論文題目　Dietary glycemic index, dietary glycemic load, sugar drink intake, and risk of all-cause and cause-specific mortality
(食事のグリセミック指数およびグリセミック負荷、甘味飲料摂取と全死亡および主要死因別死亡のリスクに関する研究)

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Objective: Long-term effects of dietary glycemic index (GI), glycemic load (GL), and sugary drink consumption on mortality outcomes remain unclear. Furthermore, few epidemiologic studies have been conducted in Asian populations. The aim of this study was to examine the association of dietary GI, GL and sugary drinks consumption with the risk of all-cause and cause-specific mortality using data from the Japan Public Health Center-based Prospective Study.

Methods: After the exclusion of ineligible participants, the present study included 72,783 individuals for the analysis of GI/GL and mortality risks and 70,486 individuals for the analysis of sugary drink consumption and mortality risks. Participants aged 45–74 years were followed-up from 1995-1999 (5-year follow-up survey) until December 2015. Dietary GI, GL, and sugary drink consumption were derived from validated food frequency questionnaires. For the GI/GL analysis, participants were grouped into quartile categories according to their dietary GI and GL. As for the sugary drink analysis, individuals were categorized into quintiles by sugary drink consumption. Multivariable Cox proportional hazards regression models were used to estimate the risk of total and cause-specific mortality associated with dietary GI, GL, and sugary drink consumption.

Results: In the analyses for dietary GI, GL, and mortality risks, 7,535 men and 4,913 women died during 1,244,553 person years of follow-up. Dietary GI was positively associated with all-cause mortality. As compared with the lowest quartile, the multivariable HR for those who had the highest quartile of GI was 1.13 (95% CI, 1.07–1.19). The HRs for death comparing the highest with the lowest quartile were 1.26 (95% CI, 1.13–1.40) for circulatory system diseases, 1.32 (95% CI, 1.13–1.54) for heart disease, 1.27 (95% CI, 1.07–1.51) for cerebrovascular disease, and 1.39 (95% CI, 1.14–1.70) for respiratory diseases. Dietary GL showed a null association with all-cause mortality (highest vs lowest; HR 1.03; 95% CI, 0.95–1.12). However, among

those who had the highest GL, the HRs for death from circulatory system diseases was 1.23 (95% CI, 1.04–1.44) and cerebrovascular disease was 1.30 (95% CI, 1.01–1.69) as compared with the lowest quartile. In the analyses for sugary drink consumption and mortality risks, mean follow-up was 1,205,369 person years, during which 11,811 deaths were documented. Sugary drink consumption was associated with higher total mortality, with multivariate hazard ratio (HR) of 1.06 (95%CI, 1.00–1.13) for quintile 3, 1.07 (1.01–1.13) for quintile 4, and 1.15 (1.09–1.22) for quintile 5 (P for trend <0.001), with the quintile 1 as the reference group. Additionally, positive associations with cause-specific mortality were observed, including death from circulatory system diseases (quintile 5 vs quintile 1; HR 1.23 [1.09–1.38]) and heart disease diseases (quintile 5 vs quintile 1; HR 1.35 [1.14–1.60]). We observed null associations between sugary drink consumption and mortality due to cancer (quintile 5 vs quintile 1; HR 1.02 [0.93–1.12]), cerebrovascular disease (quintile 5 vs quintile 1; HR 1.14 [0.94–1.38]), respiratory diseases (quintile 5 vs quintile 1; HR 1.08 [0.87–1.34]), and digestive diseases (quintile 5 vs quintile 1; HR 1.16 [0.84–1.61]).

Conclusion: In this large prospective cohort study, dietary GI, GL, and sugary drink consumption were associated with a greater risk of total and cause-specific mortality among Japanese men and women.