

HEART HEALTH FUNCTIONALITY OF CRANBERRIES AND BLUEBERRIES

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The American cranberry (*Vaccinium macrocarpon*) and lowbush (wild) blueberry (*Vaccinium angustifolium*) have attracted growing interest as a functional food. This is due primarily to their high content of health-promoting antioxidant polyphenols such as anthocyanins, flavonols, proanthocyanidins and small phenolic acids. Cranberry is best known for preventing adhesion of bacteria in the urinary tract, while blueberries are good for the brain, reversing age-related memory losses and stroke damage. Among 20 fruits analyzed, cranberry contained the highest content of phenolics by weight and blueberry was ranked first in overall antioxidant quality. Our laboratory has been evaluating possible effects of these *Vaccinium* berries on cardiovascular diseases, the number one killer of Canadians. Major risk factors for cardiovascular diseases are the clusters of disorders that make up *metabolic syndrome*, including hypertension (high blood pressure), abdominal obesity, atherosclerosis (hardening of the arteries) and insulin resistance/diabetes. This presentation will discuss evidence that dietary polyphenol antioxidants lower the risk and severity of stroke, hypertension, atherosclerosis, and insulin resistance. These disorders all involve oxidative stress and inflammation to some degree, as part of their pathology. Thus, a central hypothesis of my health research is that polyphenolic compounds from blueberries and cranberries mitigate the effects of oxidative stress and inflammation in animals and humans at risk of cardiovascular disease or metabolic syndrome. Using various animal models of disease, such as atherosclerotic mice, or hypertensive and obese rats, we have shown that cranberries lower LDL ('bad') cholesterol and some inflammatory mediators. Mice fed cranberries also ate less food which led to less weight gain. In hypertensive animals, there was a very small blood pressure-lowering effect (when compared to a robust blueberry effect), but cranberries prolonged survival times (compared to no such effect by blueberries). We have found some mild anti-diabetic effects, and some unexpected effects on antioxidant markers. In general, our evidence suggests that diets containing both blueberries and cranberries are part of a heart-healthy diet.