Study Reveals in Adults Daily Meal Timing Influences Longevity Risk

Researchers investigated the links between the duration of daily eating windows and mortality from various causes among American adults. They found a U-shaped association. Mortality risk was lowest for those with eating windows of 11–12 hours. Shorter (<8 hours) and longer (≥15 hours) eating windows were associated with higher mortality rates, although the latter showed weaker statistical significance after full adjustment for lifestyle and health factors.

Study

Researchers employed a prospective cohort design, based on NHANES data from 2003 to 2018, and linked to mortality records through 2019. After excluding people younger than 20 and those with incomplete or invalid dietary recalls, extreme energy intake, pregnancy, missing demographic or health data, and outlying body mass index (BMI) values, 33,052 adults were included.

Dietary intake was assessed using two 24-hour recalls, and the eating window was defined as the time between the first and last intake of any caloric item within a day. Data from both recalls were averaged to account for daily variation. Mortality outcomes, including all-cause, cardiovascular, and cancer-related deaths, were obtained from the National Death Index.

Covariates included demographics, socioeconomic factors, lifestyle behaviors (smoking, alcohol use, physical activity, and sleep), diet quality (as measured by the Healthy Eating Index), and health status, including chronic conditions. BMI and weight-related perceptions were also taken into consideration.

Associations were examined using two complementary approaches: (1) restricted cubic splines to model nonlinear relationships (treating eating windows as continuous), and (2) predefined categories (e.g., <8h, 12–12.99h as reference, ≥15h). Analyses used survey-weighted Cox regression models to account for NHANES' complex sampling design.

Results

This study followed 33,052 American adults for a median of 8.1 years, documenting 4,158 deaths, including 1,277 from cardiovascular disease and 989 from cancer. A U-shaped association emerged between the daily eating window and all-cause mortality.

The lowest mortality risk was linked to an eating duration of 11–12 hours per day. Eating for less than 8 hours daily was consistently associated with higher all-cause mortality, showing a 34% greater risk compared to the reference group (12–12.99 hours).

Longer eating windows (15 hours or more) were also associated with a 25% increased risk of developing the condition. However, this association was statistically significant only in White participants and had a confidence interval (1.01–1.55), indicating borderline significance after full adjustment.

Subgroup analyses revealed critical nuances:

- Shorter windows (<8h) drove a ~50–70% increase in cardiovascular mortality among older adults, men, and White participants (HRs ~1.5–1.7).
- No significant mortality risk was observed for shorter windows in younger adults after full adjustment.
- Women showed elevated but statistically nonsignificant mortality risk with shorter windows ($p = 0.132$), while men retained significance ($p = 0.049$).
- For cancer mortality, short-window associations faded after full adjustment, with a marginal trend observed only in women. Cardiovascular mortality mirrored these findings, with the lowest risk at 11–12 hours and significantly higher risk for shorter windows, but no strong overall associations with longer windows except among Whites (HRs approaching ~1.5 in spline models).

Sensitivity analyses excluding early deaths, younger participants, and extreme eating patterns confirmed the robustness of these results.

Conclusion

The findings suggest that both very short (less than 8 hours) and very long (15 hours or more) eating windows may increase the risk of mortality. In comparison, a moderate eating duration of 11–12 hours daily is associated with the lowest risk. These results highlight the potential health risksv of highly restricted eating patterns, particularly for older adults, men, and White individuals. However, they do not broadly condemn intermittent fasting, emphasizing instead that deviations from moderate windows carry demographic-specific risks.

Strengths of this study include its large, nationally representative cohort, long follow-up period, comprehensive adjustments for diet quality, chronic conditions, socioeconomic factors, and lifestyle behaviors, as well as dual analytical approaches (continuous/categorical). Multiple sensitivity analyses further supported robustness.

However, limitations include reliance on self-reported dietary recalls (only two 24-hour assessments), which may not fully capture habitual patterns; the observational design, which prevents causal inference; lack of data on circadian timing of food intake; and unmeasured confounders, such as shift work details.

In conclusion, moderate eating windows appear most favorable for long-term health, underscoring the need for personalized approaches that avoid extremes in time-restricted eating, especially for high-risk subgroups.

Source:

https://www.news-medical.net/news/20250915/Daily-meal-timing-influences-longevity-risk-in-adults-study-reveals.aspx