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Health Benefits and Side Effects of Short-Chain Fatty Acids

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Abstract

The gut microbiota and their metabolites could play an important role in health and diseases of human beings. Short-chain fatty acids (SCFAs) are mainly produced by gut microbiome fermentation of dietary fiber and could also be produced by bacteria of the skin and vagina. Acetate, propionate, and butyrate are three major SCFAs, and their bioactivities have been widely studied. The SCFAs have many health benefits, such as anti-inflammatory, immunoregulatory, anti-obesity, anti-diabetes, anticancer, cardiovascular protective, hepatoprotective, and neuroprotective activities. This paper summarizes health benefits and side effects of SCFAs with a special attention paid to the mechanisms of action. This paper provides better support for people eating dietary fiber as well as ways for dietary fiber to be developed into functional food to prevent diseases.

Keywords: SCFAs; cancer; cardiovascular disease; diabetes mellitus; inflammation; obesity.

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Figures

