

Brain and Mind – from Concrete to Abstract

»MOVEMENT, SPORT AND THE BRAIN« | MAY 5TH 2026

AN INTERDISCIPLINARY WORKSHOP BETWEEN MSH AND ST HILDA'S COLLEGE OXFORD UNIVERSITY

Prof. Astrid Zech

»Musculoskeletal Development and Motor Skills of Children and Adolescents Are Influenced by Growing up Barefoot or Shod«

Improvements in motor skills are fundamental developmental processes during childhood and adolescence. They result not only from learning but also from interactions between external (environmental) and internal (e.g., neuromuscular) factors. Foot structure also plays a role, as different foot types are linked to abilities like balance, jumping, and sprinting.

Since foot morphology differs between barefoot and shod individuals, footwear habits are thought to influence motor development. Barefoot conditions affect gait, posture, and jumping, and people who grow up barefoot often have wider feet and higher arches. This suggests that motor skill development may partly depend on barefoot activity.

However, comparisons are difficult because barefoot habits are shaped by cultural and regional factors. While people in Western countries usually wear shoes, children in other regions are often barefoot. In this talk the potential interaction between growing up barefoot or shod and performance in basic motor competencies during the different stages of childhood, adolescence and into adulthood will be discussed.

Astrid Zech is a Professor of Human Movement Science and Exercise Physiology at Hamburg University, Germany. She initially trained as a physical therapist before pursuing academic studies in sports science, psychology, and educational science at the University of Magdeburg. She completed her PhD in sports science in 2007 and continued her academic career as postdoctoral researcher at Friedrich Alexander University Erlangen-Nuremberg. From 2010 to 2014, she was a W1 Professor at the University of Hamburg before accepting a W3 professorship at the University of Jena, where she served as Head of the Department of Human Movement Science and Exercise Physiology and also acted as Deputy

TIMETABLE

6:00 pm

Introduction

6:10 pm

»Musculoskeletal Development and Motor Skills of Children and Adolescents Are Influenced by Growing up Barefoot or Shod«

Prof. Astrid Zech,
University of Hamburg

6:30 pm

»Mind, body, and the game: sport, mental health, and what happens when young athletes get hurt«

Prof. Lucy Bowes & Megan Groombridge,
University of Oxford (UK)

6:50 pm

Discussion and break

7:30 pm

»In the Blink of an Eye«

Prof. David Papineau,
Kings College London (UK)

7:45 pm

Discussion

8:00 pm

End of Workshop

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Institute Director. Since April 2025, Astrid Zech holds a W3 professorship at Hamburg University, where she leads the Department of Human Movement Science and Exercise Physiology.

Prof. Lucy Bowes & Megan Groombridge

»Mind, body, and the game: sport, mental health, and what happens when young athletes get hurt«

Playing sport can be one of the most important and impactful things a young person does for their mental health — but what happens when they get injured? This talk presents findings from two systematic reviews and three meta-analyses examining 137 studies across over 250,000 young people aged 10–24, exploring the two-way relationship between mental health and sports injury in adolescents. The evidence reveals a vicious cycle: poor mental health raises injury risk by 54%, and being injured, in turn, worsens mental health. We also explore the mechanisms — including athletic identity, performance anxiety, social support, and coping style — that drive this relationship and represent the most promising targets for intervention. Drawing on Self-Determination Theory and models of youth sport development, the talk also considers why young people drop out of sport altogether, and what coaches, clinicians, and researchers can do to break the cycle before it starts.

Professor Lucy Bowes is Professor of Developmental Psychopathology in the Department of Experimental Psychology at the University of Oxford and a Fellow of Magdalen College. Her research examines the interplay between biology and social context in child and adolescent development, with a particular focus on

how bullying and early life stress shape young people's mental health and resilience. Megan Groombridge is a DPhil candidate in the Department of Experimental Psychology at the University of Oxford. Funded by the Podium Institute, her research investigates the relationship between mental health and sports injuries in adolescents.

Prof. David Papineau

»In the Blink of an Eye«

Shot selection in fast-reaction sports like cricket and tennis can seem paradoxical. Elite performance can only be a matter of ingrained reflexes—athletes typically have less than half a second to respond to approaching balls. Yet at the same time the athletes can consciously choose what to do, opting to bat aggressively rather than defensively, say, or to play to the backhand rather than the forehand. In this talk I shall seek to explain how the same actions can simultaneously be automatic reflexes yet products of conscious control.

David Papineau is Professor of Philosophy at King's College London. He is a Fellow of the British Academy and has served as President of the British Society for Philosophy of Science, the Mind Association, and the Aristotelian Society. His books include Reality and Representation (1987), Thinking about Consciousness (2002), Philosophical Devices (2012), Knowing the Score (2017), and The Metaphysics of Sensory Experience (2021). His Causation: Science, Statistics and Metaphysics will be published later this year.

