

Plum good health benefits

September 25 2015, by Paul Schattenberg



Dr. Turner's lab team, most of who are shown here, were instrumental in the research relating to the health benefits of dried plums. Credit: Texas A&M AgriLife Research photo

Researchers from Texas A&M University and the University of North Carolina have shown a diet containing dried plums can positively affect microbiota, also referred to as gut bacteria, throughout the colon, helping reduce the risk of colon cancer.

The research was funded by the California Dried Plum Board and presented at the 2015 Experimental Biology conference in Boston.

"Through our research, we were able to show that dried plums promote retention of beneficial bacteria throughout the colon, and by doing so they may reduce the risk of colon cancer," said Dr. Nancy Turner, Texas A&M AgriLife Research professor in the nutrition and food science department of Texas A&M University, College Station.

According to the American Cancer Society, colon cancer is the third leading cause of cancer-related deaths in the U.S. when men and women are considered separately, and the second-leading cause when the figures are combined. During 2015, colon cancer is expected to cause about 49,700 deaths nationwide.

A good amount of research has already shown that one's diet can alter the metabolism and composition of colon microbiota, which has major implications for disease prevention and treatment, Turner said.

She said there are trillions of bacteria in the intestinal tract and so far more than 400 individual species have been identified. Previous research has shown that disruptions to the microbiota are involved in the initiation of intestinal inflammation and recurrence of inflammatory bouts that can promote development of colon cancer.

"Our research explored the potential cancer-protective properties of dried plums using a well-established rat model of colon cancer," she said. "Dried plums contain phenolic compounds, which have multiple effects on our health, including their ability to serve as antioxidants that can neutralize the oxidant effect of free radicals that can damage our DNA.

"The hypothesis we tested in this experiment was that consumption of

dried plums would promote retention of beneficial microbiota and patterns of microbial metabolism throughout the colon. If it did this, then it might also help reduce the risk of colon cancer."

"The microbiota are involved in the health of the host organism through physical interactions and, indirectly, through their metabolism," said Derek Seidel, a doctoral graduate student and research assistant for Turner who assisted in the study. "The rats were fed a control diet or a diet containing dried plums, and both diets were matched for total calories and macronutrient composition so that the effect due to diet would be attributed to compounds uniquely found in the dried plums."

The intestinal contents and tissues from different segments of the colon were examined. Results showed that the dried plum diet increased Bacteroidetes and reduced Firmicutes – the two major phyla of bacteria in the gut – in the distal colon without affecting the proportions found in the proximal colon. However, animals consuming the control diet had a lower proportion of Bacteroidetes and increased Firmicutes in the distal colon.

Another observation made was rats consuming dried plums had significantly reduced numbers of aberrant crypts, aberrant crypt foci and high-multiplicity aberrant crypt foci compared to control rats.

"These aberrant crypt foci are one of the earliest observable precancerous lesions and are often considered to be a strong indicator for cancer development," Seidel said.

Turner said these data support the hypothesis that dried plums protect against colon cancer, which may be due in part to their ability "to establish seemingly beneficial colon microbiota compositions in the distal colon.

"From this study we were able to conclude that dried plums did, in fact, appear to promote retention of beneficial microbiota and microbial metabolism throughout the colon, which was associated with a reduced incidence of precancerous lesions."

She said while additional research is needed, particularly in human studies, the results from this study are exciting because they suggest that regularly eating dried plums may be a viable dietary strategy to help reduce the risk of [colon cancer](#).

Provided by Texas A&M University

Citation: Plum good health benefits (2015, September 25) retrieved 12 May 2024 from <https://medicalxpress.com/news/2015-09-plum-good-health-benefits.html>

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