

ABSTRACT

Fat is the most variable component of ruminant milk and is especially affected by dietary factors. Diet-induced milk fat depression (MFD) is characterized by a marked decrease in milk fat yield classically observed in dairy cows fed highly fermentable diets. The dietary factors that cause MFD alter ruminal microbes and specifically shift ruminal fatty acid (FA) biohydrogenation to an alternate pathway that produces bioactive intermediates. Surprisingly, the factors that affect the rescue or recovery of MFD have not been specifically investigated. We recently conducted a high resolution time course experiment to characterize the recovery from diet induced MFD. Our results show a lag in MFD onset in response to dietary modification, which suggests an important role of ruminal bacteria adaptation. Dietary factors like fiber and supply of polyunsaturated FA have the potential to alter ruminal environment and promote a microbial population utilizing the normal biohydrogenation pathways. We propose to test the effect of the re-establishment of a normal rumen microbial population on the time course of recovery from diet induced MFD.