

Love Your Lungs With Tomatoes and Apples

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

September 15, 2023

STORY AT-A-GLANCE

- › A study reveals that when former smokers increase their intake of tomatoes and fruit, especially apples, the decreased capacity of their lung function begins to lessen and may even be restored
- › A similar diet not only may slow the aging process that would normally take place in the lungs of former smokers, but actually in anyone, even if they've never smoked
- › Lung function is one of the most important factors regarding mortality, for both patients with lung disease and those who've never smoked, and preventing chronic respiratory diseases is a significant public health objective
- › Knowing how to buy, store, cook and eat these plant-based foods is essential, as conventional growing, packaging and preparation can damage or destroy the important compounds they hold, namely flavonoids and lycopene

Editor's Note: This article is a reprint. It was originally published January 8, 2018.

One of the most encouraging studies to come out concerns the dramatically improved lung function of people who've recently stopped smoking, especially those who like eating tomatoes and apples.

The research, which appeared in the December 2017 issue of the European Respiratory Journal,¹ shows that when former smokers increase their intake of these two foods — essentially making them their new habit — the decreased capacity of their lung function begins to lessen, and their chances for restored lung function is increased.

Former smokers who consumed an average of more than two tomatoes or three portions of fresh fruits, particularly apples, per day experienced a slower decline in lung function compared to people who ate fewer than one tomato or less than one portion of fruits on a daily basis, who didn't show the same benefit.

Poor lung function is associated with a higher risk of death from any cause, including chronic obstructive pulmonary disease (aka COPD), lung cancer and heart disease. Even if you don't smoke, lung function naturally starts to decrease around age 30. As Well+Good quipped, "In other words, if you hope to reap the benefits of fruit consumption, quantity counts."²

Besides the goal of convincing people to stop smoking to reduce the likelihood of developing one or more chronic lung-related diseases, the study noted two major points related to lung function:

- How your lungs function is a predictor of mortality for anyone, including patients with lung disease, as well as people who have never smoked.
- Maintaining lung function and preventing chronic respiratory diseases are also important public health objectives.

Apples and Tomatoes for Better Lung Function

Lead study author Vanessa Garcia-Larsen, an assistant professor in the Johns Hopkins Bloomberg School of Public Health's department of international health, noted that a diet rich in fruits can slow the natural aging process of your lungs even if you've never smoked, and might even help repair damage caused by smoking. Their research was part of the Ageing Lungs in European Cohorts (ALEC) Study, funded by the European Commission and led by Imperial College London.

In 2002, Garcia-Larsen and her colleagues examined the lung function and diet of more than 650 adults from Britain, Norway and Germany, using questionnaires as well as spirometry to measure forced expiratory volume and forced vital capacity (aka the

capacity of the lungs to take in oxygen), then tested the lung function of the same individuals a decade later. According to Vanguard:

“The researchers found a more striking diet-lung-function among former smokers, who had around 80 ml slower decline over the 10-year period because their diets were highly rich in tomatoes and fruits. Such a result suggests that the nutrients in their diets are beneficial to repairing the lung damage done by smoking.”³

Also noted in the study was that a major part of the benefit of the foods noted in the study (including [bananas](#) and herbal tea) was the flavonoid content, which is corroborated by earlier research: Tomatoes,⁴ as well as apples, are an important source of dietary flavonoids.

An Apple a Day: Better for Your Health Than You Realized

Plenty of studies show how healthy fruit is for you, and apples are no exception. One study⁵ noted the peel in particular as capable of benefiting endothelial function, blood pressure and atherosclerosis and reducing your risk of cardiovascular disease.

In the realm of lung function alone, the research shows that the valuable compounds in apples may help prevent and treat lung cancer,⁶ asthma and respiratory diseases, bronchial hyperactivity and persistent allergic rhinitis, not to mention Type 2 diabetes, asthma⁷ and several other types of cancer.

But while it's true that apples are a healthy food, moderation is key. As the U.S. Department of Agriculture (USDA)⁸ notes, the amounts of fruit you should eat per day vary depending on certain factors:

- **Children under 8** – 1 to 1 1/2 cups per day
- **Children and teens** – 1 1/2 to 2 cups of fruit per day
- **Women age 19 to 30** – 2 cups per day, while women older than 30 – 1 1/2 cups per day

- **Men of any age** – 2 cups of fruit per day

What they don't note, however, is that while fruits offer many vitamins, enzymes and minerals, they should be eaten in moderation due to fructose content, especially if you're insulin resistant. And please understand that drinking fruit juices does not provide the same benefit as consuming whole fruits.

As far as servings of apples go, the same site broke it down to show that one small apple or half of a large one each constitute 1 cup, as does 1 cup of sliced, chopped, raw or cooked apples. A 4-ounce snack container of applesauce counts as one-half cup.

Here's why that's important: Portion sizes, particularly for those eating a typically Western diet, are often bigger than they should be. And while many think drinking an 8-ounce glass of juice would be good for you, the USDA National Nutrient Database⁹ shows that 8 ounces of apple juice have more sugar and less than a minute amount of fiber compared to a medium-sized apple.

(Similar numbers can be assumed for other fruits, as well). Specifically, a typical 8-ounce glass of organic Honeycrisp juice contains:

- 120 calories
- 0.1 gram of dietary fiber
- 24 grams of sugar

A medium-sized apple itself has:¹⁰

- 95 calories
- 4.4 grams of dietary fiber
- 18.91 grams of sugar

ACV Balances Your Blood Sugar, Optimizes Your Gut Health

If you've never seen a list of all the ways apple cider vinegar, or ACV, benefits your health, you should definitely take a look. Besides remedying things like bug bites, cuts and scrapes, athlete's foot, sunburn, dandruff and more, fermented apple juice, with its active ingredient, ascorbic acid, has been shown by clinical studies to:

- **Lower blood sugar levels** – Three groups of adults with Type 2 diabetes, prediabetes and a healthy control group were given an ounce of ACV, after which all had lower glucose levels, and those with either diabetes or prediabetes showed dramatic improvement.¹¹
- **Sore throat soother** – Combinations of ACV with the added bonus of other bacteria-fighting substances like lemon juice, honey, ginger and cayenne pepper not only soothes but heals sore throat pain.
- **Boosts gut health** – As a prebiotic, ACV helps maintain a beneficial balance in microbiota, and may as a consequence help prevent cardiovascular disease. As one study noted:

“Up to 90 percent of dietary plant polyphenols including apples, reach the colon intact. The interaction with the gut microbiota is reciprocal, since commensal bacteria transform polyphenols into simple aromatic metabolites while polyphenols have the ability to modulate the gut microbiota composition, inhibiting some bacterial populations and stimulating others.”¹²

- **Weight loss** – A Japanese animal study¹³ reveals that mice given ACV with their meals developed 10% less body fat compared to their no-ACV counterparts, even when eating the same amount of high-fat food. Researchers concluded that humans could expect the same benefit.
- **Urinary tract infections (UTIs)** – Besides UTIs, studies show apple cider vinegar may have an antibacterial effect on interstitial cystitis, aka painful bladder syndrome. Part of the action may come from the presence of quercetin in ACV, as

well as the potassium, which National Institutes of Health¹⁴ says may inhibit bad bacteria and promote the growth of healthy bacteria.

Tomatoes: A Fruit With Unique Nutritional Advantages

Ask nearly anybody what their favorite vegetable is, and many will answer that it's a tomato. You may already know that a tomato is actually a fruit, but probably thought of it as a vegetable because it's used most often in savory rather than sweeter recipes as fruits usually are. One of the most advantageous compounds in tomatoes is lycopene, known to have an anticancer effect, but which also may help prevent stroke.

Imparting tomatoes their bright red color, lycopene was identified in one study as being associated with a reduced risk of prostate cancer.¹⁵ One study observed that human lungs are particularly vulnerable to oxidative damage and that "concentrations of dietary antioxidants in the lung epithelial lining and lining fluids may provide protection against oxidative damage."¹⁶ Another study rather carefully notes:

"Increasing evidence suggests that tomato lycopene may be preventive against the formation and the development of lung cancer. Experimental studies demonstrated that lycopene may inhibit the growth of several cultured lung cancer cells and prevent lung tumorigenesis in animal models through various mechanisms ...

Our understanding of the anticancer role played by tomato lycopene will be enhanced and help us to develop complementary strategies for the prevention, treatment and management of lung cancer."¹⁷

Notable Facts on Tomato Storage, Consumption and Cooking

A few things are important to know regarding tomato consumption, however. One is that, as a nightshade plant along with white potatoes, bell peppers, legumes, grains and some gourds, they contain lectins. Lectins are plant proteins that bind sugar and attach

to cell membranes, causing weight gain, interfering with gene expression and disrupting endocrine function.

They can also contribute to leaky gut and act as “antinutrients” that can wreak havoc on not just your gut health but your health as a whole.

You may be able to get away with eating tomatoes sparingly, but especially if you love tomatoes and other nightshade foods, sprouting, fermenting, soaking and cooking them will effectively diminish much of the lectin problem. Further, cooking tomatoes to diminish the lectin content will simultaneously increase the lycopene content. Importantly, when you eat tomatoes, do so with a fat such as olive oil or avocado oil, since lycopene is a fat-soluble nutrient.

Also, whether it’s ketchup, salsa, tomato sauce or the whole tomato, choose organic whenever possible. Here’s a tip that is crucial for the best tomato taste: Never refrigerate tomatoes, as it breaks down the flavor as well as the texture, making them mushy and tasteless. Room temperature is best.

In addition, avoid canned tomatoes because the acidity of tomatoes increases leaching of toxic, endocrine-disrupting chemicals like bisphenol-A (BPA) tainting the lining of many canned foods (as well as plastic water bottles, baby bottles and plastic storage bowls).

A Few Things to Note Regarding Plant-Based Foods

Many foods today don’t have the same health aspects you may once have counted on to keep your family healthy. “Modern” farming techniques, industrial food production, additives, preservatives, nutritionally depleted soils and many other factors have harmed, not helped, in the quest for ever better food.

Genetically engineered (GE) foods, including apples, are now part of the landscape, so to speak, since the Powers That Be want to help with things like browning (oxidation) when apples are sliced.

Through the lab-assisted suppression of polyphenol oxidase (PPO), a GE product known as Arctic apples, pre-sliced and non-browning, has been released, but it won't even have to be labeled as GE. There's also the fact that many conventionally produced apples, like the (once) Red Delicious, are often cross-bred within an inch of their lives to make them look more appealing, while rendering them mealy and practically inedible. They can also be dyed with color-enhancing pigments.

Pesticide use is arguably one of the worst ways food is compromised with harmful chemicals. Eating organic foods as much as possible is important for several reasons, as organic foods have a much lower risk of pesticide contamination compared to foods grown conventionally. In fact, studies show (through urine analysis) that people who eat organic foods whenever possible have fewer pesticides in their bodies.¹⁸

Apples, cucumbers, lemons, bell peppers and other fruits and vegetables are often given a difficult-to-remove wax or other coating to resist scarring and insects, which can be petroleum-based. Whenever you buy plant-based foods, especially unpackaged, "wash before eating" should be a rule of the house, but perhaps "buy organic" should be rule No. 1.

Sources and References

- ¹ [European Respiratory Journal 2017 50: 1602286](#)
- ² [Well+Good December 26, 2017](#)
- ³ [Vanguard December 24, 2017](#)
- ⁴ [J Agri Food Chem. 2008 April 9;56\(7\):2436-41](#)
- ⁵ [Government of Western Australia Department of Primary Industries and Regional Development Apple flavonoids and human health](#)
- ^{6, 7} [Nutr J. 2004 May 12; 3: 5](#)
- ⁸ [USDA MyPlate November 2, 2017](#)
- ⁹ [USDA Nutrition Database. Apple Juice](#)
- ¹⁰ [USDA Nutrition Database. Apples](#)
- ¹¹ [Diabetes Care 2004 January;27\(1\):281-282](#)
- ¹² [Nutrients. 2015 June;7\(6\):3959-3998](#)
- ¹³ [J. Agric. Food Chem., 2009, 57 \(13\), 5982-5986](#)
- ¹⁴ [Infect Immun. 2021 Jul; 89\(7\): e00766-20](#)
- ¹⁵ [JNCI: Journal of the National Cancer Institute, 6 March 2002 Volume 94, Issue 5](#)

- ¹⁶ Exp Biol Med (Maywood). 2002 Nov;227(10):894-9
- ¹⁷ Cancers (Basel). 2011 Jun; 3(2): 2333–2357
- ¹⁸ Ann Intern Med. 2012 September 4; 157(5):348-66