

PROTEIN-CALORIC RESTRICTION DURING LACTATION HAS A TRANSGENERATIONAL EFFECT IN GLUCOSE HOMEOSTASIS OF MALE RATS

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Experimental and epidemiological studies demonstrated an important association between insults in sensitive stages of development and metabolic syndrome at adulthood. Developmental Origins of Health and Disease (DOHaD) concept indicates that pregnancy and lactation are windows to metabolic programming, once in these phases, occurs a peak of neuronal development. There is a gap in the study of the transgenerational effect of insults performed in programming windows, especially when it comes to malnutrition. Female Wistar rats were submitted to a protein-caloric restriction during the first 14 days of lactation (LP, low-protein group) or a normal-caloric diet through the lactation (NP, normal-protein group). At 70 days old these females were mated with a control male rat. The offspring (F2 generation, NP and LP groups) were fed with normal-caloric diet and were euthanized at 21 days old to blood collection and biometric analysis. There were no differences between groups in body weight at weaning. Also, retroperitoneal, periepididymal and mesenteric fat pads were similar between NP and LP animals. We showed an 11% ($P<0.05$) increase in brown adipose tissue weight in LP group. Fasting glucose was increased by 99% ($P<0.05$) in LP groups, without alteration in fasting insulin levels. We conclude that protein-caloric restriction during lactation has a transgenerational effect in male rats, altering the glucose homeostasis.

Keywords: Lactation, Transgenerational Effect, Glucose Homeostasis

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