

Detrimental Effects of Hypoxia-reoxygenation Injury on Development of Rat Embryos during Organogenesis In Vitro
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Aim. To analyse the effects of hypoxia-reoxygenation on the development of rat embryos during early stages of gestation in vitro.

Methods. Whole embryo culture techniques were used to culture Wistar rat embryos under a range of gassing regimes, some of which included periods of mild hypoxia. After the termination of cultures, embryos were morphologically examined and assessed, and their protein content was determined.

Results. Cultured embryos exposed to 4 h of mild hypoxia did not show any significant growth or differentiation, as expected during this developmental stage. The ensuing 20 h reoxygenation period appeared to exacerbate the effects of the hypoxia.

Conclusion. The effects of hypoxia during the perinatal or late fetal stages are well documented, but less is known of the effects at earlier stages of gestation. Our results indicate that during organogenesis, even short-term exposure to hypoxia may impose detrimental effects on growth and neurodevelopment of embryos.

Key words: cell hypoxia; embryo; fetal development; rats, Wistar