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JACC FOCUS SEMINAR: CV HEALTH PROMOTION

JACC FOCUS SEMINAR

Cardiovascular Disease Prevention by Diet Modification

JACC Health Promotion Series

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CME/MOC/ECME Objective for This Article: Upon completion of this activity, the learner should be able to: 1) recommend healthy eating options to patients for cardiovascular disease prevention; 2) recognize biological, social, economic, and psychological factors that adversely affect dietary choices in the general population; and 3) describe possible avenues of preventive action to ease future cardiovascular disease burden.

CME/MOC/ECME Editor Disclosure: *JACC* CME/MOC/ECME Editor Ragavendra R. Baliga, MD, FACC, has reported that he has no financial relationships or interests to disclose.

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CME/MOC/ECME Term of Approval

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ABSTRACT

Reduction in excess calories and improvement in dietary composition may prevent many primary and secondary cardiovascular events. Current guidelines recommend diets high in fruits, vegetables, whole grains, nuts, and legumes; moderate in low-fat dairy and seafood; and low in processed meats, sugar-sweetened beverages, refined grains, and sodium. Supplementation can be useful for some people but cannot replace a good diet. Factors that influence individuals to consume a low-quality diet are myriad and include lack of knowledge, lack of availability, high cost, time scarcity, social and cultural norms, marketing of poor-quality foods, and palatability. Governments should focus on cardiovascular disease as a global threat and enact policies that will reach all levels of society and create a food environment wherein healthy foods are accessible, affordable, and desirable. Health professionals should be proficient in basic nutritional knowledge to promote a sustainable pattern of healthful eating for cardiovascular disease prevention for both healthy individuals and those at higher risk. (J Am Coll Cardiol 2018;72:914–26) © 2018 by the American College of Cardiology Foundation.

Behavior modification is a key strategy that may prevent a large number of primary and secondary cardiovascular events (1). Suboptimal diet was responsible for an estimated 1 in 5 premature deaths globally from 1990 to 2016 (2).

Observational studies of human diet and health outcomes are challenging due to difficulties in measuring dietary intakes (3) and potential problems with generalizability and confounding (4). Although randomized trials provide stronger potential for causal inference, they typically have small sample sizes, short durations of follow-up, noncompliance, high attrition rates, and ethical constraints (5). Thus, current dietary recommendations are based on a combination of human observational and intervention trial evidence supplemented by findings from mechanistic studies (6).

In the present review, we first summarize the current state of knowledge regarding various food groups and nutrients. Subsequent sections explore factors driving individual food choice, where preventive action can be implemented, and what potential roadblocks may hinder progress.

PATHOPHYSIOLOGICAL EFFECTS OF DIETARY COMPONENTS

The **Central Illustration** demonstrates the prevention of cardiovascular disease (CVD) and disease risk factors through a healthy eating pattern. Current evidence suggests that the impact of dietary composition is relatively consistent for primordial, primary, and secondary prevention of CVD with certain dietary factors that reduce CVD incidence also being important for secondary prevention among myocardial infarction (MI) survivors.

EXCESS CALORIC INTAKE. Healthy eating is based on maintaining caloric balance. A large body of published reports supports calorie restriction for cardiometabolic benefit, specifically for improvements in insulin sensitivity, blood glucose, and inflammation (7). Chronic positive energy balance leads to overweight and obesity, the details of which are discussed in a separate paper in this series. For most people, significant and sustained weight loss through dieting is extremely difficult, and the majority of weight loss trials feature high degrees of dropout and noncompliance due to the difficulty of long-term caloric restriction (8). Emerging evidence suggests that dietary composition and overall diet quality are important for minimizing overconsumption, and that low-carbohydrate and Mediterranean diets are superior to low-fat diets in maintaining weight loss (9). Some, but not all, trials that examine macronutrient composition for weight loss reported greater long-term benefit for individuals consuming higher amounts of protein and fat compared with those who consumed higher amounts of carbohydrates (10–12).

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