

Skiping Breakfast Is a Bad Idea for Patients With Cancer

It has long been touted and advertised that eating breakfast is important for overall health. A new article appearing in *Cancer Causes & Control* (2021;32:505-513. doi:10.1007/s10552-021-01401-9) suggests that this may be true for the prevention of cancer.

“To the best of our knowledge, our study is the first to examine this association for adults in the United States,” says lead study author Duke Appiah, PhD, MPH, assistant professor of public health in the Department of Public Health of the Texas Tech University Health Sciences Center in Lubbock, Texas.

Dr. Appiah notes that numerous studies have reported positive associations between skipping breakfast and cardiometabolic conditions. “Despite the potential role of dietary habits in the development of cancer, however, investigations into the relation of dietary patterns such as skipping breakfast and cancer mortality are limited.”

Study Details

For the study, the researchers culled data from the National Health and Nutrition Examination Survey (NHANES), an ongoing, nationwide program of interviews and physical examinations undertaken by the Centers for Disease Control and Prevention. Their analysis focused on participants aged 40 years or older who took part in the 1988-1994 cycle of the survey (NHANES III). The researchers wrote that they studied these years because breakfast consumption was included in the survey questions and because NHANES III provided a long enough follow-up period to investigate cancer-related mortality.

Questionnaires were used during NHANES III interviews to determine each participant’s age, sex, race/ethnicity, education, marital status, family income, smoking status, and amount of physical activity.

Each NHANES III participant was classified as non-Hispanic White,

KEY POINTS

- Participants in this study who rarely consumed breakfast had a higher risk for both cancer-related mortality and all-cause mortality than those who said they ate breakfast daily.
- Eating a healthy breakfast can help with adherence to the American Cancer Society Guideline for Diet and Physical Activity for Cancer Prevention.
- Because eating breakfast consistently is associated with several healthy lifestyle behaviors, more research is needed to assess whether there is a causal relationship between breakfast consumption and cancer mortality.



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non-Hispanic Black, Mexican American, or other. A participant’s socioeconomic status was determined by education and family poverty income ratio as defined by US Census Bureau standards. Ratios less than 1.3 were considered to indicate a low income.

Participants’ frequency of physical activity was divided into 3 tiers, with sedentary being the lowest. Blood pressure levels and blood pressure medicine prescriptions were noted, and fasting blood samples were collected. Whether diabetes had been diagnosed and diabetes medicine had been prescribed was also recorded.

Each subject's height, body weight, and waist girth were measured, and the body mass index was calculated. Men with waist circumferences greater than 102 cm and women with waist circumferences greater than 88 cm were considered to have central/abdominal obesity.

After excluding subjects for a variety of reasons that Dr. Appiah and his colleagues believed would compromise the results, they focused their study on 7007 participants from the original group of 9737. The mean age of these participants was 55.4 years. More than half were female (54.4%), and 79% were non-Hispanic White.

Dietary information, including how often breakfast was consumed, was self-reported by participants during the NHANES III interviews.

Breakfast frequency was broken down into 3 groups:

1. Every day (61% of subjects)
2. Some days or weekends only (23% of subjects)
3. Rarely or never (16% of subjects)

Dr. Appiah and his colleagues also noted what each participant ate during the day before the interview and then used this information to create a Healthy Eating Index in accordance with guidelines from the US Department of Agriculture. Scores ranged from 0 to 100, with 100 representing the best quality diet. Participants' total energy intake was also calculated.

Deaths that occurred from the start of the NHANES III survey through December 31, 2015, were determined on the basis of a probabilistic linkage of participants' personal characteristics and the National Death Index of the Centers for Disease Control and Prevention. Causes of death were ascertained

via codes from the *International Classification of Diseases, Tenth Revision*. For the study, mortality outcomes of interest were classified as "all-cause mortality" and "cancer-related mortality."

Study Results

Dr. Appiah and his colleagues found that in comparison with the daily breakfast group, subjects who rarely ate breakfast were younger, and a higher percentage were non-Hispanic Black, were smokers, were obese, were physically inactive, and had higher total cholesterol levels.

Total caloric intake was similar among participants who ate breakfast every day and those who rarely did so, but the calories consumed by the latter group included a much higher percentage from unhealthy fats and a lower percentage from proteins and carbohydrates. The group of participants who rarely ate breakfast also had lower diet quality scores.

The researchers calculated that during the follow-up period (median, 22.2 years), there were 3573 deaths among the participants, with 795 of those deaths related to cancer. They also found that in multivariable models accounting for sociodemographic factors, smoking, physical activity, body mass index, hypertension, diabetes, cholesterol levels, total energy intake, and diet quality, those who rarely consumed breakfast had a higher risk for both cancer-related mortality (hazard ratio, 1.52; CI, 1.06-2.18) and all-cause mortality (hazard ratio, 1.69; CI, 1.42-2.02) than those who said that they ate breakfast daily.

Study Interpretation

Dr. Appiah says that his research team believes the conclusions from

their study have important clinical and public health significance. "The proportion of Americans skipping breakfast has increased tremendously across all age groups over the past 5 decades, and almost a quarter of American adults currently report skipping breakfast on a regular basis. Intervening in this dietary pattern among adults who regularly skip breakfast offers another low-cost avenue to prevent cancer and enhance the quality of life of many Americans."

Dr. Appiah notes that some studies report that short-term fasting enhances the efficacy and tolerability of cancer treatment and that short-term skipping of breakfast is often incorporated into various forms of intermittent fasting regimens. "Therefore, understanding how various dietary regimens and dietary practices that involve skipping breakfast differentially influence cancer outcomes to enhance interventions targeted at cancer prevention are warranted."

Marji McCullough, ScD, RD, senior scientific director of epidemiology research with the American Cancer Society, says that there is a great deal of interest in the potential role of meal timing, including skipping breakfast, metabolism, weight gain, and health outcomes. "To date, most research has been limited to animal studies, in part due to the difficulty in measuring these behaviors in large, prospective epidemiologic studies."

Dr. McCullough says that more study is needed before we conclude that eating breakfast lowers the risk of dying of cancer and all other causes. "For example, people who skip breakfast may be more likely to have other unhealthy lifestyle behaviors. Although the researchers adjusted for important lifestyle variables that were associated with breakfast skipping, there may be

unmeasured factors that play a role. More research is needed to better understand what might drive this association. In the meantime, eating a healthy breakfast helps to meet nutrient requirements and may help to maintain weight. As this was among the first studies of its type, it needs to be replicated.”

“The jury is still out, however, on the role of meal timing, frequency, and fasting on health outcomes such as cancer,” she says. “Until we know more, patients without cancer and those with a history of cancer should follow the American Cancer Society Guideline for Diet and Physical Activity for Cancer Prevention to the best of

their ability,” says Dr. McCullough. “These guidelines recommend eating a variety of vegetables, fruits, whole grains, limiting red and processed meats, and limiting sugar-sweetened beverages and highly processed foods. Eating a healthy breakfast can contribute to meeting these guidelines.”

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