Anti-inflammatory dietary patterns effect on cancer risk and mortality: A review in cancer

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Introduction

There has been no shortages of fad diets in recent years with the promises of quick life-changing effects and with the current American lifestyle that has become extremely sedentary. Now more than ever there has become a need for proper evidence-based nutrition. Diet and chronic diseases such as cancer have been thought to be associated to one another.

While there is no single food or food group that has been proved to prevent cancer, consuming a healthful diet such as an anti-inflammatory or plant-based diet may serve to potentially reduce cancer incidence and improve cancer prognoses.

Methodology

Numerous studies have identified the critical role that food/diet has played in describing inflammation within the body and its unique role in chronic disease (Kato & Sun, 2023). Epidemiological and clinical studies have utilized the Dietary Inflammatory Index (DII) and Energy-adjusted Dietary Inflammatory Index (E-DII) as a comprehensive method to accurately determine the inflammatory properties of specific food-ingredients used in many dietary interventions. The DII ties diet to inflammatory biomarkers: (interleukin (IL)) IL-1β, IL-4, IL-6, IL-10, TNF-α, and C-reactive protein (CRP), quantifying their inflammatory potential (Hébert et al. 2019) (Shivappa et al. 2013). A more negative score reflecting a less-inflammatory diet while a more positive DII score indicating a pro-inflammatory diet. The following studies report findings of anti-inflammatory dietary interventions among large cohorts of cancer patients. This methodology extends to plant-based diet indices. Quantifying plant-based diets are done by giving a more positive score for plant-based foods and more negative score for meat or other diet restrictive foods.

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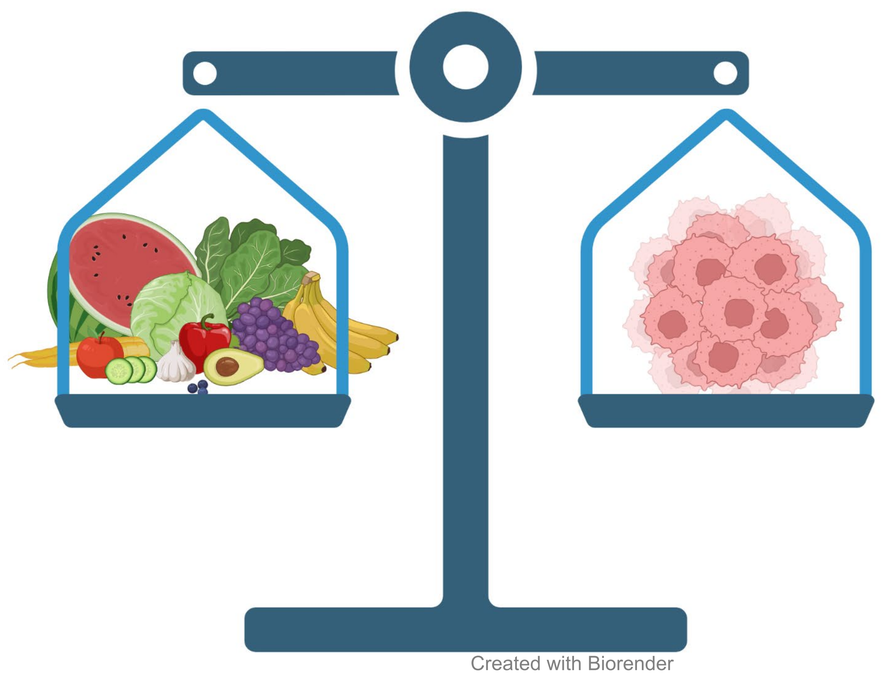
Diet could potentially aid in **preventing** and **surviving cancer**!



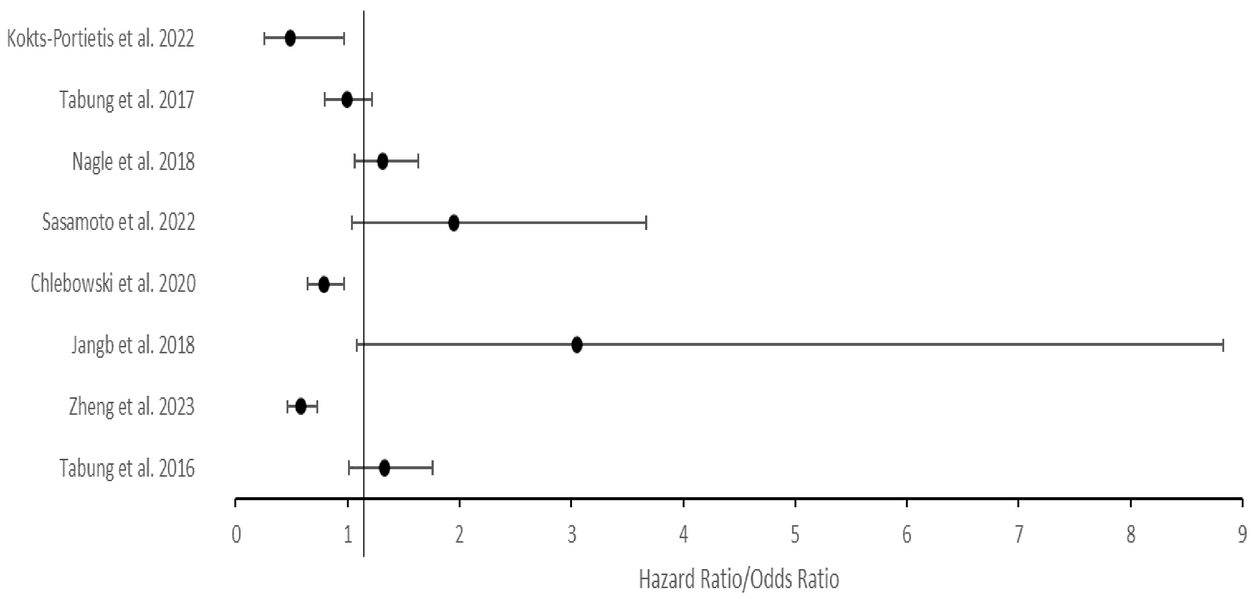


Figure 1. Hazard/Odds ratios and 95% confidence intervals for anti-inflammatory dietary interventions in response to cancer risk and mortality.

Results

Results have been spurious but promising in the sense that dietary interventions may be viable for improved cancer prognoses. The results from the studies shown in the forest plot suggest dietary interventions containing anti-inflammatory properties as well as plant-based properties have the potential to reduce cancer risk and mortality in certain populations.

Study	HR/OR & 95% CI	Cancer Type
Tabung et al. 2016	1.33 (1.01-1.76)	Breast
Chlebowski et al. 2020	0.79 (0.64-0.97)	Breast
Jang et al. 2018	3.04 (1.08-8.83)	Breast
Sasamoto et al. 2022	1.58 (1.09-2.3)	Ovarian
Tabung et al. 2017	0.99 (0.8-1.22)	Ovarian
Nagle et al. 2018	0.88 (0.55-1.41)	Endometrial
Ratjen et al. 2021	1.19 (0.96-1.48)	Colorectal (PB)
Hardt et al. 2022	0.97 (0.88-1.06)	All (PB)

Figure 2. Hazard/Odds ratios and 95% confidence intervals for anti-inflammatory and plant-based dietary interventions in response to cancer risk and mortality.

Future Directions

While many of the studies included in this presentation are reports from large clinical cohorts, the methodology and accuracy of the reported questionnaires could use improvement. Epidemiologist know how difficult accurately reporting dietary patterns can be. To truly know how effective these proposed mitigation strategies can be, we must improve upon what currently exists and find new ways to ensure accuracy not only in data collection but