

# Cancer Survivors Who Quit Smoking May Have 36% Lower Cardiovascular Risk Than Those Who Continue Smoking

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Patients who continue smoking after a cancer diagnosis may have almost a twofold risk of experiencing a heart attack, stroke, or death as a result of cardiovascular disease compared with nonsmokers, [according to a new study published by Lee et al in the \*European Heart Journal\*](#).

## Background

According to the World Health Organization, there were more than 50.5 million cancer survivors worldwide in 2020.

“A cancer diagnosis is an extremely stressful life event, which often leads to significant changes in a person's lifestyle. Smoking, in particular, is a health-related behavior that can be heavily influenced by mental distress,” explained lead study author **Hyeok-Hee Lee, MD**, a PhD student in the Departments of Preventive Medicine and Internal Medicine at the Yonsei University College of Medicine. “However, little was known about the relationship between changes in smoking habits after a cancer diagnosis and the risk of cardiovascular disease—the leading cause of non-cancer-related death among cancer survivors,” he added.

## Study Methods and Results

In the new study, the researchers analyzed the data of 309,095 cancer survivors with a median age of 59 years who had never had a heart attack or stroke. The patients who participated in the study had health examinations before and after their cancer diagnoses—during which smoking status was assessed using a self-reported questionnaire. The researchers divided the patients into four groups based on their change in smoking habits after receiving a cancer diagnosis: (1) those who sustained nonsmoking, (2) quit smoking, (3) initiated or relapsed to smoking, and (4) continued smoking.

Among the cancer survivors, 80.9% (n = 250,102) of them sustained nonsmoking, 10.1% (n = 31,121) quit smoking, 1.5% (n = 4,777) initiated or relapsed to smoking, and 7.5% (n = 23,095) continued smoking after being diagnosed with cancer. The combined proportion of those who initiated or relapsed to smoking and continued smoking was highest in urinary tract cancer survivors and lowest in breast cancer survivors.

The researchers then assessed the patients' risk of experiencing major adverse cardiac events—heart attacks, strokes or cardiovascular death caused by cardiovascular disease—for each of the four groups. The analyses were adjusted for characteristics that could influence the association between smoking and cardiovascular events such as age, sex, household income, residential area, alcohol, physical activity, body mass index, blood pressure, blood glucose, cholesterol level, number of comorbidities, medications, cancer type, and anti-cancer treatments.

After a median follow-up of 5.5 years, the researchers discovered that compared with patients who sustained nonsmoking, the risk of major adverse cardiac events during follow up was 86%, 51%, and 20% higher for those who continued smoking, initiated or relapsed to smoking, and quit smoking, respectively—findings that were consistent for both female and male patients.

The researchers also found that the outcomes of quitting were better when compared with the outcomes of continuing to smoke. Among those who were smokers before cancer diagnosis, 57% of them quit after finding out they had cancer. Smoking cessation was associated with a 36% reduction in the risk of major adverse cardiac events compared with continued smoking.

Further, approximately 20% of the patients who continued smoking reduced their daily tobacco consumption by at least 50% after receiving their cancer diagnosis. Those who continued smoking, but smoked less, after learning they had been diagnosed with cancer had the same risk of major adverse cardiac events as those who continued smoking with no reduction.

“Some individuals may find solace in successfully reducing their smoking without completely quitting,” Dr. Lee emphasized. “However, our results imply that smoking less should not be the ultimate goal and that smokers should quit altogether to gain the benefits of kicking the habit entirely,” he urged.

Among those who were nonsmokers before their cancer diagnosis, 2% started or resumed smoking after finding out they had cancer. Smoking initiation or relapse was associated with a 51% elevation in the risk of cardiovascular disease compared with sustained nonsmoking.

“Although our study does not provide conclusive evidence for the underlying causes of smoking initiation or relapse, some cancer survivors may lose motivation to have a healthy lifestyle after recovering, while others could turn to cigarettes as a way to cope with the stress of their diagnosis. These are only speculations, and further research is needed to determine factors associated with smoking initiation or relapse in cancer survivors,” Dr. Lee underscored.

## Conclusions

“Our results reinforce the existing evidence on the well-known cardiovascular risks of tobacco smoking and emphasize the benefits of smoking cessation—even for cancer survivors. Additionally, the finding that over 40% of patients who had been smoking before their cancer diagnosis continued to smoke afterwards highlights the need for more robust efforts to promote smoking cessation among cancer survivors, who already have an elevated risk of cardiovascular disease compared to their peers,” Dr. Lee concluded.

**Disclosure:** For full disclosures of the study authors, visit [academic.oup.com](http://academic.oup.com).

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