

# The Emerging Role of Short Chain Fatty Acids in Human Physiology

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**Abstract:** *The gut microbiota produces short chain fatty acids by fermenting partially digested polysaccharides. These are important molecules. SCFAs are most concentrated in the proximal colon, where they are either absorbed into the bloodstream or used locally by enterocytes. SCFAs inhibit histone deacetylases (HDACs) and activate G-protein-coupled receptors (GPCRs), inclusive of GPR43, GPR41, and GPR109A. A variety of biological effects result from the inhibition of HDACs, which alters gene expression. While the complete extent of SCFA mediated HDAC suppression has to be investigated, GPCRs' role in controlling immunological responses, inflammation, and metabolism is well recognized. Numerous biological functions, including as phagocytosis, chemotaxis, reactive oxygen species (ROS) generation, cell division, and function, are impacted by SCFAs. They also help to preserve the integrity of the gut and have antibacterial, antitumorigenic, and anti-inflammatory qualities. Given that SCFA levels are largely diet-dependent, their effects help explain the rising prevalence of inflammatory diseases in Westernized societies, where dietary patterns are often low in fiber and high in processed foods.*

**Keywords:** Histone deacetylases, fiber, heptahelical receptors, microbiota, and short chain fatty acids

