# 11TH SYMPOSIUM ON BIOMECHANICS IN SPORT AND REHABILITATION

# DECEMBER 8-9 2022

**PROGRAM**

| **FRIDAY - 9.12.2022** |
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**PANEL IV**

**BIOMECHANICS OF CYCLING - FROM OBSERVATIONS, THROUGH RESEARCH TO A FINAL PRODUCT**

**8³⁰**

**Kohei Watanabe**

*Designing a bicycle - cooperation of researchers and manufacturer*

Kohei Watanabe, Ph.D. is a Professor at the Laboratory of Neuromuscular Biomechanics, School of Health and Sport Sciences, Graduate School of Health and Sport Sciences, Chukyo University in Japan.

His presentation covers the process of bicycle geometry development as a collaboration between a manufacturer and scientists. The design was tailored to the needs of elderly population.

**9¹⁵**

**Neill Stansbury**

*Q-Factor - how to determine and optimise stance width on a bicycle*

Neill is a Physiotherapist who specializes in cycling biomechanics and functional symmetry. He works from the beautiful Sunshine Coast in Queensland, Australia where he works with cyclists from WorldTour level to weekend riders. Neill's presentation will focus on cycling Stance Width, or Q factor, and he will explain the biomechanical consequences of improper Q factor, as well as the mainstream options for cyclists to alter their Q factor on the bike.

To learn more about Neill's experience and philosophy, please check his YT Chanel: https://www.youtube.com/channel/UCeW11HsUiXwnRbPqNlh6fHw.

**10⁰⁰**

**Geoffrey Millour**

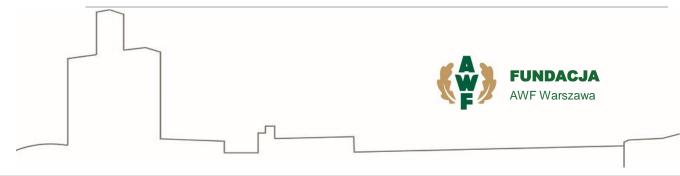*Asymmetric Crank arms - influence on comfort and performance*

Geoffrey Millour is a former elite cyclist, member of the U17, U19 and U23 French teams. Following his career, he turned to research and completed a PhD at the University of Reims Champagne-Ardenne in collaboration with the Morphologics company (http://www.morpho-logics.com/fr/) on the optimisation of the cyclist's position. He then carried out a post-doctorate at the University of Quebec in Trois-Rivières where he studied the cycling modelling in order to improve pacing strategies in competition. He is now assistant professor at the University of Nantes in France and he continues to be interested in optimising cycling performance using biomechanical, physiological and aerodynamic variables. He is also a member of the scientific sub-committee of the International Bike Fitting Institute.

He will present the results of his research on the effect of asymmetric cranks used to compensate for asymmetries in cyclists.

**10⁴⁵**  **COFFEE BREAK**

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**11¹⁵**

**Sławomir Winiarski**

*Biomechanics of a comfortable bicycle*

Prof. Winiarski is an associate professor at the Faculty of Physical Education and Sport at the Wroclaw University of Health and Sport Sciences. His research interests are in the broad area of movement science, especially concerning patterns during the realisation of everyday human movement or recreational activities, in sport or physiotherapy, in normal or pathological cases, by observing the effects (kinematics) or causes (dynamics) of the resulting changes. An expert in human movement analysis and the use of movement analysis systems in the evaluation of human locomotion; expert in statistical methods, in particular in multivariate analysis methods; many years of experience in managing scientific and organisational teams. Prof. Winiarski has directed or participated in several research projects; he is the author of more than 40 original papers; he is a member of the Board of the Polish Society of Biomechanics, an active member of the European Society of Biomechanics (ESB) and the European Society of Movement Analysis of Adults and Children (ESMAC).

During the speech, he will discuss the research project aimed at creating a biomechanical model of cycling for urban bicycles enabling a quick "bikefiiting" service in the context of selecting a bicycle model and its settings in relation to the optimal and comfortable position of the lower spine.

**12⁰⁰**

**Adam Kubiak**

*Left/Right leg power distribution in Leg Length Discrepancy affected cyclist*

Adam Kubiak is a graduate of Military University of Technology and Warsaw School of Rehabilitation (Postgraduate studies, Physiotherapy in Sports). As a bikefitter he is looking to optimise cyclists' performance on and off the bike. He has assisted numerous triathletes, road and off-road cyclists, but also a growing number of commuters and Sunday cyclists, in line with his motto: „Everyone can have pain-free bicycle experience".

The presentation is a summary of observations he has accumulated while dealing with LLD affected cyclists.

**12⁴⁵**

**Jaarich Braeckevelt**

*From data science research to an end product*

If you are in academia looking to create value through your research or if you'd like to create a research-driven product, this talk will be of great interest to you.

Jarich Braeckevelt was working as a PhD Researcher on an automated bikefitting approach through machine learning techniques and will speak about the workflow from idea to integration in the product. Jarich is a freelancer data scientist. You can learn more about his projects at jbanalytica.com.

**13³⁰**  **LUNCH**

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