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Fasting and ketogenesis as regulators of pulmonary immunity

Anorexia and fasting are host adaptation to acute infection, inducing a metabolic switch towards ketogenesis and the production of ketone bodies, including β -hydroxybutyrate (BHB). However, how fasting and ketogenesis metabolically influence the immune response in pulmonary infections remains unclear. Here we discuss how ketogenic diet or infection-induced ketogenesis influences the immune response. We will focus on how BHB promotes the effector function of T cells by providing an alternative carbon source to fuel mitochondrial oxidative phosphorylation and the production of bioenergetic amino acids. Finally, we will discuss the therapeutic application of BHB and ketogenic diets in pulmonary infections or asthma.