Avocado

SCIENTIFIC NAME
Persea americana; Persea americana var. americana, synonyms Laurus persea, Persea gratissima, Persea leiogyna, Persea persea
...read less

FAMILY
Lauraceae

CAUTION: Avocado should not be confused with Avocado Soy Unsaponifiables, which is an extract derived from avocado and soybean oils.

Other Common Names

Abokado, Aguacate, Ahuacate, Alligator Pear, Avocat, Avocato, Beurre du Marin, Palto, Poire Alligator.

Overview

The avocado tree produces fruits called avocados that are edible and have a creamy, smooth texture. The fruit is covered by a thick and bumpy skin, dark green or purplish black in color (93116). Orally, avocado has traditionally been used for its purported antidiarrheal, aphrodisiac, and emmenagogue effects. Topically, avocado has traditionally been used for its purported emollient, analgesic, hair growth, and wound healing effects.

Safety

LIKELY SAFE ...when the fruit is consumed in amounts commonly found in foods (668,669,670,671).

POSSIBLY SAFE ...when the oil is applied to the skin topically and appropriately, short-term. Avocado oil in combination with vitamin B12 appears to be safe when used for up to 12 weeks (14909).

There is insufficient reliable information available about the safety of avocado for its other uses.

PREGNANCY AND LACTATION: Insufficient reliable information available; avoid using in amounts exceeding those commonly found in foods.

Adverse Effects

General: Orally, avocado has been generally well tolerated in clinical research.

Most Common Adverse Effects:

Topically: A cream containing avocado oil in combination with vitamin B12 can cause itching.

Serious Adverse Effects (Rare):

Orally: Avocado may lead to allergic cross-sensitivity in latex sensitive patients. While rare, avocado can cause acute food protein-induced enterocolitis syndrome (FPIES), a food hypersensitivity reaction characterized by excessive vomiting and diarrhea.

Dermatologic

Topically, a cream containing avocado oil in combination with vitamin B12 can cause itching when applied initially, but itching appears to diminish with continued use (14909). Orally, avocado may cause skin rash (112436).

Gastrointestinal

Orally, avocado can cause acute food protein-induced enterocolitis syndrome (FPIES). This is a rare, delayed, non-IgE-mediated gastrointestinal food hypersensitivity reaction most often reported in infants and young children. Symptoms of FPIES include excessive vomiting within 1-4 hours of avocado consumption and diarrhea. Treatment is generally supportive in nature, including oral or intravenous rehydration, along with avoidance of avocado (100938). There have also been reports of gastrointestinal upset including gas, bloating, and diarrhea due to daily avocado consumption, though it is possible that these symptoms were due to E. coli infection (112436).

Immunologic

Orally, avocado may lead to type I hypersensitivity reactions in people who are allergic to latex (6197,7853,25216,33248,33253,33254). While rare, avocado can also cause acute food protein-induced enterocolitis syndrome (FPIES). This is a delayed, non-IgE-mediated gastrointestinal food hypersensitivity reaction most often reported in infants and young children. Symptoms of FPIES include excessive vomiting within 1-4 hours of avocado consumption and diarrhea. Many infants and children who experience FPIES after eating avocado will have the same reaction to other foods, such as milk, oat, and rice (100938).

Effectiveness

POSSIBLY EFFECTIVE

Hypercholesterolemia. Consuming a diet rich in avocados seems to improve serum lipid levels.
^ Details: Consuming a diet rich in avocados (e.g., 0.5-2 avocados daily or a diet in which avocados account for 75% of total daily fat intake) for 1-4 weeks seems to lower total serum cholesterol, low-density lipoprotein (LDL) cholesterol, and apolipoprotein B. It may also increase high-density lipoprotein (HDL) serum cholesterol levels (668,669,670,671,33256). In contrast, a meta-analysis of 8 clinical studies in adults with various metabolic conditions shows that consuming avocado 99-330 grams daily for 3-24 weeks reduces total cholesterol by 5 mg/dL but does not reduce LDL cholesterol or triglycerides or increase HDL cholesterol when compared with diets containing no or low amounts of avocado. However, subgroup analysis in patients with hypercholesterolemia suggests that consuming avocado reduces LDL cholesterol by 9 mg/dL and total cholesterol by 7.5 mg/dL (112435).

INSUFFICIENT RELIABLE EVIDENCE to RATE

Aging skin. It is unclear if consuming avocado is beneficial for aging skin.
^ Details: A small study in females with overweight or obesity shows that consuming one avocado daily for 8 weeks improves forehead skin firmness, but not elasticity or tiring, when compared with no avocado consumption. No improvements in under eye skin firmness, elasticity, or tiring were observed (108010).

Cardiovascular disease (CVD). It is unclear if consuming avocado is beneficial for reducing the risk of CVD.
^ Details: Observational research has found that consumption of at least one avocado weekly is associated with a 16% lower risk of CVD and a 21% lower risk of coronary heart disease (CHD) when compared with no avocado consumption. However, there was no association between avocado consumption and the risk of stroke. Additionally, replacement of half a serving daily of certain fat-containing foods (i.e., margarine, butter, egg, yogurt, cheese, processed meats) with an equivalent amount of avocado is associated with a 16% to 22% lower risk of CVD (108007).

Cognitive function. It is unclear if consuming avocados is beneficial for improving cognitive function.
^ Details: Preliminary clinical research in adults with overweight or obesity shows that consuming one avocado daily as part of a test meal for 12 weeks improves attentional inhibition, but not response inhibition, during cognitive testing when compared with baseline. Improvements on these tests were not reported in patients receiving an isocaloric control meal (103895). A cross-sectional study in older adults has also found that avocado consumption is associated with improvements in memory performance on immediate learning and delayed recall tests as well as global cognitive scores when compared with no avocado consumption (108013).

Metabolic syndrome. It is unclear if consuming avocados is beneficial for metabolic syndrome.
^ Details: A very large clinical study in adults with an elevated waist circumference shows that consuming a large avocado daily for 6 months reduces total cholesterol by 3 mg/dL and low-density lipoprotein cholesterol by 2.5 mg/dL but does not change any other measures of metabolic syndrome including visceral adiposity, waist circumference, body weight, body mass index (BMI), systolic and diastolic blood pressure, glucose, insulin, triglycerides, very low-density lipoprotein cholesterol, or high-density lipoprotein cholesterol when compared with a standard diet without avocados (112436). Additionally, a small clinical study in adults with overweight, obesity, and insulin resistance shows that consuming an avocado daily for 12 weeks does not change BMI, body composition, blood pressure, fasting glycemic indices, glucose levels, plasma lipid profiles, insulin sensitivity, or markers of inflammation or endothelial function when compared with control (112438).

Nonalcoholic fatty liver disease (NAFLD). It is unclear if consuming avocados is beneficial for NAFLD.
^ Details: A secondary analysis of a previous clinical study in adults with overweight and obesity shows that consuming 14 avocados per week per family for 6 months does not improve NAFLD fibrosis score or biomarkers of hepatic function including alanine transaminase (ALT), aspartate transaminase (AST), gamma glutamyl-transferase (GGT), or high-sensitivity c-reactive protein (hsCRP) when compared with low avocado consumption, defined as 3 avocados per week per family (112437).

Obesity. It is unclear if consuming avocados is beneficial for weight loss or prevention of weight gain.
^ Details: A meta-analysis of clinical trials and a very large clinical study in adults with overweight, obesity, and elevated waist circumference shows that consuming one avocado daily or 136-200 grams daily for 6 weeks to 6 months does not reduce body weight, body mass index (BMI), percent fat mass, or visceral adipose tissue when compared with control (112433,112436). However, a small study in adults with overweight or obesity shows that consuming one avocado daily for 12 weeks changes abdominal adiposity distribution among females, but not males, when compared with no avocado consumption. No significant effects were observed for glucose or insulin outcomes (108008).

Preliminary clinical research in adults with overweight or obesity shows that eating half of an avocado with lunch increases satisfaction by 23% to 26% and decreases desire to eat by 28% to 40% when compared with a control lunch with no avocado (93109). A large observational study in the same population has found that habitual consumption of avocado at an average intake of 32 grams or more daily is not associated with reductions in body weight or body mass index (BMI) over 5 years when compared with no avocado consumption. Additionally, this study suggests that while habitual avocado consumption in patients with normal weight may slightly attenuate increases in body weight and BMI, it does not seem to reduce the odds of these patients becoming overweight or developing obesity over time when compared with no avocado intake (100936).

Psoriasis. Topical avocado has only been evaluated in combination with other ingredients; its effect when used alone is unclear.
^ Details: Preliminary clinical research in patients with psoriasis shows that applying a specific cream containing avocado oil and vitamin B12 (Regividerm, Regeneratio Pharma AG) 0.7 mg/gram to the affected area for 12 weeks reduces symptoms to a similar extent when compared with calcipotriol ointment (Psorcutan). The avocado combination cream also causes significantly less irritation than calcipotriol (14909). It is unclear if these effects are due to avocado, vitamin B12, or the combination.

More evidence is needed to rate avocado for these uses.

Dosing & Administration

- **Adult**

  Oral:

  General: Avocado is most often consumed as a food in amounts of 0.5-2 fruits daily. See Effectiveness section for condition-specific information.

Topical:

Research is limited; typical dosing unavailable.

- **Standardization & Formulation**

  In general, avocado fruits weigh between 200 grams and 500 grams (668). The most commonly consumed variety of avocado in the US is Hass. A medium-sized fruit weighs about 136 grams and contains about 13 grams of oleic acid, which is comparable to the amount of oleic acid in 1.5 oz (42 grams) of almonds or 2 tablespoons (26 grams) of olive oil (108007).

  Avocado oil products are commonly used for cooking and other purposes; however, concerns about the quality and purity of these products exist. An analysis of several commercially available avocado oils in the US has found that most products were oxidized prior to reaching the labelled expiration date, suggesting the use of rotten or damaged fruits, as well as improper storage. Additionally, many products were adulterated with soybean oil. In fact, some were found to be 100% soybean oil rather than avocado oil. The fatty acid and vitamin E content in these avocado oil products also varied considerably (103897).

Interactions with Drugs

WARFARIN (Coumadin)
Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Unlikely • Level of Evidence = **D**
Avocado may antagonize the anticoagulant effects of warfarin.
Details
Avocado may antagonize the anticoagulant effects of warfarin; however, there has been only one case report of this interaction (667).

Interactions with Supplements

BETA-CAROTENE: Theoretically, taking avocado with beta-carotene might increase the effects and side effects of beta-carotene.
Details
Taking avocado with beta-carotene significantly increases the absorption of beta-carotene and enhances the subsequent conversion of beta-carotene to vitamin A (93112).

Interactions with Conditions

CROSS-ALLERGENICITY

Orally, avocado may lead to type I hypersensitivity reactions in people who are allergic to latex (6197,7853,25216,33248,33253,33254). People who are allergic to latex should avoid eating avocado.

FOOD PROTEIN-INDUCED ENTEROCOLOTIS SYNDROME (FPIES)

Orally, avocado may trigger FPIES in infants and children that experience FPIES with other foods, such as milk, oat, and rice (100938).

Interactions with Lab Tests

None known.

Overdose

There is insufficient reliable information available about the presentation or treatment of overdose with avocado.

Commercial Products Containing: Avocado

View All
View Health Canada Licensed Products
View Certified Products
NSF Contents Certified Products
NSF Certified for Sport Products

Pharmacokinetics

There is insufficient reliable information available about the pharmacokinetics of avocado.

Mechanism of Action

General: The applicable parts of avocado are the fruit, leaves, and seed. Among fruits, avocado contains more protein and fiber than most. Avocado is rich in oil (15-30 grams/100 grams of fresh fruit) that is mainly monounsaturated. It is a good source of linoleic acid. Its high fiber content might be responsible for its cholesterol-lowering effects (11010). Avocado is also rich in potassium and beta-sitosterol and contains a variety of phytochemicals and essential nutrients, including manganese, phosphorous, iron, vitamin E, vitamin C, beta-carotene, thiamine, riboflavin, nicotinic acid, and folate (11010,93116). Avocado is relatively low in sodium and simple sugars and is cholesterol-free (11010,93116).

Cardiovascular effects: Preliminary clinical research in patients with overweight or obesity shows that adding a half or whole avocado to a single meal in place of isocaloric carbohydrate contents improves flow-mediated vasodilation, a marker of endothelial function, when compared with an isocaloric control meal consisting mostly of carbohydrates. The mechanism of this effect is unknown, but it may be related to a reduction in peak postprandial blood glucose which was also observed in this study (100937). Taking avocado pulp 600 mg before exercise also seems to allow a more rapid return to normal heart rate and blood pressure when compared with placebo (103896).

Chemopreventive effects: Persenone A and B, compounds extracted from avocado, function as antioxidants and may be effective chemopreventive agents in inflammation-associated carcinogens (33237,33258). The tumor-protective effect of avocado has also been speculated to be due to high amounts of polyunsaturated acids (linolenic and alpha-linolenic acid). The anti-carcinogenic effect exhibited by olive oil is thought to be due to monounsaturated fatty acids present, including oleic acid, palmitic acid, and stearic acid. Avocado oil and olive oil were found to have similar amounts of free fatty acids, but it is hypothesized that differences in their effects on cancer development is related to the interaction of these acids with factors that promote tumor development. Avocado contains a higher percentage of monounsaturated fatty acids than polyunsaturated and saturated fatty acids (33255).

Glycemic effects: Preliminary clinical research in patients with overweight or obesity shows that adding a half or whole avocado to a single meal in place of isocaloric carbohydrate content reduces peak postprandial blood glucose by about 20 mg/dL and lowers the postprandial glycemic and insulinemic responses overall when compared with an isocaloric control meal consisting mostly of carbohydrates (100937). This effect is due to the replacement of carbohydrates which, when ingested, increase glucose concentrations in the blood and stimulate the release of insulin from the pancreas. It is not clear if the consumption of avocado with a normal diet would reduce postprandial blood glucose levels.

Lipid effects: Several clinical trials have demonstrated that diets rich in avocado can lower plasma lipids. The cholesterol lowering effects may be due to the high content of unsaturated fatty acids and other compounds, including tocopherols, oleic acid, vitamin E, sterols and volatile oils (669,670,671,668,675).

Lysyl oxidase inhibitory effects: In vitro and animal research suggests that compound C, isolated from avocado seed oil, inhibits lysyl oxidase activity. Its activity is increased in the presence of tissue remodeling, as in burn scars, wound healing, hepatic fibrosis, granuloma, and lung fibrosis. The lysyl oxidase inhibitory activity of avocado seed oil may explain its use in the treatment of connective tissue disorders (33242,33246).

Renal effects: In hypertensive rats subjected to adrenergic stimulation, avocado oil decreases blood pressure, improves endothelium-dependent vasodilation of the kidneys, and alleviates kidney damage, possibly through improvements in mitochondrial dysfunction and oxidative stress (108012).

Weight effects: Cross-sectional population studies have found that greater avocado consumption is associated with improvements in anthropometric measurements of obesity and body composition (e.g., body weight, body mass index, waist circumference) in adults (108009), but not in adolescents (108011).

References

See Monograph References

Monographs are reviewed on a regular schedule. See our Editorial Principles and Process for details. The literature evaluated in this monograph is current through 4/12/2024. This monograph was last modified on 10/3/2024. If you have comments or suggestions, please tell the editors.