

Metabolic consequences of neonatal manipulation are gender dependent

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Adult mice neonatally manipulated for the first 21 days of life, as adult are overweight and have high plasma glucose. Numerous gender differences have been individuated in the control of glucose homeostasis, thus we evaluated whether gender influences the response induced by neonatal manipulation in adults. At birth, female and male pups were separated and subdivided into: M-mice was manipulated (10 min of maternal deprivation plus subcutaneous injection of saline) for the first 21 days of life, while C-mice was not manipulated. Young male adult M-mice were overweight, while the female M-mice body weight was not significantly different from controls. Basal glycemia was not different in female and male controls, while it was significantly higher in male M-mice than in female M-mice. Following glucose loading, control females had lower plasma glucose levels on the whole curve in comparison with control male mice. The manipulation affects the glucose curves in males but not in females. Insulin loading (measured as area under the curve-AUC) was not consistently influenced by neonatal manipulation both in females and males. We conclude that neonatal handling induces enduring modifications in body weight and glucose metabolism in male but not in female mice. In addition, our findings are suggestive for an effect on the development of beta cells in a way that female apparently have a major capacity to handle glucose, because the glucose curve after insulin loading is not modified. **Acknowledgments:** SC and IG had a GIO.I.A Foundation fellowship.