



The Gut Microbiome and **AVOCADOS**

Are You Prepared to Talk to Your
Clients and Patients About the
Gut Microbiome?



According to the American Gastroenterological Association, investigating how to manipulate the gut microbiome to improve human health is one of the most promising areas of science today.

The gut microbiome and nutrition are inseparable. Gut bacteria support nutrient absorption, while dietary intake influences the growth of bacteria. Together, they work to promote health or disease. One way digestion relies on gut bacteria is to break down dietary fiber to produce short-chain fatty acids (SCFAs). Acetate, propionate, and butyrate are SCFAs produced by these microbes and play an essential role in regulating metabolism. SCFAs also help to digest nutrients and produce compounds that provide communication signals to the rest of the body. For example, Butyrate is an important energy source for enterocytes, and has also been shown to reduce inflammation and strengthen the gut lining. According to the Academy of Nutrition and Dietetics, SCFAs increase the bioavailability of some minerals and inhibit the growth of pathogenic bacteria.



Gut bacterial diversity is important

A less diverse bacteria in the microbiome is associated with a variety of health conditions, such as obesity and inflammatory bowel disease. A diet that includes nutritious whole foods that are rich in a variety of nutrients and fiber promote more gut bacterial diversity than a diet that is low in fiber and high in fat and simple sugars. Understanding how whole foods and dietary patterns can improve bacterial diversity may help guide potential therapeutic nutritional strategies and metabolic conditions like obesity.

Avocados are a nutrient-dense food that affects the composition and function of the gut microbiome

In a trial¹ of 163 overweight adults, researchers reported changes to gut bacteria and metabolite levels when participants ate one avocado a day for 12 weeks compared to a diet that excluded avocado. The avocado group had increased bacterial diversity, greater abundances of *Faecalibacterium*, *Lachnospira*, and *Alistipes* and a relative lower abundance of *Roseburia* and *Ruminococcus*. Increased *Lachnospira* concentrations were associated with reduced plasma insulin levels and reduced TNF-alpha. Production of the fecal SCFA, acetate, was also significantly increased in the avocado group. A larger study evaluating the impact of daily avocado consumption for 6 months in 230 adults with abdominal obesity found that the avocado group showed higher gut microbiota diversity and significant increases in specific bacteria - *Faecalibacterium prausnitzii* and *Bacterium AF16_15* compared to controls. Improvements were more pronounced in participants with lower baseline diet quality, highlighting avocados' potential prebiotic benefits.

These studies were supported by the Avocado Nutrition Center and although the findings cannot be generalized to larger populations, they support a growing body of science suggesting avocados play a role in altering the gut microbiome.



DID YOU KNOW...

- Fruit fiber, such as pectin, has been shown to promote a healthy gut microbiome. Just one-third of an avocado contains 3 grams of fiber, of which 1.2 grams is pectin.
- Fiber may protect the lining of the colon by increasing the bulk and weight of stool and speeding elimination from the body and even improving constipation in IBS because it makes stool soft and easier to pass. Avocados provide 11% of Daily Value for fiber per serving.
- Avocados are a great fresh-fruit option to help boost fiber intake. Dietary fiber supports the production of short chain fatty acids in the colon, which is believed to play an essential role in regulating metabolism.

Reference: 1. Thompson S, et al. "Avocado Consumption Alters Gastrointestinal Bacteria Abundance and Microbial Metabolite Concentrations Among Adults with Overweight or Obesity: A Randomized, Controlled Trial." *Journal of Nutrition*. 2020.
2. Yang J., et al. "Impact of Daily Avocado Consumption on Gut Microbiota in Adults with Abdominal Obesity: An Ancillary Study of HAT, a randomized Controlled Trial." *Food & Function*. 2024.

Nutritional Analysis of an Isocaloric 2000-Calorie Meal Plan With and Without One Avocado (150 g)

MEAL PLAN WITHOUT AVOCADO

BREAKFAST
2 slices whole-wheat toast
1 Tbsp. margarine
1 egg
1 cup orange juice

SNACK
1 apricot

LUNCH
Tossed green salad with chicken
3 cups chopped lettuce
4 ounces roasted, skinless, white chicken
2 slices tomato
1/2 cup kidney beans
1/2 cup shredded carrots
1 ounce reduced fat cheddar cheese
3 Tbsp. Italian salad dressing
1 cup nonfat milk

SNACK
1 medium apple
1 granola bar

DINNER
Turkey burger on a whole-grain bun
3 ounces ground turkey
1 slice tomato
1 Tbsp. BBQ sauce
3 ounces sweet potato fries
1 ear of corn on the cob
1 small wedge of watermelon

Carbohydrates 49% : Protein 21% : Fat 30%

1982 calories
14 g saturated fat
19 g MUFA
311 mg cholesterol
34 g fiber
1913 mg sodium
4128 mg potassium
6.5 mg pantothenic acid
2.4 mg vitamin B6
414 mcg folate
11 IU vitamin E

MEAL PLAN WITH AVOCADO

2 slices whole-wheat toast
1/3 medium avocado
1 egg
1 cup orange juice

1 apricot

LUNCH
Tossed green salad with chicken
3 cups chopped lettuce
4 ounces roasted, skinless, white chicken
2 slices tomato
1/3 medium avocado
1/2 cup shredded carrots
1 ounce reduced-fat cheddar cheese
3 Tbsp. Italian salad dressing
1 cup nonfat milk

1 medium apple
1 granola bar

DINNER
Turkey burger on a whole-grain bun
3 ounces ground turkey
1 slice tomato
1 Tbsp. BBQ sauce
1/3 medium avocado
3 ounces sweet potato fries
1 ear of corn on the cob
1 small wedge of watermelon

Carbohydrates 47% : Protein 20% : Fat 33%

2069 calories
15 g saturated fat
28 g MUFA
311 mg cholesterol
40 g fiber
1641 mg sodium
4701 mg potassium
8.5 mg pantothenic acid
2.7 mg vitamin B6
512 mcg folate
13 IU vitamin E



*The meal plan with avocado provides **33% more MUFA**, **17% more fiber**, **12% more potassium**, **17% less sodium** than the meal plan without avocado.*