

Katerina Blazek, Ph.D., P.E.

Professional Profile

Katerina Blazek utilizes her knowledge of biomechanics and dynamics to reconstruct accidents and analyze the mechanisms of injury. She has prior experience in orthopedic biomechanics, with a focus on hip, knee, and ankle mechanics and how these are affected by osteoarthritis and sports injuries. Her graduate work included dynamics and kinematics, biomechanics, fatigue of materials, failure analysis, medical device design, statistics, and human anatomy.

Prior to joining InSciTech, Dr. Blazek was a graduate student and post-doctoral fellow at Stanford University.

Credentials and Professional Honors

Stanford University

Ph.D. Mechanical Engineering - January, 2013

M.S. Mechanical Engineering - June, 2008

Franklin W. Olin College of Engineering

B.S. Mechanical Engineering - May, 2006

National Science Foundation Graduate Research Fellow (2006-2010)

Olin Scholarship (full tuition) (2002-2006)

Licensed Professional Mechanical Engineer: California #M 38712

Publications and Conference Abstracts

Favre J, Erhart-Hledik JC, Blazek K, Fasel B, Gold GE, Andriacchi TP. Anatomically standardized maps reveal distinct patterns of cartilage thickness with increasing severity of medial compartment knee osteoarthritis. *Journal of Orthopedic Research*. 2017.

Edd SN, Favre J, Blazek K, Omoumi P, Asay JL, Andriacchi TP. Altered gait mechanics and elevated serum pro-inflammatory cytokines in asymptomatic patients with MRI evidence of knee cartilage loss. *Osteoarthritis and Cartilage*. 2017; 25(6), 899-906.

Publications and Conference Abstracts (*continued*)

Lathrop-Lambach RL, Asay JL, Jamison ST, Pan X, Schmitt LC, Blazek K, Siston RA, Andriacchi TP, Chaudhari AM. Evidence for joint moment asymmetry in healthy populations during gait. *Gait and Posture*. 2014; 40(4), 526-31.

Blazek K, Favre J, Asay J, Erhart-Hledik J, Andriacchi TP. Age and obesity alter the relationship between femoral articular cartilage thickness and ambulatory loads in individuals without osteoarthritis. *Journal of Orthopedic Research*. 2014; 32(3), 394-402.

Blazek K, Asay J, Erhart-Hledik J, Andriacchi TP. Adduction moment increases with age in healthy obese individuals. *Journal of Orthopedic Research*. 2013; 31(9), 1414-22.

Favre J, Scanlan SF, Erhart-Hledik JC, Blazek K, Andriacchi TP. Patterns of femoral cartilage thickness are different in asymptomatic and osteoarthritic knees and can be used to detect disease-related differences between samples. *Journal of Biomechanical Engineering*. 2013; 135(10), 101002-10.

Dragoo JL, Phillips C, Schmidt JD, Scanlan SF, Blazek K, Steadman JR, Williams A. Mechanics of the anterior interval of the knee using open dynamic MRI. *Clinical Biomechanics*. 2010; 25(5), 433-437.

Scanlan SF, Blazek K, Chaudhari AMW, Safran MR, Andriacchi TP. Graft orientation influences the knee flexion moment during walking in patients with anterior cruciate ligament reconstruction. *American Journal of Sports Medicine*. 2009; 30(11), 2173-2178.

Edd S, Favre J, Blazek K, Omoumi P, Asay J, Andriacchi TP. Average cartilage thickness is associated with gait mechanics and systemic inflammation in asymptomatic knees with imaging evidence of structural cartilage defects. Orthopaedic Research Society, Orlando, FL. 2016.

Edd, S, Favre J, Blazek K, Omoumi P, Asay J, Andriacchi TP. Altered gait kinematics and kinetics in asymptomatic subjects with MR-based indications of OA. Orthopaedic Research Society, Las Vegas, NV. 2015.

Asay JL, Favre J, Blazek K, Andriacchi TP. Anatomically-standardized thickness map is a valid technique to compare cartilage structure between knees. Orthopaedic Research Society, New Orleans, LA. 2014.

Fasel B, Favre J, Blazek K, Erhart-Hledik J, Andriacchi TP. Subchondral bone curvature regionally flattens with increase of osteoarthritis severity in the distal femur. Orthopaedic Research Society, San Antonio, TX. 2013.

Publications and Conference Abstracts (*continued*)

Lathrop R, Blazek K, Asay J, Jamison S, Schmitt L, Siston R, Chaudhari A, Andriacchi TP. Evidence for Asymmetry in Knee Adduction Moments in Healthy Populations. Orthopaedic Research Society, San Antonio, TX. 2013.

Blazek K, Asay J, Erhart-Hledik J, Andriacchi TP. Valgus knee alignment, not step width or toe-out cause reduced knee adduction moment in the healthy obese. American Society of Mechanical Engineers Summer Bioengineering Conference, Fajardo, Puerto Rico. 2012.

Blazek K, Favre J, Asay J, Erhart-Hledik J, Andriacchi TP. The relationship between ambulatory load and cartilage is influenced by age and gender. Orthopaedic Research Society, San Francisco, CA. 2012.

Favre J, Blazek K, Erhart-Hledik JC, Andriacchi TP. Characterization of the spatial cartilage thickness distribution on the distal femur in healthy knees. Orthopaedic Research Society, San Francisco, CA. 2012.

Blazek K, Asay J, Erhart J, Andriacchi TP. BMI, body volume distribution, and sagittal plane gait parameters. American Society of Biomechanics, Long Beach, CA. 2011.

Blazek K, Asay J, Erhart J, Gold GE, Andriacchi TP. Hyperextension and patterns of early osteoarthritis in the obese. Orthopaedic Research Society, Long Beach, CA. 2011.

Blazek K, Asay J, Erhart J, Andriacchi TP. Relationship of knee articular cartilage thickness to body mass index and gait mechanics. American Society of Mechanical Engineers Summer Bioengineering Conference, Naples, FL. 2010.

Blazek K, Boyer K, Andriacchi TP. Subject-specific changes in knee loading in response to an unstable shoe intervention. North American Congress on Biomechanics, Ann Arbor, MI. 2008.

Boyer K, Blazek K, Andriacchi TP. Effect of unstable shoe construction in low speed running. North American Congress on Biomechanics, Ann Arbor, MI. 2008.

Scanlan SF, Chaudhari AMW, Blazek K, Schmidt JD, Dragoo JL, Andriacchi TP. Sagittal ACL graft orientation influences passive and dynamic anterior tibial translation. American Society of Biomechanics, Stanford, CA. 2007.

Scanlan SF, Blazek K, Schmidt JD, Koo S, Dragoo JL, Andriacchi TP. Relationship between knee flexion moment and early cartilage changes in the ACL reconstructed knee. American Society of Biomechanics, Stanford, CA. 2007.