

## Effect of protein malnutrition during gestation and lactation on the physiology and liver structure in adult life

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**Background:** Pregnancy and fetal development are periods of rapid growth and cell differentiation when mother and offspring are vulnerable to changes. Adverse events during development can be linked to an increased risk for developing metabolic diseases.

**Aim:** The aim of this work is study the effect of protein malnutrition during gestation and lactation on liver morphology and physiology.

**Method:** Pregnant Wistar rats of three months of age who were fed a diet containing 8% of proteins (M), malnourished group (M) or 20% control group (C). The male offspring of mothers M, after weaning, were fed diet 8% P (MM) or control diet (MC). In addition, male offspring from mothers C were feed with Diet C (CC). At day 60 post-birth the rats were slaughtered, bled by cardiac puncture and the liver was dissected. Body weights and liver were lower in the MM group regarding CC and MC.

**Results:** Serum levels of protein, albumin, triglycerides and cholesterol in MM were lower compared to the CC and MC, while GOT-GPT transaminases.  $\gamma$ -Glutamyl transferase and alkaline-phosphatase were higher in MM and MC. Hepatic content of glycogen, proteins, DNA and RNA in MM and CM is less than CC, while TG and Col is much higher. Histological studies showed MM have many lipid vacuoles and cell proliferation decreased; MC and MM with alterations in nuclear morphology with apoptosis increased. Oxidative status was assessed hepatic content of ROS and protein carbonylation was higher in MM and MC regarding CC.

**Conclusion:** The lack of protein during development, compromises the integrity of the structural and functional liver, manifested in adulthood.

### Biography

Andrea Chisari pursued her Ph.D. from La Plata National University in Argentina and postdoctoral studies from The Salk Institute for Biological Studies USA and Bellvitge Biomedical Research Institute (IDIBELL), Spain. She is Professor of Human Physiology and Director of Physiology Cellular and Systemic group at Mar del Plata National University. She has published more than 30 papers in reputed journals and serving as a reviewer member of repute.

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