



## Curriculum Vitae

Personal information **Lennart Scheys**

Work experience

---

### CURRENT POSITIONS

---

**2021 – present** ASSOCIATE RESEARCH PROFESSOR (BOF-ZAP, Full time) KU Leuven, Faculty of Medicine, Department of Development and Regeneration, Leuven, Belgium, DIRECTOR of the Institute for Orthopaedic Research and Training (IORT)

**Research focus:** *Integration of in-vitro, in-silico and in-vivo, clinical research, to identify key biomechanical parameters and anatomical features for optimal functioning of the musculoskeletal system; their integration throughout clinical musculoskeletal care pathways as well as in the evaluation or design of medical devices*

### PREVIOUS POSITIONS

---

**2016 – 2021** ASSISTANT PROFESSOR  
KU Leuven, Faculty of Medicine, Department of Development and Regeneration (20%)

**2014 – 2021** DIRECTOR OF THE INSTITUTE FOR ORTHOPAEDIC RESEARCH AND TRAINING  
IORT, Division of Orthopaedics, University Hospitals Leuven (80%)

*Management and coordination of the clinical and non-clinical research as well as the in- and external training activities of the orthopaedic division. Personnel, budget, and funding management.*

**2013 – 2014** HEAD OF THE ORTHOPAEDIC RESEARCH LABORATORY  
KU Leuven, Faculty of Medicine, Department of Development and Regeneration, Leuven, Belgium

*Setting up of the Orthopaedic Research Lab, including research strategy development, active exploration and maximal exploitation of its valorisation potential, acquisition and management of research equipment, initialization, management and coordination of research*

2010 – 2013 *projects* RESEARCH ENGINEER

Smith&Nephew, European Centre for Knee Research.

*Start-to-finish project management for all clinical studies and research projects on in-vivo subjects using 3D motion capturing, medical imaging. In-vitro experimental research, in silico modeling. Involved in technical marketing.*

2004 – 2010 PRE- AND POST-DOCTORAL RESEARCHER

Medical Image Computing (MIC), ESAT/PSI, KU Leuven and Human Movement Biomechanics Research Group, FaBeR, KU Leuven

*Performing research on the definition of image-based subject-specific biomechanical models of the musculoskeletal system and documenting their added value for 3D motion analysis, specifically in paediatric cerebral palsy.*

## Education and training

---

### EDUCATION - LONG

---

2004 – 2009 Ph.D. in Engineering Sciences

KU Leuven, Department of Electrical Engineering (ESAT), Doctoral Thesis: “*Personalized musculoskeletal modeling based on magnetic resonance images: use for biomechanical analysis of gait*”. Supervisors: Prof. P. Suetens, Prof. A. Spaepen, Prof. I Jonkers.

1999– 2004 Master in Electrotechnical-Mechanical engineering - Minor: biomedical engineering

KU Leuven, Magna Cum Laude

### CONTINUED EDUCATION

---

#### **Opensim - Advanced User Workshop**

Stanford University, USA, 3 Days, March 2019

#### **Opensim - Advanced User Workshop**

Stanford University, USA, 3 Days 2018

#### **Economic Evaluation of Medical Interventions**

www.ME-TA.eu, 3 days 2017

#### **Training program for executives**

University Hospitals Leuven, continuous training, 2015

#### **Good Clinical Practice (GCP) course**

Clinical Trial Centre - University Hospitals Leuven, 1 day, 2014

#### **Leading a Research Team for Junior Academic Staff**

KULeuven/Assess BVBA, 4+3 days, 2014-1015

#### **Exploitation of Research - technology & knowledge transfer**

KULeuven Research & Development, 5 days, 2013

### **Business Ethics and Global Compliance**

Smith&Nephew Global Compliance Programme, permanent training 2010-2013

### **“Presenting Effectively” training**

KULeuven, Interfacultair centrum voor levende talen, 10hours, 2010

### **ESMAC Gait Course**

European Society for Motion Analysis in Adults and Children, 2 days, 2005

## Additional information

---

### Publications

#### Bibliography

#### Journal articles (peer reviewed)

Jonkers, I., Beaucage-Gauvreau, E., Killen, B.A., Gupta, D., Scheys, L., De Groot, F. (2023). In Silico Biomarkers of Motor Function to Inform Musculoskeletal Rehabilitation and Orthopedic Treatment. *J Appl Biomech*, 1-10. doi: [10.1123/jab.2023-0029](https://doi.org/10.1123/jab.2023-0029)

Schelfaut, S., Moens, P., Overbergh, T., Cornelis, S., Van Campenhout, A., Moke, L., Scheys, L., Ackermans, T. with Ackermans, T. (corresp. author) (2023). Three- instead of two-dimensional evaluation of key parameters alters the choice of the lowest instrumented vertebra in Lenke 1 and 2 AIS patients. *SPINE DEFORMITY*. doi: [10.1007/s43390-023-00711-z](https://doi.org/10.1007/s43390-023-00711-z)

Luyckx, T., Moreels, R., Geernaert, H., Scheys, L., Vandenneucker, H. with Moreels, R. (corresp. author) (2023). Valgus alignment of the femoral component is associated with higher revision rates 10 years after TKA. *KNEE SURGERY SPORTS TRAUMATOLOGY ARTHROSCOPY*. doi: [10.1007/s00167-023-07448-2](https://doi.org/10.1007/s00167-023-07448-2)

Berger, P., Shah, D.S., Taylan, O., Slane, J., De Corte, R., Scheys, L., Vandenneucker, H. with Berger, P. (corresp. author) (2023). Impact of increasing total knee replacement constraint within a single implant line on coronal stability: an ex vivo investigation. *ARCHIVES OF ORTHOPAEDIC AND TRAUMA SURGERY*, 143 (4), 2165-2173. doi: [10.1007/s00402-022-04534-x](https://doi.org/10.1007/s00402-022-04534-x) [Open Access](#)

Colyn, W., Scheys, L., Truijien, J., Bruckers, L., Smeets, K., Bellemans, J. with Colyn, W. (corresp. author) (2023). Changes in coronal knee-alignment parameters during the osteoarthritis process in the varus knee. *JOURNAL OF ISAKOS JOINT DISORDERS & ORTHOPAEDIC SPORTS MEDICINE*, 8 (2), 68-73. doi: [10.1016/j.jisako.2022.12.002](https://doi.org/10.1016/j.jisako.2022.12.002)

Taylan, O., Slane, J., van Beek, N., Dandois, F., Scheys, L., Claes, S. with Taylan, O. (corresp. author) (2023). Characterizing the viscoelastic properties of the anterolateral ligament and grafts commonly used in its reconstruction. *CLINICAL BIOMECHANICS*, 104, Art.No. ARTN 105949. doi: [10.1016/j.clinbiomech.2023.105949](https://doi.org/10.1016/j.clinbiomech.2023.105949)

Ackermans, T., Tytgat, H., Beaucage-Gauvreau, E., Severijns, P., Overbergh, T., van de Look, K., Schelfaut, S., Zabjek, K., Scheys, L., Moke, L. with Ackermans, T. (corresp. author) (2023). Applying the ICF model in adult spinal deformity: disability in terms of participation should be incorporated in the care pathway. *SPINE DEFORMITY*, 11 (2), 433-438. doi: [10.1007/s43390-022-00598-2](https://doi.org/10.1007/s43390-022-00598-2)

Colyn, W., Azari, F., Bellemans, J., van Lenthe, G., Scheys, L. with Colyn, W. (joint first author), Azari, F. (joint first author), van Lenthe, G. (joint last author), Scheys, L. (joint last author) (2023). Microstructural adaptations of the subchondral bone are related to the mechanical axis deviation in end stage varus OA knees. *European Cells & Materials*, 45, 60-71. doi: [10.22203/eCM.v045a05](https://doi.org/10.22203/eCM.v045a05) [Open Access](#)

Verhaegen, F., Meynen, A., Pitocchi, J., Debeer, P., Scheys, L. with Verhaegen, F. (corresp. author) (2023). Quantitative statistical shape model-based analysis of humeral head migration, Part 2: Shoulder osteoarthritis. *JOURNAL OF ORTHOPAEDIC RESEARCH*, 41 (1), 21-31. doi: [10.1002/jor.25335](https://doi.org/10.1002/jor.25335)

Michels, F., Taylan, O., Stockmans, F., Vereecke, E., Scheys, L., Matricali, G. with Michels, F. (corresp. author) (2022). The different subtalar ligaments show significant differences in their mechanical properties. *FOOT AND ANKLE SURGERY*, 28 (7), 1014-1020. doi: [10.1016/j.fas.2022.02.008](https://doi.org/10.1016/j.fas.2022.02.008) [Open Access](#)

Crouzier, M., Dandois, F., Sarcher, A., Bogaerts, S., Scheys, L., Vanwanseele, B. with Crouzier, M. (corresp. author) (2022). External rotation of the foot position during plantarflexion increases non-uniform motions of the Achilles tendon. *JOURNAL OF BIOMECHANICS*, 141, Art.No. ARTN 111232. doi: [10.1016/j.jbiomech.2022.111232](https://doi.org/10.1016/j.jbiomech.2022.111232)

Anderson, D.E., Schmid, S., Scheys, L., Bazrgari, B. (2022). Editorial: Using Motion Analysis Techniques and Musculoskeletal Modeling of the Spine to Better Understand Spinal Disorders and Evaluate Treatment Effects. *Frontiers In Bioengineering And Biotechnology*, Art.No. 884123. doi: [10.3389/fbioe.2022.884123](https://doi.org/10.3389/fbioe.2022.884123) [Open Access](#)

Meynen, A., Vles, G., Roussot, M., Van Eemeren, A., Wafa, H., Mulier, M., Scheys, L. with Meynen, A. (corresp. author) (2022). Advanced quantitative 3D imaging improves the reliability of the classification of acetabular defects. *ARCHIVES OF ORTHOPAEDIC AND TRAUMA SURGERY*. doi: [10.1007/s00402-022-04372-x](https://doi.org/10.1007/s00402-022-04372-x) [Open Access](#)

Severijns, P., Overbergh, T., Ackermans, T., Beaucage-Gauvreau, E., Brumagne, S., Desloovere, K., Scheys, L., Moke, L. with Severijns, P. (corresp. author) (2022). The Function Assessment Scale for Spinal Deformity Validity and Reliability of a New Clinical Scale. *SPINE*, 47 (2), E64-E72. doi: [10.1097/BRS.0000000000004266](https://doi.org/10.1097/BRS.0000000000004266)

Kolken, H.M A., Garcia, A.F., Du Plessis, A., Meynen, A., Rans, C., Scheys, L., Mirzaali, M.J.,

Zadpoor, A.A. with Kolken, H.M.A. (corresp. author) (2022). Mechanisms of fatigue crack initiation and propagation in auxetic meta-biomaterials. *ACTA BIOMATERIALIA*, 138, 398-409. doi: [10.1016/j.actbio.2021.11.002](https://doi.org/10.1016/j.actbio.2021.11.002) [Open Access](#)

Beckers, L., Dandois, F., Ooms, D., Berger, P., Van Laere, K., Scheys, L., Vandenuecker, H. with Beckers, L. (corresp. author) (2022). Assessment of in vivo bone activity patterns in medial mobile-bearing unicompartmental knee arthroplasty A PROSPECTIVE SPECT/CT STUDY. *BONE & JOINT JOURNAL*, 104B (1), 34-44. doi: [10.1302/0301-620X.104B1.BJJ-2021-0121.R2](https://doi.org/10.1302/0301-620X.104B1.BJJ-2021-0121.R2)

Wuite, S., Deschamps, K., Eerdeken, M., Scheys, L., Loomans, L., Matricali, G.A. with Wuite, S. (corresp. author) (2021). Posterior tibial tendon dysfunction alters the midfoot mechanics and energetics during gait. *JOURNAL OF ORTHOPAEDIC RESEARCH*, 40 (9), 2196-2208. doi: [10.1002/jor.25241](https://doi.org/10.1002/jor.25241) [Open Access](#)

Jacobs, K., Roman, E., Lambert, J., Moke, L., Scheys, L., Kesteloot, K., Roodhooft, F., Cardoen, B. (2021). Variability drivers of treatment costs in hospitals: a systematic review. *Health Policy*. doi: [10.1016/j.healthpol.2021.12.004](https://doi.org/10.1016/j.healthpol.2021.12.004) [Open Access](#)

Severijns, P., Overbergh, T., Desloovere, K., Moke, L., Scheys, L. with Severijns, P. (corresp. author) (2021). Spinopelvic movement strategies during sit-to-stand and stand-to-sit in adult spinal deformity. *GAIT & POSTURE*, 92, 15-23. doi: [10.1016/j.gaitpost.2021.11.004](https://doi.org/10.1016/j.gaitpost.2021.11.004)

Verhaegen, F., Meynen, A., Plessers, K., Scheys, L., Debeer, P. with Verhaegen, F. (joint first author), Meynen, A. (joint first author), Verhaegen, F. (corresp. author) (2021). Quantitative SSM-based analysis of humeral head migration in rotator cuff tear arthropathy patients. *Journal Of Orthopaedic Research*, 1-8. doi: [10.1002/jor.25195](https://doi.org/10.1002/jor.25195)

Weygers, I., Kok, M., Seel, T., Shah, D., Taylan, O., Scheys, L., Hallez, H., Claeys, K. (2021). In-vitro validation of inertial-sensor-to-bone alignment. *Journal Of Biomechanics*, Art.No. 110781. doi: [10.1016/j.jbiomech.2021.110781](https://doi.org/10.1016/j.jbiomech.2021.110781) [Open Access](#)

Overbergh, T., Severijns, P., Beaucage-Gauvreau, E., Ackermans, T., Moke, L., Jonkers, I., Scheys, L. with Overbergh, T. (corresp. author) (2021). Subject-Specific Spino-Pelvic Models Reliably Measure Spinal Kinematics During Seated Forward Bending in Adult Spinal Deformity. *Frontiers In Bioengineering And Biotechnology*, 9, Art.No. 720060. doi: [10.3389/fbioe.2021.720060](https://doi.org/10.3389/fbioe.2021.720060) [Open Access](#)

Weygers, I., Kok, M., Seel, T., Shah, D., Taylan, O., Scheys, L., Hallez, H., Claeys, K. with Weygers, I. (corresp. author) (2021). Reference in-vitro dataset for inertial-sensor-to-bone alignment applied to the tibiofemoral joint. *SCIENTIFIC DATA*, 8 (1), Art.No. ARTN 208. doi: [10.1038/s41597-021-00995-8](https://doi.org/10.1038/s41597-021-00995-8) [Open Access](#)

Shah, D., Taylan, O., Verstraete, M., Berger, P., Vandenuecker, H., Scheys, L. with Shah, D. (corresp. author) (2021). Can Intraoperative Intra-Articular Loads Predict Postoperative Knee Joint Laxity Following Total Knee Arthroplasty? A Cadaver Study with Smart Tibial Trays. *Sensors*, 21 (15). doi: [10.3390/s21155078](https://doi.org/10.3390/s21155078) [Open Access](#)

Ghijssels, I., Taylan, O., Delpport, H.P., Slane, J., Wyngaert, H.V.D., Demurie, A., Scheys, L. with Ghijssels, I. (joint first author), Taylan, O. (joint first author), Delpport, H.P. (joint first author), Delpport, H.P. (corresp. author) (2021). Using a patella reduced technique while balancing a TKA results in restored physiological strain in the collateral ligaments: an ex vivo kinematic analysis. *Archives Of Orthopaedic And Trauma Surgery*, 1-12. doi: [10.1007/s00402-021-04010-y](https://doi.org/10.1007/s00402-021-04010-y) [Open Access](#)

Severijns, P., Moke, L., Overbergh, T., Beaucage-Gauvreau, E., Ackermans, T., Desloovere, K., Scheys, L. with Severijns, P. (joint first author), Moke, L. (joint first author), Severijns, P. (corresp. author) (2021). Dynamic sagittal alignment and compensation strategies in adult spinal deformity during walking. *The Spine Journal*, 21 (7), 1059-1071. doi: [10.1016/j.spinee.2021.02.017](https://doi.org/10.1016/j.spinee.2021.02.017) [Open Access](#)

Severijns, P., Overbergh, T., Schmid, S., Moke, L., Scheys, L. with Severijns, P. (joint first author), Overbergh, T. (joint first author), Severijns, P. (corresp. author) (2021). Spinal Palpation Error and Its Impact on Skin Marker-Based Spinal Alignment Measurement in Adult Spinal Deformity. *Frontiers In Bioengineering And Biotechnology*, 9, Art.No. 687323. doi: [10.3389/fbioe.2021.687323](https://doi.org/10.3389/fbioe.2021.687323) [Open Access](#)

Wang, W., Wang, D., Falisse, A., Severijns, P., Overbergh, T., Moke, L., Scheys, L., De Groot, F., Jonkers, I. with Wang, D. (corresp. author) (2021). A Dynamic Optimization Approach for Solving Spine Kinematics While Calibrating Subject-Specific Mechanical Properties. *ANNALS OF BIOMEDICAL ENGINEERING*, 49 (9), 2311-2322. doi: [10.1007/s10439-021-02774-3](https://doi.org/10.1007/s10439-021-02774-3) [Open Access](#)

Dandois, F., Taylan, O., Bellemans, J., D'hooge, J., Vandenuecker, H., Slane, L., Scheys, L. with Dandois, F. (corresp. author) (2021). Validated Ultrasound Speckle Tracking Method for Measuring Strains of Knee Collateral Ligaments In-Situ during Varus/Valgus Loading. *Sensors*, 21 (5), Art.No. 1895. doi: [10.3390/s21051895](https://doi.org/10.3390/s21051895) [Open Access](#)

Verhaegen, F., Meynen, A., Debeer, P., Scheys, L. with Verhaegen, F. (corresp. author) (2021). Determination of pre-arthropathy scapular anatomy with a statistical shape model – Part II: shoulder osteoarthritis. *Journal Of Shoulder And Elbow Surgery*. doi: [10.1016/j.jse.2021.01.018](https://doi.org/10.1016/j.jse.2021.01.018) [Open Access](#)

Meynen, A., Vles, G., Zadpoor, A.A., Mulier, M., Scheys, L. with Meynen, A. (corresp. author) (2021). The morphological variation of acetabular defects in revision total hip arthroplasty – a statistical shape modeling approach. *Journal Of Orthopaedic Research*, 1-9. doi: [10.1002/jor.24995](https://doi.org/10.1002/jor.24995) [Open Access](#)

Overbergh, T., Severijns, P., Beaucage-Gauvreau, E., Jonkers, I., Moke, L., Scheys, L. with Overbergh, T. (corresp. author) (2020). Development and validation of a modeling workflow for the generation of image-based, subject-specific thoracolumbar models of spinal deformity. *Journal Of Biomechanics*, 110, Art.No. 109946. doi: [10.1016/j.jbiomech.2020.109946](https://doi.org/10.1016/j.jbiomech.2020.109946)

Peersman, G., Taylan, O., Verhaegen, J., Anthonissen, L., Slane, J., Vanthienen, B., van Lenthe, G.H., Heyse, T., Scheys, L. with Peersman, G. (corresp. author) (2020). Does Unicompartmental Knee Arthroplasty Affect Tibial Bone Strain? A Paired Cadaveric Comparison of Fixed- and Mobile-bearing Designs. *CLINICAL ORTHOPAEDICS AND RELATED RESEARCH*, 478 (9), 1990-2000. doi: [10.1097/CORR.0000000000001169](https://doi.org/10.1097/CORR.0000000000001169) [Open Access](#)

Jacobs, K., Dewilde, T., Vandoren, C., Cardoen, B., Vansteenkiste, N., Scheys, L., Roodhooft, F., Moke, L., Kesteloot, K. (2020). Variability in Hospital Costs of Adult Spinal Deformity Care. *SPINE*, 45 (17), 1221-1228. doi: [10.1097/BRS.0000000000003497](https://doi.org/10.1097/BRS.0000000000003497) [Open Access](#)

Verhaegen, F., Meynen, A., Matthews, H., Claes, P., Debeer, P., Scheys, L. with Verhaegen, F.

(joint first author), Meynen, A. (joint first author), Verhaegen, F. (corresp. author) (2020). Determination of pre-arthropathy scapular anatomy with a statistical shape model – Part I: Rotator Cuff Tear arthropathy. *Journal Of Shoulder And Elbow Surgery*. doi: [10.1016/j.jse.2020.07.043](https://doi.org/10.1016/j.jse.2020.07.043) [Open Access](#)

Meynen, A., Matthews, H., Nauwelaers, N., Claes, P., Mulier, M., Scheys, L. with Meynen, A. (corresp. author) (2020). Accurate reconstructions of pelvic defects and discontinuities using statistical shape models. *Computer Methods In Biomechanics And Biomedical Engineering*. doi: [10.1080/10255842.2020.1784404](https://doi.org/10.1080/10255842.2020.1784404) [Open Access](#)

Severijns, P., Overbergh, T., Thauvoye, A., Baudewijns, J., Monari, D., Moke, L., Desloovere, K., Scheys, L. (2020). A subject-specific method to measure dynamic spinal alignment in adult spinal deformity. *SPINE JOURNAL*, 20 (6), 934-946. doi: [10.1016/j.spinee.2020.02.004](https://doi.org/10.1016/j.spinee.2020.02.004)

Eerdeken, M., Peerlinck, K., Staes, F., Pialat, J-B., Hermans, C., Lobet, S., Scheys, L., Deschamps, K. (2020). Blood-induced cartilage damage alters the ankle joint load during walking. *JOURNAL OF ORTHOPAEDIC RESEARCH*, 38 (11), 2419-2428. doi: [10.1002/jor.24715](https://doi.org/10.1002/jor.24715) [Open Access](#)

Verhaegen, F., Campopiano, E., Debeer, P., Scheys, L., Innocenti, B. with Verhaegen, F. (corresp. author) (2020). How much bone support does an anatomic glenoid component need? *Journal Of Shoulder And Elbow Surgery*, 29 (4), 743-743. doi: [10.1016/j.jse.2019.09.019](https://doi.org/10.1016/j.jse.2019.09.019)

Kolken, H., Lietaert, K., van der Sloten, T., Behdad, P., Meynen, A., Van Loock, G., Weinans, H., Scheys, L., Zadpoor, A.A. with Kolken, H. (corresp. author) (2020). Mechanical performance of autetic meta-biomaterials. *Journal Of The Mechanical Behavior Of Biomedical Materials*, Art.No. 103658. doi: [10.1016/j.imbbm.2020.103658](https://doi.org/10.1016/j.imbbm.2020.103658) [Open Access](#)

Dandois, F., De Buck, S., Beckers, L., Shah, D., Slane, L., Vandenuecker, H., Scheys, L. with Vandenuecker, H. (joint last author), Scheys, L. (joint last author), Dandois, F. (corresp. author) (2020). SReg: A Registration-based Platform to Compare Unicompartmental Knee Arthroplasty SPECT/CT Scans. *Bmc Musculoskeletal Disorders*, 21 (1), Art.No. 162. doi: [10.1186/s12891-020-3185-9](https://doi.org/10.1186/s12891-020-3185-9) [Open Access](#)

Wang, W., Wang, D., De Groote, F., Scheys, L., Jonkers, I. (2020). Implementation of physiological functional spinal units in a rigid-body model of the thoracolumbar spine. *JOURNAL OF BIOMECHANICS*, 98, Art.No. ARTN 109437. doi: [10.1016/j.jbiomech.2019.109437](https://doi.org/10.1016/j.jbiomech.2019.109437) [Open Access](#)

Van Elst, C., Caekebeke, P., Bellemans, J., Vandenuecker, H., Scheys, L. (2020). Can a ratio between medial and lateral meniscal volumes be calculated to determine critical meniscal volume in view of post-menisectomy symptoms? *Acta Orthopaedica Belgica*, 86 (1), 77-81.

Moke, L., Overbergh, T., Severijns, P., Schelfaut, S., Moens, P., Van de Loock, K., Hermans, L., Molenaers, G., Jonkers, I., Scheys, L. (2020). The Transverse Gravitational Deviation Index, a Novel Gravity Line-Related Spinal Parameter, Relates to Balance Control and Health-Related Quality of Life in Adults With Spinal Deformity. *SPINE*, 45 (1), E25-E36. doi: [10.1097/BRS.0000000000003301](https://doi.org/10.1097/BRS.0000000000003301) [Open Access](#)

Severijns, P., Overbergh, T., Scheys, L., Moke, L., Desloovere, K. (2019). Reliability of the balance evaluation systems test and trunk control measurement scale in adult spinal deformity. *PLOS ONE*, 14 (8), Art.No. ARTN e0221489. doi: [10.1371/journal.pone.0221489](https://doi.org/10.1371/journal.pone.0221489) [Open Access](#)

Beckers, L., Ooms, D., Berger, P., Van Laere, K., Scheys, L., Vandenuecker, H. with Scheys, L. (joint last author), Vandenuecker, H. (joint last author) (2019). Reduced bone activity in the native compartments after medial mobile-bearing unicompartmental knee arthroplasty. A prospective SPECT/CT study. *Bone & Joint Journal*, 101-B (8), 915-921. doi: [10.1302/0301-620X.101B8.BJJ-2018-1569.R1](https://doi.org/10.1302/0301-620X.101B8.BJJ-2018-1569.R1)

Chernak Slane, L., Dandois, F., Bogaerts, S., Scheys, L., Vandenuecker, H. with Scheys, L. (joint last author), Vandenuecker, H. (joint last author), Chernak Slane, L. (corresp. author) (2019). Patellar tendon buckling in post-operative total knee arthroplasty patients is more prominent than in healthy controls. *Medical Engineering and Physics*, 69, 28-32. doi: [10.1016/j.medengphy.2019.06.005](https://doi.org/10.1016/j.medengphy.2019.06.005) [Open Access](#)

Pedersen, D., Vanheule, V., Wirix-Speetjens, R., Taylan, O., Delpont, H.P., Scheys, L., Andersen, M.S. with Pedersen, D. (corresp. author) (2019). A novel non-invasive method for measuring knee joint laxity in four DOF: in vitro proof-of-concept and validation. *Journal Of Biomechanics*, 82, 62-69. doi: [10.1016/j.jbiomech.2018.10.016](https://doi.org/10.1016/j.jbiomech.2018.10.016) [Open Access](#)

Slane, L.C., Dandois, F., Bogaerts, S., Vandenuecker, H., Scheys, L. with Slane, L.C. (corresp. author) (2018). Non-uniformity in the healthy patellar tendon is greater in males and similar in different age groups. *JOURNAL OF BIOMECHANICS*, 80, 16-22. doi: [10.1016/j.jbiomech.2018.08.021](https://doi.org/10.1016/j.jbiomech.2018.08.021) [Open Access](#)

Slane, L.C., Dandois, F., Bogaerts, S., Vandenuecker, H., Scheys, L. with Slane, L.C. (corresp. author) (2018). Patellar tendon buckling is altered with age. *MEDICAL ENGINEERING & PHYSICS*, 59, 15-20. doi: [10.1016/j.medengphy.2018.04.024](https://doi.org/10.1016/j.medengphy.2018.04.024) [Open Access](#)

Verhaegen, F., Plessers, K., Verborgt, O., Scheys, L., Debeer, P. with Verhaegen, F. (corresp. author) (2018). Can the contralateral scapula be used as a reliable template to reconstruct the eroded scapula during shoulder arthroplasty? *JOURNAL OF SHOULDER AND ELBOW SURGERY*, 27 (6), 1133-1138. doi: [10.1016/j.jse.2017.12.024](https://doi.org/10.1016/j.jse.2017.12.024) [Open Access](#)

Moke, L., Severijns, P., Schelfaut, S., Van de loock, K., Hermans, L., Molenaers, G., Jonkers, I., Scheys, L. (2018). Performance on Balance Evaluation Systems Test (BESTest) impacts health-related quality of life in Adult Spinal Deformity Patients. *Spine*, 43 (9), 637-646. doi: [10.1097/BRS.0000000000002390](https://doi.org/10.1097/BRS.0000000000002390) [Open Access](#)

De Brito Carvalho, C., Slagmolen, P., Bogaerts, S., Scheys, L., D'hooge, J., Peers, K., Maes, F., Suetens, P. (2018). 3D tendon strain estimation using high-frequency volumetric ultrasound images. A feasibility study. *Ultrasonic Imaging*, 40 (2), 67-83. doi: [10.1177/0161734617724658](https://doi.org/10.1177/0161734617724658)

Luyckx, T., Vandenuecker, H., Scheys, L., Vereecke, E., victor, A., victor, J. (2018). Raising the Joint Line in TKA is Associated With Mid-flexion Laxity: A Study in Cadaver Knees. *Clinical Orthopaedics and Related Research*, 476 (3), 601-611. doi: [10.1007/s11999-000000000000067](https://doi.org/10.1007/s11999-000000000000067)

Slane, L., Bogaerts, S., Thelen, D., Scheys, L. (2018). Non-uniform deformation of the patellar tendon during passive flexion. *Journal Of Applied Biomechanics*, 34 (1), 14-22. doi: [10.1123/jab.2017-0067](https://doi.org/10.1123/jab.2017-0067)

Van Doninck, D., Verschuere, T., Matricali, G., Van Opstal, N., Scheys, L., Vandeputte, G.

- (2017). Screwless scarf osteotomy for hallux valgus: Evaluation of radiologic correction. *Foot and Ankle Surgery*, 23, 255-260. doi: [10.1016/j.fas.2016.07.002](https://doi.org/10.1016/j.fas.2016.07.002)
- Peersman, G., Slane, J., Vuylsteke, P., Fuchs-Winkelmann, S., Dworschak, P., Heyse, T., Scheys, L. (2017). Kinematics of mobile-bearing unicompartmental knee arthroplasty compared to native: results from an in vitro study. *Archives of Orthopaedic and Trauma Surgery*, 137 (11), 1557-1563. doi: [10.1007/s00402-017-2794-8](https://doi.org/10.1007/s00402-017-2794-8)
- Smeets, K., Bellemans, J., Scheys, L., Eijnde, B.O., Slane, J., Claes, S. (2017). Mechanical Analysis of Extra-Articular Knee Ligaments. Part two: Tendon grafts used for knee ligament reconstruction. *The Knee*, 24 (5), Art.No. S0968-0160(17)30194-1, 957-964.
- Smeets, K., Slane, J., Scheys, L., Claes, S., Bellemans, J. (2017). Mechanical Analysis of Extra-Articular Knee Ligaments. Part One: Native knee ligaments. *The Knee*, 24 (5), Art.No. S0968-0160(17)30196-5, 949-956.
- Peersman, G., Slane, J., Dirckx, M., Vandevyver, A., Dworschak, P., Heyse, T.J., Scheys, L. (2017). The influence of polyethylene bearing thickness on the tibiofemoral kinematics of a bicruciate retaining total knee arthroplasty. *The Knee*, 24 (4), Art.No. S0968-0160(17)30078-9, 751-760.
- Slane, L.C., Slane, J.A., Scheys, L. (2017). The measurement of medial knee gap width using ultrasound. *Archives of Orthopaedic and Trauma Surgery*, 137 (8), 1121-1128. doi: [10.1007/s00402-017-2740-9](https://doi.org/10.1007/s00402-017-2740-9)
- Vercruyse, C., Vandenneucker, H., Bellemans, J., Scheys, L., Luyckx, T. (2017). The shape and orientation of the trochlea run more parallel to the posterior condylar line than generally believed. *Knee Surgery, Sports Traumatology, Arthroscopy*, 26 (9), 2685-2691. doi: [10.1007/s00167-017-4685-5](https://doi.org/10.1007/s00167-017-4685-5)
- Smeets, K., Slane, J., Scheys, L., Claes, S., Bellemans, J. (2017). The anterolateral ligament has similar biomechanical and histological properties as the inferior glenohumeral ligament. *ARTHROSCOPY-THE JOURNAL OF ARTHROSCOPIC AND RELATED SURGERY*, 33 (5), Art.No. 1028. doi: [10.1016/j.arthro.2017.01.038](https://doi.org/10.1016/j.arthro.2017.01.038) [Open Access](#)
- Vanheule, V., Delpont, H.P., Andersen, M.S., Scheys, L., Wirix-Speetjens, R., Jonkers, I., Victor, J., Vander Sloten, J. (2017). Evaluation of predicted knee function for component malrotation in total knee arthroplasty. *Medical Engineering & Physics*, 40, Art.No. S1350-4533(16)30298-3, 56-64. [Open Access](#)
- Heyse, T., Slane, J., Peersman, G., Dirckx, M., van de Vyver, A., Dworschak, P., Fuchs-Winkelmann, S., Scheys, L. (2017). Kinematics of a bicruciate-retaining total knee arthroplasty. *Knee Surgery, Sports Traumatology, Arthroscopy*, Art.No. s00167-016-4414-5, 1-8. doi: [10.1007/s00167-016-4414-5](https://doi.org/10.1007/s00167-016-4414-5)
- Bogaerts, S., De Brito Carvalho, C., Scheys, L., Desloovere, K., D'hooge, J., Maes, F., Suetens, P., Peers, K. (2017). Evaluation of tissue displacement and regional strain in the Achilles tendon using quantitative high-frequency ultrasound. *PLoS One*, 12 (7), Art.No. ARTN e0181364. doi: [10.1371/journal.pone.0181364](https://doi.org/10.1371/journal.pone.0181364) [Open Access](#)
- Slane, L., Slane, J., D'hooge, J., Scheys, L. (2017). The Challenges of Measuring in vivo Knee Collateral Ligament Strains using Quantitative Ultrasound. *Journal of Biomechanics*, 61, 258-262.
- Heyse, T., Slane, J., Geert, P., Dworschak, P., Fuchs-Winkleman, S., Scheys, L. (2017). Balancing mobile bearing unicompartmental arthroplasty in vitro. *Knee Surgery, Sports Traumatology, Arthroscopy*, 25 (12), 3733-3740.
- Severijns, P., Vanslembrouck, M., Vermulst, J., Callewaert, B., Innocenti, B., Desloovere, K., Vandenneucker, H., Scheys, L. (2016). High-demand motor tasks are more sensitive to detect persisting alterations in muscle activation following total knee replacement. *Gait & Posture*, 50, Art.No. S0966-6362(16)30522-7, 151-158.
- Slane, L., Bogaerts, S., Mihejeva, I., Scheys, L. (2016). Evidence of patellar tendon buckling during passive extension. *KNEE*, 23 (5), 801-806. doi: [10.1016/j.knee.2016.06.005](https://doi.org/10.1016/j.knee.2016.06.005)
- Heyse, T.J., El-Zayat, B.F., De Corte, R., Scheys, L., Chevalier, Y., Fuchs-Winkelmann, S., Labey, L. (2016). Balancing UKA: overstuffing leads to high medial collateral ligament strains. *Knee Surgery, Sports Traumatology, Arthroscopy*, 24 (10), 3218-3228. doi: [10.1007/s00167-015-3848-5](https://doi.org/10.1007/s00167-015-3848-5)
- Bosmans, L., Jansen, K., Wesseling, M., Molenaers, G., Scheys, L., Jonkers, I. (2016). The role of altered proximal femoral geometry in impaired pelvis stability and hip control during CP gait: A simulation study. *Gait & Posture*, 44, 61-67. [Open Access](#)
- Pianigiani, S., Scheys, L., Labey, L., Pascale, W., Innocenti, B. (2015). Biomechanical analysis of the post-cam mechanism in a TKA: comparison between conventional and semi-constrained insert designs. *International Biomechanics*, 2 (1), 22-28. [Open Access](#)
- Bosmans, L., Wesseling, M., Desloovere, K., Molenaers, G., Scheys, L., Jonkers, I. (2014). Hip contact force in presence of aberrant bone geometry during normal and pathological gait. *Journal of Orthopaedic Research*, 32 (11), 1406-15. doi: [10.1002/jor.22698](https://doi.org/10.1002/jor.22698)
- Heyse, T.J., El-Zayat, B.F., De Corte, R., Chevalier, Y., Scheys, L., Innocenti, B., Fuchs-Winkelmann, S., Labey, L. (2014). UKA closely preserves natural knee kinematics in vitro. *Knee Surgery, Sports Traumatology, Arthroscopy*, 22 (8), 1902-10. doi: [10.1007/s00167-013-2752-0](https://doi.org/10.1007/s00167-013-2752-0) [Open Access](#)
- Heyse, T.J., El-Zayat, B.F., De Corte, R., Scheys, L., Chevalier, Y., Fuchs-Winkelmann, S., Labey, L. (2014). Biomechanics of medial unicompartmental in combination with patellofemoral knee arthroplasty. *The Knee*, 21, Art.No. S1. doi: [10.1016/S0968-0160\(14\)50002-6](https://doi.org/10.1016/S0968-0160(14)50002-6) [Open Access](#)
- Scheys, L., Leardini, A., Wong, P.D., Van Camp, L., Callewaert, B., Bellemans, J., Desloovere, K. (2013). Three-dimensional Knee Kinematics by Conventional Gait Analysis for Eleven Motor Tasks of Daily Living: Typical Patterns and Repeatability. *Journal of applied biomechanics*, 29 (2), 214-28.
- Slagmolen, P., Scheys, L., D'hooge, J., Suetens, P., Peers, K., Debeer, P., Bellemans, J. (2012). In regard to: "In vivo strain analysis of the intact supraspinatus tendon by ultrasound speckles tracking imaging" (*Journal of Orthopaedic Research*, Vol. 29, No. 12, pp. 1931-1937, May 2011). *Journal of Orthopaedic Research*, 30 (12), 2054-2056. doi: [10.1002/jor.22174](https://doi.org/10.1002/jor.22174)
- Leffler, J., Scheys, L., Planté-Bordeneuve, T., Callewaert, B., Labey, L., Bellemans, J., Franz, A. (2012). Joint kinematics following bi-compartmental knee replacement during daily life motor tasks. *Gait & Posture*, 36 (3), 454-60. doi: [10.1016/j.gaitpost.2012.04.008](https://doi.org/10.1016/j.gaitpost.2012.04.008)

- Van Campen, A., De Groote, F., Bosmans, L., Scheys, L., Jonkers, I., De Schutter, J. (2011). Functional knee axis based on isokinetic dynamometry data: comparison of two methods, MRI validation, and effect on knee joint kinematics. *Journal of Biomechanics*, 44 (15), 2595-2600.
- Scheys, L., Desloovere, K., Suetens, P., Jonkers, I. (2011). Level of subject-specific detail in musculoskeletal models affects hip moment arm length calculation during gait in pediatric subjects with increased femoral anteversion. *Journal of Biomechanics*, 44 (7), 1346-1353. doi: [10.1016/j.jbiomech.2011.01.001](https://doi.org/10.1016/j.jbiomech.2011.01.001)
- Scheys, L., Desloovere, K., Spaepen, A., Suetens, P., Jonkers, I. (2011). Calculating gait kinematics using MR-based kinematic models. *Gait & Posture*, 33 (2), 158-164. doi: [10.1016/j.gaitpost.2010.11.003](https://doi.org/10.1016/j.gaitpost.2010.11.003)
- Scheys, L., Loeckx, D., Spaepen, A., Suetens, P., Jonkers, I. (2009). Atlas-based non-rigid image registration to automatically define line-of-action muscle models : a validation study. *Journal of Biomechanics*, 42 (5), 565-572.
- Scheys, L., Spaepen, A., Suetens, P., Jonkers, I. (2008). Calculated moment-arm and muscle-tendon lengths during gait differ substantially using MR based versus rescaled generic lower-limb musculoskeletal models. *Gait & Posture*, 28 (4), 640-648.
- Scheys, L., Van Campenhout, A., Spaepen, A., Suetens, P., Jonkers, I. (2008). Personalized MR-based musculoskeletal models compared to rescaled generic models in the presence of increased femoral anteversion : effect on hip moment arm lengths. *Gait & Posture*, 28 (3), 358-365.
- Scheys, L., Jonkers, I., Loeckx, D., Maes, F., Spaepen, A., Suetens, P. (2006). Image based musculoskeletal modeling allows personalized biomechanical analysis of gait. *Lecture Notes in Computer Science*, 4072, 58-66.

Accepted Journal articles (peer reviewed)

- Colyn, W., Vanbecelaere, L., Bruckers, L., Scheys, L., Bellemans, J. with Colyn, W. (corresp. author) (2023). The effect of weight-bearing positions on coronal lower limb alignment: A systematic review. *KNEE*, 43, 51-61. doi: [10.1016/j.knee.2023.05.004](https://doi.org/10.1016/j.knee.2023.05.004)
- Vles, G., van Eemeren, A., Taylan, O., Scheys, L., Ghijselings, S. with Vles, G. (corresp. author) (2020). Anatomical Mapping of the External Obturator Footprint: A Study In Cadavers with Implications for Direct Anterior THA. *Clinical Orthopaedics And Related Research*. doi: [10.1097/CORR.0000000000001492](https://doi.org/10.1097/CORR.0000000000001492) [Open Access](#)

Conference proceedings (peer reviewed)

- De Brito Carvalho, C., Bogaerts, S., Scheys, L., D'hooge, J., Peers, K., Suetens, P. (2016). 3D tendon strain estimation on high-frequency 3D ultrasound images. A simulation and phantom study. In: *Proceedings ISBI 2016*, (172-175). Presented at the IEEE international symposium on biomedical imaging - ISBI 2016, Prague, Czech Republic, 13 Apr 2016-16 Apr 2016. [Open Access](#)
- Pianigiani, S., De Groote, F., Scheys, L., Gillen, P., Labey, L., Innocenti, B., Jonkers, I. (2013). Tibio-Femoral Contact Force During Gait: An Iterative Method Using EMG-Constrained Multi-Body Simulation and Finite Element Analysis. In: *Proceedings of the ASME 2013 Summer Bioengineering Conference | Grand Challenge Competition to Predict In Vivo Knee Loads*, (Paper No. SBC2013-14494). Presented at the ASME Summer Bioengineering Conference, Sunriver, Oregon, USA, 26 Jun 2013-29 Jun 2013. doi: [10.1115/SBC2013-14494](https://doi.org/10.1115/SBC2013-14494)
- Almeida, N., Slagmolen, P., Barbosa, D., Scheys, L., Geukens, L., Fukagawa, S., Peers, K., Bellemans, J., Suetens, P., D'hooge, J. (2012). Tendon strain imaging using non-rigid image registration: a validation study. In: *SPIE Medical Imaging 2012*, (Paper No. 8320-36). Presented at the SPIE Medical Imaging - Ultrasonic imaging, tomography, and therapy, San Diego, California, USA, 05 Feb 2012-06 Feb 2012. Bellingham, WA, USA. ISBN: 978-0-8194-8969-2. [Open Access](#)
- Scheys, L., Jonkers, I., Schutyser, F., Pans, S., Spaepen, A., Suetens, P. (2005). Image based methods to generate subject-specific musculoskeletal models for gait analysis. In: *International congress series: vol. 1281*, (62-67). Presented at the International congress and exhibition on computer assisted radiology and surgery - CARS 2005, Berlin, Germany, 22 Jun 2005-25 Jun 2005. doi: [10.1016/j.ics.2005.03.076](https://doi.org/10.1016/j.ics.2005.03.076) [Open Access](#)

Conference proceedings (not peer reviewed)

- Cenni, F., Monari, D., Schless, S.H., Scheys, L., Aertbeliën, E., Bruyninckx, H., Desloovere, K. (2014). A NEW APPROACH TO COMPUTE LOWER LIMB MUSCLE VOLUME AND LENGTH USING 3D FREEHAND ULTRASOUND. In: *1st Clinical Movement Analysis World Conference*, (Paper No. P122), (292-292). Presented at the 1st Clinical Movement Analysis World Conference, Rome. [Open Access](#)

#### Abstracts/Presentations/Posters

- Woering, M., Strauven, H., Van Campenhout, L., Boury, K., Geuens, H. (contr.), Geurts, L. (contr.), Scheys, L. (contr.), Bamelis, S. (contr.), Dekocker, V. (contr.) (2023). Toekomstbestendige curricula voor biomedische actoren door sterkere inbedding van onderwijs rond technologie in de zorg. In: ABSTRACTBOEK NVMO Congres 2023 11 en 12 mei MECC, Maastricht, (Abstract No. E20.7). Presented at the NVMO 2023, MECC Maastricht, The Netherlands, 11 May 2023-12 May 2023. ([URL](#))
- Milakovic, L., Dandois, F., Fehervary, H., Scheys, L. (2022). Calibration of Holzapfel-Gasser-Ogden collateral ligament properties in a hybrid post-arthroplasty knee joint model for laxity testing. (Abstract No. 337). Presented at the ICORS 2022 World Orthopaedic Research Congress, Edinburgh, Scotland, 07 Sep 2022-09 Sep 2022. ([URL](#)) ([Open Access](#))
- Taylan, O., Shah, D., Dandois, F., Han, W., Neyens, T., van Overschelde, P., Scheys, L. (2022). Does kinematically aligned total knee arthroplasty restore native joint laxity better than mechanical alignment? A cadaveric study. (Abstract No. 403). Presented at the ICORS 2022 World Orthopaedic Research Congress, Edinburgh, Scotland, 07 Sep 2022-09 Sep 2022. ([URL](#))
- Taylan, O., Michels, F., Matricali, G., Scheys, L. (2022). Characterizing the mechanical behaviour of soft tissues associated with subtalar instability in cadaver feet. (Abstract No. O-10113). Presented at the World Congress of Biomechanics, Taipei, 10 Jul 2022-14 Jul 2022. ([Open Access](#))
- Taylan, O., Shah, D., Slane, J., Berger, P., Vandenneucker, H., Scheys, L. (2022). Should collateral ligaments be preserved during hinged knee total knee arthroplasty? An ex-vivo kinematic analysis. (Abstract No. O-14037). Presented at the World Congress of Biomechanics, Taipei, 10 Jul 2022-14 Jul 2022.
- Shah, D., Taylan, O., Slane, J., Berger, P., Vandenneucker, H., Scheys, L. (2022). Biomechanical impact of increasing implant design constraint in total knee arthroplasty: an ex-vivo study. Presented at the World Congress of Biomechanics, Taipei, 10 Jul 2022-14 Jul 2022. ([Open Access](#))
- Beaucage-Gauvreau, E., Severijns, P., Overbergh, T., Meynen, A., Ackermans, T., Schepens, N., Moke, L., Scheys, L. (2022). Reliability of Magnetic Resonance Imaging (MRI) Measurements of Fatty Infiltration in Adults with Spinal Deformities. Presented at the European Society of Biomechanics, Porto, Portugal, 26 Jun 2022-29 Jun 2022.
- Azari, F., Colyn, W., Bellemans, J., Scheys, L., van Lenthe, G. (2022). In the end-stage knee osteoarthritis the subchondral bone microarchitecture of the tibial plateau is correlated to that of the distal femur. Presented at the 27th Congress of the European Society of Biomechanics, Porto, Portugal.
- Al Otti, D.M.M., Ghijssels, S., Staes, F., Scheys, L. (2022). The reliability of a novel 3D motion capture protocol for the analysis of instep soccer kick kinematics. Presented at the 27th Congress of the European Society of Biomechanics, Porto, Portugal.
- Peeters, B., Overbergh, T., Farrow, D., Beaucage-Gauvreau, E., Scheys, L. (2022). Automation of MRI-based spinal muscle segmentation. Presented at the European Society of Biomechanics (ESB) 2022, Porto, Portugal, 26 Jun 2022-29 Jun 2022.
- Colyn, W., Azari, F., Bellemans, J., van Lenthe, G., Scheys, L. (2022). Microstructural adaptations of the subchondral tibial bone are related to the mechanical axis deviation in end-stage varus osteoarthritic knees. Presented at the OARSI 2022 World Congress on Osteoarthritis, Berlin, Germany, 07 Apr 2022-10 Apr 2022.
- Daneshvarhashjin, N., Verhaegen, F., Innocenti, B., Scheys, L. (2022). Modes of covariation between scapular shape and rotator cuff muscle quality in OA patients with B glenoid. Presented at the Orthopaedic research society, Tampa, Florida, 04 Feb 2022-08 Feb 2022. ([URL](#))
- Roman, E., Jacobs, K., Lambert, J., Moke, L., Scheys, L., Kesteloot, K., Roodhooft, F., Cardoen, B. (2022). VARIABILITY DRIVERS OF TREATMENT COSTS IN HOSPITALS: A SYSTEMATIC REVIEW. In: VALUE IN HEALTH: vol. 25 (1), (S164-S164). ([URL](#))
- Taylan, O., Ghijssels, I., Slane, J., Van den Wyngaert, H., Demurie, A., Delport, H.P., Scheys, L. (2021). Ex-vivo assessment of a novel technique for restoring native collateral ligament strains in total knee arthroplasty. (Abstract No. PC119). Presented at the XXVIII CONGRESS OF THE INTERNATIONAL SOCIETY OF BIOMECHANICS (ISB), Digital Congress, 25 Jul 2021-29 Jul 2021. ([URL](#))
- Shah, D., Taylan, O., Berger, P., Labey, L., Vandenneucker, H., Scheys, L. (2021). Cadaveric knee simulator in orthopaedic training to quantify joint kinematics for active functional motions. (Abstract No. PC005). Presented at the XXVIII CONGRESS OF THE INTERNATIONAL SOCIETY OF BIOMECHANICS (ISB), Digital Congress, 25 Jul 2021-29 Jul 2021. ([URL](#))
- Taylan, O., Shah, D., Dandois, F., van Overschelde, P., Scheys, L. (2021). Influence of implant alignment on joint laxity following medially-stabilized total knee arthroplasty. (Abstract No. 5074341). Presented at the XVIII CONGRESS OF THE INTERNATIONAL SOCIETY OF BIOMECHANICS (ISB), Digital Congress, 25 Jul 2021-29 Jul 2021. ([URL](#))
- Shah, D., Taylan, O., Verstraete, M., Berger, P., Vandenneucker, H., Scheys, L. (2021). Can intraoperative intra-articular loads predict knee joint laxity? A Cadaveric Simulator Study. (Abstract No. PA002). Presented at the XXVIII CONGRESS OF THE INTERNATIONAL SOCIETY OF BIOMECHANICS (ISB), Digital Congress, 26 Jul 2021-29 Jul 2021. ([URL](#))
- Taylan, O., Shah, D.S., Slane, J., Berger, P., Vandenneucker, H., Scheys, L. (2021). Postoperative joint biomechanics with increasing implant design constraint in total knee arthroplasty. (Abstract No. 12). Presented at the 3rd World Arthroplasty Congress, Virtual meeting, 22 Apr 2021-24 Apr 2021. ([Open Access](#))
- Severijns, P., Overbergh, T., Van de loock, K., Desloovere, K., Moke, L., Scheys, L. (2020). Spinal fusion surgery affects sagittal vertical axis during walking in adult spinal deformity. Presented at the EUROSPINE 2020, Virtual meeting, 06 Oct 2020-09 Oct 2020.
- Taylan, O., Slane, J., Ghijssels, I., Delport, H.P., Scheys, L. (2020). IN VITRO ASSESSMENT OF A NOVEL SURGICAL TECHNIQUE FOR PRESERVING NATIVE LIGAMENT STRAINS IN TOTAL KNEE ARTHROPLASTY. (Abstract No. BN (113)). Presented at the 28th annual meeting of the European Orthopaedic Research Society (EORS). Virtual conference, Izmir (Virtual conference), 17 Sep 2020-18 Sep 2020. ([Open Access](#))

Meynen, A., Verhaegen, F., Mulier, M., Debeer, P., Scheys, L. (2020). Statistical shape models can be used to accurately predict the glenoid parameters from partial CT scans. Presented at the Annual Meeting European Orthopaedic Research Society, Virtual Conference, 17 Sep 2020-18 Sep 2020.

Weygers, I., Kok, M., Seel, T., Olsson, F., De Vroey, H., Shah, D., Taylan, O., Hallez, H., Scheys, L., Claeys, K. (2020). An in vitro validation method for inertial-sensor-to-bone alignment. Presented at the 29th annual meeting of the European Society of Movement Analysis for Adults and Children (ESMAC), Virtual conference. [Open Access](#)

Shah, D., Taylan, O., Labey, L., Scheys, L. (2020). Long-term impact of total knee arthroplasty on tibiofemoral kinematics: a cadaveric simulator study. Presented at the 28th annual meeting of the European Orthopaedic Research Society (EORS), Virtual conference.

Shah, D., Taylan, O., Berger, P., Labey, L., Vandenneucker, H., Scheys, L. (2020). Integration of a cadaveric knee simulator in orthopaedic training and education. Presented at the 28th annual meeting of the European Orthopaedic Research Society (EORS), Virtual conference.

Weygers, I., Kok, M., Seel, T., Olsson, F., De Vroey, H., Shah, D., Taylan, O., Hallez, H., Scheys, L., Claeys, K. (2020). An in vitro validation method for inertial-sensor-to-bone alignment. In: *Gait & Posture*: vol. 81, (385-387). doi: [10.1016/j.gaitpost.2020.08.092](https://doi.org/10.1016/j.gaitpost.2020.08.092) [Open Access](#)

Severijns, P., Overbergh, T., Desloovere, K., Scheys, L., Moke, L. (2019). From static to dynamic: sagittal alignment and compensation strategies during walking in Adult Spinal Deformity. Presented at the EUROSPINE annual meeting 2019, Helsinki, Finland, 16 Oct 2019-18 Oct 2019.

Severijns, P., Overbergh, T., Desloovere, K., Moke, L., Scheys, L. (2019). Spinal alignment during motion and its relation to balance control in Adult Spinal Deformity SPINAL ALIGNMENT DURING MOTION AND ITS RELATION TO BALANCE CONTROL IN ADULT SPINAL DEFORMITY. Presented at the EUROSPINE annual meeting 2019, Helsinki, Finland, 16 Oct 2019-18 Oct 2019.

Overbergh, T., Severijns, P., Moke, L., Jonkers, I., Scheys, L. (2019). Radiographic spinopelvic parameters in ASD: A dynamic evaluation. Presented at the Eurospine 2019, Helsinki, Finland, 16 Oct 2019-18 Oct 2019.

Overbergh, T., Severijns, P., Moke, L., Jonkers, I., Scheys, L. (2019). Differences in vertebral motion between an adult spinal deformity patient and a healthy subject: A case study. Presented at the Eurospine 2019, Helsinki, Finland, 16 Oct 2019-18 Oct 2019.

Van de loock, K., Hermans, L., Schelfaut, S., Scheys, L., Moke, L. (2019). Examining how self-perceived participation to society and autonomy differs among adults with spinal deformity receiving surgical or non-surgical management. Presented at the Eurospine annual meeting 2019, Helsinki, Finland, 16 Oct 2019-18 Oct 2019.

Meynen, A., Verhaegen, F., Debeer, P., Scheys, L. (2019). Scapular reconstructions using statistical shape modeling: Design and Validation. Presented at the European Orthopaedic Research Society, Maastricht, 02 Oct 2019-04 Oct 2019.

Taylan, O., Slane, J., Dandois, F., van Beek, N., Claes, S., Scheys, L. (2019). Elastic and viscoelastic characterization of Iliotibial Band and Gracilis Tendon Grafts for Anterolateral Ligament Reconstruction. Presented at the EORS 2019, Maastricht, Netherlands, 02 Oct 2019-05 Oct 2019.

Severijns, P., Overbergh, T., Desloovere, K., Moke, L., Scheys, L. (2019). Assessment of dynamic spinal alignment through instrumented motion analysis. Presented at the EORS 2019 (European Orthopaedic Research Society), Maastricht, the Netherlands, 02 Oct 2019-04 Oct 2019.

Overbergh, T., Severijns, P., Moke, L., Jonkers, I., Scheys, L. (2019). Simulation-based vertebral kinematics using an image-based modelling platform. Presented at the EORS (European Orthopaedic Research Society), Maastricht, Netherlands, 02 Oct 2019-04 Oct 2019.

Perez Boerema, F., Tomaszewski, P., Meynen, A., Pellens, J., Perdahcioğlu, S., Janssen, D., Scheys, L., Schevenels, M., Verdonschot, N., Geris, L. (2019). Computational optimization and its role in improving the long-term stability of acetabular implants. Presented at the European Numerical Mathematics and Advanced Applications Conference 2019, Egmond aan Zee, The Netherlands, 30 Sep 2019-04 Oct 2019.

Perez Boerema, F., Meynen, A., Scheys, L., Geris, L. (2019). Topology optimization and additive manufacturing in acetabular implant design. Presented at the II International Conference on Simulation for Additive Manufacturing, Pavia, Italy, 11 Sep 2019-13 Sep 2019.

Perez Boerema, F., Meynen, A., Scheys, L., Geris, L. (2019). Topology optimization of acetabular implants for large bone defects. Presented at the 16th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, New York, NY, USA, 14 Oct 2019-16 Oct 2019.

Wang, W., Overbergh, T., Wang, D., De Groote, F., Scheys, L., Jonkers, I. (2019). A FORCE-DEPENDENT DYNAMIC OPTIMIZATION FRAMEWORK FOR SOLVING KINEMATIC. Presented at the the 25th Congress of the European Society of Biomechanics (ESB 2019), Vienna, Austria, 07 Jul 2019-10 Jul 2019. (professionally oriented) [Open Access](#)

Severijns, P., Overbergh, T., Desloovere, K., Moke, L., Scheys, L. (2019). Sagittal alignment and compensation from static to dynamic in Adult Spinal Deformity. Presented at the ESBiomech Conference 2019 (European Society of Biomechanics), Vienna, Austria.

Severijns, P., Overbergh, T., Desloovere, K., Moke, L., Scheys, L. (2019). Assessment of dynamic spinal alignment through instrumented motion analysis. Presented at the ESBiomech Conference 2019 (European Society of Biomechanics), Vienna, Austria, 07 Jul 2019-10 Jul 2019.

Shah, D., Taylan, O., Franceschini, V., Padua, V., Rosso, F., Schrednitzki, D., Atkinson, J., Renders, T., Labey, L., Scheys, L., Vandenneucker, H. (2019). Cadaveric knee simulator in orthopaedic training: a means to observe dynamic effects of surgical reconstructions. Presented at the 25th congress of the European Society of Biomechanics (ESB), Vienna, Austria.

Shah, D., Taylan, O., Franceschini, V., Padua, V., Rosso, F., Schrednitzki, D., Atkinson, J., Renders, T., Labey, L., Scheys, L., Vandenneucker, H. (2019). Integrating a cadaveric knee simulator in orthopaedic training and education. Presented at the European Knee Society (EKS) Arthroplasty conference, Valencia, Spain.

Overbergh, T., Severijns, P., Scheys, L. (contr.) (2018). A dynamic evaluation and modelling platform for Adult Spinal Deformities. Presented at the Orthopaedica Belgica Fall Course 2018, Brussels, 24 Nov 2018-24 Nov 2018. (professionally oriented)

Heyse, T.J., Peersman, G., Taylan, O., Slane, J., Vanthienen, B., van Lenthe, G.H., Scheys, L. (2018). Mobile bearing leads to less proximal medial tibial strain following UKA in comparison with fixed bearing in a cadaver setup. Presented at the Deutscher Kongress für Orthopädie und Unfallchirurgie (DKOU), Berlin, Germany, 23 Oct 2018-26 Oct 2018. [doi: 10.3205/18dkou209](https://doi.org/10.3205/18dkou209) (professionally oriented)

Heyse, T.J., Peersman, G., Taylan, O., Slane, J., Vanthienen, B., van Lenthe, G.H., Scheys, L. (2018). Mobile bearing leads to less proximal medial tibial strain following UKA in comparison with fixed bearing in a cadaver setup. Presented at the Deutscher Kongress für Orthopädie und Unfallchirurgie (DKOU), Berlin, Germany, 23 Oct 2018-26 Oct 2018. [doi: 10.3205/18dkou209](https://doi.org/10.3205/18dkou209) (professionally oriented)

Meynen, A., Verhaegen, F., Debeer, P., Scheys, L. (2018). Cuff Tear Arthropathy: Determination of predisposing scapular anatomy with a statistical shape model. In: Bone & Joint Journal. Presented at the International Society for Technology in Arthroplasty, London, 10 Oct 2018-13 Oct 2018.

Overbergh, T., Severijns, P., Wesseling, M., Moke, L., Jonkers, I., Scheys, L. (2018). The next step in routine creation of subject-specific models: A hybrid radiograph-based musculoskeletal model. In: World Congress of Biomechanics, (2018), (Abstract No. P1198). Presented at the World Congress of Biomechanics, Dublin, Ireland, 08 Jul 2018-12 Jul 2018. [Open Access](#)

Wang, W., Overbergh, T., Severijns, P., Wesseling, M., Moke, L., De Groot, F., Scheys, L., Jonkers, I. (2018). Estimating spine loading using an advanced full-body musculoskeletal model. Presented at the 8th World Congress of Biomechanics, Dublin, Ireland. (professionally oriented) [Open Access](#)

Taylan, O., Peersman, G., Slane, J., Vanthienen, B., van Lenthe, H., Heyse, T.J., Scheys, L. (2018). Dynamic, in-vitro analysis of tibial bone strains in a fixed versus mobile bearing design for unicompartmental knee replacement. (Abstract No. O0368). Presented at the World Congress of Biomechanics 2018, Dublin, Ireland, 08 Jul 2018-12 Jul 2018. (professionally oriented)

Dandois, F., Beckers, L., Slane, L., De Buck, S., Ooms, D., Van Laere, K., Vandenneucker, H., Scheys, L. (2018). High resolution SPECT-CT statistical analysis platform enabling group comparisons: cemented vs uncemented Unicondylar Knee Arthroplasty. Presented at the 8th World Congress of Biomechanics, Dublin.

Overbergh, T., Severijns, P., Wesseling, M., Moke, L., Vanpeteghem, A., Van de loock, K., Jonkers, I., Scheys, L. (2018). Quantification of kinematic error in multi-body simulations of spinal deformity subjects. Presented at the Orthopaedic Research Society (ORS) Annual Meeting, New Orleans, USA, 10 Mar 2018-13 Mar 2018. [Open Access](#)

Severijns, P., Overbergh, T., Moke, L., Van de loock, K., Desloovere, K., Scheys, L. (2018). Dynamic parameters relate to radiographic parameters and balance performance in Adult Spinal Deformity. In: ORS annual meeting 2018. Presented at the ORS annual meeting 2018, New Orleans.

Severijns, P., Overbergh, T., Moke, L., Van de loock, K., Desloovere, K., Scheys, L. (2018). Does the dynamic sagittal profile of Adult Spinal Deformity patients change after 10 minutes walking? Presented at the ORS annual meeting 2018, New Orleans.

Moke, L., Severijns, P., Overbergh, T., Bartholomeeussen, S., Van de loock, K., Hermans, L., Scheys, L. (2018). Diagnostic performance of the Balance Evaluation Systems Test for sagittal malalignment in Adult Spinal Deformity. Presented at the AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS Annual Meeting 2018, New Orleans, 06 Mar 2018-10 Mar 2018. (professionally oriented) [Open Access](#)

Severijns, P., Moke, L., Overbergh, T., Van de loock, K., Desloovere, K., Scheys, L. (2017). Are static sagittal compensation strategies preserved during walking in adult spinal deformity? In: Gait & Posture: vol. 57, (188-189). Presented at the Annual Meeting of the European Society for Movement Analysis in Adults and Children (ESMAC), Trondheim, Norway, 06 Sep 2017-09 Sep 2017.

Pedersen, D., Vaheule, V., Wirix-Speetjens, R., Taylan, O., Delpont, P., Scheys, L., Andersen, M.S. (2017). A Method For Obtaining Subject-Specific Joint Laxity Information For Musculoskeletal Modeling. In: XVI International Symposium on Computer Simulation in Biomechanics. Presented at the International Symposium on Computer Simulation in Biomechanics, Brisbane, Australia, 20 Jul 2017-22 Jul 2017.

Pedersen, D., Vanheule, V., Wirix-Speetjens, R., Taylan, O., Delpont, P., Scheys, L., Andersen, M.S. (2017). A New Method For Measuring Knee Joint Laxity. In: XXVI Congress of the International Society of Biomechanics. Presented at the Congress of the International Society of Biomechanics, Brisbane, Australia, 23 Jul 2017-27 Jul 2017.

Pedersen, D., Vanheule, V., Wirix-Speetjens, R., Taylan, O., Delpont, P., Scheys, L., Andersen, M.S. (2017). Knee Joint Laxity in 3D. In: 7th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery. Presented at the Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery, Aachen, Germany, 14 Jun 2017-17 Jun 2017.

Moke, L., Severijns, P., Zabjek, K., Hermans, L., Molenaers, G., Desloovere, K., Scheys, L. (2017). SRS-Schwab Sagittal Modifiers relate to Dynamic Balance Performance and HRQOL in Adults with Spinal Deformity. In: Proceedings of the AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS Annual Meeting 2017, (Abstract No. Paper O51). Presented at the AAOS Annual Meeting, San Diego, 14 Mar 2017-18 Mar 2017.

Dandois, F., Beckers, L., Slane, L., De Buck, S., Ooms, D., Van Laere, K., Vandenneucker, H., Scheys, L. (2017). A SPECT-CT Registration Framework for High Resolution Inter- and Intra-Subject Clinical Evaluation: an Application in Unicondylar Knee Arthroplasty. In: Proceedings of Orthopaedic Research Society (ORS) Annual Meeting. Presented at the Orthopaedic Research Society (ORS) Annual Meeting, San Diego, USA, 19 Mar 2017-22 Mar 2017.

Slane, J., Berger, P., Taylan, O., De Corte, R., Vandenneucker, H., Scheys, L. (2017). The influence of total knee replacement constraint on frontal plane stability and collateral ligament strain. In: Proceedings of the Orthopaedic Research Society (ORS) Annual Meeting, (Abstract No. Poster 2328). Presented at the Orthopaedic Research Society (ORS) Annual Meeting, San Diego, USA, 19 Mar 2017-22 Mar 2017.

- Overbergh, T., Wesseling, M., Severijns, P., Moke, L., Jonkers, I., Scheys, L. (2016). Personalized musculoskeletal modeling of spinal deformities based on stereoradiographic images for biomechanical analysis of motion. In: 15th Belgian National Day on Biomedical Engineering - Electronic Proceedings, (25-25). Presented at the Belgian National Day on Biomedical Engineering, Royal Academy Palace, Hertogsstraat 1, 1000 Brussel, 25 Nov 2016-25 Nov 2016.
- Moke, L., Severijns, P., Doskarova, T., Molenaers, G., Desloovere, K., Scheys, L. (2016). Introducing dynamic balance assessment in Adult Spinal Deformity. In: *Gait & Posture*: vol. 49 (153), (Abstract No. P18 presented in PS01). Presented at the ESMAC, Sevilla, 28 Sep 2016-01 Oct 2016. doi: [10.1016/j.gaitpost.2016.07.212](https://doi.org/10.1016/j.gaitpost.2016.07.212)
- Moke, L., Severijns, P., Zabjek, K., Molenaers, G., Desloovere, K., Scheys, L. (2016). Impaired balance relates to poor function in adults with spinal deformity. In: *Gait & Posture*: vol. 49, (Abstract No. P19 presented in PS01), (154-155). Presented at the ESMAC, Sevilla, 28 Sep 2016-01 Oct 2016. doi: [10.1016/j.gaitpost.2016.07.213](https://doi.org/10.1016/j.gaitpost.2016.07.213)
- Luyckx, , Verstraete, , Vereecke, E., De Roo, , Vandenneucker, H., Scheys, L., Victor, (2016). Raising The Joint Line In TKA Causes Significant Mid-flexion Instability. (Abstract No. 063). Presented at the AAOS, Orlando, VS.
- Slane, J., Peersman, G., Dworschak, P., Heyse, T., Scheys, L. (2016). Ex Vivo Kinematic Analysis of a Mobile Bearing Unicompartmental Knee Arthroplasty. Presented at the Orthopaedic Research Society, Orlando, 01 Jan 2016-01 Jan 2016.
- Smeets, K., Claes, S., Scheys, L., Slane, J., Bellemans, J. (2016). A Biomechanical and Histological Analysis of Knee and Shoulder Ligaments. Presented at the European Federation of National Associations of Orthopaedics and Traumatology, Geneva, 01 Jan 2016-01 Jan 2016.
- Slane, J., Squire, M., Scheys, L., Ploeg, H., Vivanco, J. (2016). Evaluation of the Creep Properties of Acrylic Bone Cement at the Macro and Nanoscale. Presented at the 10th International Conference on the Mechanics of Time Dependent Materials, Paris, 01 Jan 2016-01 Jan 2016.
- Scheys, L., Slane, J., Dworschak, P., Fuchs-Winkelmaan, S., Peersman, G., Heyse, T. (2016). Mobile Bearing Unicompartmental Knee Arthroplasty: How Closely does it Replicate Native Knee Kinematics? Presented at the American Academy of Orthopaedic Surgeons, Orlando, 01 Jan 2016-01 Jan 2016.
- Slane, J., Peersman, G., Dirckx, M., Dworschak, P., Heyse, T., Scheys, L. (2016). Ex vivo kinematic analysis of an ACL-retaining total knee replacement. Presented at the European Orthopaedic Research Society, Bologna, Italy.
- De Brito Carvalho, C., Bogaerts, S., Scheys, L., D'hooge, J., Peers, K., Maes, F., Suetens, P. (2016). Non-rigid speckle tracking exploratory study for tendinopathy signaling in symptomatic subjects. Presented at the International scientific tendinopathy symposium - ISTS 2016, Cape Town, South Africa, 22 Oct 2016-24 Oct 2016. [Open Access](#)
- Cenni, F., Monari, D., Aertbeliën, E., Scheys, L., Desloovere, K., Bruyninckx, H. (2015). Reliability and validity of 3D freehand ultrasound. In: *ESMAC Abstracts 2015 Gait and Posture*: vol. 42. Presented at the ESMAC, heidelberg, 01 Sep 2015-01 Sep 2015.
- Luyckx, T., Vereecke, E., Vandenneucker, H., Scheys, L., Victor, J. (2015). Raising the joint line in TKA causes significant mid-flexion instability. Presented at the World Arthroplasty Congress, Paris, France, 16 Apr 2015-18 Apr 2015. ([URL](#))
- De Brito Carvalho, C., Slagmolen, P., D'hooge, J., Scheys, L., Peers, K., Bogaerts, S., Suetens, P. (2015). Interactive exploration of local strain on ultrasound images - a step closer towards clinical implementation. Presented at the Congress of the European Society of Biomechanics - ESB 2015, Prague, Czech Republic, 05 Jul 2015-08 Jul 2015. [Open Access](#)
- De Brito Carvalho, C., Bogaerts, S., Slagmolen, P., D'hooge, J., Scheys, L., Peers, K., Suetens, P. (2015). An interactive tool to estimate Achilles tendon local strain using high-frequency ultrasound: preliminary results. Presented at the Advances in tendon research: From bench to bedside, London, UK, 07 Sep 2015-08 Sep 2015. [Open Access](#)
- Bosmans, L., Wesseling, M., Desloovere, K., Molenaers, G., Scheys, L., Jonkers, I. (2014). Aberrant femoral geometry and aberrant gait kinematics both impair hip loading during gait. Presented at the ESMAC, Rome, 29 Jan 2014-10 Jan 2014.
- Meyer, C., Corten, K., Monari, D., Scheys, L., Wesseling, M., Simon, J-P., Jonkers, I., Desloovere, K. (2014). Abnormal gait parameters in patients following hip arthroplasty after a minimum period of 12 months recovery. In: *Gait & Posture*: vol. 39. Presented at the ESMAC, Glasgow, 02 Sep 2013-07 Sep 2013.
- Bosmans, L., Wesseling, M., Desloovere, K., Molenaers, G., Scheys, L., Jonkers, I. (2013). Aberrant hip geometry affects peak hip joint loading during normal walking. Presented at the Symposium van de Vereniging Kinesiologie, Leuven, 13 Dec 2013-13 Dec 2013. [Open Access](#)
- Bosmans, L., Desloovere, K., Molenaers, G., Scheys, L., Jonkers, I. (2013). Proximal femoral deformity favors hip extension action and impairs pelvic stability during gait: a simulation study using mri-based musculoskeletal models. Presented at the ESMAC, Glasgow, Scotland.
- D'Angeli, V., Scheys, L., Desloovere, K., Callewaert, B., Biagi, F. (2013). Suitable marker sets for measuring three-dimensional knee rotations. In: *Gait & Posture*: vol. 37. Presented at the Italian Society of Clinical Movement Analysis Annual Meeting, Pisa, Italy, 01 Jan 2013-01 Jan 2013.
- Scheys, L., Wong, P., Callewaert, B., Mertens, P., Brabants, K., Bellemans, J., Desloovere, K. (2012). Functional knee joint asymmetry in subjects with unilateral knee osteoarthritis: an analysis of 11 different motor tasks. Presented at the ESMAC 21st Annual Meeting, Stockholm, Sweden, 13 Sep 2012-15 Sep 2012.
- Pianigiani, S., Scheys, L., Labey, L., Pascale, W., Innocenti, B. (2012). A numerical study to analyze the post-cam force in primary and revision TKAs during several daily activities. In: *Knee Surgery, Sports Traumatology, Arthroscopy*: vol. 20 (1), (Abstract No. FP45-1224). Presented at the ESSKA congress, Geneva, Switzerland, 02 May 2012-05 May 2012. [Open Access](#)
- Scheys, L., Wong, P., Callewaert, B., Leffler, J., Franz, A., Vandenneucker, H., Labey, L., Leardini, A., Desloovere, K. (2012). A Motion Analysis Framework for Non-Invasive in-Vivo Evaluation of Knee Joint Performance. In: *Orthopaedic Proceedings*: vol. 94-B (No. SUPP\_XL). Presented at the American Academy of Orthopaedic Surgeons (AAOS) 2012 Annual Meeting, San Francisco, USA. ([URL](#))

- Callewaert, B., Scheys, L., Bellemans, J., Fukagawa, S., Desloovere, K. (2012). Ethnic specific 3D knee motion during daily-life activities: can Japanese and Caucasian reference database be merged? Presented at the European Society of Movement Analysis for Adults and Children, Stockholm, Sweden, 13 Sep 2012-15 Sep 2012.
- Pianigiani, S., Scheys, L., Labey, L., Innocenti, B. (2011). Post-Cam Contact Mechanics During Several Activities in Primary and Revision TKA Designs: A Numerical Study. Presented at the International Society for Technology in Arthroplasty 24th Annual Meeting, Bruges, Belgium, 20 Sep 2011-23 Sep 2011.
- Scheys, L., Leardini, A., Wong, P., Callewaert, B., Bellemans, J., Desloovere, K. (2011). Repeatability analysis of three-dimensional knee kinematics for eleven life motor tasks. Presented at the 24th annual congress of the International Society for Technology in Arthroplasty (ISTA), Bruges, Belgium, 21 Sep 2011-23 Sep 2011.
- Scheys, L., Wong, P., Callewaert, B., Leffler, J., Franz, A., Vandenuecker, H., Labey, L., Leardini, A., Desloovere, K. (2011). A motion analysis framework for non-invasive in-vivo evaluation of knee joint performance. Presented at the 24th annual congress of the International Society for Technology in Arthroplasty (ISTA), Bruges, Belgium, 21 Sep 2011-23 Sep 2011.
- Bosmans, L., Lenaerts, G., Scheys, L., Jonkers, I. (2011). How Pathological Gait Kinematics, Increased Femoral Anteversion and Neck Shaft Angle Adversely Affect the Loading Conditions of the Femoral Head During Gait in Children With Cerebral Palsy. (Abstract No. O31). Presented at the ESMAC, Vienna, 15 Sep 2011-17 Sep 2011. [Open Access](#)
- Van Campen, A., De Groote, F., Bosmans, L., Scheys, L., Jonkers, I., De Schutter, J. (2011). COMPARISON OF TWO METHODS FOR FUNCTIONAL KNEE AXIS DETERMINATION: MRI VALIDATION AND EFFECT ON KNEE JOINT KINEMATICS DURING ISOKINETIC DYNAMOMETRY. (Abstract No. 961). Presented at the ISB, Brussels, 03 Jul 2011-07 Jul 2011.
- Jonkers, I., Bosmans, L., Jansen, K., Van Campen, A., De Groote, F., Scheys, L., Duysens, J., De Schutter, J. (2011). Contributions to more accurate human motion analysis and simulation. Presented at the International Symposium on Computer Simulation in Biomechanics - Computer Simulation Symposium, Leuven, Belgium, 30 Jun 2011-02 Jul 2011.
- Geukens, L., Fukagawa, S., Scheys, L., Labey, L., Suetens, P., Bellemans, J., Peers, K. (2011). Non-invasive measurement of local intratendinous strain using dynamic ultrasound an ex vivo validation experiment in a porcine patellar tendon. In: British Journal of Sports Medicine: vol. 45 (4), (349-50).
- Van Campen, A., De Groote, F., Bosmans, L., Scheys, L., Jonkers, I., De Schutter, J. (2011). Determination of functional knee axes for isokinetic dynamometry: comparison of two methods and MRI validation. Presented at the EUROMECH Colloquium 511 on Biomechanics of Human Motion, Ponta Delgada/Azores, 09 Mar 2011-12 Mar 2011.
- Scheys, L., Leardini, A., Wong, P., Callewaert, B., Bellemans, J., Desloovere, K. (2011). Repeatability of Three-dimensional knee kinematics for eleven daily life motor tasks. Presented at the ISB (International Society of Biomechanics), Brussels, Belgium, 03 Jul 2011-07 Jul 2011.
- Scheys, L., Slagmolen, P., Geukens, L., Fukagawa, S., Barbosa, D., Almeida, N., Suetens, P., Peers, K., Bellemans, J. (2011). Non-invasive measurement of regional intratendinous strain using dynamic ultrasound. An ex vivo validation experiment in porcine patellar tendon. Presented at the Annual congress of the International Society for Technology in Arthroplasty - ISTA 2011, Bruges, Belgium, 20 Sep 2011-23 Sep 2011.
- Desloovere, K., Scheys, L. (2011). Seminar: Knee biomechanics: Development of knee endoprosthesis & design of knee endoprosthesis – Advanced gait analysis for knee endoprosthesis. Presented at the ESMAC, Vienna, Austria, 12 Sep 2011-17 Sep 2011.
- Scheys, L., Suetens, P., Jonkers, I. (2010). Subject-specific musculoskeletal modelling - it's relevance when studying cerebral palsy gait. In: Proceedings IUTAM 2010. Presented at the IUTAM symposium on analysis and simulation of human motion - IUTAM 2010, Leuven, Belgium, 13 Sep 2010-15 Sep 2010.
- Scheys, L., Desloovere, K., Spaepen, A., Suetens, P., Jonkers, I. (2009). Calculating gait kinematics using MR-based kinematic models : what's the benefit ? In: Gait & Posture: vol. 30. Presented at the Annual meeting of the European Society of Movement Analysis for Adults and Children - ESMAC 2009, London, United Kingdom, 14 Sep 2009-19 Sep 2009.
- Scheys, L., Desloovere, K., Spaepen, A., Suetens, P., Jonkers, I. (2009). Personalized MR-based musculoskeletal models compared to rescaled and deformed generic models of subjects with increased femoral anteversion. Presented at the XXII congress of the International Society of Biomechanics - ISB 2009, Cape Town, South Africa, 05 Jul 2009-09 Jul 2009.
- Lenaerts, G., Smits, T., Bartels, W., Scheys, L., Gelaude, F., Spaepen, A., Van der Perre, G., Jonkers, I. (2008). Subject-specific hip joint centre location affects the calculation of hip contact forces during gait. In: Gait & Posture: vol. 28, (Abstract No. P049). Presented at the Annual Meeting of ESMAC, Antalya, Turkey, 13 Sep 2008-18 Sep 2008. [doi: 10.1016/S0966-6362\(08\)70118-8](#)
- Scheys, L., Jonkers, I., Loeckx, D., Van Campenhout, A., Spaepen, A., Suetens, P. (2007). Estimation of hip-muscle geometry using automated, non-rigid atlas-based registration of MR images. Presented at the American Society of Biomechanics annual conference - ASB 2007, Stanford, USA, 22 Aug 2007-25 Aug 2007.
- Scheys, L., Jonkers, I., Van Campenhout, A., Spaepen, A., Suetens, P. (2007). Individualized MR-based musculoskeletal models compared to rescaled generic models in the presence of increased femoral anteversion : effect on hip moment arm lengths. In: Gait & Posture: vol. 26. Presented at the Annual meeting of the European Society of Movement Analysis for Adults and Children - ESMAC 2007, Athens, Greece, 24 Sep 2007-29 Sep 2007.
- Scheys, L., Jonkers, I., Loeckx, D., Spaepen, A., Suetens, P. (2006). Atlas-based, non-rigid registration allows automatic identification of muscle insertion sites in MR-images. In: Gait & posture: vol. 24, (71-72). Presented at the JEGM, Amsterdam, 01 Jan 2007-01 Jan 2007.
- Scheys, L., Jonkers, I., Loeckx, D., Spaepen, A., Suetens, P. (2006). Automatic identification of muscle insertion sites in MR images using atlas-based, non-rigid registration. In: Gait & posture: vol. 24. Presented at the JEGM06 - 1st joint ESMAC & GCMAS meeting, Amsterdam, The Netherlands, 28 Sep 2006-30 Sep 2006.
- Scheys, L., Jonkers, I., Spaepen, A., Suetens, P. (2005). Individualized musculoskeletal modeling and its effect on the parameters of gait. In: 5th Belgian day on biomedical

engineering. Presented at the 5th Belgian day on biomedical engineering, Brussels, Belgium, 28 Oct 2005-28 Oct 2005.

Scheys, L., Jonkers, I., Spaepen, A., Suetens, P. (2005). Individualized musculoskeletal modeling based on MR images : is it worth the effort ? In: Gait & posture: vol. 22. Presented at the 14th annual meeting of the European Society of Movement Analysis for Adults and Children - ESMAC 2005, Barcelona, Spain, 22 Sep 2005-24 Sep 2005.

#### Accepted Abstracts/Presentations/Posters

Severijns, P., Overbergh, T., Beaucage-Gauvreau, E., Ackermans, T., Moke, L., Scheys, L. (2022). Lower Limb Compensation during Sit-To-Stand-To-Sit after Multi-level Fusion Surgery in Adult Spinal Deformity. Presented at the ESB 2022, Porto, Portugal, 26 Jun 2022-29 Jun 2022.

Severijns, P., Overbergh, T., Schmid, S., Moke, L., Scheys, L. (2021). Spinal Palpation Error and Its Impact on Skin Marker-Based Spinal Alignment Measurement in Adult Spinal Deformity. Presented at the XXVIII Congress of the International Society of Biomechanics, Stockholm, 25 Jul 2021-29 Jul 2021.

Meynen, A., Vanquickenborne, F., Bartholomeeusen, S., van Lenthe, G., Scheys, L. (2021). Structural allograft impaction in opening wedge high tibial osteotomy improves stability and stress shielding: A finite element study. Presented at the European Society of Biomechanics, Virtual conference.

Van Overschelde, P., Taylan, O., Shah, D., Dandois, F., Scheys, L. (2021). Does kinematically aligned total knee arthroplasty restore tibiofemoral kinematics better than mechanical alignment? A cadaveric simulator study. Presented at the 19th European Society of Sports Traumatology, Knee Surgery & Arthroscopy (ESSKA) congress, Milan, Italy.

Dandois, F., Taylan, O., D'hooge, J., Vandenuecker, H., Slane, L., Scheys, L. (2020). In-situ assessment of knee collateral ligaments strain using ultrasound speckle tracking. Presented at the 28th Annual Meeting European Orthopaedic Research Society, Izmir.

Claes, S., Taylan, O., Slane, J., Dandois, F., van Beek, N., Scheys, L. (2020). Elastic and viscoelastic characterization of the anterolateral ligament (ALL) and its reconstruction grafts. Presented at the 19th ESSKA Congress, Milan, Italy, 06 May 2020-09 May 2020. ([URL](#))

Meynen, A., Vles, G., Mulier, M., Scheys, L. (2020). A statistical shape modeling approach to describe the morphological variation of acetabular defects. Presented at the Orthopaedic Research Society 2021 Annual Meeting, Virtual Conference, 12 Feb 2020-16 Feb 2020.

#### Science Outreach

Lemaitre, A., Scheys, L. (contr.), Moke, L. (contr.) (2018). Het orthopedisch onderzoeks- en trainingsinstituut. INFUUZ, a monthly magazine for UZ Leuven personnel, (Nr. 243 - mei 2018), 12-13. [Open Access](#)

#### PhD Theses

Colyn, W., Bellemans, J. (sup.), Scheys, L. (cosup.), Smeets, K. (cosup.) (2023). The natural evolution of constitutional varus and its clinical implications.

Meynen, A., Scheys, L. (sup.), Mulier, M. (cosup.), Zadpoor, A. (cosup.) (2022). An In Silico Design Workflow For Space-Filling Acetabular Revision Implants.

Overbergh, T., Scheys, L. (sup.), Jonkers, I. (cosup.), Moke, L. (cosup.) (2021). An Image-based Musculoskeletal Modeling Platform For Simulation-based Evaluation Of Vertebral Motion In Adult Spinal Deformity. [Open Access](#)

Severijns, P., Scheys, L. (sup.), Desloovere, K. (cosup.), Scheys, L. (cosup.), Moke, L. (cosup.) (2021). An integrated dynamic evaluation platform to support clinical decision-making in adult spinal deformity.

Verhaegen, F., Debeer, P. (sup.), Scheys, L. (cosup.), Verborgt, O. (cosup.) (2021). Quantitative 3D glenoid erosion and HHM assessment and correction guidelines in pre-operative TSA planning. [Open Access](#)

Wang, W., Jonkers, I. (sup.), De Groote, F. (cosup.), Scheys, L. (cosup.) (2020). Development of an Advanced Dynamic Simulation Framework of the Spine and Its Clinical Application. [Open Access](#)

Bogaerts, S., Peers, K. (sup.), Desloovere, K. (cosup.), Scheys, L. (cosup.) (2018). Quantitative ultrasound for the evaluation of intratendinous deformation in the pre-insertional Achilles tendon. [Open Access](#)

Smeets, K., Scheys, L. (sup.), Vandenuecker, H. (cosup.), Claes, S. (cosup.) (2018). Anterolateraal ligament van de knie.

Moke, L., Molenaers, G. (sup.), Scheys, L. (cosup.), Jonkers, I. (cosup.) (2018). DETERMINANTS OF HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH ADULT SPINAL DEFORMITY. ADDITIONAL VALUE OF DYNAMIC BIOMECHANICAL MEASURES.

De Brito Carvalho, C., Suetens, P. (sup.), Scheys, L. (cosup.) (2017). 2D and 3D High-spatial and High-temporal Resolution Ultrasound Imaging for Characterization of Tendon Mechanics An Image Registration Approach. 224 [Open Access](#)

Bosmans, L., Jonkers, I. (sup.), De Schutter, J. (cosup.), Scheys, L. (cosup.) (2014). Analyse van afwijkende gewrichtsbelasting en spiercontrole bij kinderen met botvervormingen gebruikmakend van dynamische simulaties van het gangpatroon Understanding impaired joint loading and muscle control in a population of children with bony deformities using dynamic simulations of gait. 286

Scheys, L., Spaepen, A. (sup.), Suetens, P. (sup.), Jonkers, I. (sup.) (2009). Personalized Musculoskeletal Modeling Based on Magnetic Resonance Images: Use for Biomechanical Analysis of Gait (Gepersonaliseerde musculoskeletale modellering van het onderste lidmaat op basis van magnetische resonantie beelden: bruikbaarheid voor de biomechanische analyse van het gangpatroon).

#### Internet publications

Rosseeel, S., Moke, L. (contr.), Jacobs, K. (contr.), Scheys, L. (contr.), Roodhooft, F. (contr.) (2017). WAARDE-SCAN VAN EEN ZORGPAD. ([URL](#)) [Filip] [Open Access](#)

#### Other

Wang, W., Wang, D., Falisse, A., Severijns, P., Overbergh, T., Moke, L., Scheys, L., De Groot, F., Jonkers, I. (2021). A Dynamic Optimization Approach for Solving Spine Kinematics While Calibrating Subject-Specific Mechanical Properties (Apr, 10.1007/s10439-021-02774-3, 2021). ANNALS OF BIOMEDICAL ENGINEERING, 49 (7), 1784-1784. doi: 10.1007/s10439-021-02791-2 [Open Access](#)

## Projects PAST AND ON-GOING RESEARCH PROJECTS

---

### As Promotor

- [P](#)rinting [P](#)ERsonalized orthopaedic implantS
- [D](#)OPL: [D](#)ata and [O](#)rganization [P](#)latform for [R](#)esearch
- [L](#)ooking beyond the radiograph in [A](#)IS: [S](#)ubject-specific modelling to investigate and predict the post-op spinal mobility
- [I](#)ntegration of functional daily living motor tasks into a novel cadaveric physiological knee simulator
- [T](#)he Study Workstation: A software platform for active and integrated research data management.
- [A](#)n image-based personalized musculoskeletal modeling and simulation framework for functional analysis of activities of daily living in adult spinal deformity patients
- [A](#)dvancing biomechanical profiling of musculoskeletal system from structure to function.
- [3D](#) Dynamic Assessment for Clinical Decision-Making in Adult Spine Deformity Care
- [F](#)unctional and dynamic assessment of knee ligament balancing based on [3D](#) ultrasound imaging
- [B](#)ench to bedside biomechanical evaluation of shoulder arthroplasty
- [S](#)ubject-specific kinematic analysis of shoulder function with integration of fine-wire electromyography
- [I](#)ntegrated longitudinal research on the etiology of CAM deformity and its association with femoroacetabular impingement.
- [C](#)hoosing fusion levels and surgical technique in adolescent idiopathic scoliosis. Added value of [3D](#) and dynamic biomechanical measures
- [D](#)evelopment and valorisation of in vitro simulators for orthopaedic research and

[training.](#)

- [ASESP-P: Advanced Spinal Evaluation and Surgical Planning Platform](#)
- [PRinting Personalized hip implantS - PROsPERoS](#)
- [An Image-based Musculoskeletal Modeling Platform For Simulation-based Evaluation Of Vertebral Motion In Adult Spinal Deformity](#)
- [PROsPERoS - 'Smart' 3D implants for the recovery of major bone defects.](#)
- [Novel imaging modalities and their application in orthopedics: added value from bench to bedside.](#)

---

## As Co-Promotor

- [Influence of prosthetic design, alignment strategy and robotics on stability in total knee arthroplasty](#)
- [FIBEr, a reference center for MDR-compliant mechanical characterization of biological tissue and biomaterials](#)
- [Creating and validating biofidelic knee mock-ups. A new tool to support orthopaedic training and development of surgical techniques and implants.](#)
- [Radiation-free Diagnostic and Assessment Tools for Spine Surgery \(Radar-Spine\)](#)
- [ASSESSMENT OF THE FUNCTIONAL OUTCOME AND QUALITY OF LIFE IN SARCOMA PATIENTS](#)
- [Functional, dynamic assessment of the knee ligaments based on ultrasound imaging using a novel flexible matrix array transducer.](#)
- [Biomechanical and morphological characterization of the foot in patients with posterior tibial tendon dysfunction.](#)
- [Value-based healthcare of state-of-the-art care pathways for adult spinal deformity in University Hospitals Leuven.](#)
- [Development of an Advanced Dynamic Simulation Framework of the Spine and Its Clinical Application](#)
- [An integrated dynamic evaluation platform to support clinical decision making in adult spinal deformity](#)
- [Biomechanics testing facility: facility for the identification of mechanical properties of biological tissue](#)
- [Quantitative 3D glenoid erosion and HHM assessment and correction guidelines in pre-operative TSA planning.](#)
- [Kinematic analysis and treatment options in scapholunate complex injuries](#)

## Memberships MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2015

**Member at large** CAOS-Belgium as a subsidiary of CAOS, International Society for Computer Assisted Orthopaedic Surgery

2005 - present

**Active or past memberships** of multiple scientific societies (including ESMAC, ORS, EORS, ISTA, CAOS, ISB, ESB)

## Other Relevant Information PRIZES AND AWARDS

2022

Scoliosis Research Society 2022 Biedermann Innovation Award  
Project: „ Looking beyond the radiograph in AIS: Subject-specific modelling to investigate and predict the post-op spinal mobility after VBT and Spinal Fusion “ by Ackermans T. as a post-doctoral researcher under my supervision.

- 2022 World Council of Biomechanics Travel Award  
Abstract: „Biomechanical impact of increasing implant design constraint in total knee arthroplasty: an ex-vivo study“ by Darshan S, Taylan O., Slane J., Berger P., , Vandenneucker H., **Scheys L** – 2022 World Congress of Biomechanics, Taipei, Taiwan
- 2021 Didier Patte Award - European Society for Surgery of the Shoulder and the Elbow (SECEC-ESSSE)  
Awarded to PhD thesis – F. Verhaegen: "Morphological and biomechanical aspects of glenoid erosions and humeral head migration in shoulder arthropathy: implications for 3D total shoulder arthroplasty planning", co-promotor and senior, last author on multiple papers.
- 2021 Virtual symposium - Motion Analysis and Musculoskeletal Modeling in Treatment of Spinal Disorders, Best paper award  
Abstract: „Subject-specific spino-pelvic models reliably measure spinal kinematics during forward bending in adult spinal deformity“ by Overbergh T, Severijns P., Beaucage Gauvreau E., Ackermans T., Moke L., Jonkers I., **Scheys L**
- 2021 Virtual symposium - Motion Analysis and Musculoskeletal Modeling in Treatment of Spinal Disorders, Runner-up Best Paper award  
Abstract: „Spinal palpation error and its impact on skin marker-based spinal alignment measurement in adult spinal deformity“ by Severijns P., Overbergh T., Schmid S., Moke L., **Scheys L**
- 2020 EORS – Best Oral Clinical Presentation Award  
Abstract: „Integration of a Cadaveric Knee Simulator in Orthopaedic Training and Education“ by Darshan S, Taylan, O., Berger, P., Labey, L., Vandenneucker, H.; **Scheys L**
- 2020 EFORT – Best National Paper  
Selected as best paper of Belgium’s National Member Society. Paper: „Reduced bone activity in the native compartments after medial mobile-bearing unicompartmental knee arthroplasty. A prospective SPECT/CT study“ by Beckers, L., Ooms, D., Berger, P., Van Laere, K., \***Scheys, L.**, \*Vandenneucker, H. (\*joint last author)
- 2020 Department of Development and Regeneration, KU Leuven - Best Paper Award, Departmental Day  
Abstract: „Accurate reconstructions of pelvic defects and discontinuities using statistical shape models“ by Meynen A, Matthews H, Nauwelaers N, Claes P, Mulier M, **Scheys L**
- 2019 German Knee Society - Runner-up Best Paper Award  
Abstract: „Mobile bearing leads to less proximal medial tibial strain following UKA in comparison with fixed bearing in a cadaver setup“ by Heyse TJ, Peersman G, Taylan O, Slane J, Vanthienen B, van Lenthe GH, **Scheys L**, (500 euro)
- 2019 EORS - Biomechanics Young Investigator Award  
Abstract: „Scapular reconstructions using statistical shape modelling: design and validation“ by Meynen A, Verhaegen F, Debeer P, **Scheys L.**
- 2019 Danish Society of Biomechanics Annual Meeting - Student Award  
Abstract: „Prediction of post-operative joint instability following total knee arthroplasty“ by DPedersen, V Vanheule, R Wirix-Speetjens, O Taylan, H P Delpport, **L Scheys**, M S Andersen
- 2018 Department of Development and Regeneration, KU Leuven - Best Paper Award, Departmental Day  
Abstract: „High resolution SPECT-CT statistical analysis platform enabling group comparisons: cemented vs uncemented Unicondylar Knee

- Arthroplasty“ Dandois F, Beckers L, Slane L, De Buck S, Ooms D, Van Laera K, Vandenneucker H, **Scheys L.**
- 2018** Stanford University, NIH National Centre for Simulation in Rehabilitation Research –Outstanding Researcher Award  
„Integrating spinal motion analysis in the pre-and post-operative evaluation of spinal deformity“ (4000\$)
- 2017** Stanford University, NIH National Centre for Simulation in Rehabilitation Research –Outstanding Researcher Award  
„An image-based musculoskeletal modeling platform for simulation-based analysis of dynamic motor function in adult spinal deformity“ (4000\$)
- 2017** Belgian Knee Society, Best Scientific Research  
Abstract title: „Mobile bearing UKA leads to less tibial bone strain than fixed bearing UKA“ by Peersman, G., Taylan, O., Verhaegen, J., Anthonissen, L., Slane, J., Vanthienen, B., Harry van Lenthe, G., Heyse, T., **Scheys, L.**
- 2017** European Knee Society, Research Award  
Project proposal: „Assessment of soft tissue knee balance: Characterization of in vitro balance and validating tools for in vivo use“ by Slane L., Dandois F., **\*Scheys, L., \*Vandenneucker, H.** (\*joint PI's) (10.000€)
- 2016** European Knee Society, Research Award  
Project proposal: „Mobile vs. fixed bearing UKA: proximal tibial strain and finite element models.“ by Slane J., Taylan O., **\*Scheys, L., \*Peersman, G.** (\*joint PI's) (3.333€)
- 2016** Materialise, Master Thesis Award  
Thesis title: „Personalized musculoskeletal modelling of spinal deformities based on stereoradiographic images: use for biomechanical analysis of posture and motion.“ by Overbergh T., Jonkers I., **Scheys L.** (1.500€)
- 2015** British Society for Matrix Biology satellite meeting ‘Advances in Tendon Research’, Best Presentation Award (tie)  
Abstract: „Non-uniform deformation of the patellar tendon during passive flexion“ by Slane L., Bogaerts S., Thelen, D., **Scheys, L.**
- 2015** World Arthroplasty Congress, Best paper award  
Abstract: „Raising the joint line in TKA causes significant mid-flexion instability“ by Luyckx T, Vandenneucker H, Vereecke E, **Scheys L,** Victor J.