Impact of a Healthy Lifestyle on Risk of Developing Cancer, Cardiovascular Disease, or Type 2 Diabetes

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In a study reported in *JACC: CardioOncology,* Cao et al found that fulfillment of more components of a healthy lifestyle was associated with a reduced risk of developing cancer in a baseline cancer-free cohort, and a reduced risk of developing cardiovascular disease and type 2 diabetes in both the cancer-free cohort as well as a cohort of patients with cancer.

Study Details

The study involved data from the UK Biobank on 397,136 individuals without cancer at recruitment and 35,564 patients with cancer aged 40 to 70 years who were free of cardiovascular disease and type 2 diabetes at recruitment. Lifestyle factors were assessed at baseline using a healthy lifestyle index (HLI) of five cardiometabolic disease-related behaviors consisting of smoking status, physical activity, diet, alcohol consumption, and sleep duration. For each healthy lifestyle factor, participants received a score of 1 if they met the criterion and 0 if they did not; the sum of the five components yielded a final score ranging from 0 to 5, with higher scores indicating a healthier lifestyle. Analyses were adjusted for age, sex, Townsend deprivation index, ethnicity, education level, employment status, hypertension, and body mass index.

A healthy lifestyle is associated with a slower transition from cancer development to the subsequent development of cardiovascular disease and type 2 diabetes. Moreover, among patients with cancer, a healthy lifestyle is associated with lower risk for cardiovascular disease and type 2 diabetes. This study highlights the practical benefits of adherence to a healthy lifestyle.
— Cao et al

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Cancer, Cardiovascular Disease, and Type 2 Diabetes Incidence

Maximum follow-up was 15 years. Among 397,136 cancer-free participants (mean age = 55.7 years, 44.6% men), 40,097 (10.1%) developed cancer, 28,164 (7.1%) developed cardiovascular disease, and 12,712 (3.2%) developed type 2 diabetes.

Among 35,564 patients with prevalent cancer (mean age = 59.3 years, 33.0% men), 2,902 (8.2%) developed cardiovascular disease and 1,284 (3.6%) developed type 2 diabetes.

Outcomes in the Cancer-Free Cohort

Each 1-point increment in HLI score was associated with a reduced risk of developing cancer (hazard ratio [HR] = 0.92, 95% confidence interval [CI] = 0.91–0.93). Each 1-point increase was associated with a reduced risk of developing cardiovascular disease after cancer diagnosis among those with cancer (HR = 0.90, 95% CI = 0.86–0.94) and among those who remained free of cancer (HR = 0.88, 95% CI = 0.87–0.89) and a reduced risk of developing type 2 diabetes among those who developed cancer (HR = 0.84, 95% CI = 0.79–0.89) and among those remaining free of cancer (HR = 0.81, 95% CI = 0.80–0.83).

Outcomes in the Cancer-Prevalent Cohort

Each 1-point increase in HLI score was associated with a reduced risk of development of cardiovascular disease (HR = 0.90, 95% CI = 0.87–0.93) and type 2 diabetes (HR = 0.87, 95% CI = 0.83–0.91). Compared with HLI scores of 0 or 1, hazard ratios for the development of cardiovascular disease and development of type 2 diabetes were:

- 0.72 (95% CI = 0.60–0.86) and 1.04 (95% CI = 0.80–1.34) for a score of 2
- 0.64 (95% CI = 0.54–0.75) and 0.85 (95% CI = 0.66–1.10) for a score of 3
- 0.61 (95% CI = 0.52–0.73) and 0.77 (95% CI = 0.59–0.83) for a score of 4
- 0.56 (95% CI = 0.46–0.67) and 0.62 (95% CI = 0.47–0.83) for a score of 5.

The benefit of higher HLI scores in reducing the risk of cardiovascular disease was stronger in females vs males (P = .034 for interaction); hazard ratios for scores of 2 to 5 vs 0 or 1 ranged from 0.74 to 0.61 in males vs 0.59 to 0.37 in females. Higher HLI scores were associated with a lower risk for developing cardiovascular disease and type 2 diabetes, irrespective of age group.

The investigators concluded, "A healthy lifestyle is associated with a slower transition from cancer development to the subsequent development of cardiovascular disease and type 2 diabetes. Moreover, among patients with cancer, a healthy lifestyle is associated with lower risk for cardiovascular disease and type 2 diabetes. This study highlights the practical benefits of adherence to a healthy lifestyle."

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