# Lifestyle Changes Can Dramatically Cut Cancer Incidence

Roxanne Nelson, BSN, RN

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At 2bou0% to 40% of cancer cases and about half of all cancer deaths can potentially be avoided by making modifications in lifestyle, according to new findings.

After investigating cancer risk among a portion of the US white population, the authors of a large cohort study concluded that a large proportion of cancer cases and related mortality could be prevented if people did not smoke, drank only a little alcohol, maintained a healthy weight (ie, maintained a body mass index [BMI] of 18.5 to 27.5), and exercised regularly (weekly aerobic physical activity of at least 75 vigorous-intensity or 150 moderate-intensity minutes).

The impact may even be larger — about 40% to 70% of cancer cases — for the general white population, who for the most part follow worse lifestyle patterns than the study cohort, the investigators note.

The study was published online May 19 in *JAMA Oncology*.

However, there are formidable challenges as to how to implement these lifestyle modification strategies.

"Right now, a new discipline is emerging to study how to best translate the knowledge into disease prevention actions," said study coauthor Mingyang Song, MD, ScD, of Massachusetts General Hospital, Harvard Medical School, and the Harvard T. H. Chan School of Public Health, Boston. "It's called implementation science. I expect to see great progress in this critically important area."

Small things can make a huge impact. Dr Mingyang Song

Clinicians are an important force at the front line for this fight, because they are the ones patients see and probably listen to, Dr Song told *Medscape Medical News*. "Some small things can make a huge impact, like asking patients about their lifestyle, giving appropriate advice about what needs to be modified, and monitoring patients' progress."

Public health strategies are also needed, and stakeholders need to work together to help change the current paradigm.

This involves formulating and modifying policies that are based on the most solid evidence, creating an environment that facilities adoption/maintenance of a healthy lifestyle, and delivering the scientific recommendations to the public in an effective and accurate way, Dr Song pointed out.

"In terms of policy change, it has been met with resistance across different levels, such as culturally, politically, and behaviorally," she added. "We have a long way to go, but I'm optimistic that as long as we — researchers, public health professionals, clinicians, policy makers, media, and the public — work together, we will make the changes step by step."

**The Challenge Is to Act**

Major attention has focused on whether cancer arises by chance or as a result of external factors, note Graham A. Colditz, MD, DrPH, and Siobhan Sutcliffe, PhD, both from Washington University School of Medicine, St. Louis, Missouri, in an accompanying editorial.

"The underlying truth of this debate has major implications for everything from the Vice President's Moonshot — are we preventing cancer or only aiming to treat it after it develops? — all the way to policies and practices that may determine cancer risk for future generations," they write.

The evidence that the environment can influence cancer risk is abundant, and most cancer is preventable, they note.

For example, it may be possible to prevent up to 80% to 90% of smoking-related cancers, such as lung and oropharyngeal cancer, and to prevent as much as 60% of other common, lifestyle-related cancers, such as colorectal and bladder cancer.

"This large excess of cancer is not inevitable but rather can be tackled by a broad range of interventions at multiple levels," the editorialists argue.

But the problem now is to act on this knowledge. "We have a history of long delays from discovery to translating knowledge to practice," they say.

We have a history of long delays from discovery to translating knowledge to practice. Dr Graham Colditz and Dr Siobhan Sutcliffe

"As a society, we need to avoid procrastination induced by thoughts that chance drives all cancer risk or that new medical discoveries are needed to make major gains against cancer, and instead we must embrace the opportunity to reduce our collective cancer toll by implementing effective prevention strategies and changing the way we live," emphasize Dr Colditz and Dr Sutcliffe.

"It is these efforts that will be our fastest return on past investments in cancer research over the coming decades," they conclude.

**Study Details**

In their study, Dr Song and her colleague Edward Giovannucci, MD, ScD, of the Harvard T. H. Chan School of Public Health and Harvard Medical School, analyzed data from the Nurses' Health Study, the Health Professionals Follow-up Study, and US national cancer statistics in order to evaluate associations between lifestyle and cancer incidence and mortality.

The authors defined a "healthy lifestyle pattern" as having never smoked or as having smoked only in the past; not drinking alcohol or drinking only moderately (ie, for women, having one or fewer drinks a day, and for men, having two or fewer drinks a day); having a BMI of at least 18.5 but lower than 27.5; and engaging in weekly aerobic activity of moderate intensity for at least 150 minutes per week or of vigorous intensity for 75 minutes per week.

Participants who met all four of these criteria made up the low-risk group; all others were considered to be at high risk.

The analysis included 89,571 women and 46,339 men, of whom 16,531 women (18%) and 11,731 men (25%) were considered to have a healthy lifestyle pattern (low-risk group).

The authors then calculated population-attributable risk (PAR) by comparing the incidence and mortality of total cancers and major individual types of cancer between the low- and high-risk groups.

They assessed the PAR on a national scale by comparing the low-risk group with the US population at large.

The incidence rates for all cancers was 463 per 100,000 population among low-risk women vs 618 per 100,000 among high-risk women. It was 283 per 100,000 and 425 per 100,000 in low-risk men and high-risk men, respectively.

This extrapolated to a PAR for cancer incidence of 25% in women and 33% in men.

A higher PAR was observed for cancer mortality: 48% in women and 44% in men.

When the low-risk group was compared with the general white population, a substantially higher PAR was observed: 41% in women and 63% in men for cancer incidence, and 59% in women and 67% in men for mortality.

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