Dr George Balanos BSc MSc DPhil

Lecturer in Exercise Physiology

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About

George is a respiratory physiologist with an interest in pulmonary blood flow and sleep disordered breathing. He is an expert in blood gas manipulation and he uses ultrasonography for non-invasive measurement of physiological variables. George is a dedicated and popular lecturer having received the Excellence in Teaching Award three times.

Qualifications

BSc, MSc (City University of New York)

DPhil (University of Oxford)

Biography

George got his first degree in 1996 at Brooklyn College of the City University of New York focusing his studies on sports injuries and injury prevention/rehabilitation. He got his MSc at the same institution in the field of exercise science and rehabilitation in 1998. George came to the UK in 1998 and he read Cardiorespiratory Physiology at the University of Oxford. He was awarded his DPhil in 2003 and he joined the School of Sport and Exercise Sciences soon after, in 2004.

Teaching

George teaches Human Physiology in the first year and Environmental Physiology in the third year. He follows a research-led approach to his teaching and he operates a policy that allows students easy access to him. George puts a lot of effort in his teaching and he has been awarded the Excellence in Teaching award three times (2008, 2009 and 2011).

Postgraduate supervision

Current

- Mr Keith Pugh (Chemosensitivity alterations in ageing)
- Mrs Nicola Heneghan (Manual therapy as a treatment in COPD)

Past

- Mr Harry Griffin (Intermittent hypoxia and oxidative stress)
- Dr Christos Lykidis (Pulmonary blood flow and ventilation in exercise)
- Dr Christien Phillips (Venous reactivity in women)

Research

Research Interests

- Intermittent hypoxia and sleep disordered breathing
- Control of the pulmonary circulation
- Control of breathing during exercise
- Cardiopulmonary rehabilitation
- Environmental physiology

His main research interests include the regulation of blood flow in humans both during exercise and in disease, and the regulation of breathing. To study these areas, George has established sophisticated ultrasound imaging techniques and to invoke perturbations in the respiratory system he is using a system that can accurately mimic conditions such as high altitude or disease states. Recently, George's group has published evidence for the involvement of the autonomic nervous system in the regulation of pulmonary blood flow during exercise. This has led to the group focusing on studying the importance of the contribution of the central nervous system and the pulmonary circulation in breathlessness in patients with chronic heart failure.

George's group also studies laboratory models of intermittent hypoxia (depletion of oxygen) in order to gain a better understanding of the mechanisms that are involved in sleep apnoea. He has recently completed the setup of a sleep laboratory and he is currently undertaking research that aims to link the control of breathing with the development of sleep related breathing disorders. He is also undertaking research that aims to link the quality of sleep with health and exercise performance outcomes in people.

George collaborates with many colleagues within the School of Sport and Exercise Sciences and the School of Medicine including Dr Prem Kumar (Respiratory Physiology), Dr Gareth Wallis (Exercise Metabolism), Dr Roland Brandstaetter (Chronobiology), Dr Mike White (Cardiovascular Physiology) and Dr James Fisher

(Cardiovascular and Exercise Physiology).

George has also established strong links with several institutions outside the University of Birmingham. These include:

- The University of Oxford (Prof. Peter Robbins and Dr Keith Dorrington)
- Leiden University, Netherlands (Dr Luc Teppema)

Other activities

In his free time George enjoys cycling on dry land and spear-gun fishing in the warm waters of Greece.

Publications

White MJ, Lykidis CK, **Balanos GM**. 2012. The pulmonary vascular response to combined activation of the muscle metaboreflex and mechanoreflex. Experimental Physiology. In press.

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Kim A, Deo SH, Vianna LC, **Balanos GM**, Hartwich D, Fisher JP, Fadel PJ. 2011. Sex differences in carotid baroreflex control of arterial blood pressure in humans: Relative contribution of cardiac output and total vascular conductance. American Journal of Physiology - Heart and Circulatory Physiology, 301(6):H2454-65.

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Smith TG, Brooks JT, **Balanos GM**, Lappin TR, Layton DM, Leedham DL, Liu C, Maxwell PH, McMullin MF, McNamara CJ, Percy MJ, Pugh CW, Ratcliffe PJ, Talbot NP, Treacy M, Robbins PA. 2008. Mutation of the von Hippel-Lindau gene alters human cardiopulmonary physiology. Advances in Experimental Medicine and Biology, 605:51-56.

Talbot NP, **Balanos GM**, Robbins PA, Dorrington KL. 2008. Intravenous endothelin-1 and ventilatory sensitivity to hypoxia in humans. Advances in Experimental Medicine and Biology, 605:57-62.

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Herigstad M, **Balanos GM**, Robbins PA. 2007. Can human cardiovascular regulation during exercise be learnt from feedback from arterial baroreceptors? Experimental Physiology, 92 (4), 695-704.

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