

The highs and lows of programmed cardiovascular disease by developmental hypoxia

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THE HIGHS AND LOWS OF PROGRAMMED CARDIOVASCULAR DISEASE BY
DEVELOPMENTAL HYPOXIA:
STUDIES IN THE CHICKEN EMBRYO

1. By intertwining the use of the chicken embryo as an animal model with incubation at high altitude, the effects on fetal development of chronic hypoxia can be isolated from the effects of hypoxia on maternal physiology and the maternal nutritional status. (this thesis)
2. Fetal oxygenation, independent of placental nutrition, has a predominant role in the control of fetal growth. (this thesis)
3. Chronic hypoxia promotes embryonic cardiac and vascular disease already evident prior to hatching and this is associated with fetal growth restriction. (this thesis)
4. During chronic fetal hypoxia, there is a significant correlation between impaired fetal adrenocortical function and asymmetric fetal growth restriction (this thesis)
5. The effects of fetal hypoxia in programming postnatal cardiovascular disease varies between males and females (this thesis)
6. Chronic fetal hypoxia may be a mechanism of programming persistent pulmonary hypertension of the newborn and adult pulmonary hypertension.
7. Prolonged high altitude ancestry confers some protection against the deleterious effects of hypoxia on fetal growth, fetal mortality, as well as cardiovascular and endocrine development.
8. People living at high altitude are a natural model of the clinical conditions associated with chronic alveolar hypoxia and polycythemia.
9. Oxygen flooded into the atmosphere initially thought as a pollutant, even a poison, shaped living things to thrive on the stuff and, indeed, suffocate without it. (Richard Dawkins)
10. Ex ovo omnia. (William Harvey)

Carlos Eduardo Salinas-Salmón, December 13th, 2017

