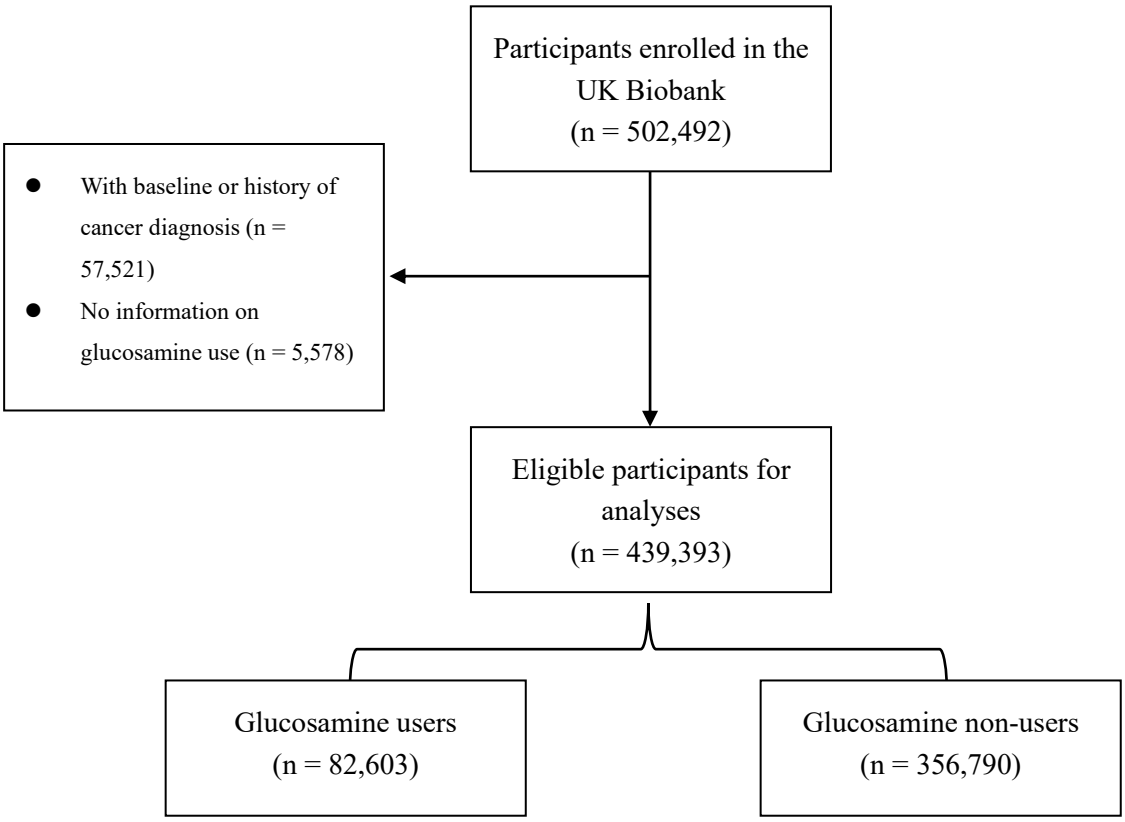
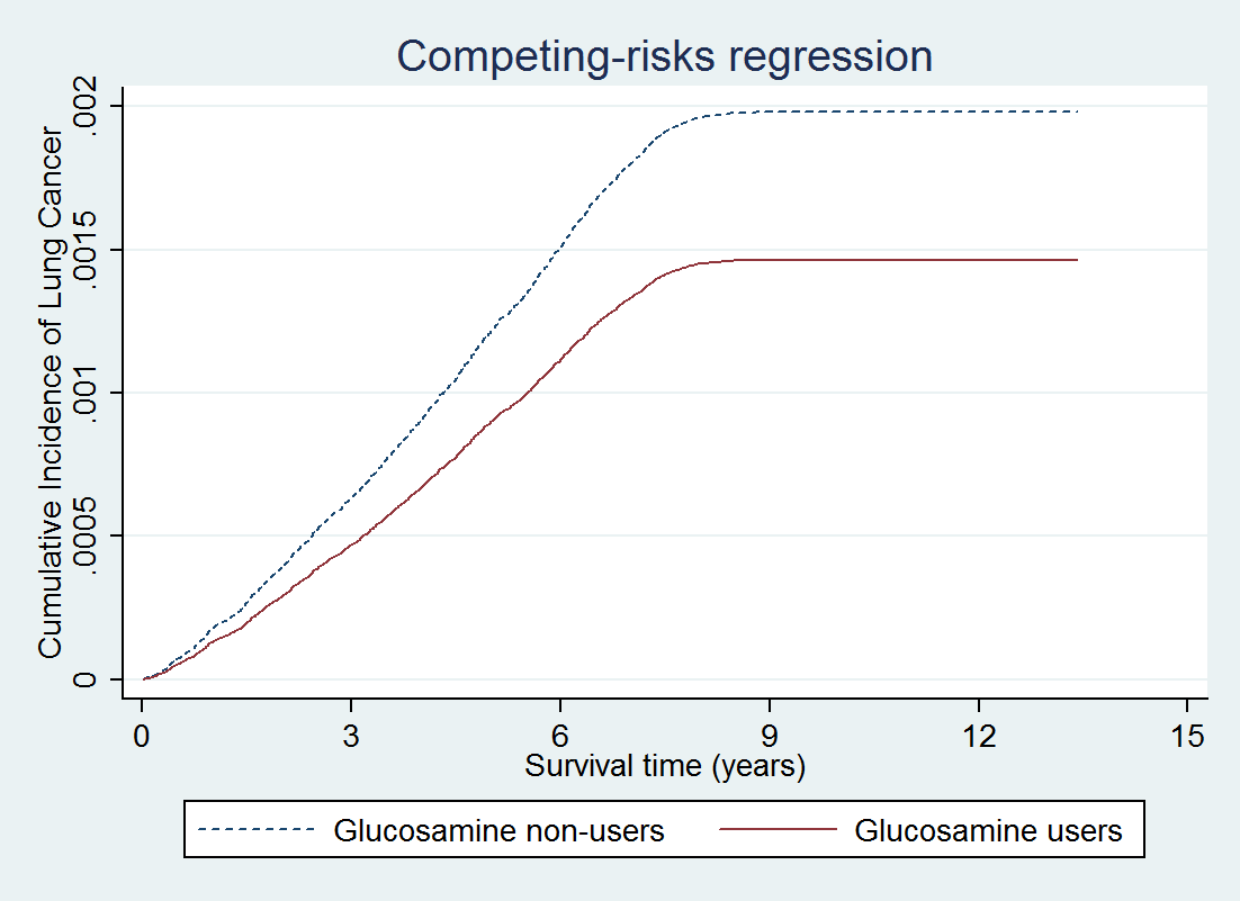
Supplemental figure S1. Flow diagram showing participants selection process in this study



Supplemental Figure S2. Cumulative incidence curves for the marginal probability of lung cancer in the presence of competing events between glucosamine users and non-users



Supplemental Table S1. Results for the relationship between glucosamine use and lung cancer risk according to quartiles of FEV1*

Quartiles of FEV1#	**Glucosamine users**		**Glucosamine non-users**		**Hazard ratio (95% CI)**
	Number of participants	Number of lung cancer cases	Number of participants	Number of lung cancer cases	
Q1	21,488	122	77,794	655	0.87 (0.82 - 0.93)
Q2	20,811	74	80,051	352	0.85 (0.73 - 0.98)
Q3	17,810	40	83,025	235	0.88 (0.64 - 1.20)
Q4	15,935	29	84,918	138	0.84 (0.53 - 1.31)

* model adjusted for age, ethnicity, sex, family history of lung cancer, education, annual income, Townsend Deprivation Index, smoking and drinking, BMI, physical activity, fruit and vegetable intake, health condition, NSAID use, chondroitin use and nutrient supplementation

if $0 \leqslant FEV1 < 2.28$ liters, then participants were grouped into Q1; if $2.28 \leqslant FEV1 < 2.76$, then participants were grouped into Q2; if $2.76 \leqslant FEV1 < 3.35$, then participants were grouped into Q3; if $FEV1 \geqslant 3.35$, then participants were grouped into Q4

Supplemental table S2. Results from sensitivity analyses for the relationship between glucosamine use and risk of lung cancer and lung cancer mortality

Sensitivity analysis	HR (95% CI)	P-value
Lung cancer		
Performing competing risk analysis[1]	0.83 (0.74 - 0.92)	< 0.001
Excluding participants taking chondroitin[2]	0.85 (0.77 - 0.94)	< 0.001
Using multiple imputation for missing data[3]	0.81 (0.71 - 0.92)	0.003
Adjusting for propensity score[3,4]	0.79 (0.69 - 0.91)	< 0.001
Lung cancer mortality		
Excluding participants taking chondroitin[2]	0.87 (0.78 - 0.95)	0.006
Using multiple imputation for missing data[3]	0.85 (0.75 - 0.94)	0.008
Adjusting for propensity score[3,4]	0.90 (0.79 - 0.98)	0.010

HR = hazard ratio; CI = confidence interval

[1] there were 13,592 deaths as competing events for lung cancer; model adjusted for age, ethnicity, sex, family history of lung cancer, education, annual income, Townsend Deprivation Index, smoking and drinking, BMI, physical activity, fruit and vegetable intake, health condition, NSAID use, chondroitin use, FEV1, and nutrient supplementation

[2] there were 5,530 chondroitin users excluded for analyses; model adjusted for age, ethnicity, sex, family history of lung cancer, education, annual income, Townsend Deprivation Index, smoking and drinking, BMI, physical activity, fruit and vegetable intake, health condition, NSAID use, FEV1, and nutrient supplementation

[3] propensity score was calculated based on logistic regression with independent variables including age, ethnicity, sex, family history of lung cancer, education, annual income, Townsend Deprivation Index, smoking and drinking, physical activity, fruit and vegetable intake, arthritis, use of NSAIDs and chondroitin, FEV1, and nutrient supplementation

[4] model adjusted for age, ethnicity, sex, family history of lung cancer, education, annual income, Townsend Deprivation Index, smoking and drinking, BMI, physical activity, fruit and vegetable intake, health condition, NSAID use, chondroitin use, FEV1, and nutrient supplementation