# Diet rich in high glucoraphanin broccoli reduces plasma LDL cholesterol: Evidence from randomised controlled trials.

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## Abstract

**SCOPE:**

Cruciferous-rich diets have been associated with reduction in plasma LDL-cholesterol (LDL-C), which may be due to the action of isothiocyanates derived from glucosinolates that accumulate in these vegetables. This study tests the hypothesis that a diet rich in high glucoraphanin (HG) broccoli will reduce plasma LDL-C.

**METHODS AND RESULTS:**

One hundred and thirty volunteers were recruited to two independent double-blind, randomly allocated parallel dietary intervention studies, and were assigned to consume either 400 g standard broccoli or 400 g HG broccoli per week for 12 weeks. Plasma lipids were quantified before and after the intervention. In study 1 (37 volunteers), the HG broccoli diet reduced plasma LDL-C by 7.1% (95% CI: -1.8%, -12.3%, p = 0.011), whereas standard broccoli reduced LDL-C by 1.8% (95% CI +3.9%, -7.5%, ns). In study 2 (93 volunteers), the HG broccoli diet resulted in a reduction of 5.1% (95% CI: -2.1%, -8.1%, p = 0.001), whereas standard broccoli reduced LDL-C by 2.5% (95% CI: +0.8%, -5.7%, ns). When data from the two studies were combined the reduction in LDL-C by the HG broccoli was significantly greater than standard broccoli (p = 0.031).

**CONCLUSION:**

Evidence from two independent human studies indicates that consumption of high glucoraphanin broccoli significantly reduces plasma LDL-C.