

Integrating human activity into food environments can better predict cardiometabolic diseases in the United States

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Cardiometabolic disorders refer to the presence of metabolic abnormalities such as obesity, high cholesterol, and high blood pressure. The prevalence of cardiometabolic disorders in the United States is presumably linked to an obesogenic food environment that promotes unhealthy diets. However, past studies have reported mixed findings about the relationship between the two. One important factor that has been neglected in previous food environment research is the role of human mobility in food procurement. In the paper, we develop a novel activity-based food environment index (AFEI) at the census tract level by utilizing large-scale GPS tracking data covering over 94 million aggregated visit records to about 359,000 food retailers across the United States for two years. We identify that the AFEI has significant associations with multiple cardiometabolic disease prevalence. We conclude that the AFEI has the potential to become a useful tool for designing policy and health interventions aimed at reducing cardiometabolic disorders in communities where obesogenic food behaviors are prevalent.

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