



OXFORD BIOMECHANICS



THE OXFORD **Biomechanics** Masterclass

26 September, 2025
Trinity College, Oxford, UK

THE OXFORD Biomechanics Masterclass 2025

Hello and Welcome

Welcome to The Oxford Biomechanics Masterclass at Trinity College, University of Oxford.

Thank you for joining us at this beautiful and historic venue for our annual event. Over a decade ago, we held our first user-group meeting at the Royal Society of Medicine with just five attendees; today we are hosting a sold-out masterclass with over 120 participants from across the globe.

Our vision is to bring together clinicians and researchers in the field of musculoskeletal biomechanics, providing you with evidence-based insights and practical clinical tools. The programme is structured to support that goal, with formal talks in the morning to deliver up-to-date knowledge and evidence, and interactive workshops in the afternoon to translate these insights into practical skills. Please do stay for the drinks reception at the end of the day to network, exchange ideas, and foster collaborations.

I would like to extend a sincere thank you to our excellent speakers. Their insights and willingness to share knowledge are invaluable, and we are privileged to welcome them here. As always, we have curated a wide range of specialities and diverse topics, all united by the common theme of gait and biomechanics.

Finally, thank you to our exhibitors, and of course to all of you for being here today. We hope you enjoy the event, and please don't forget to take a moment to appreciate the remarkable surroundings of Trinity College!

Jessica Bruce
Founder



Good e-Bag

We have an online platform where you can find a wide range of resources, including discount codes kindly donated by our exhibitors.

Agenda

08:15 – 09:00 Registration and Coffee

09:00 – 09:15

Welcome Address

Dr. Jessica Bruce, Run3D and Richard Smith, Altra

09:15 – 9:45

Integrating Gait Analysis into Multidisciplinary Sports Injury Management

Zoe Wilson, MSK Specialist Podiatrist, Owner and Lead Clinician ZW Clinics

09:50 – 10:20

Lower Limb Stress Fractures: Focus on Foot and Ankle Overload and Systemic Causes

Stefan Kluzek, Consultant in Sport and Exercise Medicine

10:25 – 10:55 Tea/Coffee break

11:00 – 11:30

Unlocking the 4%: The Mechanisms of “Super-Shoes” and Clinical Implications

Jessica Bruce, Biomechanist and Founder of Run3D

11:35 – 12:05

Rehabilitation Versus Surgery for Non-Acute ACL Injury

David Beard, Professor of Musculoskeletal and Surgical Science

12:10 – 12:40

The Future of Gait Analysis

Trevor Prior, Consultant Podiatric Surgeon

12:45 – 13:45 : Lunch (Trinity College Dining Hall)

14:00 – 14:45

Workshop 1: Clinical Gait Analysis

Trevor Prior and Zoe Wilson

14:50 – 15:35

Workshop 2: Lower Limb Rehabilitation in Runners and the General Public

Nick Knight, Emily Piper and Ken Hoyer

15:40 – 16:25

Workshop 3: A Clinical Workflow for 3D-Printed Insoles

Kieran Carew, Foothealth UK

16:25 – 17:00 Tea/Coffee Break

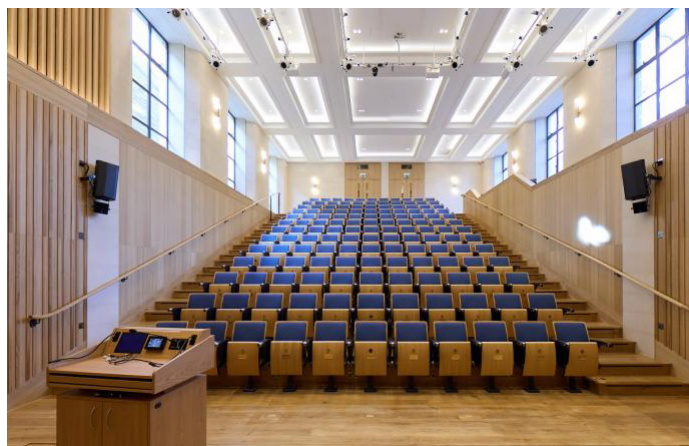
17:05 – 17:35

More Than Medals: Sport, Engagement and Social Impact

Q&A with Prof. Alexander Betts, Pro-Vice-Chancellor, University of Oxford

17:35 – 19:30 ALTRA Reception Drinks and Canapes in the Garden Room

What's On Where



Auditorium

Presentations and Workshop 3 will take place in the auditorium, a first-class conference room located within the Levine Building.

Please note that food and drink are not permitted in the auditorium.



Dining Hall

Lunch will take place in the dining hall.



Garden Room

Workshop 1 and the reception drinks will take place in the Garden Room.



Cafe

Coffee, exhibitors and Workshop 2 will be in the cafe.

Our Exhibitors

Thank you to our exhibitors for supporting our event, you can find them in the cafe throughout the day.



Zoë Wilson



Integrating Gait Analysis into Multidisciplinary Sports Injury Management

In this lecture, Zoë will focus on sports-related injuries, outlining the gait assessment techniques she uses and how they inform her treatment decisions. She will also share insights into her multidisciplinary clinics, highlighting how their collaborative approach supports effective management of challenging cases.

MY NOTES

Zoë Wilson

MSK Specialist Podiatrist,
Owner and Lead Clinician ZW Clinics

Zoë Wilson is a musculoskeletal specialist podiatrist and owner–lead clinician of ZW Clinics in Kirkby Lonsdale. She graduated in Podiatry from the University of Salford (2015) and completed an MSc in the Theory of Podiatric Surgery at Glasgow Caledonian University with Merit (2019). Her practice focuses on biomechanics, 3D gait analysis, orthoses, shockwave therapy, and multidisciplinary services.

Outside clinic, Zoë is an active county golfer, regularly competing in Cumbria Ladies' County Golf Association squads and events.

Professor David Beard



Rehabilitation Versus Surgery for Non-Acute ACL Injury

As a clinician scientist, David is a globally recognised expert in the evaluation of surgery and complex medical interventions with a highly active research portfolio, predominantly in the musculoskeletal and ortho-plastics field. He has over 350 published articles (many trial and surgery-related, including 9 in the Lancet).

This lecture will present his recent research on anterior cruciate ligament (ACL) injury management. His extensive work, including the ACL SNNAP trial, has provided valuable insights into the comparative effectiveness of surgical reconstruction versus non-surgical rehabilitation for non-acute ACL injuries. This session will delve into how these findings can inform clinical decision-making and optimise patient outcomes in ACL injury treatment.

MY NOTES

Professor David Beard

Professor of Musculoskeletal and Surgical Science

David Beard is Professor of Musculoskeletal and Surgical Sciences at the Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NDORMS) at the University of Oxford, an NIHR Senior Investigator and the Director of the Royal College of Surgeons (RCSEng) Surgical Intervention Trials Unit (SITU-NDORMS). He is also an NHMRC Leadership 3 Fellow and Professor and Surgical/Complex Intervention Trials Program Lead at the NHMRC Clinical Trials Centre, Faculty of Medicine and Health, at the University of Sydney.

Initially qualified clinically as a physiotherapist, he has Masters degrees in Biomedical Science (KCL London, and Oxon), a Doctorate in Medicine (Oxon), and honorary fellowships from the Royal College of Surgeons [Eng] (FRCS), and the British Orthopaedic Association (FBOA).

Dr Stefan Kluzek



Lower Limb Stress Fractures: Focus on Foot and Ankle Overload and Systemic Causes

In this lecture, Dr Kluzek will shift the focus slightly from traditional gait analysis to explore the pathophysiology, diagnosis, and management of lower limb stress fractures. He will highlight biomechanical factors, foot and ankle overload, and underlying systemic contributors, offering insights into both clinical and performance-based rehabilitation strategies.

MY NOTES

Dr Stefan Kluzek

Professor in Sport and Exercise Medicine

Dr Stefan Kluzek is a Consultant in Sport and Exercise Medicine and a Professor of Sports Medicine affiliated with Wake Forest University and Atrium Health in North Carolina—one of the largest healthcare providers in the United States. He also holds an honorary professorship at the University of Nottingham and serves as a Research Fellow and Clinical Tutor at Lady Margaret Hall, University of Oxford.

Before his recent appointment in the U.S., Dr. Kluzek worked extensively with Olympic athletes as a Senior Physician for the English Institute of Sport and the British Olympic Association. He supported both Olympic and Paralympic athletes across four Olympic cycles: London 2012, Rio 2016, Tokyo 2020, and Paris 2024. His clinical expertise includes the diagnosis and treatment of musculoskeletal conditions such as arthritis, tendon, and joint injuries, with a strong emphasis on injury prevention and optimising recovery outcomes.

Mr Trevor Prior



The Future of Clinical Gait Analysis

In this session, Trevor will examine recent advances in gait analysis, comparing current technologies and methodologies. He will evaluate their clinical utility, highlighting which tools are ready for use, which show future promise, and which remain unproven. The talk will focus on how to integrate innovation into real-world diagnosis and treatment planning without losing sight of clinical practicality.

MY NOTES

Mr Trevor Prior

Consultant Podiatric Surgeon

Trevor Prior has been practising as a podiatrist for over 30 years. Since qualifying, he has worked in northeast London/Essex, lectured extensively and been involved in many initiatives both locally and nationally.

He has worked extensively with elite and professional sports men and women in a wide range of disciplines, including football, rugby, cricket, athletics, hockey, badminton.

Trevor is a Senior Clinical Lecturer in the Sports Medicine Department at Queen Mary University of London. He was the clinical lead for the Department of Podiatric Medicine and Surgery at Homerton University Hospital.

Dr. Jessica Bruce



Unlocking the Four Percent: The Mechanisms of “Super-Shoes” and Clinical Implications

This lecture will explore the biomechanical mechanisms behind “supershoes” and how these features make people run faster. We’ll discuss injury implications, including who benefits and potential trade-offs.

MY NOTES

Dr. Jessica Bruce

Biomechanist and Founder, Run3D Limited

Dr Jessica Bruce (Leitch) is an engineer, biomechanist, and entrepreneur who founded Run3D, a spin-out from the University of Oxford delivering clinical-grade 3D gait analysis for everyday practice. She earned a First Class Masters degree in Engineering Science at The University of Oxford and completed her D.Phil. at the Oxford Gait Laboratory, investigating the biomechanics of patellofemoral pain in distance runners. Following her doctorate, she secured an EPSRC KTS award to launch a pioneering clinical gait analysis service that grew into Run3D, later winning an Innovate UK SMART grant; she also received Innovate UK’s Woman in Innovation award.

An accomplished distance runner, she has represented Wales, was Oxford University Sportswoman of the Year, and held world records for running a marathon with a single and double buggy.

Professor Alexander Betts



Q&A: More Than Medals: Sport, Engagement and Social Impact

Alexander Betts FBA FAcSS is Pro-Vice-Chancellor (External Engagement, Sport, and Community) and Professor of Forced Migration & International Affairs at the University of Oxford, where he is also Senior Fellow in Politics at Brasenose College.

He joins us for a Q&A on how sport can drive community engagement and real social impact beyond the podium. We'll discuss building partnerships, measuring outcomes, and embedding inclusion across clubs, universities, and local programmes.

Professor Alexander Betts

Pro-Vice-Chancellor, University of Oxford

Alexander Betts FBA FAcSS is Pro-Vice-Chancellor (External Engagement, Sport, and Community) and Professor of Forced Migration & International Affairs at the University of Oxford, where he is also Senior Fellow in Politics at Brasenose College.

He was previously recognised as a World Economic Forum Young Global Leader, a European Young Leader, as one of Foreign Policy magazine's top-100 global thinkers, on Thinkers50's radar list of emerging business influencers, as a Bloomberg Weekly 'game changer', as a research.com 'political science leader', and on the Economist's best books list. He has been awarded the ESRC's International Impact Prize, the International Studies Association's distinguished book prize in 'ethnicity, nationalism, and migration', the American Political Science Association's best article on 'migration and citizenship', and the Vice-Chancellor's diversity award and professional services award.

His TED talks on refugees and migration have been viewed by over 5 million people, he has frequently appeared on the BBC, CNN, and Al Jazeera, as well as writing opinion pieces for the New York Times, the Washington Post, the Guardian, Foreign Affairs, Foreign Policy, and Prospect.

He is an International Masters Athlete, has represented England and Great Britain in Masters athletics, and is a qualified running coach.

Workshops

Hands-on learning and transferable skills.

Please refer to your name tag for your group assignment and the order in which you will attend each of the three workshops summarised below.



CLINICAL GAIT ANALYSIS

Trevor Prior and Zoe Wilson

Location: Garden Room

This practical workshop will focus on how to make gait analysis clinically effective and relevant. Trevor and Zoe will discuss when it should (and shouldn't) be used and how to apply gait data to guide treatment decisions and monitor progress with confidence.

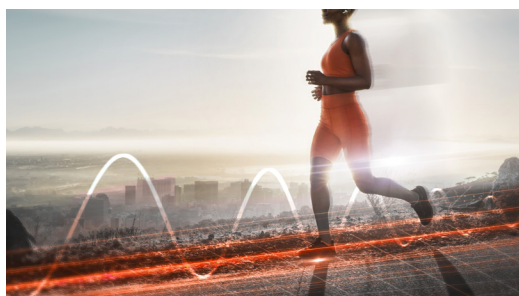


REHABILITATION

Nick Knight, Emily Piper and Ken Hoyer

Location: Cafe

This session will explore how to design and deliver effective rehabilitation programmes. Covering what to prescribe, how to implement it, and how to adapt over time, the session will include using gait data to guide targeted interventions.



3D-Printed Orthotics

Kieran Carew

Location: Auditorium

This interactive session, led by Kieran Carew of Foothealth UK, will explore the role of 3D-printed insoles in modern clinical practice. The workshop will include practical guidance on interpreting gait and biomechanical data to inform design, and optimising orthotic use for rehabilitation and long-term support.

Our Workshop Experts



Emily Piper



Ken Hoyer



Nike Knight



Kieran Carew

Certified Clinical Partners

Allow us to introduce the outstanding clinics we have the privilege of working with.

Practice	Clinical Lead	Location	Joined
Premier Podiatry	Trevor Prior	Buckhurst Hill	2013
NK Active	Nick Knight	Romsey	2016
Physio Mechanics	Warwick Gordon	New Zealand	2016
Treatment Table	Jamie Fullerton	Liverpool	2017
Podotherapie Beld	Sharon Beld	Amsterdam	2018
Perform 3D	Lawrence Dreifuss	Bournemouth	2018
Go Create Performance	Peter Spanitz	Bratislava	2018
MH Sports Podiatry	Matt Hart	Bristol	2019
The Exeter Clinic	David Piper	Exeter	2019
Pure Podiatry	Tim Greenwood	Inverness	2020
The Foot Practice	Tim Maiden	Singapore	2021
Complete Podiatry	Louise Kenworthy	Stockport	2021
The Rehab Hub	SJ Walls	Glasgow	2021
ZW Lower Limb	Zoe Wilson	Kirkby Lonsdale	2022
Henley Podiatry	Jessica Werner	Henley	2022
GM Foot & Ankle	Greg Meade	Mirfield	2022
SW Podiatry	Liam McManus & Tom Walton	Earlsfield	2022
Muscat Podiatry	Saleha Alshamakhi	Oman	2022
ProActive Podiatry	Jane Johnston	Lauder	2022
Taunton Foot & Gait Clinic	Alastair Oxberry	Taunton	2022
The Vale Clinic	Ronke Tinker	Wokingham	2022
Cutting Edge Podiatry	Suvanne Harding	Cambridge	2023
The Lakes Orthotics	Jo Lucas	Retford	2023
Surrey Foot Service	Fiona Kumar	Claygate	2023
MacFarlane Physiotherapy	Tom Ellerton-Unwin	Stirling	2023
ACE Feet in Motion	Tom Cooper	Cardiff	2024
R M Callaghan & Associates	James Chaplin	Solihull	2024
Carlisle Road Footcare	Elaine McLaughlin	Londonderry	2024
Onyx Physical Therapy	Jaq Gordon	Encinitas, CA, USA	2024
Voet & Zool Podologie	Ruben Wijnen	Belgium	2025
Ascot Sports and Health Clinic	Jamie Houlihan and Charlie Harcup	Ascot	2025
The Foot Clinic	Sofia Taglia	North Finchley	2025

About Trinity College



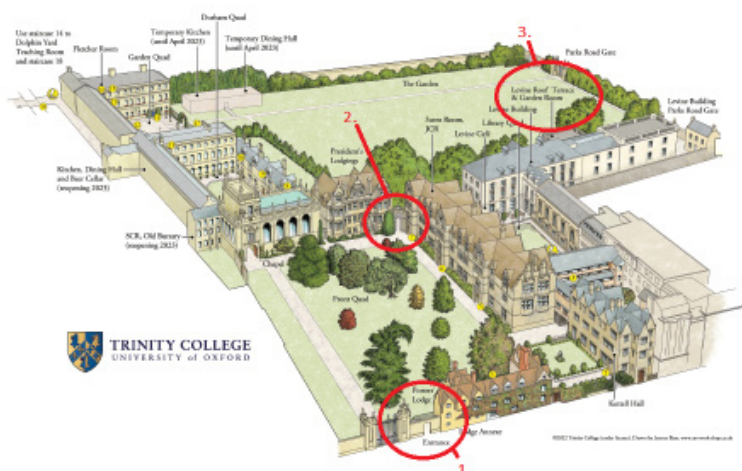
Founded in 1555 by Sir Thomas Pope, Trinity College has stood as a bastion of academic excellence within the University of Oxford for over four centuries.

Among its distinguished alumni are Oscar Wilde, the celebrated playwright, and J.R.R. Tolkien, author of *The Lord of the Rings* and *The Hobbit*.

With its picturesque Tudor gatehouse and historic buildings, Trinity houses a thriving community of scholars. With over 400 undergraduates and 350 postgraduates, it stands as one of the most prominent colleges within the University of Oxford.

The college's architectural highlights include its Baroque-style chapel, completed in 1694, featuring intricate wood carvings by Grinling Gibbons and stunning stained glass windows. The chapel is renowned for its elegant plasterwork and ceiling paintings.

Trinity College's newly refurbished dining hall has also undergone an extensive restoration, which was completed in 2024. Within a month of its reopening, you will be enjoying your meals in this beautifully restored space!



We encourage you to take 15 minutes during your day to explore the remarkable surroundings of Trinity College, Oxford.

Discover the historic charm and peaceful gardens of this prestigious institution, and enjoy a moment of quiet reflection in the otherwise busy day.



Altra shoes meet your feet where they are because everyone's feet are different. Our shoes range in fit, cushion, and flexibility to help enhance comfort, function, and performance, and meet your specific needs.



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A cross-sectional diagram of a shoe sole. It shows the internal structure with a thick midsole and a thinner outsole. A red dashed line runs horizontally across the sole, and a red double-headed arrow indicates the thickness of the sole.

A line drawing of a sneaker, viewed from the side. A red dashed line is drawn along the bottom edge of the shoe, highlighting the sole area.

A full-page photograph of a person running on a paved road that curves through a scenic landscape. The runner is wearing a white jacket and dark shorts. In the background, there are rolling green hills and a guardrail. The text 'HERE TO KEEP YOU OUT THERE' is overlaid in large, white, bold, sans-serif capital letters on the left side of the image.

HERE TO
KEEP YOU
OUT THERE



ADVANCED GAIT ANALYSIS Pop-Up Clinic



A unique opportunity to offer gold-standard gait analysis to your clients by hosting a pop-up clinic with Run3D.



POP-UP CLINIC

Oxford University company Run3D brings gold-standard gait analysis into clinical practice. Host a pop-up clinic with us to offer an exclusive new service to your clients.

WHAT IS RUN3D/WALK3D?

Run3D is an advanced gait analysis platform, which uses gold-standard technology to accurately quantify a person's 3D joint motion during walking and/or running.

WHO IS IT FOR?

Run3D and Walk3D are for any individuals with musculoskeletal pain during activity. The services are suitable for people of all ages and abilities, and we can measure both walking (Walk3D) and running (Run3D) gait.

WHAT IS THE POP-UP CLINIC PROPOSAL?

- We bring our gait analysis system and a therapist to you.
- You provide space and book-in your clients.
- We share the revenue.

TESTIMONIALS

"In my 30-years of coaching, I have not yet come across such a comprehensive and practical test." Erik Hopman, coach at Running Excellence

"I am confident that you now have the information you need to help me walk without pain." Derek Baker. Within 3-months of his appointment he was able to walk a round of golf and run for 5-minutes.

HOW DOES IT HELP?

Run3D and Walk3D measure musculoskeletal injury risk-factors, enabling us to objectively identify abnormal patterns and asymmetries in a client's running or walking gait. The analysis enables us to recommend data-driven rehabilitation, quantify the effects of intervention and carry-out objective gait re-education.

HOW DO I KNOW YOU ARE ANY GOOD?

Run3D and Walk3D are currently available at musculoskeletal clinics across the UK and Europe. These clinics invest in our technology to deliver the Run3D and Walk3D gait analysis services themselves, and we provide their training and on-going support to ensure a high-standard of excellence. We welcome you to speak to any of our partner clinics to vouch for our services and the expertise of our team.

CONTACT

For further information, please contact: jessica@run3d.co.uk
run3d.co.uk/pop-up-clinics