



Mills and Bone Academy

Educational Article

Blue is the Healthy Colour: The Health Benefits of Anthocyanins– Kerry Bone

Bilberries (*Vaccinium myrtillus*) and blueberries (*Vaccinium corymbosum*) are closely related berries that are rich in blue pigments known as anthocyanins. The bilberry has been traditionally eaten as a wild fruit whereas the blueberry is now widely cultivated. From both a food and herbal perspective they are virtually identical, which is useful because one can be used in place of the other, depending on convenience and availability.

Interest in the bilberry as a herbal treatment is said to have begun in World War II when British RAF pilots accidentally discovered it could help night vision. Subsequent research found that the bilberry could help to improve vision in other ways. From there the research branched out and it was discovered that the herb could assist in circulatory disorders, especially where the very fine blood vessels (or microcirculation) were involved.

The anthocyanins in bilberry have been shown to hasten the regeneration of the visual pigment (rhodopsin) found in the rods of the retina.ⁱ This explains the value for improving night vision since the rods are what we use for this. When given to healthy people a bilberry extract rich in anthocyanins hastened their adaptation to the dark and they could see better in the dim light. This effect was established in a placebo-controlled clinical trial.ⁱⁱ

But, as mentioned above, bilberries are not just helpful for night vision. In uncontrolled trials conducted as early as 1964, bilberry extract (including isolated anthocyanins), alone or in combination with β -carotene and retinol (vitamin A), improved vision in healthy subjects and in patients with visual disorders such as myopia (short sightedness).^{iii,iv} Enlargement of visual range was observed for

patients with pigmentary retinitis (an inflammation of the retina)^v and retinal sensitivity was improved in patients with hemeralopia (defective vision in bright light).^{vi}

Visual perception improved in 76% of myopic patients receiving bilberry extract (equivalent to 54 mg anthocyanins per day) and retinol for 15 days.^{vii} Similar results were obtained for patients with simple glaucoma.^{viii}

But it is also a wonderful herb for the circulation. Uncontrolled trials dating back to 1964 demonstrated the efficacy of bilberry in the treatment of peripheral vascular disorders (varicose veins and the symptoms associated with these, often called venous insufficiency).ⁱⁱ

In later trials, bilberry extract improved oedema and symptoms of varicose veins,^{ix} and reduced the protein exudate from varicose ulcers.^x The extract also provided relief for vein disorders including haemorrhoids during pregnancy.^{xi,xii} A review of uncontrolled trials from 1979 to 1985 on a total of 568 patients with venous insufficiency of the lower limbs concluded that bilberry extract caused rapid disappearance of symptoms and improvements in the microcirculation and lymph drainage.^{xiii}

Bilberry extract or placebo was administered for 30 days in a single-blind, placebo-controlled clinical trial on 60 patients with venous insufficiency. Significant reduction in the severity of symptoms (oedema, sensation

of pain, paraesthesia, cramping pain) was observed for the treated group after 4 weeks' treatment.^{xiv}

As mentioned earlier, bilberry is wonderful for maintaining healthy microcirculation.

Anthocyanins improved functional disturbances of the fine blood vessels, especially capillaries,^{xv} were more effective in protecting damaged capillaries than flavonoids^{xvi} and stimulated capillary repair.^{xvii}

This is particularly beneficial in diabetic and hypertensive retinopathy where the retina of the eye becomes damaged, particularly the microcirculation part. Retinopathy can eventually result in blindness. In a placebo-controlled trial, bilberry extract improved early phase diabetic retinopathy as indicated by an improved appearance of the retina.^{xviii} In a double-blind, placebo-controlled clinical trial, 14 patients with diabetic and/or hypertensive retinopathy received bilberry extract or placebo for one month. Significant improvements in the retina were observed in 77 to 90% of treated patients.^{xix}

More recently the research effort has focussed on another kind of blue: the blueberry. Dr James Joseph is a US scientist investigating the effects of antioxidant foods on ageing. In particular he has investigated foods in the lab which are able to reduce the effects of mental ageing. While some fruits such as strawberries, and vegetables such as

spinach, gave promising results, only blueberry supplementation reversed the negative effects of ageing on balance and coordination.^{xx} His team found that the anthocyanins in blueberries show the most activity in penetrating cells and providing deep antioxidant protection.^{xxi} The anthocyanins were even found in the brains of elderly rats after they were fed blueberries for 8 weeks. The more anthocyanins found in the brains of the rats, the better they were at negotiating a complex maze.^{xxii} In fact, blueberries had a rejuvenating effect on the brain cells of elderly rats, making them more like young rats.^{xxiii}

All this has huge implications for those degenerative diseases associated with brain oxidation such as Alzheimer's disease and Parkinson's disease. Will blueberries, or for that matter bilberries, help to prevent them? We still need to do more research. But I can inform you that I now have a regular intake of either fresh or frozen blueberries (40 to 60 g per day) or bilberry tablets (3 to 4 tablets a day, containing 15 mg each of anthocyanins). I know it won't do any harm and will probably do my eyes, circulation and brain a whole lot of good!

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