



## Thomas P. Andriacchi

Professor of Mechanical Engineering and of Orthopaedic Surgery, Emeritus

### Bio

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#### BIO

Professor Andriacchi's research focuses on the biomechanics of human locomotion and its biomedical applications to artificial joints, sports injury, osteoarthritis, and neuromuscular disorders. He is the author of more than 200 original papers, more than 500 abstracts and numerous book chapters and is an active member of several national and international societies. He is a past member of the Editorial Board for the Journal of Biomechanics and serves on the Board of Associate Editors for the Journal of Orthopedic Research. Among his honors, Dr. Andriacchi has received the Kappa Delta Award, the highest award of the Orthopedic Research Society and the Borelli Award, the highest award of the American Society of Biomechanics. He is Past President of the American Society of Biomechanics and past Secretary-Treasurer for the Orthopedic Research Society and a former member of its Board of Directors.

#### ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Mechanical Engineering
- Member, Bio-X

#### HONORS AND AWARDS

- Lifetime Achievement Award, Osteoarthritis Research Society International (2020)
- Kappa Delta Elizabeth Winston Lanier Award, Orthopedic Research Society (2019)
- The O'Donohue Sports Injury Research Award, American Orthopedic Society for Sports Medicine (2016)
- Traveling Scholar Award, ACL Study Group (2014-2015)
- Life-time Achievement Award, International Society for Technology in Arthroplasty (2013)
- Contributions to Osteoarthritis Research, Arthritis Foundation (2012)
- H.R. Lissner Medal, American Society of Mechanical Engineers (2009)
- Lifetime Achievement Award, San Francisco Bay Area Knee Society (2008)
- Fellow of American Society of Mechanical Engineers, American Society of Mechanical Engineers (2007)
- Borelli Award, American Society of Biomechanics (2004)
- Kappa Delta Award, Orthopedic Research Society (2004)
- Mark Coventry Award, Knee Society (2002)
- Excellence in Research Award, American Orthopaedic Society for Sports Medicine (1984)
- Kappa Delta Award, Orthopedic Research Society (1983)

#### PROFESSIONAL EDUCATION

- Ph.D., University of Illinois Chicago, Mechanical Engineering (1974)

## LINKS

- My Lab: <https://web.stanford.edu/group/biomotion/>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

The main focus of the research conducted in Professor Andriacchi's Biomotion Laboratory is to apply the study of normal and pathological human movement to the evaluation and treatment of musculoskeletal disease and injury. The Laboratory provides unique information on the relationship between the in vivo pathomechanics of human movement and the mechanisms that influence the initiation and progression of musculoskeletal disease and injury. As such, the Laboratory integrates information from collaborative studies that conduct animal and/or in vitro testing by providing the in vivo perspective on the problem. Specifically, the Laboratory has identified unique ambulatory conditions that are associated with the development of premature osteoarthritis following joint trauma. The Laboratory is using this information as an objective tool to evaluate the efficacy of specific treatments for modifying ambulatory patterns that lead to post-trauma osteoarthritis. Similarly, the association between obesity and premature osteoarthritis is being studied to evaluate the interactions between ambulatory changes, biological changes (from serum biomarkers) and structural changes to cartilage (from MRI) that converge to make obesity the main risk factor for developing osteoarthritis.

This work has had direct translational results producing an inexpensive load modifying intervention in the form of a shoe that has been shown to reduce knee pain in patients with medial compartment osteoarthritis. There is also a major program to develop prevention strategies for reducing the risk for anterior cruciate ligament injury, a common sports injury to the knee. Improved methods for assessing morphological cartilage changes from MR images have been developed and applied to establishing a relationship between mechanical loading during walking and cartilage thickness. Finally, the Laboratory has been a leader in the development of improved methods for the measurement and analysis of human movement. One such improvement is the creation and development of a markerless motion capture system giving the researchers the capacity to analyze human movement without placing markers on the subject.

### CLINICAL TRIALS

- Gait Modifications and Cutaneous Stimulation, Not Recruiting
- Obesity and the Initiation of Knee Osteoarthritis, Not Recruiting
- The Design and Evaluation of an Active Intervention for the Prevention of Non-contact ACL Injury, Not Recruiting

## Publications

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### PUBLICATIONS

- **Cartilage Oligomeric Matrix Protein Responses to a Mechanical Stimulus Associate with Ambulatory Loading in Individuals with Anterior Cruciate Ligament Reconstruction.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*  
Erhart-Hledik, J. C., Titchenal, M. R., Migliore, E., Asay, J. L., Andriacchi, T. P., Chu, C. R.  
2021
- **Bridging Disciplines as a pathway to Finding New Solutions for Osteoarthritis a collaborative program presented at the 2019 Orthopaedic Research Society and the Osteoarthritis Research Society International.** *Osteoarthritis and cartilage open*  
Andriacchi, T. P., Griffin, T. M., Loeser, R. F., Chu, C. R., Roos, E. M., Hawker, G. A., Erhart-Hledik, J. C., Fischer, A. G.  
2020; 2 (1): 100026
- **A Systems View of Risk Factors for Knee Osteoarthritis Reveals Insights into the Pathogenesis of the Disease** *ANNALS OF BIOMEDICAL ENGINEERING*  
Andriacchi, T. P., Favre, J., Erhart-Hledik, J. C., Chu, C. R.  
2015; 43 (2): 376-387
- **The Nature of In Vivo Mechanical Signals That Influence Cartilage Health and Progression to Knee Osteoarthritis** *CURRENT RHEUMATOLOGY REPORTS*  
Andriacchi, T. P., Favre, J.  
2014; 16 (11)

- **OSTEOARTHRITIS Probing knee OA as a system responding to a stimulus** *NATURE REVIEWS RHEUMATOLOGY*  
Andriacchi, T. P.  
2012; 8 (7): 371-372
- **Differences in tibial rotation during walking in ACL reconstructed and healthy contralateral knees** *JOURNAL OF BIOMECHANICS*  
Scanlan, S. F., Chaudhari, A. M., Dyrby, C. O., Andriacchi, T. P.  
2010; 43 (9): 1817-1822
- **Gait mechanics influence healthy cartilage morphology and osteoarthritis of the knee.** *journal of bone and joint surgery. American volume*  
Andriacchi, T. P., Koo, S., Scanlan, S. F.  
2009; 91: 95-101
- **A framework for the in vivo pathomechanics of osteoarthritis at the knee** *ANNALS OF BIOMEDICAL ENGINEERING*  
Andriacchi, T. P., Mundermann, A., Smith, R. L., Alexander, E. J., Dyrby, C. O., Koo, S.  
2004; 32 (3): 447-457
- **Diverse parameters of ambulatory knee moments differ with medial knee osteoarthritis severity and are combinable into a severity index.** *Frontiers in bioengineering and biotechnology*  
Ulrich, B., Erhart-Hledik, J. C., Asay, J. L., Omoumi, P., Andriacchi, T. P., Jolles, B. M., Favre, J.  
2023; 11: 1176471
- **Femoral acetabular impingement labral pathology on MRI is correlated with greater hip flexion and decreased abduction in collegiate water polo players: A pilot study.** *Journal of ISAKOS : joint disorders & orthopaedic sports medicine*  
Hall, K. E., Langner, J., Segovia, N., Schultz, B., Andriacchi, T., Gold, G., Safran, M. R.  
2022; 7 (1): 7-12
- **Visualizing PreOsteoarthritis: Integrating MRI UTE-T2\* with Mechanics and Biology to Combat Osteoarthritis The 2019 Elizabeth Winston Lanier Kappa Delta Award.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*  
Chu, C. R., Williams, A. A., Erhart-Hledik, J. C., Titchenal, M. R., Qian, Y., Andriacchi, T. P.  
2021
- **Kinematic Comparison between Medially Congruent and Posterior-Stabilized Third-Generation TKA Designs.** *Journal of functional morphology and kinesiology*  
Ghirardelli, S., Asay, J. L., Leonardi, E. A., Amoroso, T., Andriacchi, T. P., Indelli, P. F.  
2021; 6 (1)
- **Vertical Ground Reaction Force 2 Years After Anterior Cruciate Ligament Reconstruction Predicts 10-Year Patient-Reported Outcomes.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*  
Erhart-Hledik, J. C., Chu, C. R., Asay, J. L., Mahtani, G. B., Andriacchi, T. P.  
2021
- **Longitudinal changes in tibial and femoral cartilage thickness are associated with baseline ambulatory kinetics and cartilage oligomeric matrix protein (COMP) measures in an asymptomatic aging population.** *Osteoarthritis and cartilage*  
Erhart-Hledik, J. C., Chehab, E. F., Asay, J. L., Favre, J., Chu, C. R., Andriacchi, T. P.  
2021
- **Analyzing Femorotibial Cartilage Thickness Using Anatomically Standardized Maps: Reproducibility and Reference Data.** *Journal of clinical medicine*  
Favre, J., Babel, H., Cavinato, A., Blazek, K., Jolles, B. M., Andriacchi, T. P.  
2021; 10 (3)
- **Intermittent vibrational stimulation enhances mobility during stair navigation in patients with knee pain.** *Gait & posture*  
Fischer, A. G., Erhart-Hledik, J. C., Asay, J. L., Andriacchi, T. P.  
2021; 86: 125-31
- **Patient-Reported Outcomes and Knee Mechanics Correlate With Patellofemoral Deep Cartilage UTE-T2\* 2 Years After Anterior Cruciate Ligament Reconstruction.** *The American journal of sports medicine*  
Williams, A. A., Erhart-Hledik, J. C., Asay, J. L., Mahtani, G. B., Titchenal, M. R., Lutz, A. M., Andriacchi, T. P., Chu, C. R.  
2021: 363546520982608
- **New insight on the subchondral bone and cartilage functional unit: Bone mineral density and cartilage thickness are spatially correlated in non-osteoarthritic femoral condyles.** *Osteoarthritis and cartilage open*

- Babel, H., Omoumi, P., Andriacchi, T. P., Jolles, B. M., Favre, J.  
2020; 2 (3): 100079
- **Utilizing the somatosensory system via vibratory stimulation to mitigate knee pain during walking: Randomized clinical trial.** *Gait & posture*  
Fischer, A. G., Erhart-Hledik, J. C., Asay, J. L., Chu, C. R., Andriacchi, T. P.  
2020; 80: 37–43
  - **TRUNK MOVEMENT PATTERNS ARE ASSOCIATED WITH KNEE FLEXION MOMENT CHANGES WHILE UTILIZING THE SOMATOSENSORY SYSTEM DURING STAIR CLIMBING: CLINICAL TRIAL CROSSOVER STUDY**  
Fischer, A. G., Erhart-Hledik, J. C., Asay, J. L., Chu, C. R., Andriacchi, T. P.  
ELSEVIER SCI LTD.2020: S234–S235
  - **SIDE-TO-SIDE DIFFERENCES IN VERTICAL GROUND REACTION FORCE TWO YEARS AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION PREDICT LONGITUDINAL CHANGES IN PATIENT-REPORTED OUTCOMES**  
Erhart-Hledik, J., Chu, C., Asay, J., Mahtani, G., Andriacchi, T.  
ELSEVIER SCI LTD.2020: S225–S226
  - **VARIABLE RESPONSES IN PAIN AND FUNCTION 1 MONTH AFTER PLATELET-RICH PLASMA INJECTION ARE RELATED TO CHANGES IN JOINT LOADING DURING GAIT**  
Erhart-Hledik, J., Mahtani, G., Asay, J., Burt, H., Nguyen, M., Do, B., Andriacchi, T., Chu, C.  
ELSEVIER SCI LTD.2020: S246–S247
  - **Changes in Knee Adduction Moment Wearing a Variable-Stiffness Shoe Correlate with Changes in Pain and Mechanically-Stimulated Cartilage Oligomeric Matrix Levels.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*  
Erhart-Hledik, J. C., Mahtani, G. B., Asay, J. L., Migliore, E. n., Nguyen, M. M., Andriacchi, T. P., Chu, C. R.  
2020
  - **Longitudinal Changes in the Total Knee Joint Moment After Anterior Cruciate Ligament Reconstruction Correlate With Cartilage Thickness Changes** *JOURNAL OF ORTHOPAEDIC RESEARCH*  
Erhart-Hledik, J., Chu, C., Asay, J., Favre, J., Andriacchi, T.  
2019; 37 (7): 1546–54
  - **Longitudinal changes in the total knee joint moment after anterior cruciate ligament reconstruction correlate with cartilage thickness changes.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*  
Erhart-Hledik, J. C., Chu, C. R., Asay, J. L., Favre, J., Andriacchi, T. P.  
2019
  - **ACTIVATING THE SOMATOSENSORY SYSTEM ENHANCES KNEE FLEXION AND QUADRICEPS ACTIVITY DURING GAIT AND STAIR CLIMBING**  
Fischer, A. G., Erhart-Hledik, J. C., Asay, J. L., Chu, C. R., Andriacchi, T. P.  
ELSEVIER SCI LTD.2019: S63–S64
  - **CHANGES IN KNEE ADDUCTION MOMENT WITH A VARIABLE-STIFFNESS SHOE ARE RELATED TO CHANGES IN PAIN AND FUNCTION**  
Erhart-Hledik, J., Mahtani, G., Asay, J., Andriacchi, T., Chu, C.  
ELSEVIER SCI LTD.2019: S111–S112
  - **Changes in stair ascent biomechanics two to eight years after ACL reconstruction are associated with patient-reported outcomes** *GAIT & POSTURE*  
Fischer, A. G., Erhart-Hledik, J. C., Chu, C. R., Asay, J. L., Andriacchi, T. P.  
2019; 69: 91–95
  - **Changes in stair ascent biomechanics two to eight years after ACL reconstruction are associated with patient-reported outcomes.** *Gait & posture*  
Fischer, A. G., Erhart-Hledik, J. C., Chu, C. R., Asay, J. L., Andriacchi, T. P.  
2019; 69: 91–95
  - **Establishing outcome measures in early knee osteoarthritis.** *Nature reviews. Rheumatology*  
Emery, C. A., Whittaker, J. L., Mahmoudian, A. n., Lohmander, L. S., Roos, E. M., Bennell, K. L., Toomey, C. M., Reimer, R. A., Thompson, D. n., Ronsky, J. L., Kuntze, G. n., Lloyd, D. G., Andriacchi, et al  
2019
  - **Modeling knee osteoarthritis pathophysiology using an integrated joint system (IJS): a systematic review of relationships among cartilage thickness, gait mechanics, and subchondral bone mineral density** *OSTEOARTHRITIS AND CARTILAGE*

- Edd, S. N., Omoumi, P., Andriacchi, T. P., Jolles, B. M., Favre, J.  
2018; 26 (11): 1425–37
- **Activating the somatosensory system enhances net quadriceps moment during gait.** *Journal of biomechanics*  
Fischer, A. G., Erhart-Hledik, J. C., Asay, J. L., Chu, C. R., Andriacchi, T. P.  
2018
  - **Changes in the total knee joint moment in patients with medial compartment knee osteoarthritis over 5 years** *JOURNAL OF ORTHOPAEDIC RESEARCH*  
Asay, J. L., Erhart-Hledik, J. C., Andriacchi, T. P.  
2018; 36 (9): 2373–79
  - **Sensitivity of serum concentration of cartilage biomarkers to 21-days of bed rest** *JOURNAL OF ORTHOPAEDIC RESEARCH*  
Liphardt, A., Mundermann, A., Andriacchi, T. P., Achtzehn, S., Heer, M., Mester, J.  
2018; 36 (5): 1465–71
  - **Longitudinal changes in knee gait mechanics between 2 and 8 years after anterior cruciate ligament reconstruction.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*  
Erhart-Hledik, J. C., Chu, C. R., Asay, J. L., Andriacchi, T. P.  
2018; 36 (5): 1478–86
  - **MRI UTE-T2\*profile characteristics correlate to walking mechanics and patient reported outcomes 2 years after ACL reconstruction** *OSTEOARTHRITIS AND CARTILAGE*  
Williams, A. A., Titchenal, M. R., Andriacchi, T. P., Chu, C. R.  
2018; 26 (4): 569–79
  - **ACTIVE FEEDBACK GAIT RETRAINING ALTERS FOOT PRESSURE PATTERNS AND REDUCES KNEE ADDUCTION MOMENT IN AN ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTED POPULATION**  
Erhart-Hledik, J. C., Mahtani, G. B., Asay, J. L., Chu, C. R., Andriacchi, T. P.  
ELSEVIER SCI LTD.2018: S364
  - **MECHANICALLY STIMULATED CS846 CORRELATES WITH ULTRASHORT ECHO TIME ENHANCED T2\*QUANTITATIVE MRI AND GAIT MECHANICS 2 YEARS AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION**  
Titchenal, M. R., Williams, A. A., Asay, J. L., Migliore, E., Erhart-Hledik, J. C., Andriacchi, T. P., Chu, C. R.  
ELSEVIER SCI LTD.2018: S176–S177
  - **Cartilage Subsurface Changes to Magnetic Resonance Imaging UTE-T2\*2 Years After Anterior Cruciate Ligament Reconstruction Correlate With Walking Mechanics Associated With Knee Osteoarthritis** *AMERICAN JOURNAL OF SPORTS MEDICINE*  
Titchenal, M. R., Williams, A. A., Chehab, E. F., Asay, J. L., Dragoo, J. L., Gold, G. E., McAdams, T. R., Andriacchi, T. P., Chu, C. R.  
2018; 46 (3): 565–72
  - **One year effectiveness of neuromuscular exercise compared with instruction in analgesic use on knee function in patients with early knee osteoarthritis: the EXERPHARMA randomized trial** *OSTEOARTHRITIS AND CARTILAGE*  
Holsgaard-Larsen, A., Christensen, R., Clausen, B., Sondergaard, J., Andriacchi, T. P., Roos, E. M.  
2018; 26 (1): 28–33
  - **Speed, age, sex, and body mass index provide a rigorous basis for comparing the kinematic and kinetic profiles of the lower extremity during walking.** *Journal of biomechanics*  
Chehab, E. F., Andriacchi, T. P., Favre, J.  
2017
  - **The effect of instruction in analgesic use compared with neuromuscular exercise on knee-joint load in patients with knee osteoarthritis: a randomized, single-blind, controlled trial** *OSTEOARTHRITIS AND CARTILAGE*  
Holsgaard-Larsen, A., Clausen, B., Sondergaard, J., Christensen, R., Andriacchi, T. P., Roos, E. M.  
2017; 25 (4): 470-480
  - **Gait mechanics 2 years after anterior cruciate ligament reconstruction are associated with longer-term changes in patient-reported outcomes** *JOURNAL OF ORTHOPAEDIC RESEARCH*  
Erhart-Hledik, J. C., Chu, C. R., Asay, J. L., Andriacchi, T. P.  
2017; 35 (3): 634-640
  - **Early Changes in Knee Center of Rotation During Walking After Anterior Cruciate Ligament Reconstruction Correlate With Later Changes in Patient-Reported Outcomes** *AMERICAN JOURNAL OF SPORTS MEDICINE*

- Titchenal, M. R., Chu, C. R., Erhart-Hledik, J. C., Andriacchi, T. P.  
2017; 45 (4): 915-921
- **Anatomically-standardized maps reveal distinct patterns of cartilage thickness with increasing severity of medial compartment knee osteoarthritis.** *Journal of orthopaedic research*  
Favre, J., Erhart-Hledik, J. C., Blazek, K., Fasel, B., Gold, G. E., Andriacchi, T. P.  
2017
  - **Effects of active feedback gait retraining to produce a medial weight transfer at the foot in subjects with symptomatic medial knee osteoarthritis.** *Journal of orthopaedic research*  
Erhart-Hledik, J. C., Asay, J. L., Clancy, C., Chu, C. R., Andriacchi, T. P.  
2017
  - **Altered gait mechanics and elevated serum pro-inflammatory cytokines in asymptomatic patients with MRI evidence of knee cartilage loss.** *Osteoarthritis and cartilage*  
Edd, S. N., Favre, J., Blazek, K., Omoumi, P., Asay, J. L., Andriacchi, T. P.  
2017
  - **Mechanically stimulated biomarkers signal cartilage changes over 5 years consistent with disease progression in medial knee osteoarthritis patients.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*  
Chu, C. R., Sheth, S. n., Erhart-Hledik, J. C., Do, B. n., Titchenal, M. R., Andriacchi, T. P.  
2017
  - **The Nature of Age-Related Differences in Knee Function during Walking: Implication for the Development of Knee Osteoarthritis** *PLOS ONE*  
Boyer, K. A., Andriacchi, T. P.  
2016; 11 (12)
  - **Early Changes in Knee Center of Rotation During Walking After Anterior Cruciate Ligament Reconstruction Correlate With Later Changes in Patient-Reported Outcomes.** *American journal of sports medicine*  
Titchenal, M. R., Chu, C. R., Erhart-Hledik, J. C., Andriacchi, T. P.  
2016
  - **The effect of instruction in analgesic use compared with neuromuscular exercise on knee-joint load in patients with knee osteoarthritis: a randomized, single-blind, controlled trial.** *Osteoarthritis and cartilage*  
Holsgaard-Larsen, A., Clausen, B., Søndergaard, J., Christensen, R., Andriacchi, T. P., Roos, E. M.  
2016
  - **General scheme to reduce the knee adduction moment by modifying a combination of gait variables.** *Journal of orthopaedic research*  
Favre, J., Erhart-Hledik, J. C., Chehab, E. F., Andriacchi, T. P.  
2016; 34 (9): 1547-1556
  - **Baseline ambulatory knee kinematics are associated with changes in cartilage thickness in osteoarthritic patients over 5 years** *JOURNAL OF BIOMECHANICS*  
Favre, J., Erhart-Hledik, J. C., Chehab, E. F., Andriacchi, T. P.  
2016; 49 (9): 1859-1864
  - **Modification of Knee Flexion Angle Has Patient-Specific Effects on Anterior Cruciate Ligament Injury Risk Factors During Jump Landing** *AMERICAN JOURNAL OF SPORTS MEDICINE*  
Favre, J., Clancy, C., Dowling, A. V., Andriacchi, T. P.  
2016; 44 (6): 1540-1546
  - **Gait mechanics 2 years after anterior cruciate ligament reconstruction are associated with longer-term changes in patient-reported outcomes.** *Journal of orthopaedic research*  
Erhart-Hledik, J. C., Chu, C. R., Asay, J. L., Andriacchi, T. P.  
2016
  - **Cartilage Strain Distributions Are Different Under the Same Load in the Central and Peripheral Tibial Plateau Regions.** *Journal of biomechanical engineering*  
Briant, P., Beville, S., Andriacchi, T.  
2015; 137 (12)

- **New insight in the relationship between regional patterns of knee cartilage thickness, osteoarthritis disease severity, and gait mechanics.** *Journal of biomechanics*  
Erhart-Hledik, J. C., Favre, J., Andriacchi, T. P.  
2015; 48 (14): 3868-3875
- **Dance between biology, mechanics, and structure: A systems-based approach to developing osteoarthritis prevention strategies** *JOURNAL OF ORTHOPAEDIC RESEARCH*  
Chu, C. R., Andriacchi, T. P.  
2015; 33 (7): 939-947
- **The role of inflammation in the initiation of osteoarthritis after meniscal damage** *JOURNAL OF BIOMECHANICS*  
Edd, S. N., Giori, N. J., Andriacchi, T. P.  
2015; 48 (8): 1420-1426
- **Alterations in Knee Kinematics After Partial Medial Meniscectomy Are Activity Dependent** *AMERICAN JOURNAL OF SPORTS MEDICINE*  
Edd, S. N., Netravali, N. A., Favre, J., Giori, N. J., Andriacchi, T. P.  
2015; 43 (6): 1399-1407
- **Relationship Between Knee Mechanics and Time Since Injury in ACL-Deficient Knees Without Signs of Osteoarthritis** *AMERICAN JOURNAL OF SPORTS MEDICINE*  
Zabala, M. E., Favre, J., Andriacchi, T. P.  
2015; 43 (5): 1189-1196
- **Effects of high heel wear and increased weight on the knee during walking.** *Journal of orthopaedic research*  
Titchenal, M. R., Asay, J. L., Favre, J., Andriacchi, T. P., Chu, C. R.  
2015; 33 (3): 405-411
- **The effect on knee-joint load of instruction in analgesic use compared with neuromuscular exercise in patients with knee osteoarthritis: study protocol for a randomized, single-blind, controlled trial (the EXERPHARMA trial)** *TRIALS*  
Clausen, B., Holsgaard-Larsen, A., Sondergaard, J., Christensen, R., Andriacchi, T. P., Roos, E. M.  
2014; 15
- **Baseline knee adduction and flexion moments during walking are both associated with 5 year cartilage changes in patients with medial knee osteoarthritis** *OSTEOARTHRITIS AND CARTILAGE*  
Chehab, E. F., Favre, J., Erhart-Hledik, J. C., Andriacchi, T. P.  
2014; 22 (11): 1833-1839
- **Baseline knee adduction and flexion moments during walking are both associated with 5 year cartilage changes in patients with medial knee osteoarthritis.** *Osteoarthritis and cartilage*  
Chehab, E. F., Favre, J., Erhart-Hledik, J. C., Andriacchi, T. P.  
2014; 22 (11): 1833-1839
- **Evidence for joint moment asymmetry in healthy populations during gait** *GAIT & POSTURE*  
Lathrop-Lambach, R. L., Asay, J. L., Jamison, S. T., Pan, X., Schmitt, L. C., Blazek, K., Siston, R. A., Andriacchi, T. P., Chaudhari, A. M.  
2014; 40 (4): 526-531
- **Evidence for joint moment asymmetry in healthy populations during gait.** *Gait & posture*  
Lathrop-Lambach, R. L., Asay, J. L., Jamison, S. T., Pan, X., Schmitt, L. C., Blazek, K., Siston, R. A., Andriacchi, T. P., Chaudhari, A. M.  
2014; 40 (4): 526-531
- **The Regional Sensitivity of Chondrocyte Gene Expression to Coactive Mechanical Load and Exogenous TNF-alpha Stimuli** *JOURNAL OF BIOMECHANICAL ENGINEERING-TRANSACTIONS OF THE ASME*  
Bevill, S. L., Boyer, K. A., Andriacchi, T. P.  
2014; 136 (9)
- **Camera Networks for Healthcare, Teleimmersion, and Surveillance** *COMPUTER*  
Chen, C., Favre, J., Kurillo, G., Andriacchi, T. P., Bajcsy, R., Chellappa, R.  
2014; 47 (5): 26-36
- **Response to letter to the editor regarding "Application of principal component analysis in clinical gait research".** *Journal of biomechanics*  
Federolf, P., Boyer, K., Andriacchi, T.

2014; 47 (6): 1555-1556

- **Age-related differences in sagittal-plane knee function at heel-strike of walking are increased in osteoarthritic patients.** *Osteoarthritis and cartilage*  
Favre, J., Erhart-Hledik, J. C., Andriacchi, T. P.  
2014; 22 (3): 464-471
- **Age and Obesity Alter the Relationship Between Femoral Articular Cartilage Thickness and Ambulatory Loads in Individuals Without Osteoarthritis** *JOURNAL OF ORTHOPAEDIC RESEARCH*  
Blazek, K., Favre, J., Asay, J., Erhart-Hledik, J., Andriacchi, T.  
2014; 32 (3): 394-402
- **Biomechanical analysis of three tennis serve types using a markerless system.** *British journal of sports medicine*  
Abrams, G. D., Harris, A. H., Andriacchi, T. P., Safran, M. R.  
2014; 48 (4): 339-342
- **Biomechanical analysis of three tennis serve types using a markerless system** *BRITISH JOURNAL OF SPORTS MEDICINE*  
Abrams, G. D., Harris, A. H., Andriacchi, T. P., Safran, M. R.  
2014; 48 (4)
- **The in vivo relationship between anterior neutral tibial position and loss of knee extension after transtibial ACL reconstruction** *KNEE*  
Scanlan, S. F., Donahue, J. P., Andriacchi, T. P.  
2014; 21 (1): 74-79
- **The effect on knee-joint load of instruction in analgesic use compared with neuromuscular exercise in patients with knee osteoarthritis: study protocol for a randomized, single-blind, controlled trial (the EXERPHARMA trial).** *Trials*  
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