

Placental flow and transport: Wednesday 4<sup>th</sup> July 09.00

One of the main functions of the placenta is the transport of oxygen and nutrients from the mother to the fetus and the removal of fetal wastes in the reverse direction. These processes depend on a variety of factors including blood flow, the surface area and thickness of the trophoblast layer separating the maternal and fetal circulations, the metabolic requirements of the placenta *per se* and the availability of nutrient transporters involved in facilitated diffusion and active transport of nutrients across the placenta. This session will discuss the factors controlling simple diffusion and transporter mediated transfer across the placenta with emphasis on the inter-relationships between the morphological and physiological characteristics of the placenta central to the transport of gases, nutrients and wastes. It will also consider the experimental methods available to measure placental blood flow, nutrient utilisation and transplacental transfer of oxygen and nutrients in different species. Furthermore, the session will examine the mechanisms by which the placenta adapts to meet the increasing nutritional demands of the growing fetus in late gestation in normal and adverse environmental conditions.

*Abby Fowden*