

Orange juice flavanone may benefit heart health: Study

By Nathan Gray, 17-Dec-2010

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Hesperidin, a flavanone found in orange juice, may significantly reduce blood pressure and other cardiovascular disease risk factors, according to a new study.

The research, published in the *American Journal of Clinical Nutrition*, suggests that consuming [orange juice](#) every day may significantly lower diastolic [blood pressure](#) among men who are slightly overweight but otherwise healthy.

"We observed favorable changes in blood pressure and endothelial function after the consumption of orange juice in healthy subjects and showed that the flavanone [hesperidin](#) could be responsible for the observed effects," said the researchers, led by Christine Morand of the study from the French National Institute for Agronomic Research.

"At the anatomical level, these beneficial effects on blood circulation could be due to a positive effect of orange juice and hesperidin on blood vessel dilatation and vessel resistance," said Morand, the lead author of the study.

Protective polyphenols

Morand and her colleagues noted that a growing number of studies have shown a protective effect of polyphenol-rich foods, including tea, wine, and chocolate against [cardiovascular diseases \(CVDs\)](#).

"This evidence is supported by results from numerous studies conducted in animal models, with nutritionally realistic levels of isolated flavonoids, and in humans with flavonoid-rich foods," they said.

They added that consumption of chocolate, green tea, and soy protein isolate have been previously shown to exert beneficial effects on intermediate risk factors for CVD – such as LDL cholesterol, blood pressure, and blood vessel functioning.

However, only a few clinical trials have dealt with the oral administration of chemically pure flavonoids. Morand and her co-workers said this makes it difficult to separate specific the effects of certain flavonoid compounds from that of entire foods.

Evidence is lacking to support the potential efficacy of flavonoids that are commonly consumed as part of a normal diet – such as anthocyanins and flavanones for CVD risk factors, said the researchers. . They did, however, note that the ingestion of pure dietary epicatechin and epigallocatechin gallate (EGCG) have been linked to the beneficial effect of catechin-rich cocoa and tea on vascular function.

A stronger focus on flavanones is particularly relevant, because of their high concentration in citrus fruits, coupled with high citrus consumption worldwide – particularly orange juice, they said.

Hesperidin (hesperetin-7-O- rutinoside) represents 90 percent of the total flavanones in orange juice, and according to previous research is highly bioavailable.

The aim of the present study was to compare the effects of orange juice with those of pure hesperidin on blood vessel functioning, blood pressure, and systemic markers linked to CVD risk – to determine whether hesperidin contributes to the protective effects of orange juice.

Study details

The researchers reported that blood pressure was significantly lowered after 4 weeks consumption of orange juice or a hesperidin rich drink when compared to a placebo drink.

Both orange juice and the hesperidin drink significantly improved post-meal blood vessel reactivity compared with placebo – when measured at the peak of plasma hesperetin concentration. However blood vessel reactivity after an overnight fast not found to be significantly improved by orange juice or hesperidin.

The researchers concluded that the study suggests hesperidin may be causally linked to the beneficial effect of orange juice.

"On the basis of these results, it would be interesting to encourage the consumption of citrus foods, which are the unique dietary sources of flavanones," said Morand and colleagues.

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"Hesperidin contributes to the vascular protective effects of orange juice: a randomized crossover study in healthy volunteers"

Authors: C. Morand, C. Dubray, D. Milenkovic, D. Lioger, J.F. Martin, A. Scalbert, A. Mazur