Pieter Van den Berghe

Ghent, BEL// ☏ 0032 472 53 33 50 // pieter.vandenberghe@ugent.be

Positions

2021-present Research/lab technician at Ghent University
Department of Rehabilitation Sciences, campus UZ Gent

Postdoctoral collaborator with Biomechanics of Human Movement at Ghent University
Department of Movement and Sports Sciences, Sport Science Laboratory-Jacques Rogge

SM Editor of Journal of Sports Sciences

Education

2015-2021 Ph.D. in Health Sciences, Ghent University
Thesis: Motor retraining by real-time sonic feedback: understanding strategies of low impact running
Promotors: De Clercq D. and Segers V. (Kinesiology), and Leman M. (Musicology)
Committee: Gruber A., Maes PJ., Vanrenterghem J., Verloigne M., Aerts P.

2013-2015 M.Sc. in Physical Education and Movement Sciences (Kinesiology), Ghent University,
Main subject: sports training and coaching, minor subject: research
Elective courses in engineering: scientific programming, biosystems
1-month internships: training and test centres of Energy Lab, Gent; HIKO, Ninove, Belgium; and the professional sports club of VC Saint Cloud, Paris, France

2013-2015 B.Sc. in Rehabilitation Sciences and Physiotherapy [non-completed]

2010 - 2013 B.Sc. in Physical Education and Movement Sciences (Kinesiology), Ghent University

Teaching

2016-2019 Honors program in movement science, 1st and 2nd year of kinesiology M.Sc.: advanced internship to prepare students for a job as sports scientist or the start of a Ph.D

2017 Sport-specific movement analysis, 1st year of kinesiology M.Sc.: introduction to and demonstration of a measurement method (accelerometry) in sports biomechanics

2016-2020 Biomechanics, 2nd year of kinesiology B.Sc.: practical exercises on 2D motion analysis in open source software and data analysis in Excel, including grading

Mentoring and Advising

2021 Mentor of a Seattle University Kinesiology Student Internship, remotely due to COVID-19

2015-2020 Advisor of eight M.Sc. theses and honor program dissertations in kinesiology

Publications

Manuscripts as first author. * is equal contribution, ■ indicates Open Access

1. **Van den Berghe, P.** Motor retraining by real-time sonic feedback: understanding strategies of low impact running. *British Journal of Sports Medicine*. Accepted.
2. **Van den Berghe, P.**, Derie, R., Bauwens, P., Gerlo, J., Segers, V., Leman, M., De Clercq, D. (2022). Reducing the peak tibial acceleration of running by music-based biofeedback: A quasi-randomized controlled trial. *Scandinavian Journal of Medicine & Science in Sports*. https://doi.org/10.1111/sms.14123
3. **Van den Berghe, P.**, Warlop, L., Derie, R., Leman, M., De Clercq, D., Breine, B. (2022). Foot strike determines the center of pressure behavior and affects impact severity in heel-toe running. *Journal of Sports Sciences*. Apr 3;40(7):808–20. https://doi.org/10.1080/02640414.2021.2019991
4. **Van den Berghe, P.**, Breine, B., Haeck, E., & De Clercq, D. (2022). One hundred marathons in 100 days: Unique biomechanical signature and the evolution of force characteristics and bone density. *Journal of Sport and Health Science*. 11:347–57. https://doi.org/10.1016/j.jshs.2021.03.009 ■
5. **Van den Berghe, P**., Gosseries, M., Gerlo, J., Lenoir, M., Leman, M., & De Clercq, D. (2020). Change-point detection of peak tibial acceleration in overground running retraining. *Sensors*, 20(6), 1720. https://doi.org/10.3390/s20061720 ■
6. **Van den Berghe, P.,** Lorenzoni, V., Derie, R., Six, J., Gerlo, J., Leman, M. and De Clercq, D. (2021). Music-based biofeedback to reduce tibial shock in over-ground running: a proof-of-concept study. *Scientific Reports*, *11*(1), 4091. https://doi.org/10.1038/s41598-021-83538-w ■
7. Lorenzoni, V*., **Van den Berghe, P.***, Maes, P.-J., De Bie, T., De Clercq, D., & Leman, M. (2018). Design and validation of an auditory biofeedback system for modification of running parameters. *Journal on Multimodal User Interfaces*. https://doi.org/10.1007/s12193-018-0283-1
8. **Van den Berghe, P.**, Six, J., Gerlo, J., Leman, M., & De Clercq, D. (2019). Validity and reliability of peak tibial accelerations as real-time measure of impact loading during over-ground rearfoot running at different speeds. *Journal of Biomechanics*, 86, 238–242. https://doi.org/10.1016/j.jbiomech.2019.01.039

Manuscripts as co-author

9. Derie, R., **Van den Berghe, P**., Gerlo, J., Bonnaerens, S., Van Caekenberghe, I., Fiers, P., De Clercq, D., Segers, V. Biomechanical adaptations following a music-based biofeedback gait retraining program to reduce tibial shock: a randomized controlled trial. *Scandinavian Journal of Medicine & Science in Sports*, 2022, 32:1142–52. https://doi.org/10.1111/sms.14162
10. Derie, R., Robberechts, P., **Van den Berghe, P.**, Gerlo, J., De Clercq, D., Segers, V., & Davis, J.Tibial Acceleration-Based Prediction of Maximal Vertical Loading Rate During Overground Running: A Machine Learning Approach. *Frontiers in Bioengineering and Biotechnology*, 2020, 8. https://doi.org/10.3389/fbioe.2020.00033 ■
11. Robberechts, P., Derie, R., **Van den Berghe, P.**, Gerlo, J., De Clercq, D., Segers, V., & Davis, J. Predicting gait events from tibial acceleration in rearfoot running: a structured machine learning approach. *Gait & Posture*, 2021, 116544. https://doi.org/10.1016/j.gaitpost.2020.10.035
12. Malcolm P., Galle S., **Van den Berghe P.**, De Clercq D. Exoskeleton assistance symmetry matters: Unilateral assistance reduces metabolic cost, but relatively less than bilateral assistance. J Neuroeng Rehabil, 2018, 15:1, 74. https://doi.org/10.1186/s12984-018-0381-z ■

Patent

13. Provisional patent application: Low impact running. The invention relates to methods and systems which support a runner in gait retraining. Co-inventor, published on January 2nd 2020, application number PCT/EP2019/066738.

Awards

2021	FBS Innovation Award, Footwear Biomechanics Group
2021	Most Amazing Podium Presentation, Rocky Mountain American Soc. Of Biomechanics
2019	Matching Dissertation Grant Program, International Society of Biomechanics
2018	PhD student congress competition winner of the American Society of Biomechanics

Student grant support

2022	Finalist selection for VOCATIO
2021	Finalist selection for the D. W. Young Investigator Award poster competition, International Society of Biomechanics, the XXVIII Congress. Study: Feedback-based running retraining for impact reduction : the relationship between peak tibial acceleration and step frequency.
2019	Student Travel Award for FBS2019, Footwear Biomechanics Group Study: Consolidation of the atypical rearfoot strike pattern in distance runners and linkage to tibial shocks. Footwear Science, 11, sup1, S146-S147.
2018	Waiver fee for the World Congress of Biomechanics following a top-20 result in the European society of Biomechanics' student competition for WCB2018 Study: Resultant peak tibial acceleration is a measure of impact loading in overground rearfoot running : a validation and reliability study across speeds.
2018	Travel grant for a short research stay, FWO Visited the Indiana University biomechanics lab, led by Dr. Allison Gruber, in July 2018
2016	Travel grant for educational purposes, Faculty Mobility Fund - Ghent University Program: Biomechanics and Running retraining course, Pure Sports Medicine, London

Invited Presentations

2020	Journal club with Q&A at dept. of Biomechanics, University of Nebraska Omaha, USA, Human Movement Biomechanics Research Group, FaBeR, KU Leuven, dept. of Human Movement Sciences, Vrije Universiteit Amsterdam, NL, Interuni. Lab. of Human Movement Science, Université Jean Monnet, FR, dept. of kinesiology, Biomechanics Indiana University Bloomington, USA,
2015	Concurrent training, Flemish Cycling Federation

Biomechanics Lab Visits

2021, Sept. 30	Movements & posture Analysis Laboratory Leuven, BEL
2018, Aug. 10	Mayo Clinic, motion analysis laboratory, USA
2018, July	Indiana University Bloomington, biomechanics laboratory, USA
2018, Jan. 25	Salomon Footwear, Amersports, FR
2016, Feb. 23	Liverpool John Moores University, Research Inst. for Sport and Exercise Sciences, U.K.

Department Committee Service

2021-present	Data management workgroup
2019	Volunteer, winter sport stage of the Physical Education and movement sciences curriculum
2015-2019	Volunteer, yearly open lab-days of UGent's Sport Science Laboratory-Jacques Rogge

Referee service

Performed 14 manuscript reviews for:
Nature Scientific Reports, Scandinavian Journal of Medicine & Science in Sports, Medicine & Science in Sports & Exercise, Journal of Biomechanics, Journal of Applied Biomechanics, Sports biomechanics, Biomedical Signal Processing and Control, Frontiers in Sports and Active Living, Footwear Biomechanics, ISBS2021 proceedings, BMJ Open Sport & Exercise Medicine, Plos One
Formal review service record available on publons.com/researcher/3689548/pieter-van-den-berghe/

Memberships

International Society of Biomechanics
American Society of Biomechanics
European Society of Biomechanics
Footwear Biomechanics Group

Media

Television	Team Scheire, episode 7 (dutch - onderzoek helpt sporters om blessurevrij te lopen)
Socials	VLIR thesis thread with >30.000 views and >100 likes on Twitter
Popularized articles	Lower Extremity Review, 4/19, 5/20; and Nano4Sports magazine
audiovisuals	Lightening talk, infographic, and video summary of various PhD studies

Outreach

2015-present	Popularized science communication on Twitter via @SportSciSum about sports sciences

Specialized skills

Laboratory	Proficient in force and motion measurement of human gait
Analysis	Matlab, Python, JASP, Visual3D
Soft skill	Motivator, work and research ethics, open to feedback

Languages

Dutch (●●●●●), English (●●●●○), French (●●●○○), German (●○○○○)