



Bioavailability of Lycopene from Fresh and Processed Tomatoes

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Lycopene is the main carotenoid in tomatoes that impacts the characteristic red color. Recent evidence shows a link between consumption of tomato products and a reduced risk of developing several chronic diseases, such as cancer and cardiovascular disease. Since lycopene is an effective antioxidant, this component in tomatoes may be responsible for providing the reported health benefit of tomato product consumption. Thus, it is important to understand the absorption or bioavailability of lycopene from tomato products.

In this study, the bioavailability of lycopene was monitored in lactating women who consumed either fresh or processed tomato products. Bioavailability was assessed by measuring blood, buccal mucosal cells, and human milk levels following a dietary intervention of tomato products. Results showed that processed tomato products were a more bioavailable source of lycopene. Both plasma and human milk levels of lycopene were significantly higher for those consuming processed tomato products (i.e., tomato sauce) compared to those women consuming fresh tomatoes.

OBJECTIVES

Determine the bioavailability of lycopene, an antioxidant, from fresh and processed tomato products.

ACHIEVEMENTS

Our study provided additional information about how food processing can enhance the delivery of lycopene to the body. This information may be useful to the food processing industry in marketing processed tomato products and also to nutritionists and consumers in planning healthy diets.

THE FUTURE

Follow-up studies are planned to continue this research topic employing lactating women and human milk levels to monitor bioavailability of lycopene and other important phytochemicals. The results of this and other related studies were used, in part, to apply for a USDA-CSREES IFAFS grant on functional foods involving multiple Ohio State University investigators. This effort is now funded at \$1.27 million and will study the health benefits of tomato products containing soy, which is another product with potentially beneficial properties to inhibit the development of chronic diseases.

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