Howell, S.M.:** Anterior cruciate ligament reconstruction: Soft-tissue grafts. In *Operative Techniques in Sports Medicine*. Edited, Elsevier, 2007.
6. **Howell, S.M.,** Lawhorn, K.L.: (In Press) Arthroscopy of the Knee-Hamstring Tendons. In *Textbook of Arthroscopy*, edited by Miller and Cole, Philadelphia, W. B. Saunders Company.
7. **Howell, S.M.,** Hull, M.L., and Yasuda, K.: (2001) Construction and Fixation of a Tendon ACL Graft. In *Orthopedic Sports Medicine*, 2<sup>nd</sup> edition, edited by DeLee and Drez, Philadelphia, W. B. Saunders Company.
8. **Howell, S.M.:** (1993) Serial magnetic resonance imaging of patellar tendon-bone anterior cruciate ligament autografts during the first year of implantation. In *Intra Articular Reconstruction of the Anterior Cruciate Ligament*, edited by A. Strover, London: Butterworth Heinemann.
9. **Howell, S.M.:** (1993) Roof Impingement Diagnosis, Cause, Prevention and Late Surgical Correction. In *The Crucial Ligaments*, 2nd ed., edited by J. A. Feagin, New York, Lea and Febinger.

## **List of Invited International and National Lectureships**

### **Beginning July 2005**

4. Invited Lecturer, ACL Reconstruction, Orthopaedics Today Meeting, New York, NY November 8-12, 2005
5. Live ACL Reconstruction and Invited Lecturer, Arthroscopy Association of North America's Fall Meeting, Palm Springs, CA December 1-3, 2005
6. Live 2 hour International WebCast on ACL Reconstruction to Australia, December 9, 2005
7. Grand Rounds, Principles for Reconstructing a Knee With a Soft Tissue ACL Graft, UC Irvine, December 15, 2005

### **2006**

8. Live ACL Reconstruction and Lecturer, Orthopaedic Learning Center, Rosemont, IL January 26, 2006
9. Invited Lecturer, ACL Reconstruction, Metcalf Course, Sun valley, ID February 4-7, 2006
10. Invited Lecturer/Symposium, ACL Reconstruction, American Academy of Orthopaedic Surgeons Annual Meeting, Chicago, IL, March 22-24, 2006
11. Invited Reviewer for Scientific Session titled ACL Graft Placement AOSSM 2006 Specialty Day Program New Orleans, Louisiana March 25, 2006
12. Invited Lecturer, ACL Reconstruction, Tahoe Knee and Shoulder Course, Incline, NV

13. Invited Gartland Lecturer, 'Anatomic ACL and Total Knee Replacement,, Thomas Jefferson University Annual Alumni Meeting, Philadelphia, PA May 5-6, 2006
14. Live ACL Reconstruction – Hamstring Graft with Transtibial Drilling AOSSM 2006 Annual Meeting, Hershey, PA, June 29 – July 2, 2006
15. Live 2 hour International WebCast on ACL Reconstruction to four locations in Australia, August 4, 2006
16. Live ACL Reconstruction and Lecturer, Orthopaedic Learning Center, Rosemont, IL October 12, 2006
17. Live ACL Reconstruction and Invited Lecturer to 'ACL Study Day', Basingstoke, United Kingdom, October 31, 2006
18. Invited Lecturer, ACL Reconstruction to Danish Arthroscopy Association's Annual Meeting, November 1-3, 2006
19. Invited Lecturer, ACL Reconstruction to Kaiser Permanente's Annual Western Meeting, San Francisco, CA November 16, 2006
20. Invited Lecturer, ACL Reconstruction, Arthroscopy Association of North America's Fall Meeting, Palm Springs, CA November 8-12, 2006

## **2007**

21. Invited Lecturer, ACL Reconstruction, Metcalf Annual Meeting, Phoenix, AZ January 20-23, 2007
22. Invited Lecturer/Symposium, ACL Reconstruction, American Academy of Orthopaedic Surgeons Annual Meeting, San Diego, CA, February 15-18, 2006
23. Invited Lecturer, ACL Reconstruction AANA Specialty Day Program San Diego, CA, February 18, 2006
24. Invited Lecturer, ACL Reconstruction AANA Spring Meeting San Francisco, CA April 26, 2007
25. Live ACL Reconstruction and Lecturer for International Attendees, Merin Lab Henderson, NV, May 16, 2007
26. Grand Rounds, Custom Fit Total Knee Arthroplasty, Harvard-Wellesley, Wellesley, MA June 8, 2007
27. Live Surgery and Invited Lecturer, Custom Fit Total Knee Arthroplasty, Phoenix Veterans Administration Hospital, Phoenix, AZ June 22, 2007
28. Grand Rounds, Custom Fit Total Knee Arthroplasty and ACL Reconstruction, University of Pittsburgh, Pittsburgh, PA September 19, 2007
29. Live Webcast of ACL Reconstruction from Sacramento to Argentina for Argentine Arthroscopy Association's Annual Meeting. October 11, 2007
30. Grand Rounds, Custom Fit Total Knee Replacement, Baylor University, Houston, TX November 2, 2007
31. Invited Lecturer, Custom Fit Total Knee Arthroplasty and ACL Reconstruction, American Osteopathic Academy of Orthopedics annual meeting November 18-20, San Francisco, CA
32. Live Surgery and Invited Lecturer, ACL Reconstruction, Polish Arthroscopy Society, Rzeszow, Poland November 11, 2007



33. Live ACL Reconstruction and Invited Lecturer to 'ACL Study Day', Basingstoke, United Kingdom, November 13, 2007

## **2008**

34. Invited Lecturer, Custom Fit Total Knee Arthroplasty and ACL Reconstruction, Orthopaedics Today Meeting, Maui HI January 12-16, 2008
35. Live ACL Reconstruction and Lecturer for International Attendees, Merin Lab Henderson, NV, May 16, 2008
36. Invited Lecturer, ACL Reconstruction AANA Specialty Day San Francisco, CA March 8, 2008
37. Invited Lecturer, ACL Reconstruction, ACL Study Group, Engelberg, Switzerland, March 22-28, 2008
38. Invited Lecturer, Custom-Fit Total Knee Arthroplasty, Bay Area Knee Society, San Francisco, CA, September 25, 2008
39. Live ACL Reconstruction and Lecturer for International Attendees, Merin Lab Henderson, NV, October 17, 2008
40. Invited Lecturer, Custom-Fit Total Knee Arthroplasty, Minneapolis, MN November 28, 2008
41. Invited Lecturer, ACL Reconstruction, Fall AANA, Phoenix, AZ, November 30, 2008
42. Live ACL Reconstruction and Lecturer for International Attendees, Leeds Castle, United Kingdom, December 4-6, 2008

## **2009**

43. Invited Lecturer, Custom Fit Total Knee Arthroplasty and ACL Reconstruction, Orthopaedics Today Meeting, Big Island, HI January 10-14, 2009
44. Invited Lecturer, ACL Reconstruction, VuMedi Webinar, March 17, 2009
45. Co-Chairman, Invited Lecturer, AANA Sponsored Masters Course on ACL Reconstruction, Rosemont, IL, March 20-22, 2009.
46. Invited Lecturer, Symposium Chairman, ACL Reconstruction, ISAKOS Biennial Meeting, Osaka, Japan, April 4-9, 2009.
47. Invited Lecturer, Custom-Fit Total Knee Arthroplasty, VuMedi Webinar, May 12, 2009
48. Live Surgical Demonstration, TOPIC: Custom-Fit Total Knee Arthroplasty, Current Concepts In Joint Replacement, Las Vegas, NV, May 17-19, 2009

## **2010**

49. Invited Lecturer, TOPICS: Total Knee Arthroplasty and ACL, Orthopedics Today Annual Hawaii Meeting, Maui, HI January 10-14, 2010
50. Invited Lecturer and Moderator, TOPIC: Medical Device Development VuMedi Webinar, January 25, 2010
51. Invited Lecturer and Moderator, TOPIC: Kinematically Aligned TKA, Current Concepts In Joint Replacement, Las Vegas, NV, May 23-26, 2010

52. Invited Lecturer, TOPIC: ACL Reconstruction, Notre Dame Orthopaedic Society Annual Meeting, South Bend IN, September 9-10, 2010
53. Invited Lecturer, TOPIC: Shape-Fitting in Total Knee Arthroplasty, Live Surgery Hip and Knee Symposium, Napa, CA, September 24-25, 2010
54. Invited Lecturer, TOPIC: Knee Needs: ACLs and Totals, Delaware Orthopedic Society, 3<sup>rd</sup> Annual Delaware Orthopaedic Symposium, October 23, 2010

## 2011

55. Invited Lecturer, TOPIC: Kinematic Alignment with OtisMed Patient-Specific Guides, a 7 day series of lectures in England, Wales, Germany, Holland, and Belgium, February 4-12, 2011
56. Invited Lecturer, TOPIC: DEBATE: The Best Way to Establish Alignment in TKA is Cylindrical Axis with Patient Specific Guides, Open Knee Society Meeting, San Diego, CA, February 19, 2011
57. Co-Chairman, Invited Lecturer, AANA Sponsored Masters Course on ACL Reconstruction, Rosemont, IL, March 11-12, 2011.
58. Invited Lecturer, TOPIC: Kinematic Alignment with OtisMed Patient-Specific Guides, Canadian Surgeons, Fort Lauderdale, FL, March 25-26, 2011
59. Invited Lecturer, Alignment Debate in Total Knee Arthroplasty, VuMedi Webinar, April 18, 2011
60. Symposium Chairman, TOPIC: Failure of ACL Reconstruction: Can We Prevent It?, ISAKOS Biennial Meeting, Rio De Janeiro, Brazil, May 14-19, 2011
61. Invited Lecturer, TOPIC: Treatment of Knee OA: What are the Options Before Total Knee? ISAKOS Biennial Meeting, Rio De Janeiro, Brazil, May 14-19, 2011

## 2012

62. Invited Lecturer, TOPIC: I'm New School-Kinematic TKA, Seventh Annual Joint Course New Technology for the Treatment of Adult Hip and Knee Disorders; Baltimore, Maryland August 2013
63. Invited Lecturer, TOPICS: Single Bundle ACL Reconstruction: Principles and Technique and Kinematic Alignment in Total Knee Arthroplasty, 31st Annual Cherry Blossom Seminar Washington, DC April 2013
64. Invited Lecturer, TOPICS: PSI Works but Be Watchful and KA TKA Improves Patient Satisfaction, ESSKA Annual Meeting Geneva Switzerland May 2013
65. Invited Lecturer, TOPICS: ACL Reconstruction Tunnels and Graft Placement: Is There a Correct Technique?, Patient Satisfaction in Total Joint Arthroplasty, Kinematic Alignment: Which is Better? VuMedi - The Event 2012 San Francisco, CA December 2013

## 2013

66. Invited Lecturer, TOPIC: Unnecessary and Potential Trouble: Why you Should do the Best Operation that Works: The Single Bundle ACL, AANA Specialty Day Chicago, IL March 2013
67. Invited Lecturer, TOPIC: Searching for the Knee's Holy Grail: How to Achieve Anatomic ACL Reconstructions (single vs double bundle, AM vs TT portal), AANA Annual Meeting in San Antonio TX April 2013
68. Invited Lecturer, TOPIC: Patient Matched Prosthesis, AAOS/AAHKS Challenges and Controversies in Total Joint Arthroplasty May 3-4, 2013
69. Invited Lecturer, TOPIC: Kinematically alligned knee replacement ACL Reconstruction complications, Midlands Knee and Shoulder Controversies Worcester, UK May, 2013
70. Invited Lecturer, TOPIC: Graft Selection in ACL Surgery, Anatomic Single Bundle ACL Reconstruction, Revision ACL Surgery, Arthrofibrosis: treating the stiff knee, Knee Ligament AANA Masters Experience Course Chicago, Il June 2013
71. Invited Lecturer, TOPIC: Revision ACL-The Two-Stage Approach, Western Orthopedic Association Annual Meeting Squaw Valley, CA July 2013
72. Invited Lecturer, TOPIC: Kinematically-Aligned: New and Improved, Seventh Annual Joint Course; Baltimore, Maryland August 2013
73. Invited Lecturer, TOPIC: Single tunnel ACL Reconstruction; transtibial placement: Guidelines for optimal results, Is Kinematically aligned T.K.A the technique of the future?, Kinematically aligned T.K.A improves patient satisfaction, reduces failures and aligns the limb, knee and components, Kinematically aligning the Femoral Component Simplifies Balancing the knee, South African Knee & Shoulder Congress at Elephant Hills, Victoria Falls Zimbabwe October 2013.
74. Invited Lecturer, TOPIC: Choosing the Right Technique Graft, Cases of Failures in ACL Reconstruction, Mechanical vs Kinematic Alignment, Increasing Patient Satisfaction in TJA, VuMedi - The Event, San Francisco, November CA 2013
75. Invited Lecturer, TOPIC: Kinematically-aligned Total Knee Replacement, Emerging Technologies in Orthopedics Las Vegas December 2013