



European Congress on Obesity

For immediate release

Top scientist honoured for revolutionizing thinking on obesity



Professor Paul Trayhurn (DPhil DSc, Oxford) holds the Chair of Nutritional Biology at the University of Liverpool and is Director of the Obesity Biology Research Unit. His previous appointments include a NATO European Research Fellowship in Strasbourg and Professorships at the Universities of Alberta (Heritage Scholar), Aberdeen and Oslo; in 1997 he was elected a Fellow of the Royal Society of Edinburgh. He has published extensively on energy balance and adipose tissue biology, and was until recently Editor-in-Chief of the British Journal of Nutrition and Chaired the Awards Committee of the International Association for the Study of Obesity. Professor Trayhurn will deliver the Friedrich Wassermann Award Lecture to the European Congress on Obesity in Geneva on May 15 2008.

A leading British researcher is to be presented with the Wassermann Award for his groundbreaking work linking oxygen starvation, obesity and metabolic diseases such as type 2 diabetes.

Prof Paul Trayhurn, from Liverpool, has pioneered new thinking about the way fat cells function, arguing that hypoxia, or lack of oxygen, due to reduced blood supply leads to chronic inflammation of fat cells and metabolic disturbance.

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This changes the way in which white fat cells secrete adipokines, a range of hormones that deliver signals to the brain and other parts of the body. The concept has revolutionized this area of obesity science giving a much clearer understanding of the vast array of changes going on in the body due to obesity.

Prof Trayhurn said: "Our views on the function of white fat have changed dramatically in a short time. A little over a decade ago, it was commonly believed that these cells were simply fat stores. But we now recognize that fat cells form a major endocrine organ that influences signalling in our bodies.

"The way these cells release hormones and other proteins helps to regulate how the body works. Some of these proteins are involved in inflammation. Our interest is in adipose tissue and inflammation where studies suggest this may be a crucial aspect linked to the cluster of obesity-related diseases that form the metabolic syndrome."

With an increasing density of body fat, fat cells become distant from blood vessels and their oxygen supply. This leads to inflammation which is an attempt to increase blood flow.

"We believe that hypoxia has a pervasive effect on adipocyte metabolism and on overall adipose tissue function, which underpins the inflammatory response in the tissue in obesity and affects the subsequent development of obesity-associated diseases, particularly type 2 diabetes and the metabolic syndrome," added Prof Trayhurn.

He began research on the brown adipose tissue and its role in thermogenesis, the regulation of energy balance and body weight at the Medical Research Council, Dunn Nutrition Laboratory in Cambridge (UK) more than 30 years ago.

While at the Rowett Research Institute in Aberdeen, Scotland, he switched his research to white fat cells which were found to be the source of leptin, a critical hormone in the control of body fat. "My research work rapidly expanded to consider the general role of white adipose tissue as an endocrine system with a focus on adipokines and inflammation. It has been a really exciting journey of scientific exploration," he added.

He paid tribute to research colleagues at the University of Liverpool, especially Drs Bohan Wang and Stuart Wood, who worked with him in exploring the concept that chronic inflammation of fat cells in obesity is a defence mechanism to cope with lack of oxygen as the cells become separated from blood vessels.

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His research team is now investigating how hypoxia affects a range of cellular activities in adipocytes - from glucose utilisation to mitochondrial function. Their research is also examining the possibility that endogenous cannabinoids produced within the brain may not only influence appetite, but also perform an anti-inflammatory role in fat tissue, and they are exploring the role of the cachectic factor, zinc α 2-glycoprotein, in adipose tissue modelling.

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EASO Wasserman Award Lecture: Paul Trayhurn (UK)
Adipose Tissue in Obesity – Not Enough Oxygen?
Thursday May 15 **Main Auditorium (A-B)** (08.30 - 09.15 hrs)

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