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## Impact of maternal iron deficiency on serum cortisol in the guinea pig offspring

**France M Rioux, Noura Abdulkader R D, Sylvain Fiset** and **Hélène Plamondon**
University of Ottawa, Canada

**Objectives**: The aim of this study was to measure the serum cortisol levels used as biomarker of stress in the guinea pig offspring at postnatal day (PNd) 24 and PNd84 born from dams suffering from iron deficiency during pregnancy and lactation.

**Method**: Female guinea pigs (n=12/group) were fed an iron sufficient (IS) diet (114mg/kg) or an iron deficient (ID) diet (11.7mg/kg) during the gestation and lactation periods. Pups in both groups were weaned at PNd9 and given an IS diet. Hematocrit (hct) and serum cortisol levels were measured at every trimester and at the day of sacrifice in dams and at PNd24 and 84 in pups, on sacrifice day. The weight of dams and pups' hippocampus, heart, kidneys and adrenal glands including the length of adrenal glands was recorded. The body weight in every animal was also taken every second day until the day of sacrifice.

**Results & Discussion**: Cortisol values in ID pups were significantly ($p<0.05$) higher than IS pups at PNd24. However, both sibling groups had similar values in cortisol at PNd84 ($p>0.05$). Female pups also showed significant higher cortisol values ($p<0.05$) than male pups in both groups. Dams in both groups showed no significant ($p>0.05$) difference in cortisol during gestation. No significant difference was observed in organs' weight or adrenal glands' length in both groups. Further investigations are suggested to validate whether-or-not maternal iron deficiency is an internal stressor causing hyperactivity in the offspring.

### Biography

France M Rioux is a Professor in the program of Honours Bachelor of Nutrition Sciences in the Faculty of Health sciences. She obtained a Bachelor's Degree in dietetics in 1986 at Laval University, a Master's degree at the University of Montreal in 1988 and a PhD in nutrition at the University of British Colombia in 1993. After her doctoral degree, she did her postdoctoral training at the BC Children's Hospital Research Center in Vancouver. She was a Professor at the University of Moncton from 1995 to 2009. Her research interest includes: Maternal iron deficiency during gestation and its impact on brain fatty acid and eicosanoid metabolism in the offspring during development and learning, memory processes and auditory acuity in the offspring during development.

france.rioux@uottawa.ca

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