

cardiovascular events by 25% when compared with placebo (68a).

Trans Fat

A meta-analysis of seven RCTs showed that increased *trans* fat intake did not result in changes in glucose, insulin, or triglyceride concentrations but led to an increase in total and LDL-C and a decrease in HDL-C concentrations (307). *Trans* fats also have been associated with all-cause mortality, total CHD, and CHD mortality (297).

Can lowering sodium intake reduce blood pressure and other cardiovascular risk factors in people with diabetes?

Many health groups acknowledge the current average intake of sodium, which is >3,500 mg daily (308), should be reduced (8,309–312) to prevent and manage hypertension. While reducing sodium to the general recommendation of <2,300 mg/day demonstrates beneficial effects on blood pressure (118), further reduction warrants caution. Some studies measuring urine sodium excretion in people with type 1 (313) and type 2 (314) diabetes have shown increased mortality associated with the lowest sodium intakes. A secondary analysis of data from the Ongoing Telmisartan Alone and in Combination With Ramipril Global Endpoint Trial (ONTARGET) suggests sodium excretions <3 g/day and >7 g/day were both associated with increased mortality in people with type 2 diabetes (315), leading to continued controversy over the potential benefits versus harms of lowering sodium intake below the general recommendation. In the absence of clear scientific evidence for benefit in people with combined diabetes and hypertension (313,314), sodium intake goals that are significantly lower than 2,300 mg/day should be considered only on an individual basis. When individualizing sodium intake recommendations, careful consideration must be given to issues such as food preference, palatability, availability, and additional cost of fresh or specialty low-sodium products (316).

Diabetic Kidney Disease

Consensus recommendation

- In individuals with diabetes and non-dialysis-dependent diabetic kidney disease (DKD), reducing

the amount of dietary protein below the recommended daily allowance (0.8 g/kg body weight/day) does not meaningfully alter glycemic measures, cardiovascular risk measures, or the course of glomerular filtration rate decline and may increase risk for malnutrition.

Are protein needs different for people with diabetes and kidney disease?

Historically, low-protein eating plans were advised to reduce albuminuria and progression of chronic kidney disease in people with DKD, typically with improvements in albuminuria but no clear effect on estimated glomerular filtration rate. In addition, there is some indication that a low-protein eating plan may lead to malnutrition in individuals with DKD (317–321). The average daily level of protein intake for people with diabetes without kidney disease is typically 1–1.5 g/kg body weight/day or 15–20% of total calories (45,146). Evidence does not suggest that people with DKD need to restrict protein intake to less than the average protein intake.

For people with DKD and macroalbuminuria, changing to a more soy-based source of protein may improve CVD risk factors but does not appear to alter proteinuria (322,323).

Gastroparesis

Consensus recommendations

- Selection of small-particle-size foods may improve symptoms of diabetes-related gastroparesis.
- Correcting hyperglycemia is one strategy for the management of gastroparesis, as acute hyperglycemia delays gastric emptying.
- Use of CGM and/or insulin pump therapy may aid the dosing and timing of insulin administration in people with type 1 or type 2 diabetes with gastroparesis.

How is diabetic gastroparesis best managed?

Consultation by an RDN knowledgeable in the management of gastroparesis is helpful in setting and maintaining treatment goals (324). Treatment goals include managing and reducing symptoms; correcting fluid, electrolyte, and nutritional deficiencies and glycemic

imbalances; and addressing the precipitating cause(s) with appropriate drug therapy (227). Correcting hyperglycemia is one strategy for the management of gastroparesis, as acute hyperglycemia delays gastric emptying (325,326). Modification of food and beverage intake is the primary management strategy, especially among individuals with mild symptoms.

People with gastroparesis may find it helpful to eat small, frequent meals. Replacing solid food with a greater proportion of liquid calories to meet individualized nutrition requirements may be helpful because consuming solid food in large volumes is associated with longer gastric emptying times (327,328). Large meals can also decrease the lower esophageal sphincter pressure, which may cause gastric reflux, providing further aggravation (327).

Results from an RCT demonstrated eating plans that emphasize small-particle-size (<2 mm) foods may reduce severity of gastrointestinal symptoms (329). Small-particle-size food is defined as “food easy to mash with a fork into small particle size.” High-fiber foods, such as whole intact grains and foods with seeds, husks, stringy fibers, and membranes, should be excluded from the eating plan. Many of the foods typically recommended for people with diabetes, such as leafy green salads, raw vegetables, beans, and fresh fruits, and other food like fatty or tough meat, can be some of the most difficult foods for the gastroparetic stomach to grind and empty (324,329). Notably, the majority of nutrition therapy interventions for gastroparesis are based on the knowledge of the pathophysiology and clinical judgment rather than empirical research (227).

The use of an insulin pump is another option for individuals with type 1 diabetes and insulin-requiring type 2 diabetes with gastroparesis (330). A small but positive 12-month trial reported a 1.8% reduction in A1C and decreased hospitalizations with insulin pump use (331). An insulin pump can be used to provide consistent basal insulin infusion, as well as the ability to modify mealtime insulin delivery doses as needed. The variable bolus feature allows the user to administer a portion of the meal bolus in an extended fashion over a longer period of time (227). Use of this feature