The Placenta and Human Developmental Programming

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Preface

The size, shape and thickness of the placental surface at birth strongly predict cardiovascular disease, osteoporosis and cancer in later life. These findings suggest that variations in normal placental development lead to fetal undernutrition and hypoxia, and subsequently programme chronic disease. The development of the placenta will be dependent on the mother's nutritional state, but will also be influenced by the processes of decidualization, allocation of cells to the trophectoderm lineage in the pre-implantation embryo, implantation of the blastocyst, trophoblast remodelling of the spiral arteries, growth of the placental villous tree and expression of transporter proteins in the villous membrane. In view of these new important epidemiological findings there is now an urgent need for research into the regulation of placental development in humans.