

COCHRANE NURSING CARE CORNER



Summaries of Nursing Care-Related Systematic Reviews from the Cochrane Library

Effect of cocoa on blood pressure

Question

What is the effect of flavanol-rich chocolate or cocoa products on blood pressure in people with or without hypertension?

Relevance to nursing care

Nurses are largely responsible for performing vital sign measurement (such as blood pressure) on their patients. The association between cardiovascular risk and blood pressure levels is evident. There has been some research undertaken that suggests cocoa products may decrease the risk of cardiovascular disease; however, conflicting results have made it impossible to confirm or refute this. It is vital for nurses to be able to advise their patients on lifestyle factors such as diet to potentially reduce cardiovascular events.

Study characteristics

This is a summary based on a Cochrane Systematic Review that included a total of twenty trials with 856 participants.¹ Participants were described as being mainly adult and healthy (normotensive) except for five trials (146 participants) where participants were hypertensive. The intervention of interest was any flavanol-rich cocoa product consumed on a daily basis for 2 weeks or more. Interventions were compared with controls in short-term trials of 2–18 weeks duration. The control group received a placebo or a minimal dose of less than 10% of the dose of cocoa polyphenols given as the active intervention product (low-flavanol product). The primary outcome was the difference in systolic and diastolic blood pressure at final follow up between groups. The methodological quality of studies was low due to insufficient evidence on adequate allocation concealment in 55% of trials, single blinding in 45% of trials and some publication bias. Meta-analysis was performed with the following findings:

- Chocolate or cocoa products were significantly more effective in reducing systolic blood pressure compared with placebo and a minimal dose of cocoa polyphenols (Mean difference in systolic blood pressure [SBP] (95% confidence intervals [CI]): -2.77 (-4.72 , -0.82) mm Hg, $P = 0.005$, $n = 20$ trials); and mean difference in diastolic blood pressure [DBP] (95% CI): -2.20 (-3.46 , -0.93) mm Hg, $P = 0.0006$, $n = 19$ trials).
- The participants in the trials of two weeks duration demonstrated significantly reduced blood pressure (Mean SBP difference (95% CI): -4.81 (-7.21 , -2.41) mm Hg, $P < 0.001$; mean DBP difference (95% CI): -3.19 (-5.00 , -1.38) mm Hg, $P = 0.0006$, $n = 9$ trials). There was no significant effect found among the participants who were in trials of more than 2 weeks duration ($n = 11$ trials).
- A subgroup meta-analysis of trials with a flavanol-free control group (12 trials) revealed a significant blood pressure reducing effect (mean SBP difference (95% CI): -3.70 (-6.02 , -1.36) mm Hg, $P = 0.002$, $n = 12$; mean DBP difference (95% CI): -2.71 (-4.26 , -1.5) mm Hg, $P < 0.001$, $n = 11$), as opposed to trials using a low-flavanol product in the control group (8 trials).
- Although the participants aged < 50 years experienced a significant blood pressure lowering effect as compared to those > 50 years of age (mean difference in SBP (95% CI): -4.57 (7.41 , -1.73) mm Hg, $P = 0.002$, $n = 10$; mean difference in DBP (95% CI): -3.85 (-5.45 , -2.26) mm Hg, $P < 0.001$, $n = 9$), there was no significant difference found between the intervention and control group.

Implications for nursing care

The results of the systematic review suggest that flavanol-rich chocolate and cocoa products can significantly lower blood pressure by 2–3 mm Hg compared to those receiving a placebo or a minimal dose of cocoa polyphenols within short duration (2–18 weeks, mean 4.4 weeks). The reviewers suggest that this reduction might complement other

treatment options and could contribute to reducing the risk of cardiovascular disease.

Implications for research

Future research should focus on conducting randomised double-blind placebo-controlled trials with a flavanol-free control group across different age groups over a longer period of time to better assess whether cocoa has an effect on cardiovascular events.

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Reference

1. Ried K, Sullivan TR, Fakler P, Frank OR, Stocks NP. Effect of cocoa on blood pressure. *Cochrane Database Syst Rev* 2012; (8): CD008893. doi: 10.1002/14651858.CD008893.pub2.