

Blueberry's effects on cholesterol examined in lab animal study

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Laboratory hamsters that were fed rations spiked with blueberry peels and other blueberry-juice-processing leftovers had better cholesterol health than hamsters whose rations weren't enhanced with blueberries. That's according to a study led by U.S. Department of Agriculture (USDA) chemist Wallace H. Yokoyama.

Yokoyama pointed out that further research is needed to confirm whether the effects observed in [hamsters](#) hold true for humans. He works at the Western Regional Research Center operated in Albany Calif., by the Agricultural Research Service (ARS), the principal scientific research agency of USDA.

In the investigation, hamsters were fed high-fat rations. For some animals, those rations were supplemented with one of three different kinds of juice byproducts: blueberry skins-that is, peels leftover when berries are pressed to make juice; fiber extracted from the peels; or [natural compounds](#) known as polyphenols, also extracted from the peels. Blueberry polyphenols give the fruit its purple, blue, and red coloration.

In an article published in the [Journal of Agricultural and Food Chemistry](#) in 2010, Yokoyama and his coinvestigators reported that all the hamsters that were fed blueberry-enhanced rations had from 22 to 27 percent lower total [plasma cholesterol](#) than hamsters fed rations that didn't contain blueberry juice byproducts.

Levels of VLDL (very low density lipoprotein-a form of "bad"

cholesterol) were about 44 percent lower in the blueberry-fed hamsters.

Yokoyama and his coinvestigators used a procedure known as real-time reverse transcription [polymerase chain reaction](#), or RT-PCR, to learn about the genes responsible for these effects. This approach allowed the scientists to pinpoint differences in the level of activity of certain liver genes.

In hamsters-and in humans-the liver both makes cholesterol and helps get rid of excessive levels of it. Results suggest that activity of some liver genes that either produce or use cholesterol resulted in the lower blood cholesterol levels.

The study is apparently the first published account of cholesterol-lowering effects in laboratory hamsters fed blueberry peels or fiber or polyphenols extracted from those peels.

Of course, some pieces of the cholesterol puzzle are not yet in place. For example, the researchers don't know which berry compound or compounds activated the liver genes, or which parts of the berry have the highest levels of these compounds.

More information: More details about this study are available in the May/June 2011 issue of *Agricultural Research* magazine:
www.ars.usda.gov/is/AR/archive/may11/fruit0511.htm

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