

Cocaine consumption quadruples the risk of sudden death in people between 19 and 49

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A joint piece of research conducted by the UPV/EHU, the Basque Institute of Forensic Medicine, and the Biomedical Research Centre Network into Mental Health (CIBERSAM) of the Carlos III Institute of Health links, for the first time, the increase in sudden cardiovascular death with the recent consumption of cocaine. In people in the 19-49 age bracket this risk is quadrupled. In fact, cocaine consumption doubles the risk of death of cardiovascular origin that can be attributed to smoking, and becomes the main risk factor among subjects under 50.

What is more, this study is the first one conducted using forensic samples taken from deceased individuals. So they examined all the sudden deaths that underwent forensic analysis and which took place in Bizkaia over a seven-year period, between January 2003 and December 2009. The post-mortem examinations were conducted by the only service existing in the province: the Forensic Pathology Service of Bizkaia of the Basque Institute of Forensic Medicine. The research has been published by the specialised journal *Addiction*, the second most important international publication in the field of addictions in which a total of 20 journals are registered.

The doctors Benito Morentin, Javier Ballesteros, Luis F. Callado and J. Javier Meana analysed the cases of 437 people who died owing to sudden [cardiovascular death](#) and whose decease was not due to disease or acute intoxication. To conduct the research, they also studied the cases of another 126 people who died of different causes.

For the first time, the researchers included a population ([sudden death patients](#)) that had been excluded from other clinical studies. All the individuals had suffered sudden death of a non-violent nature with instant death or within six hours following the onset of symptoms. A relatively young population was chosen (between the ages of 19 and 49) to rule out the influence of cardiovascular problems that are more common in older people. What is more, the fact that cocaine consumption outside this age bracket is very low was taken into account, although cocaine is the most consumed illegal psychoactive substance after cannabis. In the Basque Country the consumption of this drug is above the average for Spain, Italy and the United Kingdom.

Research data

In all the cases, a full post-mortem examination plus toxicological and histopathological studies were conducted, and the clinical data and circumstances of the deaths were reviewed. Gas chromatography and liquid spectrometry were conducted to detect therapeutic drugs, drug abuse and ethanol. What is more, a time link was established between recent cocaine consumption and death, and they took into consideration obesity, hypertension, diabetes and smoking in relation to other risk values for suffering a heart attack.

The analysis of the data shows that cocaine consumption multiplies the risk of dying by four compared with non-consumption. Specifically, the percentage of cases among the deceased owing to sudden death in which drug consumption was detected was nearly 10%, while among the people who had died of other causes it was 2%. And in comparison with the estimated data in the general population, the proportion of people who used cocaine recently was between 13 and 58 times higher in the cases of sudden death than in the general population. Another risk factor detected was sex: the risk in men was 1'6 higher than in women.

The research group therefore considers that the effects of cocaine on the cardiovascular system could account for the increase in the risk of sudden death in the consumers of this drug. Cocaine increases heart rate, blood pressure, the contractility of the left ventricle of the heart, and myocardial oxygen demand. It also diminishes coronary blood flow, is related to the formation of clots, and cardiac arrhythmias, it can increase ventricular irritability and lower the fibrillation threshold, among other effects. Consequently, sudden death could be regarded as the first manifestation of a silent cardiovascular disease that has not been previously diagnosed.

More information: Benito Morentin, Javier Ballesteros, Luis F. Callado & J. Javier Meana "Recent cocaine use is a significant risk factor for sudden cardiovascular death in 15–49-year-old subjects: a forensic case–control study" *Addiction* (Published: December 2014) DOI: [10.1111/add.12691](https://doi.org/10.1111/add.12691)

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