

Nutritional ecology and ecological immunology in degus: Does early nutrition affect the postnatal development of the immune function?

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Abstract

Environmental conditions experienced by developing animals have an impact on the development and maturity of the immune system. Specifically, the diet experienced during early development influences the maintenance and function of the immune system in young and adult animals. It is well known that exposure to low-protein diets during early development are related to an attenuation of immunocompetence in adulthood. While this functional linkage has been widely studied in altricial models' mammals, it has been little explored how the nutritional history modulates the immune function in precocial animals. We evaluated the effect of dietary protein consumed during early development on the immune function and the oxidative costs in the precocial Caviomorph rodent *Octodon degus*, or degu. We evaluated components of the acute phase response (APR) and oxidative parameters before and after immune challenge. We found that after the immune challenge, the juveniles on the low-protein dietary treatment exhibited an attenuation of body temperature but showed higher levels of lipid peroxidation than juvenile degus on the high-protein diet. We did not find a significant effect of the interaction between diet and immune challenge on body mass, levels of inflammatory proteins, nor in the total antioxidant capacity. Our results suggest that some components of the immune function and the oxidative status in the degu can be modulated by diet during development. However, the modulation would depend on the immune variables analyzed, and the characteristics of the immune system of precocial rodents.

Palabras clave

Palabras clave de autor: [development](#); [diet](#); [ecoimmunology](#); [oxidative stress](#); [protein](#)

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