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## Heart

### Moderate coffee consumption lessens risk of clogged arteries and heart attacks

*People consuming three to five cups of coffee a day have lowest risk of clogging*

People who drink a moderate amount of coffee daily are less likely to develop clogged arteries that could lead to heart attacks, reveals research published online in the journal **Heart**.

Researchers from South Korea found that people consuming three to five cups a day had the least risk of coronary calcium in their arteries.

There has been much debate over the effect of coffee consumption on cardiovascular health.

Despite earlier concerns about a potential increase in heart disease risk associated with drinking coffee, a recent meta-analysis of 36 studies showed that moderate coffee consumption was associated with a decreased risk of heart disease. Coffee consumption has been associated with improved insulin sensitivity and reduced risk of type 2 diabetes, but it has also been linked to increased cholesterol concentrations and heightened blood pressure.

An international team of researchers led by the Kangbuk Samsung Hospital, Seoul, in the Republic of Korea, set out to examine the association between coffee consumption and the presence of coronary artery calcium (CAC) which is a early

indicator of coronary atherosclerosis – a potentially serious condition where arteries become clogged up by fatty substances known as plaques or atheroma and which can cause the arteries to harden and narrow, leading to blood clots which can trigger a heart attack or a stroke.

They studied a group of 25,138 men and women – average age of 41 – who had no signs of heart disease, attending a health screening examination.

The participants' screening examination included a validated food frequency questionnaire and a multidetector cardiac CT (computed tomography) for diagnostic imaging to determine levels of coronary artery calcium (CAC) scores.

Annual or biennial health screening examinations are common in Korea, because health examinations are mandatory for all workers under the Industrial Safety and Health Law there and CAC scoring has become a common heart disease screening test.

The researchers estimated the CAC score ratios associated with different levels of coffee consumption compared with no coffee consumption and took potential confounders into account such as education level, physical activity level, smoking status, BMI, alcohol consumption, family history of heart disease and consumption of fruits, vegetables, and red and processed meats.

They categorised coffee consumption as none, less than one cup a day, one to three cups a day, three to five per day and at least five or more per day.

The researchers found the prevalence of detectable CAC was 13.4% amongst the whole group of people and the average consumption of coffee was 1.8 cups per day.

The calcium ratios were 0.77 for people who had less than one cup per day, 0.66 for those having one to three cups every day, 0.59 for those consuming three to five cups per day, and 0.81

for people having at least five cups or more every day compared with non coffee drinkers.

The association was similar in subgroups defined by age, sex, smoking status, alcohol consumption, and status of obesity, diabetes, hypertension, and hypercholesterolaemia.

The association, therefore, was U-shaped, with participants drinking three to five cups per day having the lowest prevalence of arteries that had clogged up.

Possible explanations for the findings, said the researchers, were that chronic coffee consumption had a possible link to reduced risk of type 2 diabetes, a strong risk factor for atherosclerosis, and that coffee drinking might improve insulin sensitivity and  $\beta$ -cell function.

The authors concluded: “Our study adds to a growing body of evidence suggesting that coffee consumption might be inversely associated with CVD [cardiovascular disease] risk. Further research is warranted to confirm our findings and establish the biological basis of coffee’s potential preventive effects on coronary artery disease.”

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Research: Coffee consumption and coronary artery calcium in young and middle-aged asymptomatic adults

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