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Top Pomegranate Health Benefits

Analysis by Dr. Joseph Mercola Fact Checked | August 26, 2022

STORY AT-A-GLANCE

- Pomegranate's benefits are primarily attributed to its antioxidant content. The fruit contains three types of antioxidant polyphenols, including tannins, anthocyanins, and ellagic acid, in significant amounts
- Research comparing the potency of 10 different polyphenol-rich beverages found the antioxidant potency of pomegranate juice was at least 20% greater than any of the other beverages
- Pomegranate extract stimulates mitophagy by activating transcription factor EB, which upregulates autophagy
- Urolithin A — a gut bacteria-derived metabolite of ellagitannins in pomegranate — helps slow the aging process by improving mitochondrial function
- Previous research has also shown the antioxidants in pomegranate can inhibit cell proliferation and invasion, and promote apoptosis (programmed cell death) in various cancer cells, including breast and prostate cancer cells

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Pomegranates have been enjoyed for thousands of years and are a symbol of hope and abundance in many cultures. In North America, they're often overshadowed by more common fruits like apples and oranges, but once you learn how to eat them, pomegranates can add valuable nutrition, including powerful antioxidants, to your diet.

Pomegranates Contain Potent Antioxidants

Pomegranate's benefits are primarily attributed to its antioxidant content. Antioxidants are nature's way of providing your cells with adequate defenses against attack by reactive oxygen species (ROS). With sufficient levels, your body will be able to resist cellular damage and aging caused by everyday exposure to pollutants.

The fruit contains three types of antioxidant polyphenols, including tannins, anthocyanins and ellagic acid, in significant amounts. Ellagitannin compounds such as punicalagins and punicalins account for about half of the pomegranate's antioxidant ability.[1]

It's also an excellent source of vitamin C, another potent antioxidant, with one whole pomegranate providing 28.8 milligrams (mg) of vitamin C.[2] According to the National Institutes of Health,[3] adult men need approximately 90 mg and adult women 75 mg of vitamin C per day to maintain a satisfactory vitamin C status, with smokers needing 35 mg more than nonsmokers.

According to a 2008 study,[4] which compared the potency of 10 different polyphenol-rich beverages, pomegranate juice scored top billing as the healthiest. Overall, its antioxidant potency was found to be "at least 20% greater" than any of the other beverages.

Pomegranates Activate Mitophagy

Autophagy means "self-eating" and refers to your body's process of eliminating damaged cells and cellular components by digesting them. It's an essential cleaning out process that encourages the proliferation of new, healthy cells, and is a foundational aspect of cellular rejuvenation and longevity.

Similarly, mitophagy refers to "a cytoprotective process that limits both the production of ROS and the release of toxic intramitochondrial proteins."[5] In other words, mitophagy is the process of cleaning out your mitochondria, allowing them to function at their best,

which is crucial for normal cellular functioning and homeostasis,[6] and thus for health and longevity.

Urolithin A is believed to be responsible for most of the mitophagy activation, which is one of the reasons I regularly take pomegranate peel powder. The powder doesn't have urolithin A but the ellagic acid and ellagitannins are converted to urolithin A by bacteria in your gut,[7,8] specifically the Gordonibacter species.[9]

As explained in a recent Scientific Reports paper that investigated the effects of pomegranate extract, finding it stimulated mitophagy:[10]

> *"Mitochondrial dysfunction underscores aging and diseases. Mitophagy (mitochondria + autophagy) is a quality control pathway that preserves mitochondrial health by targeting damaged mitochondria for autophagic degradation.*
>
> *Hence, molecules or compounds that can augment mitophagy are therapeutic candidates to mitigate mitochondrial-related diseases. However, mitochondrial stress remains the most effective inducer of mitophagy. Thus, identification of mitophagy-inducing regimes that are clinically relevant is favorable."*

Pomegranate's Antiaging Effects Revealed

Another recent study confirmed one of pomegranate's longstanding claims to fame, namely its antiaging benefits, in a human, placebo-controlled trial. The paper,[11,12] published in Nature Metabolism, found urolithin A (a gut bacteria-derived metabolite of ellagitannins in pomegranate) can help slow the aging process — again by improving mitochondrial function. As reported by Medicalxpress:[13]

> *"Pomegranate, a fruit prized by many civilizations for its health benefits, contains ellagitannins. When ingested, these molecules are converted into a compound called urolithin A (UA) in the human gut. The researchers found that UA can slow down the mitochondrial aging process.*

The catch is that not everyone produces UA naturally. To get around that problem, and to make sure all participants received an equal dose, the team synthesized the compound."

About 30 elderly sedentary but otherwise healthy participants were first given a single dose between 250 mg and 2,000 mg of urolithin A.[14] A control group received a placebo. No side effects were observed at any dosage. Next, as outlined by the study report, the participants were divided into four different groups, receiving either a placebo or 250 mg, 500 mg or 1,000 mg of UA for 28 days.

Biomarkers associated with cellular and mitochondrial health were assessed, showing the compound stimulates mitochondrial biogenesis, the process by cells increase their mitochondrial mass, i.e., the number of mitochondria within them.

Exercise is well-known to trigger mitochondrial biogenesis,[15] resulting in higher glucose uptake by your muscles, which in turn helps lower your blood sugar and improve insulin sensitivity. Overall, the regulation of mitochondrial biogenesis is an important therapeutic target for many conditions.[16]

"UA is the only known compound that re-establishes cells' ability to recycle defective mitochondria," Medicalxpress writes,[17] noting that while mitochondrial biogenesis occurs naturally, the efficiency of this process declines with advancing age. This is one of the reasons behind sarcopenia, or the loss of muscle mass.

Johan Auwerx, a professor at the Laboratory of Integrative Systems Physiology told Medicalxpress,[18] "These latest findings, which build on previous preclinical trials, really crystallize how UA could be a game-changer for human health."

Pomegranate May Prevent and Slow Cancer Growth

Previous research has shown the antioxidants in pomegranate can inhibit cell proliferation and invasion, and promote apoptosis (programmed cell death) in various cancer cells, including breast[19] and prostate cancer cells.[20] According to the authors of a 2012 study on prostate cancer:[21]

> *"The results of apoptotic analyses implicated that fruit juice might trigger the apoptosis in DU145 cells via death receptor signaling and mitochondrial damage pathway … 11 proteins were deregulated in affected DU145 cells with three upregulated and eight downregulated proteins.*
>
> *These dys-regulated proteins participated in cytoskeletal functions, antiapoptosis, proteasome activity, NF-κB signaling, cancer cell proliferation, invasion, and angiogenesis …*
>
> *The analytical results of this study help to provide insight into the molecular mechanism of inducing prostate cancer cell apoptosis by pomegranate fruit juice and to develop a novel mechanism-based chemopreventive strategy for prostate cancer."*

In another study,[22] men with prostate cancer who drank 8 ounces of pomegranate juice daily significantly lengthened the time it took for their PSA levels to double — from about 15 months to 54 months. Men whose PSA levels double in a short time are at an increased risk of death from prostate cancer, so the results suggest that pomegranate had a powerfully protective effect.

Pomegranates Quench Inflammation and Protect Heart Health

The antioxidants in pomegranates also help quench inflammation that contributes to the destruction of cartilage in your joints, a key reason for the pain and stiffness felt by many osteoarthritis sufferers. One study[23] even found that pomegranate extract blocked the production of a cartilage-destroying enzyme.

There's also some theoretical evidence[24] suggesting pomegranate juice might be useful for men struggling with mild to moderate erectile dysfunction, thanks to its ability to preserve nitric oxide and enhance its biological actions.[25] Nitric oxide relaxes and widens blood vessels, thereby increasing penile blood flow.

As you might expect, the antioxidants in pomegranates also benefit your heart in a number of ways, including lowering blood pressure[26] slowing or even reversing the

growth of plaque formation in arteries,[27] improving blood flow and keeping arteries from becoming thick and stiff.[28] As noted in the 2013 paper "Pomegranate for Your Cardiovascular Health":[29]

> *"[P]omegranate is superior in comparison to other antioxidants in protecting low-density lipoprotein (LDL, "the bad cholesterol") and high-density lipoprotein (HDL, "the good cholesterol") from oxidation, and as a result it attenuates atherosclerosis development and its consequent cardiovascular events.*
>
> *Pomegranate antioxidants are not free, but are attached to the pomegranate sugars, and hence were shown to be beneficial even in diabetic patients.*
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> *Furthermore, pomegranate antioxidants are unique in their ability to increase the activity of the HDL-associated paraoxonase 1 (PON1), which breaks down harmful oxidized lipids in lipoproteins, in macrophages, and in atherosclerotic plaques … All the above beneficial characteristics make the pomegranate a uniquely healthy fruit."*

Pomegranate Peel May Be Even More Potent

What most people fail to appreciate is that over 90% of the pomegranate polyphenols are in the peel, not the fruit. Many people eat the sweet fruit loaded with sugars, and aren't getting all the benefits they think they are.

Research shows pomegranate peel contains more than twice the amounts of antioxidants — specifically phenolics, flavonoids and proanythocyanidins — than the pulp, and has been shown to protect low-density lipoprotein against oxidation to a far greater degree than pulp.[30,31]

According to researchers,[32] "pomegranate peel extract appeared to have more potential as a health supplement rich in natural antioxidants than the pulp extract and merits further intensive study." Foodnavigator.com, which reported on the findings, wrote:[33]

> *"The pulp yielded 24 milligrams per gram (mg/g) of phenolics, while the peel yielded a whopping 250 mg/g. Flavonoid content was also significantly greater in the peel than the pulp (59 versus 17 mg/g), as were proanythocyanidins (11 versus 5 mg/g) … [T]he vitamin C content was similar for both the pulp and the peel (0.99 versus 0.85 mg/g)."*

The peel is very bitter but is available as a powder. It is one of my favorite supplements. I put the powder in capsules and take it that way, as it is far too bitter to swallow otherwise. I think this supplement is best taken when you are in a catabolic or fasting state, either intermittent or partial fasting. I take it at night after a six-hour fast, and in the morning after I have been fasting for 16 to 18 hours.

In my mind timing is everything. Taking this supplement with a big meal that is activating mTOR and anabolism is like driving your car with your foot simultaneously on the brake and accelerator, which is not a good idea.

How to Eat Pomegranate

It would be fine to eat fresh pomegranates if you are metabolically flexible. Just don't fool yourself and think you will get all the benefits discussed in this article. Remember, most of the beneficial polyphenols are stored in the peel.

Pomegranates are in season from August to December, hence its moniker, "the jewel of autumn." Many people enjoy pomegranates alone as a snack, but you can also sprinkle the arils (the juice-filled seed sacs) over salads or cooked dishes. Inside each aril is a crunchy fiber-rich seed. While some people spit the seeds out, you can eat the aril whole, seed and all. To get the arils out, following this simple three-step process described by the POM Council:[34]

1. Cut off the crown, then cut the pomegranate into sections
2. Place the section in a bowl of water, then roll out the arils with your fingers (discard everything else)
3. Strain out the water and enjoy the arils whole, seeds and all

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