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Summary

GASTRIC SHORT-CHAIN FATTY ACIDS ARE LINKED TO MUCOSAL CHANGES AND CANCER DESPITE MARKED DIETARY DIFFERENCES: AN INTERNATIONAL STUDY IN JAPAN AND LITHUANIA

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International study comparing Japan and Lithuania found gastric juice short-chain fatty acids weakly correlated with gastric mucosal changes and cancer presence despite no between-country SCFA differences, while dietary composition differed substantially between populations.

KEY POINTS

- Despite comparable total energy intake (Japan 1711±526 kcal vs. Lithuania 1662±639 kcal, p=0.650), Lithuania had significantly higher fat (77.6±29.4 vs. 54.8±22.2 g, p<0.001) and fiber (22.5±10.7 vs. 11.9±5.1 g, p<0.001) intake, while Japan had substantially higher sodium (4012±1306 vs. 1886±663 mg, p<0.001).
- No significant differences in individual SCFA concentrations were observed between Japan and Lithuania, with propionic acid predominating in both populations.
- Several SCFAs showed weak but significant positive correlations with gastric cancer presence in the combined cohort: butyrate (r=0.198, p=0.008), isobutyrate (r=0.208, p=0.006), isovalerate (r=0.173, p=0.022), valerate (r=0.160, p=0.034), and isocaproate (r=0.206, p=0.006).
- Propionic acid showed weak but significant positive correlations with gastric mucosal atrophy (OLGA: r=0.182, p=0.016) and intestinal metaplasia (OLGIM: r=0.180, p=0.017).
- Country-specific analyses revealed SCFAs and microbiota were associated with cancer in Lithuania, while mucosal atrophy was the prominent finding in Japan, suggesting diet-related factors and microbiota-derived metabolites may jointly shape the intragastric environment.

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