

Additional Study Methodology

Study population

Participants were only included in the analyses if they had a recorded prevalent cancer diagnosis before the recruitment in the UK Biobank, based on linkage with cancer registries. Cancer cases were coded according to the 9th and 10th Revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death. Participants were included in the study population of cancer survivors cancer if they had a recorded 140-208, excluding 173 (ICD-9), or C00-C97, as well as D320, D321, D329, D330, D332, D333, D334, D339, D352, D420, D429, D430, D431, D432, D439, D443, D444, D445, excluding C44 (ICD-10).

Dietary assessment

At study enrollment, the Touchscreen questionnaire inquired about the consumption frequency of selected food groups over the past year via 29 questions. The following items were assessed: cooked vegetables, salad/raw vegetables, fresh fruit, dried fruit, oily fish, other fish, processed meat, poultry, beef, lamb, pork, cheese, salt added to food, tea and water. Additionally, the touchscreen questionnaire included questions on the type of milk and spread most commonly consumed, number of slices and type of bread most commonly consumed, number of bowls and type of breakfast cereal most commonly consumed, cups of coffee and type most commonly consumed. The avoidance of selected food groups (i.e., eggs or foods containing eggs, dairy products, wheat products, sugar or foods/drinks containing sugar), the age when the participant last ate meat, the preferred temperature of hot drinks, changes in diet in the past five years, and variation in diet were also assessed. Due to the lack of information on the consumption of certain food groups pertinent to the EAT-Lancet reference diet in the UK Biobank Touchscreen questionnaire, the self-reported avoidance of these food groups, based on the question "Which of the following do you never eat?" was used in the construction of the score. The potential answers to the question on changes in diet in the past five years were categorized as yes, no and prefer not to answer/missing. Regarding information on changes in the diet in the past five years, UK Biobank participants were asked "'Have you made any major changes to your diet in the last 5 years?', to which the possible responses were No, Yes, because of illness, Yes, because of other reasons or Prefer not to answer. We recoded this variable to only 3 categories yes, no and prefer not to answer/Missing.

Food items whose consumption was asked at a weekly level were transformed into daily consumption and standard portion sizes reported for the UK [25] were used to transform consumption to the necessary level of daily consumption (in grams consumed per day).

Adjusting variables assessment

Upon recruitment, data on medical history, diet, body measurements, and lifestyle factors were collected. This included details on alcohol consumption, smoking habits, physical activity levels, education, reproductive history, and past illnesses. Participants were also asked to provide body size measurements. The baseline questionnaire required participants to estimate the number of days per week they typically engage in moderate and vigorous physical activity, along with the usual duration (in minutes) of these activities for both moderate and vigorous intensities on a typical day.

Supplementary Table 1. Operationalization of the components of the EAT-Lancet reference diet using the UK Biobank Touchscreen questionnaire^{1,2,3}

EAT-Lancet reference diet component	Food groups in the UK Biobank	Cut-offs of daily dietary intake (males/females*)
Grains (incl. rice, wheat, corn, and other)	Partial component, estimated based on bread intake and cereal intake and on the question “Which of the following do you never eat?”, with answer wheat products	Sex-specific cohort-based median of consumers. > 91g/ 70g (median): 0 ≤ median: 1 Participants reporting avoidance of wheat products and reported no consumption of cereals received the one point.
Vegetables	Cooked vegetable and salad / raw vegetable intake	200-600g/160-480g
Fruits	Fresh fruit and dried fruit intake	100-300g/80-240g
Dairy foods (incl. whole milk or equivalents)	Partial component, estimated based on cheese intake and on the question “Which of the following do you never eat?”, with possible answer dairy products	Sex-specific cohort-based median of consumers. > 13g/ 13g (median): 0 ≤ median: 1 Participants reporting avoidance of dairy received one point
Protein sources		
Beef, lamb, and pork	Beef, lamb/mutton and pork intake	≤28g/22g
Chicken and other poultry	Poultry	≤58g/46g
Eggs	Binary outcome, based on the question “Which of the following do you never eat?”, with possible answer eggs	Participants avoiding eggs received one point
Fish	Oily fish and non-oily fish intake	≤100g/80g
Added fats		
Unsaturated oils	Binary outcome, based on spread type and non-butter spread type details	Those not using spreads or using Benecol received the full point. The rest and those using hard margarine received one point
Saturated oils	Binary outcome, based on spread type and non-butter spread type details	Those not using spreads or using Benecol received the full point. The rest and those using hard margarine received one point
Added sugars (incl. all sugars)	Binary outcome, based on the question “Which of the following do you never eat?”, with possible answer sugar or foods/ drinks containing sugar	Participants avoiding sugar received one point

¹ The EAT-Lancet reference diet cut-offs are based on the report of the EAT-Lancet Commission, to reflect a diet of 2,500 kcal/day. (Summary Report of the EAT-Lancet Commission. Food Planet Health. Healthy Diets From Sustainable Food Systems, 2019). Consumption within each component’s cut-offs results in one point being awarded, otherwise, zero points are awarded.

² The dietary intake for females was rescaled to reflect a diet of 2,000 kcal/day, rounded to the nearest whole number.

³ Due to the selected food groups in the Touchscreen questionnaire, it was not possible to estimate the consumption of tuber or starchy vegetables, legumes, and nuts, and include them in the score.

Supplementary Table 2. The association between the EAT-Lancet reference diet and cancer- or cardiovascular-mortality in cancer survivors, based on the primary cause of death

	Cancer mortality, primary cause			Cardiovascular mortality, primary cause		
	Cases, n	HR (95% CI)		Cases, n	HR (95% CI)	
		Model 1	Model 2		Model 1	Model 2
Continuous	3,495	0.98 (0.96-1.01)	0.98 (0.96-1.00)	499	0.98 (0.93-1.04)	0.97 (0.91-1.03)
Tertile 1	1,722	Ref.	Ref.	258	Ref.	Ref.
Tertile 2	867	1.02 (0.94-1.11)	1.01 (0.93-1.10)	113	0.90 (0.72-1.12)	0.89 (0.71-1.11)
Tertile 3	906	0.94 (0.87-1.02)	0.92 (0.85-1.00)	128	0.93 (0.75-1.16)	0.89 (0.71-1.10)

¹ Model based on age, sex, and region ² Model based on age, sex, and region plus further adjustment for education, Townsend deprivation index, smoking status, body mass index, physical activity, alcohol consumption, self-reported changes in the diet in the past 5 years and time between the initial cancer diagnosis and study recruitment. Abbreviations: CI: Confidence interval, HR: Hazard ratio. In analyses with breast and prostate cancer as outcomes, only participants with reported sex as female and male, respectively, were included.