



Vegetarian Nutrition

a dietetic practice group of the



Academy of Nutrition and Dietetics

RDN Resources for Consumers:

Plant-based Diets in Diabetes

Global diabetes rates are rising rapidly, impacting over 425 million (2017) with projections reaching as high as 629 million by 2045.¹ Plant-based diets can help prevent, manage, and in some cases reverse Type 2 Diabetes.

Over 100 million American adults have either diabetes or prediabetes. Of those with prediabetes, 90% don't know they have it (CDC, 2019). Diabetes incidence has tripled between 1980 and 2010.² Diabetes is associated with multiple health conditions, including heart disease, stroke, kidney disease and limb amputations.²

It is the position of The Academy of Nutrition and Dietetics that vegetarians and vegans are at reduced risk of certain health conditions, including type 2 diabetes.³ A healthy, vegetarian diet is defined by a variety of unrefined foods, including grain products such as whole grains; fruits, including berries (e.g., blueberries and raspberries); vegetables, especially legumes and green leafy vegetables; and nuts and seeds.⁴

It is important to prevent and manage diabetes with diet and lifestyle changes.⁵ These changes include adopting and maintaining healthy eating patterns, emphasizing a variety of plant-based foods with appropriate portion sizes, achieving and maintaining body weight goals, and maintaining the pleasure of eating.

Both vegetarian and vegan diets can easily satisfy these goals and may offer the following additional benefits:

Lower cholesterol levels (total and LDL levels), lower blood pressure, and a reduced risk for cardiovascular and heart disease.³ These benefits are particularly advantageous to people with diabetes as it is one of the top risk factors for cardiovascular disease. Vegetarian and vegan meal plans have been successfully used as interventions for heart disease.⁶

Higher fiber intakes which is associated with improved blood sugar in people with diabetes.⁷ Another advantage of high-fiber diets is increased feeling of fullness, which can aid in weight loss.⁷

Lower body weight. Obesity increases the risk for type 2 diabetes and just 5-10% loss of excess body weight is associated with improved blood sugar control in people with diabetes. Vegetarian diets are effective for both short-term (less than a year) and long-term (more than a year) weight loss.⁵

Reduced saturated fat intake which can reduce insulin resistance. Intake of saturated fatty acids is associated with markers of insulin resistance and increased risk of type 2 diabetes. In clinical trials, saturated and trans fats have been shown to cause insulin resistance, whereas mono-, poly- and omega-3 fatty acids do not have an adverse effect.^{8,9}

Planning Vegetarian Diets

Carbohydrates

It's important to choose nutrient-dense carbohydrate choices such as fruits, vegetables, legumes and whole grains on a regular basis.⁵ Choosing higher fiber carbohydrates (whole grains, legumes, beans, vegetables, fruits) can slow the rise of blood sugars. Fruit juices should be consumed in moderation.

Fat

Diets should reduce intake of saturated fat and trans fats to reduce the risk for coronary artery disease. The American Diabetes Association (ADA) recommends <10% total energy from saturated fat and minimal trans fatty acids daily, or less than 22 grams for a 2000 calorie diet.¹¹ Monounsaturated fats, such as those found in nuts, olives, olive oils and avocados, may help improve heart disease markers.^{9,12} Omega-3, such as flax seeds, chia seeds, and walnuts may help lower bad cholesterol in the blood.¹²

Protein

Protein needs can be adequately met in vegetarian and vegan meal plans.³ For more information on protein, see the RDN resource Protein in Vegetarian and Vegan diets.

Legumes (or pulses) are a rich source of soluble fiber (aids in reduction of cholesterol and blood glucose), low in fat, and high in vitamins and minerals. Legumes contain resistant starch which resists digestion and ferments into short-chain fatty acids, which have potential health benefits, including helping with glucose control and insulin sensitivity.¹³

Soybeans and nuts¹⁵ are associated with reduced LDL cholesterol levels, contain soluble fiber, and provide soy isoflavones which may help reduce inflammation related to heart disease.¹⁴ Soy protein is available in a variety of forms including soy beans, soy milk, yogurt and cheese, soy nuts, tofu, tempeh (fermented soy beans), soy nuts and nut butters, textured soy protein and meat substitutes.

Meat Substitutes: Meat substitutes are growing in popularity and rapidly expanding in grocers. Clients do not need to consume these products to meet adequate protein requirements, however some may find meat substitutes beneficial when transitioning from a meat-based diet to a vegetarian diet.

Metformin and Vitamin B12

Vegetarians and vegans are at a higher risk of Vitamin B12 deficiency.¹⁷ Metformin (also called Glucophage) is a common oral medication used to treat type 2 diabetes (and occasionally pre-diabetes). Metformin has been shown to decrease absorption of B12 in some patients. More information about vitamin B12 can be found in the RD Resource, Vitamin B12 in Vegetarian Diets.

Gestational Diabetes

A vegetarian diet can be used successfully in gestational diabetes management, however, consultation with an RDN is strongly recommended to ensure that individual needs are met.

Conclusions

Research indicates that vegetarian diets may be beneficial for diabetes prevention and management. Consult with a registered dietitian to better understand how a vegetarian or vegan diet may help improve your health outcomes in relation to diabetes management.

Sample Vegetarian Meal Plan with 45-60 grams carbohydrate per meal

1800 – 2000 calories depending on brand of items and snack choices

Meal	Menu	Carbs
Breakfast	4 ounces scrambled tofu	9 grams
	½ cup diced potatoes	15 grams
	½ cup diced bell peppers	2 grams
	Small orange	15 grams
	Breakfast soy sausage patty	3 grams
	One slice whole grain toast	15 grams
	1 teaspoon margarine	0 grams
	Tea or coffee (without sugar)	0 gram
Lunch	1 cup vegetarian chili	30 grams
	6 whole grain crackers	15 grams
	2 cups tossed salad with mixed veggies	5 -15 grams
	1 tablespoon vinaigrette salad dressing	0 grams
	Carbohydrate-free beverage	0 grams
Dinner	1 cup sautéed mixed low carbohydrate vegetables	15 grams
	2/3 cup cooked quinoa	30 grams
	2 teaspoons olive oil	0 grams
	4 ounces stir-fried seitan	15 grams
	No or low-carbohydrate beverage	0 grams
Snack Ideas	17 grapes	15 grams
	1 ounce nuts	4 grams
	Raw carrots with 2 tablespoons hummus	4 grams
	¾ cup soy low fat yogurt	15 - 20 grams
	1 stalk celery with 1 tablespoon natural peanut butter	4 grams

Table 1: Sample Vegetarian Meal Plan with 45-60g carbohydrates per meal

References

References for this resource are available at <http://vndpg.org/rd-resources/diabetes>