

Factors of metabolic dysfunction are associated with increased risk for liver cancer

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Bottom Line: High body mass index (BMI), increased waist circumference, and type 2 diabetes mellitus were associated with increased risk for liver cancer in a large prospective cohort study.

Journal in Which the Study was Published: *Cancer Research*, a journal of the American Association for Cancer Research.

Authors: Peter Campbell, PhD, strategic director of Digestive System Cancer Research at the American Cancer Society; Katherine A. McGlynn, PhD, MPH, a senior investigator in the Metabolic Epidemiology Branch at the National Cancer Institute.

Background: "Liver cancer rates have approximately tripled in the United States since the mid-1970s and the prognosis for patients diagnosed with this type of cancer is especially grim," said Campbell.

Given that [obesity](#) rates are increasing in the United States, his team studied whether obesity, as measured by BMI and [waist circumference](#), and type 2 diabetes mellitus—an obesity related disease—are associated with liver cancer risk in a combined sample of U.S. adults from 14 different studies.

How the Study Was Conducted: Campbell and colleagues pooled data from 1.57 million adults enrolled in 14 different U.S.-based prospective studies. At enrollment, participants completed questionnaires related to their height, weight, [alcohol intake](#), tobacco use, and other factors

potentially related to cancer risk. None of them had cancer at enrollment.

Type 2 diabetes mellitus was diagnosed in 6.5 percent of the study participants. Over time, 2,162 developed liver cancer, which the study authors had verified.

The researchers compared the rates of liver cancer among participants with and without obesity and diabetes to determine the relative risks of liver cancer.

Results: For every 5 kg/m² increase in BMI, there was a 38 and 25 percent increase in the risk for liver cancer in men and women, respectively; the increase in risk was 8 percent for every 5 cm increase in waist circumference.

When adjusted for alcohol intake, smoking, race, and BMI, participants with type 2 diabetes mellitus were 2.61 times more likely to be diagnosed with liver cancer, and the risk increased with increase in BMI.

Author Comment: "We found that each of these three factors was associated, robustly, with liver cancer risk. All three relate to metabolic dysfunction," Campbell said. "This adds substantial support to liver cancer being on the list of obesity-associated cancers."

The findings also add further evidence to support public health efforts aimed at curbing obesity, Campbell noted.

"This is yet another reason to maintain a body weight in the 'normal' range for your height," he said. He added that the findings are also consistent with other data indicating that obesity and diabetes might be playing a role in the rapid increase in liver cancer in recent decades. "Liver cancer isn't simply related to excess alcohol intake and viral

hepatitis infection."

Campbell added, "The lifetime risk for liver cancer in the United States is about 1 percent; approximately eight adults per 100,000 will develop liver cancer in a given year. For adults with type 2 diabetes mellitus, their risk of developing liver cancer is more than doubled relative to those who do not have type 2 [diabetes mellitus](#), according to this study."

McGlynn said, "From a public health perspective, these results are very important because obesity and diabetes, unfortunately, are common conditions in the population. While some other well-described risk factors, such as hepatitis B virus or hepatitis C virus, are associated with increased risks of [liver cancer](#), these factors are much less common than are obesity and diabetes."

Limitations: Limitations of the study are that the parameters were only measured at one time point, at the beginning of the study, and they were all self-reported.

Provided by American Association for Cancer Research

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