

# True Blue - Health Secrets of Blueberries

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Blue as the night sky, delicious blueberries can be enjoyed fresh with yoghurt or ice cream, pureed in fruit smoothies, or cooked in muffins, cakes or pies. But don't let their small size fool you – these berries pack a health punch that's second to none. Rich in vitamin C and antioxidants (anthocyanins, chlorogenic acid), blueberries also contain beta-carotene, cyanidin, quercetin and resveratrol. While much blueberry research to date uses animal models of disease, the potential for benefits in humans is impressive.

Here are just a few ways that blueberries may be beneficial –

## Antioxidant

Researchers at the US Department of Agriculture ranked blueberries number 1 for antioxidant activity compared with 40 other fresh fruits and vegetables (1, 2). Antioxidants are thought to help protect the body against the damaging effects of free radicals and the chronic diseases associated with the aging process. Consumption of blueberries is associated with an increase in serum antioxidant status (3).

## Anti-aging

Feeding blueberries to laboratory rats and mice slowed age-related loss in their mental capacity and reversed the deleterious effects of aging on motor behaviour and neuronal signalling in senescent rodents (4-6). APP+PS1 transgenic mice (used as models for Alzheimer's disease) showed none of the anticipated decline in performance and no alterations in amyloid beta burden during 8 months of feeding with a blueberry-supplemented diet. These results suggest that it may be possible to overcome genetic predispositions to Alzheimer's disease through diet (7).

## Heart attacks and stroke

Rats fed a diet containing blueberries suffered significantly less neurological loss following experimental cerebral ischaemia than a control group (8). Flavonoids (anthocyanins) have also been suggested to reduce the risk of cardiovascular disease by preventing the oxidation of plasma LDL, an important step in the formation of atherosclerotic plaques and subsequent cardiovascular disease (9). Epidemiological studies have suggested that individuals who consume flavonoids have a lower risk of cardiovascular disease (10, 11).

## Antimicrobial activity / urinary tract protection

Anthocyanins have been shown to inhibit microbial growth by interference with microbial enzymes. Blueberries may also be useful in treating and preventing urinary tract infections due to *E. coli*. In an in-vitro assay, purified blueberry proanthocyanidins were reported to inhibit bacteria from attaching to the bladder wall, thereby reducing the potential for infection (12).

## Cancer

The blue colour of the blueberry is due to the presence of anthocyanins. These substances have been shown to inhibit tumorigenesis in mouse JB6 cells, a validated model for screening cancer chemopreventive agents (13). In addition, blueberries contain ellagic acid, a substance that has been shown to slow the proliferation of both human colon and cervical cancer cells grown in experimental systems outside of the body (14, 15). Clinical studies of the effects of ellagic acid on cervical cancer and colon cancer are currently underway in the US and Europe (16,17).

While the clinical benefits of blueberries are receiving further study, why not start by giving your tastebuds a daily blueberry treat? We know they taste great and they may well be providing you with a daily burst of healthy protection at the same time.

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Further information on blueberries is available at [www.abga.com.au](http://www.abga.com.au)