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Dietary strategies for improving post-prandial glucose, lipids, inflammation, and cardiovascular health.

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Abstract

The highly processed, calorie-dense, nutrient-depleted diet favored in the current American culture frequently leads to exaggerated supraphysiological post-prandial spikes in blood glucose and lipids. This state, called post-prandial dysmetabolism, induces immediate oxidant stress, which increases in direct proportion to the increases in glucose and triglycerides after a meal. The transient increase in free radicals acutely triggers atherogenic changes including inflammation, endothelial dysfunction, hypercoagulability, and sympathetic hyperactivity. Post-prandial dysmetabolism is an independent predictor of future cardiovascular events even in nondiabetic individuals. Improvements in diet exert profound and immediate favorable changes in the post-prandial dysmetabolism. Specifically, a diet high in minimally processed, high-fiber, plant-based foods such as vegetables and fruits, whole grains, legumes, and nuts will markedly blunt the post-meal increase in glucose, triglycerides, and inflammation. Additionally, lean protein, vinegar, fish oil, tea, cinnamon, calorie restriction, weight loss, exercise, and low-dose to moderate-dose alcohol each positively impact post-prandial dysmetabolism. Experimental and epidemiological studies indicate that eating patterns, such as the traditional Mediterranean or Okinawan diets, that incorporate these types of foods and beverages reduce inflammation and cardiovascular risk. This anti-inflammatory diet should be considered for the primary and secondary prevention of coronary artery disease and diabetes.

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