Abstract

Title: Does blueberry have reducing effects on blood pressure and blood glucose in people with overweight or obesity?
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Background: Overweight and obesity is an increasing problem in our society. With this the risk of developing cardiovascular diseases and other diseases increase. Livsmedelsverket recommends the Swedish population, an intake of 500 grams of fruit and vegetables per day (including berries). Fruits, vegetables and berries contain many essential nutrients. Blueberries in particular are rich in polyphenols such as flavonoids but also other antioxidants, vitamins, minerals and fibers. Some research suggests that these substances may have beneficial effects on risk factors for developing cardiovascular diseases such as blood pressure and blood glucos.

Objectives: To evaluate if there is any scientific evidence that blueberries can reduce blood pressure and blood glucose levels in individuals with overweight or obesity.

Search strategy: Systematic searches of articles were made in PubMed and Cochrane. Keyword used were: “blueberry”, “vaccinium myrtillus”, “bilberry”, “blood pressure, polyphenol”, “blueberry plant”, “blood pressure AND bilberry OR blueberry OR vaccinium myrtillus” and “blood pressure OR glucose AND diabetes type 2 AND bilberry OR blueberry OR vaccinium myrtillus”. All keywords were used in both databases.

Selection criteria: Inclusion criteria were randomized controlled human studies that measured blood pressure and/or blood glucose. The study participants should be >18 years old and have a BMI ≥25 kg/m². Interventions with blueberries in the form of fresh or freeze-dried berries and studies made on both “blueberry” and “bilberry” were included. Only studies written in English were included. Exclusion criteria were blueberries in combination with diet or exercise interventions. Blueberries in form of supplements (pills), studies on “whortleberry” and studies which was shorter than one week were excluded.

Data collection and analysis: The searches resulted in eleven studies by title and abstract and four of these studies were excluded because they did not match the inclusion criteries. In
totalt seven studies were quality controlled by SBU’s review template for randomized studies. Evidence for both of the outcomes was compiled with GRADE.

**Main results:** Overall the original articles show a moderately strong scientific evidence (++++) that blueberries have a reducing effect on blood pressure and blood glucose in persons with overweight or obesity.

**Conclusions:** When there is a moderately strong scientific evidence (++++) that blueberries can have a reducing effect on blood pressure and blood glucose in persons with overweight or obesity, it could be reasonable that a recommendation would be set about blueberries with the aim of reducing blood pressure and blood glucose in individuals with overweight or obesity.

**Keywords:** blueberry, bilberry, vaccinium myrtillus, overweight, obesity, blood pressure, blood glucose, insulin sensitivity, polyphenols