

AVOCADO: THE HOLISTIC SOURCE AS A NATURAL DOCTOR!**Pavan Chaudhary, Jainik Khamar and Prof. Dr. Dhrubo Jyoti Sen***

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Article Received on
12 May 2015,

Revised on 07 June 2015,
Accepted on 04 July 2015

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ABSTRACT

Everyone knows about Avocados... but did you know that Avocado Seeds are full of great health benefits? Avocado Seeds have more antioxidants than most fruits and veggies on the market and polyphenols like green tea, plus they are full of more soluble fiber than just about any other food. — Wow! In fact Avocado Seed has 70% of the antioxidants found in the whole Avocado and Avocado Seed Oil is also full of antioxidants, lowers cholesterol and helps fight off disease and studies show that Avocado Seed has more soluble fiber than oatmeal and just about any other food. Avocado Seed helps to prevent cardiovascular disease, lower cholesterol and prevent strokes. Avocado Seed are great for inflammation of the GI tract and diarrhea too! In fact in South America Avocado Seeds are used for dysentery and other GI tract problems. Avocado Seeds has lots of phenolic

compounds that help to prevent gastric ulcers and prevent bacterial and viral diseases. Avocado Seed contains a flavonol that prevents tumor growth... in fact studies with rats with cancer given Avocado Seed powder looks promising. Avocado Seeds boost your immune system and keep you from coming down with debilitating diseases. Keeping your immune system high, because antioxidants keep free radicals at bay... and slows the aging process. Avocado Seeds seems to have a good anti-inflammatory ability and thus helps with arthritis and other joint diseases. Avocado Seed Oil has been shown in studies to increase collagen in your skin thus helping to keep your skin looking young and wrinkle free. Avocado Seed Oil will make your hair shiny and help get rid of dry dead skin.

KEYWORDS: Avocado, Polyphenols, Phytosterols, Carotenoids, ω -acids, Triglycerides, LDL, HDL, Cholesterol, RDA, BMI.

INTRODUCTION

The avocado is a rather unique type of fruit. Most fruit consists primarily of carbohydrate, while avocado is high in healthy fats. Numerous studies show that it has powerful beneficial effects on health. Here are 12 health benefits of avocado that are supported by scientific research. The avocado (*Persea americana*) is a tree native to Mexico and Central America, classified in the flowering plant family Lauraceae along with cinnamon, camphor and bay laurel. Avocado or alligator pear also refers to the fruit, botanically a large berry that contains a single seed. Avocados are commercially valuable and are cultivated in tropical and Mediterranean climates throughout the world. They have a green-skinned, fleshy body that may be pear-shaped, egg-shaped, or spherical. Commercially, they ripen after harvesting. Trees are partially self-pollinating and often are propagated through grafting to maintain a predictable quality and quantity of the fruit.



Figure-1: Avocado fruits and seeds

Nutrients and fat composition

A typical serving of avocado (100 g) is moderate to rich in several B vitamins and vitamin K, with good content of vitamin C, vitamin E and potassium (right table, USDA nutrient data). Avocados also contain phytosterols and carotenoids, such as lutein and zeaxanthin.^[1]

Table-1: Nutrients of avocado

Nutritional value per 100 g (3.5 oz)			
Energy	670 kJ (160 kcal)	Vitamin B6	(20%) 0.257 mg
Carbohydrates	8.53 g	Folate (B9)	(20%) 81 µg
Sugars	0.66 g	Vitamin C	(12%) 10 mg
Dietary fiber	6.7 g	Vitamin E	(14%) 2.07 mg
Fat	14.66 g	Vitamin K	(20%) 21 µg
Saturated	2.13 g	Trace metals	

Monounsaturated	9.80 g	Calcium	(1%) 12 mg
Polyunsaturated	1.82 g	Iron	(4%) 0.55 mg
Protein	2 g	Magnesium	(8%) 29 mg
Vitamins		Manganese	(7%)
Vitamin A equiv.	7 µg (1%)	Phosphorus	(7%) 52 mg
β-carotene	62 µg (1%)	Potassium	(10%)
lutein & zeaxanthin	271 µg	Sodium	(0%)
Thiamine (B1)	(6%) 0.067 mg	Zinc	(7%)
Riboflavin (B2)	(11%) 0.13 mg	Other constituents	
Niacin (B3)	(12%) 1.738 mg	Water	73.23 g
Pantothenic acid (B5)	(28%) 1.389 mg	Fluoride	7 µg

Avocados have diverse fats. For a typical avocado

About 75% of an avocado's energy comes from fat, most of which (67% of total fat) is monounsaturated fat as oleic acid. Other predominant fats include palmitic acid ($\text{CH}_3(\text{CH}_2)_{14}\text{COOH}$) and linoleic acid ($\text{CH}_3(\text{CH}_2)_4\text{CH}=\text{CHCH}_2\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$). The saturated fat content amounts to 14% of the total fat. Typical total fat composition is roughly (rounded to digits): 1% ω-3, 14% ω-6, 71% ω-9 (65% oleic and 6% palmitoleic: $\text{CH}_3(\text{CH}_2)_5\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$) and 14% saturated fat (palmitic acid). Diet and clinical research: A 2013 epidemiological NHANES study funded by the Hass Avocado Board showed that American avocado consumers had better overall diet quality, nutrient levels and reduced risk of metabolic syndrome; why they also had better diet quality and how the confluence of these factors contributed to health benefits were not determined. High avocado intake was shown in one preliminary study to lower blood cholesterol levels. Specifically, after a seven-day diet rich in avocados, mild hypercholesterolemia patients showed a 17% decrease in total serum cholesterol levels. These subjects also showed a 22% decrease in both LDL (harmful cholesterol) and triglyceride levels and 11% increase in HDL (helpful cholesterol) levels. In a study of obese patients on a moderate fat diet (34% of calories), additional consumption of one avocado (136 g) per day over 5 weeks produced a significant reduction of circulating LDL, an effect the authors attributed to the combination of avocado monounsaturated fats, dietary fiber and the phytosterol, β-sitosterol.^[2]

1. Avocado is incredibly Nutritious

What we refer to as “avocado” is the fruit of the avocado tree, called *Persea americana*. This fruit is prized for its high nutrient value and is added to all sorts of dishes due to its good flavor and rich texture. It is the main ingredient in guacamole. Guacamole can informally be

referred to as "guac" in North America is an avocado-based dip or salad that began with the Aztecs in Mexico. In addition to its use in modern Mexican cuisine it has also become part of American cuisine as a dip, condiment and salad ingredient. It is traditionally made by mashing ripe avocados and sea salt with a molcajete (mortar and pestle). Some recipes call for tomato, onion, garlic, lemon or lime juice, chili or cayenne pepper, yogurt, cilantro or basil, jalapeño and/or additional seasonings.

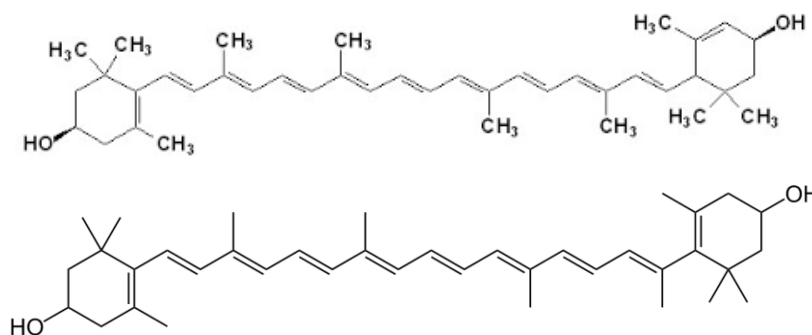


Figure-2: Lutein and Zeaxanthin

These days, the avocado has become an **incredibly** popular food among health conscious individuals. It is often referred to as a superfood... which is not surprising given its health properties. There are many kinds of avocados and the shape (from pear-shaped to round) and color (from green to black) can vary between them. They can also weigh anywhere from 8 ounces (220 grams) to 3 pounds (1.4 kg). The most popular type is called Hass avocado.

This is what a typical avocado looks like

It is often called “alligator pear,” which is very descriptive because it tends to be shaped like a pear and have green, bumpy skin... like an alligator. The yellow-green flesh inside the fruit is eaten, but the skin and seed are discarded. Avocados are very nutritious and contain a wide variety of nutrients, including 20 different vitamins and minerals. Here are some of the most abundant nutrients, in a single 3.5 ounce (100 gram) serving (3): **Vitamin K:** 26% of the RDA; **Folate:** 20% of the RDA; **Vitamin C:** 17% of the RDA; **Potassium:** 14% of the RDA; **Vitamin B5:** 14% of the RDA; **Vitamin B6:** 13% of the RDA; **Vitamin E:** 10% of the RDA. (RDA: Recommended Dietary Allowances)

Then it contains small amounts of Magnesium, Manganese, Copper, Iron, Zinc, Phosphorous, Vitamin A, B1 (Thiamine), B2 (Riboflavin) and B3 (Niacin). This is coming with 160 calories, 2 grams of protein and 15 grams of healthy fats. Although it contains 9 grams of

carbs, 7 of those are fiber so there are only 2 “net” carbs, making this a low-carb friendly plant food. Avocados do not contain any cholesterol or sodium and are low in saturated fat.

2. They Contain More Potassium than Bananas

Potassium is a nutrient that most people aren't getting enough. This nutrient helps maintain electrical gradients in the body's cells and serves various important functions. Avocados are actually very high in potassium... with a 100 gram (3.5 ounce) serving containing 14% of the RDA, compared to 10% in bananas, which are a typical high potassium food. Several studies show that having a high potassium intake is linked to reduced blood pressure, a major risk factor for heart attacks, strokes and kidney failure.

3. Avocado is Loaded With Heart-Healthy Monounsaturated Fatty Acids

Again, avocado is a high fat food.



Figure-3: Avocado oil

In fact, 77% of the calories in it are from fat, making it one of the fattiest plant foods in existence. But they don't just contain any fat... the majority of the fat in avocado is oleic acid ($\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$). This is a monounsaturated fatty acid that is also the major component in olive oil and believed to be responsible for some of its beneficial effects. Oleic acid has been linked to reduced inflammation and been shown to have beneficial effects on genes linked to cancer. The fats in avocado are also pretty resistant to heat-induced oxidation, making avocado oil a healthy and safe choice for cooking.^[3]

4. Avocados Are Loaded With Fiber

Fiber is another nutrient found in relatively large amounts in avocado. Fiber is indigestible plant matter that can contribute to weight loss, reduce blood sugar spikes and is strongly linked to a lower risk of many diseases. A distinction is often made between soluble and insoluble fiber. Soluble fiber is known to be able to feed the friendly gut bacteria in the intestine, which are very important for the optimal function of our bodies. A 100 gram (3.5

ounce) serving of avocado contains 7 grams of fiber, which is 27% of the recommended daily amount. About 25% of the fiber in avocado is soluble, while 75% is insoluble.

5. Eating Avocados Can Lower Cholesterol and Triglyceride Levels

Heart disease is the most common cause of death in the world. It is known that several blood markers are linked to an increased risk. This includes cholesterol, triglycerides, inflammatory markers, blood pressure and various others. The effect of avocado on some of these risk factors has been studied in 8 human controlled trials. These are studies where people are split into groups... one group is instructed to eat avocados, while the other is not. Then researchers see what happens to their blood markers over time. These studies have shown that avocados can:



Figure-4: Avocado cares heart

Reduce total cholesterol levels significantly. Reduce blood triglycerides by up to 20%. Lower LDL cholesterol by up to 22%. Increase HDL (the “good”) cholesterol by up to 11%. One of the studies showed that including avocado in a low-fat vegetarian diet led to improvements in the cholesterol profile. Unfortunately, all of the human studies were small (13-37 subjects) and short-term (1-4 weeks), but the results were impressive nonetheless.

6. People Who Eat Avocados Tend to be Healthier

Avocado consumers were found to be much healthier than people who didn’t eat avocados. They had a much higher nutrient intake and were half as likely to have metabolic syndrome, a cluster of symptoms that are a major risk factor for heart disease and diabetes. People who ate avocados regularly also weighed less, had a lower BMI (Body Mass Index) and significantly less belly fat. They also had more HDL (the “good”) cholesterol. However... correlation does not imply causation and there is no guarantee that the avocados caused these people to be in better health. Therefore I don’t think this particular study carries much weight.

7. The Fat in Them Can Help You Absorb Nutrients from Plant Foods

When it comes to nutrients, the total amount of them is not the only thing that matters. We also need to be able to absorb them... move them from the digestive tract and into the body, where they can be used. Some nutrients are “fat soluble,” meaning that they need to be combined with fat in order to be utilized. This includes vitamins A, D, E and K... along with antioxidants like carotenoids. One study showed that adding avocado or avocado oil to either salad or salsa can increase antioxidant absorption by 2.6 to 15-fold. So... not only is avocado highly nutritious, it can dramatically increase the nutrient value of other plant foods that you are eating. This is an excellent reason to always include a healthy fat source when you eat veggies. Without it, a lot of the beneficial plant nutrients will go to waste.^[4]



Figure-5: Avocado protects eyes

8. Avocados Are Loaded With Powerful Antioxidants That Can Protect The Eyes

Not only do avocados increase antioxidant absorption from other foods, they are also high in antioxidants themselves. This includes nutrients called Lutein and Zeaxanthin, which are incredibly important for eye health. Studies show that these nutrients are linked to a drastically reduced risk of cataracts and macular degeneration, which are common in the elderly. Therefore, eating avocados should have benefits for eye health over the long term.

9. Avocado May Help Prevent Cancer



Figure-6: Avocado prevents cancer

There is limited evidence that avocado may be beneficial in preventing cancer. One study showed that it may help reduce side effects of chemotherapy in human lymphocytes. Avocado extract has also been shown to inhibit the growth of prostate cancer cells. However, keep in mind that these studies were done in isolated cells and don't really prove anything about what happens in a living, breathing human.

10. Avocado Extract May Help Relieve Symptoms of Arthritis

Arthritis is a common problem in Western countries. There are many types of arthritis, and these are often chronic problems that people have for the rest of their lives. Multiple studies have shown that extracts from avocado and soybean oil, called Avocado and Soybean unsaponifiables, can reduce symptoms of arthritis of the bones, called osteoarthritis. Whether avocados themselves can have this effect and not just the extract, remains to be seen.



Figure-7: Avocado lowers the weight

11. Eating Avocado May Help You Lose Weight

There is some evidence that avocados are a weight loss friendly food. In one study, people were split into groups. One group was instructed to eat a meal that contained avocado, the other a similar meal without avocado. Then they were asked a series of questions related to hunger and satiety. The people eating the avocado felt 23% more satisfied and had a 28% lower desire to eat over the next 5 hours. If this holds true in the long-term, then including avocados in your diet could help you naturally eat fewer calories and have an easier time sticking to a healthy diet.

Avocados are also high in fiber, and very low in carbs, two attributes that should also help promote weight loss, at least in the context of a healthy, real food based diet.^[5]

12. Avocado is Delicious and Easy to Incorporate in the Diet

Not only are avocados healthy, they're also incredibly delicious and go with all sorts of foods. You can add them to salads and various sorts of recipes, or you can simply scoop them out with a spoon and eat them plain. They have a creamy, rich, fatty texture and blend well with various other ingredients. A notable mention is guacamole, which is arguably the most famous use of avocados. It includes avocado along with ingredients like salt, garlic, lime and a few others depending on the recipe. An avocado often takes some time to ripen and it should feel slightly soft when ripe. The nutrients in avocado can oxidize soon after fleshing it, but if you add lemon juice then that shouldn't happen as quickly. If you're serious about adding avocado to your diet, then I highly recommend that you watch this video about how to pick, prepare and eat avocados. At the end of the day, avocados are an awesome food. They're loaded with nutrients, many of which are lacking in the modern diet. They are weight loss friendly, heart healthy and... last but not least, taste incredible. Avocados are an excellent source of heart-healthy monounsaturated fat that is easily burned for energy, while being low in fructose. Not surprisingly, improved weight management is one of the health benefits of avocado consumption and its high-fat, low-sugar content is likely a key factor contributing to this effect.^[6]



Figure-8: Guacamole from avocado

Benefits: Research has also found that avocados are helpful for regulating your blood sugar levels. This is an important benefit for most people, considering that one in four American are either diabetic or pre-diabetic. According to the California Avocado Commission, a medium Hass avocado contains about 22.5 grams of fat, two-thirds of which is monounsaturated. They also provide close to 20 essential health-boosting nutrients, including: Fiber, Vitamin E, B-vitamins, Folic acid. Potassium (more than twice the amount found in a banana), which can help balance your vitally important potassium to sodium ratio. Due to its beneficial raw fat content, avocado enables your body to more efficiently absorb

fat-soluble nutrients (such as α - and β -carotene and lutein) in other foods eaten in conjunction. One 2005 study⁴ found that adding avocado to salad allowed the volunteers to absorb three to five times more carotenoids antioxidant molecules, which help protect your body against free radical damage. Consuming fruits and vegetables of all kinds has long been associated with a reduced risk of many lifestyle-related health conditions. Many studies have suggested that increasing consumption of plant foods like avocados decreases the risk of **obesity, diabetes, heart disease** and overall mortality while promoting a healthy complexion and hair, increased energy and overall lower weight.

Healthy for the heart: According to registered dietitian Patricia Groziak, MS, RD, with the Hass Avocado Board, avocados contain 25 milligrams per ounce of a natural plant sterol called beta β -sitosterol. Regular consumption of β -sitosterol and other plant sterols are recommended for their ability to help maintain healthy **cholesterol** levels.

Great for vision: Avocados contain lutein and zeaxanthin, two phytochemicals that are essential to eye health. These two carotenoids act as antioxidants in the eye and can minimize the damage and reduce the risk of developing age-related **macular degeneration**.

Osteoporosis prevention: Vitamin K is often overshadowed by **calcium** and **vitamin D** when thinking of nutrients important for maintaining healthy bones, however, eating a diet with adequate vitamin K may be just as important. Vitamin K can improve bone health by increasing calcium absorption and reducing urinary excretion of calcium. Low intakes of vitamin K have been associated with a higher risk of **bone fracture**. One-half of an avocado provides approximately 25% of the daily-recommended intake for vitamin K.

Cancer fighter: Low levels of folate have been shown to increase the risk of **breast cancer** in women. Adequate intake of dietary folate (from food, not necessarily supplements) has also shown promise in protecting against colon, stomach, pancreatic and cervical **cancers**.^[7]

Although the mechanism of protection is currently unknown, researchers believe that folate's protective effects have something to do with its role in DNA and RNA production and the prevention of unwanted mutations. One-half of an avocado provides approximately 20% of the daily-recommended intake for folate.

Healthy babies: Folate is also extremely important for pregnant women. Adequate intake protects against miscarriage and neural tube defects. Recent research has also shown that a father's folate status before conception may be just as important. In a study from McGill University, paternal folate deficiency in mice was associated with a 30% higher number of various birth defects than in offspring with no paternal folate deficiencies.^[8]

Lowered risk of depression: Another benefit of foods with high levels of folate is a lowered risk of **depression**. Folate helps to prevent an excess of homocysteine forming in the body, which can block blood and other nutrients from reaching the brain. Excess homocysteine can interfere with the production of the feel-good hormones **serotonin**, dopamine and norepinephrine, which regulate not only mood, but sleep and appetite as well.

Improved digestion: Despite its creamy texture, an avocado is actually high in fiber, with approximately 6-7 grams per half fruit. Eating foods with natural fiber can prevent **constipation**, maintain a healthy digestive tract and lower the risk of **colon cancer**.^[9]

Natural detoxification: Adequate fiber promotes regularity, which is crucial for the daily excretion of toxins through the bile and stool. Recent studies have shown that dietary fiber may also play a role in regulating the immune system and inflammation with high fiber intakes are associated with significantly lower risks of developing coronary heart disease, stroke, hypertension, diabetes, obesity, and certain gastrointestinal diseases. Increased fiber intake has also been shown to lower blood pressure and cholesterol levels, improve insulin sensitivity, and enhance weight loss for obese individuals.

Adverse effects

It is the total diet or overall eating pattern that is most important in disease prevention and achieving good health. It is better to eat a diet with a variety than to concentrate on individual foods as the key to good health. If you are taking blood-thinners such as Coumarin (warfarin), it is important that you do not suddenly begin to eat more or less foods containing vitamin K, which plays a large role in blood clotting. Avocados are loaded with healthy fats, vitamins and minerals. However, overindulging in any type of food – including avocados – can lead to weight gain, obesity and even nutrient deficiencies. Eating foods – even healthy foods -- in moderation is key to healthy weight management and reducing your risk of disease.

Weight Gain

Because avocados are high in dietary fat -- fat provides 9 calories per gram compared with 4 calories per gram in protein and carbs – eating too much avocado can pack on the pounds. One avocado provides almost 30 grams of dietary fat and 322 calories. The good news is that the majority of the fat in avocados is healthy, unsaturated fat. However, even healthy fats can cause unwanted weight gain if you consume them in excess.

Amazing HEALTH BENEFITS of AVOCADO!

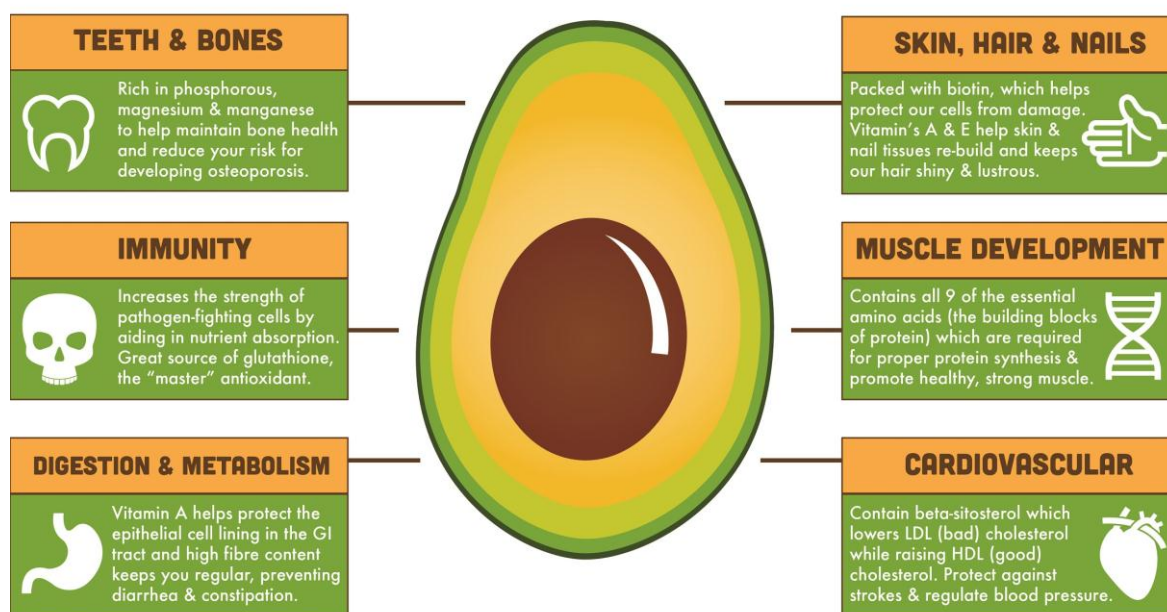


Figure-9: Avocado benefits

Nutrient Deficiencies

If you fill up on avocados you may not have enough of an appetite to consume other nutrient-dense foods that make up a well-balanced diet. Although avocados are rich in carbs, fiber, dietary fat, vitamin E, vitamin K, niacin, vitamin A, potassium and folate, they are not rich in protein and lack other essential vitamins and minerals. Therefore, choose a variety of nutrient-rich foods when planning your meals – not just avocados.^[10]

Overview

If is one serving (one-fifth of an avocado, approximately 40 grams) contains 64 **calories**, 6 grams of fat, 4 grams of **carbohydrate**, 0 grams of sugar, 3 grams of fiber and 1 gram of

protein which is a great source of vitamins C, E, K, and B-6, as well as riboflavin, niacin, folate, pantothenic acid, magnesium and potassium. They also provide lutein and ω -3s. Although most of the calories in an avocado come from fat, don't shy away! Avocados are full of healthy, beneficial fats that help to keep you full and satiated. When you consume fat, your brain receives a signal to turn off your appetite. Eating fat slows the breakdown of carbohydrates into sugar, which helps to keep sugar levels in your blood stable. Fat is essential for every single cell in your body. In fact, over sixty percent of your brain is made of fat. Eating healthy fats will make your skin glow, increase vitamin and mineral absorption and even help boost your immune system. Do not be fooled by fat-free and low-fat products, or shy away from foods like avocados and nuts that are full of healthy fats. Ever since the low-fat craze started in the 1950s, we have only become fatter. Manufacturers often just replace the fat in reduced and fat-free products with sugar. This does not mean you should eat loads of bacon cheeseburgers and fried foods, because not all fats are created equal. Eating healthy fats daily (like mono- and polyunsaturated fats in avocados) will improve heart health, lower cholesterol, keep you full and satiated and curb your cravings for fried, greasy foods. On the flip side, fried foods, processed meats and cheeses contain saturated fats that clog arteries and increase cholesterol.

How to incorporate more avocados into your diet

You can tell how ripe an avocado is by gently pressing into the skin. If the avocado is firm and does not budge, you will need to let it ripen for a few days before consuming. Soft avocados make great guacamole or dip, while firmer avocados are great for slicing and adding to a salad or a sandwich. To speed up the ripening process, place an avocado in a paper bag with a banana. Spread avocado on toast in the morning instead of butter, Use avocado instead of mayonnaise in chicken or egg salad, or as a spread on a sandwich, The soft, creamy texture of an avocado and its mild taste make it a perfect first food for babies.

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