

New Study Suggests Special Cocoa May Lead to Sustained Improvement in Blood Vessel Function

In a clinical study on male smokers, researchers conclude that drinking a special cocoa flavanol-rich beverage could have important short term effects on blood vessel health and for the first time, suggest that these benefits appear to build and be sustained over time – even to the point of apparent reversal of impairments in blood vessel function.

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Title	<ul style="list-style-type: none">• Sustained Increase in Flow-Mediated Dilation After Daily Intake of High-Flavanol Cocoa Drink Over 1 Week
Subjects	<ul style="list-style-type: none">• 11 healthy male subjects between the ages of 22 and 32 years with smoking-related endothelial dysfunction.
Methods	<p>Part 1 (acute/short term study):</p> <ul style="list-style-type: none">• Researchers conducted a randomized, double-blind cross-over study providing cocoa beverages with flavanols ranging from 28 to 918 mg to participants in random order.• They determined flow mediated dilation (FMD), a measure of blood flow and endothelial function, hourly for up to 6 hours after drinking the beverage. <p>Part 2 (longer term study):</p> <ul style="list-style-type: none">• Participants consumed high-flavanol cocoa drinks (total of 918 mg/day) three times per day for one week.• Researchers determined flow mediated dilation (FMD) following 2, 4, and 7 days of cocoa flavanol consumption with assessments performed up to 12 hours after the consumption of the cocoa flavanol-rich beverage.
Key Findings	<p>Part 1 (acute/short term study):</p> <ul style="list-style-type: none">• Regardless of flavanol dose, the optimal effect on blood flow occurred 2 hours after drinking the cocoa flavanol-rich beverage• The drink containing 179 mg of cocoa flavanols resulted in a 50 percent improvement increase in blood vessel function in study participants.• Each higher level that was subsequently tested also significantly increased endothelial function and the highest level of 918 mg appearing to reverse impairments in blood vessel function.• The short term improvements in vascular function were paralleled by significant increases in plasma nitrite, an indicator of nitric oxide production. In stark contrast, none of the indicators related to oxidative stress and antioxidant capacity were affected by cocoa flavanol consumption. <p>Part 2 (longer term study):</p> <ul style="list-style-type: none">• In as few as 2 days, study participants demonstrated a significant improvement in blood vessel function, with blood vessel function continuing to further improve for the next few days. In addition, the consumption of a single serving of the flavanol-rich beverage led to a further improvement in endothelial function on testing days.• The researchers found daily improvements in blood flow with near reversal of impairment after consumption of the drink containing 306 mg of flavanols on day seven.• As in the short term study, the long term improvements in vascular function were paralleled by significant increases in plasma nitrite while none of the indicators related to oxidative stress and antioxidant capacity were affected by cocoa flavanol consumption.

**Main
Conclusion**

- Regular consumption of special cocoa containing cocoa flavanols may have a *sustained* benefit on blood vessel health.

**Key Facts on
Endothelial
Dysfunction**

- Smokers traditionally have impaired endothelial function and are therefore an oft-studied model for vessel health.
- A healthy endothelium (inner layer of blood vessels) releases nitric oxide (NO) and promotes contraction and relaxation of the vessels for healthy blood flow.
- Endothelial function is a recognized indicator of cardiovascular health, with reduced endothelial function and endothelial dysfunction recognized as an early stage in the development of vascular diseases such as atherosclerosis.
- Flow mediated dilation (FMD) of the brachial artery is a measure of blood flow in the arm which correlates to future cardiovascular impairment.

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Heiss C, Finis D, Kleinbongard P, Hoffman A, Rassaf T, Kelm M, Sies H. Sustained Increase in Flow-Mediated Dilation After Daily Intake of High-Flavanol Cocoa Drink Over 1 Week. *Journal of Cardiovascular Pharmacology*. 2007;49:74-80.