

# Stopping or reducing cocaine use associated with lower cardiovascular risk marker levels

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For people who use cocaine, stopping or reducing cocaine use is associated with decreased levels of endothelin-1 (ET-1)—a protein that plays a key role in the development of coronary artery disease, reports a study in the *Journal of Addiction Medicine*, the official journal of the American Society of Addiction Medicine.

The findings help in understanding the high rate of [atherosclerosis](#) (hardening of the arteries) associated with [cocaine](#) use, according to the report by Dr. Shenghan Lai and colleagues of Johns Hopkins School of Medicine, Baltimore. Stopping or reducing cocaine use may prevent the endothelial damage that represents the first step in the development of atherosclerosis, the study suggests.

## Stopping Cocaine Use May Lower ET-1—Possibly Slowing Atherosclerosis Progression

The study included 57 African American patients with long-term cocaine use, most of whom had HIV infection. The patients were drawn from a study evaluating incentives to abstain from cocaine use. On initial imaging scans (CT angiography), all had less than 50 percent stenosis (narrowing) of the coronary arteries.

Funded by the National Institute on Drug Abuse, part of the National Institutes of Health, the study focused on how stopping or reducing cocaine use affected levels of the cardiovascular risk marker ET-1. In

previous research, Dr. Lai and colleagues found that ET-1 levels are "remarkably higher" in chronic cocaine users.

Endothelin-1 is believed to play a key role in damage to the endothelium—the thin cell layer lining the inside of blood vessels. Endothelial dysfunction is the first step in the development of atherosclerosis.

At six months' follow-up, 28 of the patients were abstinent from cocaine, as confirmed by urine testing. This group had significantly reduced ET-1 levels, compared to those who continued to use cocaine.

Patients who reduced but did not stop their cocaine use (fewer days of use) also had lower ET-1 levels. This difference was significant after adjusting for other factors, including previous cardiovascular risk and initial ET-1 level.

Follow-up CT angiography scans were performed to assess the progression of atherosclerotic plaques in the patients' coronary arteries. The results showed a lower likelihood of coronary plaque progression for patients who stopped using cocaine—about two-thirds lower than for continued users. In this preliminary study, the difference in plaque progression wasn't statistically significant.

Cocaine users are at high risk of premature atherosclerosis. Despite extensive research, the mechanisms linking cocaine use with the development and progression of atherosclerosis haven't been well explained.

"The findings of this study revealed a possible association of cocaine abstinence/reduction with lowered ET-1 levels, which suggests that such changes in cocaine use might be beneficial for preventing endothelial damage," Dr. Lai and colleagues conclude. They emphasize that more

research will be needed to determine if the lower levels of endothelial damage markers reduce the high rates of cardiovascular disease and death associated with cocaine use. The researchers also suggest further studies to assess whether changes in ET-1 levels could be a useful marker of cocaine abstinence and reduction in cocaine use.

**More information:** "Cocaine Abstinence and Reduced Use Associated With Lowered Marker of Endothelial Dysfunction in Africa Americans: A Preliminary Study" [DOI: 10.1097/ADM.0000000000000140](https://doi.org/10.1097/ADM.0000000000000140)

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