



ALMONDS AND CLEANSING

Comp: Tony Escobar (A.E. Database, 2002)

NO ROASTED ALMONDS!

Cleansing for the first time can be tough as those hunger pangs are very uncomfortable. If you feel yourself getting light headed or perhaps unbearably hungry you can always eat 4 or 5 uncooked Almonds. Remember the skin must be on them and avoid any cooked fried or roasted Almonds. The following will really impress you as you ponder what this little nut can do.

Almonds are available throughout the year and make a healthy and tasty snack, especially while cleansing. Although packaged Almonds are available year round, they are in season in mid-summer when they are at their freshest and the best.

Almonds are really not nuts but are technically the seed of the fruit of the Almond tree, a medium-size tree that bears fragrant pink and white flowers. Like its cousins, the peach, cherry and apricot, the Almond tree bears fruits with stone-like seeds (or pits) within. The seed or pit of the Almond fruit is what we refer to as the Almond nut.

The Health Benefits of Almonds

Helps lower LDL-Cholesterol and Reduce Your Risk of Heart Disease

A high-good-fat food that's good for your health? Almonds are high in monounsaturated fats, the same type of health-promoting fats as are found in olive oil, which has been associated with reduced risk of heart disease.

Five large human epidemiological studies, including the Nurses Health Study, the Iowa Health Study, the Adventist Health Study and the Physician's Health Study, all found that nut consumption is linked to a lower risk for heart disease. Researchers who studied data from the Nurses Health Study estimated that substituting Almonds for an equivalent amount of carbohydrate in an average diet resulted in a 30% reduction in heart disease risk.

Researchers calculated even more impressive risk reduction, 45% when fat from Almonds was substituted for saturated fats (found primarily found in meat and dairy products).

A study published in the October 2004 issue of the *British Journal of Nutrition* indicates that when foods independently known to lower cholesterol, such as Almonds, are combined in a healthy way of eating, the beneficial effects are impressive. In this study of 12 patients with elevated LDL cholesterol levels, a diet containing Almonds and protein, as well as fiber reduced blood levels of all LDL fractions including small dense LDL (the type that most increases risk for cardiovascular disease) with near maximal reductions seen after only 2 weeks. (January 14, 2005)

In addition to their cholesterol-lowering effects, Almonds' ability to reduce heart disease risk may be due to the antioxidant action of the natural vitamin E found in the Almonds, as well as to the LDL-lowering effect of Almonds' monounsaturated fats. (LDL is the form of cholesterol that has been linked to atherosclerosis and heart disease). When Almonds are substituted for more traditional fats in human feeding trials, LDL cholesterol can be reduced from 8 to 12%.

In addition to healthy fats and vitamin E, a quarter-cup of Almonds contains almost 98 mg of natural magnesium (that's 24.4% of the daily value for this important mineral), plus 258 mg of potassium. Almonds not only are a wonderful nutrient dense snack they can help alleviate constipation and accelerate weight loss. (Masquell, Faacp. March, 1993, NHA)

Magnesium is Nature's own calcium channel blocker. When there is enough magnesium around, veins and arteries relax, which lessens

vascular resistance and improves the flow of blood, oxygen and nutrients throughout the body.

Studies show that a deficiency of magnesium is not only associated with heart attack but that immediately following a heart attack, lack of sufficient magnesium promotes free radical injury to the heart. Potassium, an important electrolyte involved in nerve transmission and the contraction of all muscles including the heart, is another mineral that is essential for maintaining normal blood pressure and heart function. Almonds help prevent obesity and promote cardiovascular health by providing 298 mg of potassium and only 0.4 mg of sodium, making Almonds an especially good choice in protecting against high blood pressure and atherosclerosis.

Research:

Whole Almonds (with Skins) Provide Most Heart Healthy Benefits

New research on Almonds adds to the growing evidence that eating whole foods is the best way to promote optimal health.

The flavonoids found in Almond skins team up with the vitamin E found in their meat to more than double the antioxidant punch (June 2005 issue of the *Journal of Nutrition*.)

Twenty potent antioxidant flavonoids were identified in Almond skins in this study, some of which are well known as major contributors to the health benefits derived from other foods, such as the catechins found in green tea, and naringenin, which is found in grapefruit.

"We have identified a unique combination of flavonoids in Almonds," said Jeffrey Blumberg, Ph.D., senior scientist and director of the Antioxidants Research Laboratory at Tufts University. "Further blood tests demonstrated that eating Almonds with their skins significantly increases both flavonoids and vitamin E in the body. This could have significant health implications, especially as people age."

Blumberg's team tested the effects of uncooked Almond skin's flavonoids alone and then in combination with the vitamin E found in Almond meat on blood samples containing LDL cholesterol. While Almond skin flavonoids alone enhanced LDL's resistance to oxidation by 18%, when Almond meat's vitamin E was added, LDL's resistance to oxidation was extended by 52.5%!

"The synergy between the flavonoids and vitamin E in Almonds demonstrates how the nutrients in whole foods such as Almonds can impact health," says Dr. Blumberg.

Two other studies have recently confirmed the heart-healthy benefits offered by whole uncooked Almonds:

A study published in the February 2005 issue of the *American Journal of Clinical Nutrition*, which found that, as part of a diet rich in heart healthy foods such as protein, viscous fiber and plant sterols, Almonds can reduce cholesterol levels as much as first generation statin drugs.

And a second study by the same research team, published in the May 2005 issue of the *European Journal of Clinical Nutrition*, and found that, as part of the same heart healthy eating plan, Almonds can reduce C-reactive protein, a marker of artery-damaging inflammation, as much as statin drugs. Ounce for ounce, Almonds are the one of the most nutritionally dense nuts. As well as providing an array of powerful flavonoids, Almonds are among the richest sources of vitamin E in the diet. A one-ounce, 164-calorie serving of Almonds, about a handful, is also an excellent source of magnesium, an excellent source of protein and fiber, and delivers heart-healthy monounsaturated fat, potassium, calcium, phosphorous as well as iron.

Almond's Healthy Fats Help You To Lose Weight Too!

A study published in the November 2003 issue of the *International Journal of Obesity and Related Metabolic Disorders* that included 65 overweight and obese adults suggests that an Almond-enriched low calorie diet (which is high in monounsaturated fats), can help overweight individuals shed

pounds more effectively than a low calorie diet high in complex carbohydrates.

Those on the Almond-enriched low calorie diet consumed 39% of their calories in the form of fat, 25% of which was monounsaturated fat. In contrast, those on the low calorie diet high in complex carbohydrates consumed only 18% of their calories as fat, of which 5% was monounsaturated fat, while 53% of their calories were derived from carbohydrate.

Both diets supplied the same number of calories and equivalent amounts of protein. After 6 months, those on the Almond-enriched diet had greater reductions in weight (-18 vs. -11%), their waistlines (-14 vs. -9%), body fat (-30 vs. -20%), total body water (-8 vs. -1%), and systolic blood pressure (-11 vs. 0%). Those eating Almonds experienced a 62% greater reduction in their weight/BMI (body mass index), 50% greater reduction in waist circumference, and 56% greater reduction in body fat compared to those on the low calorie high carbohydrate diet! Among those subjects who had type 1 diabetes, diabetes medication reductions were sustained or further reduced in 96% of those on the Almond-enriched diet versus in 50% of those on the complex carbohydrate diet. (January 2, 2004)

Daily Consumption of Almonds May Help You Eat a Healthier Diet

If you've been reluctant to add Almonds to your diet because of their high calorie count, a study published in the September 2004 issue of the *British Journal of Nutrition* may help convince you to give these delicious, nutrient-dense nuts a try.

In this study, the normal eating patterns of 43 men and 38 women were followed for 6 months. Then they were told to eat approximately 2 ounces or .25 cup of Almonds daily but were given no other instructions about changing their diet, and followed for an additional 6 months. By the end of the study, a number of very beneficial changes were seen to naturally occur.

While eating Almonds, study participants' intake of health-promoting monounsaturated fatty acids, polyunsaturated fatty acids, fiber,

vegetable protein, vitamin E, copper and magnesium significantly increased by 42, 24, 12, 19, 66, 15, and 23%, respectively.

At the same time, their intake of trans fatty acids, animal protein, sodium, cholesterol and sugars significantly decreased by 14, 9, 21, 17 and 13%, respectively. Both sets of changes in nutrient intake closely match the dietary recommendations known to prevent cardiovascular and other chronic diseases. (January 14, 2005)

Manganese, Copper & Riboflavin - Enhance Energy Production

Almonds are a very good source of manganese and a good source of copper, two trace minerals that are essential cofactors of a key oxidative enzyme called *superoxide dismutase*.

Superoxide dismutase disarms free radicals produced within the mitochondria (the energy production factories within our cells), thus keeping our energy flowing. Fortunately, Mother Nature supplies both mineral cofactors in Almonds.

Just one-quarter cup of Almonds supplies 45.0% of the daily value for manganese, and 19.5% of the daily value for copper. Riboflavin (vitamin B2) also plays at least two important roles in the body's energy production. When active in energy production pathways, riboflavin takes the form of flavin adenine dinucleotide (FAD) or flavin mononucleotide (FMN). In these forms, riboflavin attaches to protein enzymes called *flavoproteins* that allow oxygen-based energy production to occur.

Flavoproteins are found throughout the body, particularly in locations where oxygen-based energy production is constantly needed, such as the heart and other muscles. Riboflavin's other role in energy production is protective.

The oxygen-containing molecules the body uses to produce energy can be highly reactive and can inadvertently cause damage to the mitochondria and even the cells themselves. In the mitochondria, such damage is largely prevented by a small, protein-like molecule called *glutathione*. Like many "antioxidant" molecules, glutathione must be constantly recycled, and it is vitamin B2 that allows this recycling to take place. (Technically, vitamin B2 is a cofactor for the

enzyme glutathione reductase that reduces the oxidized form of glutathione back to its reduced version.)

That same one-quarter cup of Almonds will supply your cells with 17.1% of the daily value for riboflavin.

Almonds Promote Colon and Intestinal Health

In an animal study of the effect of Almonds on colon cancer, animals were exposed to a colon-cancer causing agent and fed Almond meal, Almond oil, whole Almonds or a control diet containing no Almonds. The animals given whole uncooked Almonds showed fewer signs of colon cancer, including fewer rapidly dividing cells.

One reason may be Almonds high fiber content: just a quarter-cup of Almonds contains 4 grams of fiber, that's 16.8% of the daily value for fiber.

Almonds Help Prevent Gallstones

Twenty years of dietary data collected on 80,718 women from the Nurses' Health Study shows that women who eat least 1 ounce of Almonds each week have a 25% lower risk of developing gallstones. Since 1 ounce is only 16 nuts or about 2 tablespoons of nut butter. Having a handful of Almonds as an afternoon or morning snack, or tossing some on your salad may greatly enrich your health. (June 30, 2004)

Almonds – Rich in Bio-available Protein

Almonds are concentrated in protein. A quarter-cup contains 7.55 grams - 15.1% of the daily value for protein and more protein than is provided by the typical egg, which contains 5.54 grams.

The Almond that we think of as a nut is technically the seed of the fruit of the Almond tree, a glorious medium-size tree that bears fragrant pink and white flowers. Like its cousins, the peach, cherry and apricot trees, the Almond tree bears fruits with stone-like seeds (or pits) within. The seed of the Almond fruit is what we refer to as the Almond nut.

Almonds are off-white in color, covered by a thin brownish skin, and encased in a hard shell. Almonds are classified into two categories: sweet (*Prunus amygdalu var. dulcis*) and bitter (*Prunus amygdalu var. amara*).

Sweet Almonds are the type that are eaten. They are oval in shape, usually malleable in texture and wonderfully buttery in taste. They are available in the market either still in their shell or with their shell removed. Shelled Almonds are available whole, sliced or slivered in either their natural form, with their skin, or blanched, with their skin removed.

Almonds are an ancient food that has been written about in historical texts, including the Bible. Almonds were thought to have originated in regions in western Asia and North Africa. The Romans referred to Almonds as the “Greek nut” in reference to the civilization suggested to have first cultivated them.

Almonds are now grown in many of the countries that border the Mediterranean Sea including Spain, Italy, Portugal and Morocco, as well as in California. The cultivation of Almonds in California, the only state that produces them, has an interesting history. Almond trees were originally brought to California centuries ago when missions were created by the Spanish, but cultivation of the trees was abandoned when the missions were closed. Almond trees found their way back to California in the 19th century via the eastern United States. In 1840, Almond trees were brought over from Europe and were first planted in New England. Because the climate on the Eastern seaboard did not support their cultivation, the trees were brought to California where they thrived and continue to do so.

Selecting Good Almonds and Storing Them

Almonds that are still in their shells have the longest shelf life. If purchasing these, look for shells that are not split, moldy or stained. Shelled Almonds that are stored in a hermetically sealed container will last longer than those that are sold in bulk bins since they are less exposed to heat, air and humidity. If purchasing Almonds in bulk bins, make sure that the store has a quick turnover of inventory and that the bulk containers are sealed well in order to ensure maximum

freshness. Look for Almonds that are uniform in color and not limp or shriveled. In addition, smell the Almonds. They should smell sweet and nutty; if their odor is sharp or bitter, they are rancid.

Avoid Roasted Almonds as they may become rancid after ingestion!

Since Almonds have a high fat content, it is important to store them properly in order to protect them from becoming rancid. Store shelled Almonds in a tightly sealed container, in a cool dry place away from exposure to sunlight. Keeping them cold will further protect them from rancidity and prolong their freshness. Refrigerated Almonds will keep for several months, while if stored in the freezer, Almonds can be kept for up to a year. Shelled Almond pieces will become rancid more quickly than whole shelled Almonds. Almonds still in the shell have the longest shelf life.

Safety

The commercial roasting process of Almonds is a form of deep-frying, usually in saturated fat, such as palm kernel oil. Deep-fried Almonds have been linked to high levels of LDL (the bad form of cholesterol) and to thickening of artery walls.

Academic References:

- Abbey M, Noakes M, Belling GB, Nestel PJ. Partial replacement of saturated fatty acids with Almonds or walnuts lowers total plasma cholesterol and low-density-lipoprotein cholesterol. *Am J Clin Nutr* 1994 May;59(5):995-9.
- Chen CY, Milbury PE, Lapsley K, Blumberg JB. Flavonoids from Almond skins are bioavailable and act synergistically with vitamins C and E to enhance hamster and human LDL resistance to oxidation. *J Nutr.* 2005 Jun;135(6):1366-73.
- Durlach J. Commentary on recent clinical advances: Almonds, monounsaturated fats, magnesium and hypolipidaemic diets. *Magnes Res* 1992 Dec;5(4):315.
- Ensminger AH, Ensminger M. K. J. e. al. *Food for Health: A Nutrition Encyclopedia*. Clovis, California: Pegus Press; 1986.
- Fraser GE. Nut consumption, lipids, and risk of a coronary event. *Clin Cardiol* 1999 Jul;22(7 Suppl):III11-5.

- Hu FB, Stampfer MJ. Nut consumption and risk of coronary heart disease: a review of epidemiologic evidence. *Curr Atheroscler Rep* 1999 Nov;1(3):204-9.
- Jaceldo-Siegl K, Sabate J, Rajaram S, Fraser GE. Long-term Almond supplementation without advice on food replacement induces favourable nutrient modifications to the habitual diets of free-living individuals. *Br J Nutr*. 2004 Sep;92(3):533-40.
- Jambazian P, Haddad E, Rajaram S, Tanzman J, Sabate J. Almonds in the diet simultaneously improve plasma alpha-tocopherol concentrations and reduce plasma lipids. *J Am Dietetic Assoc*. 2005 March;105(3), 449-454.
- Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Josse AR, et al. Direct comparison of dietary portfolio vs. statin on C-reactive protein. *Eur J Clin Nutr*. 2005 May 18; [Epub ahead of print].
- Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Wong JM, et al. Direct comparison of a dietary portfolio of cholesterol-lowering foods with a statin in hypercholesterolemic participants. *Am J Clin Nutr*. 2005 Feb;81(2):380-7.
- Lamarche B, Desroches S, Jenkins DJ, Kendall CW, Marchie A, Faulkner D, Vidgen E, Lapsley KG, Trautwein EA, Parker TL, Josse RG, Leiter LA, Connelly PW. Combined effects of a dietary portfolio of plant sterols, vegetable protein, viscous fibre and Almonds on LDL particle size. *Br J Nutr*. 2004 Oct;92(4):657-63.
- Lim GP, Chu T, Yang F, et al. The curry spice curcumin reduces oxidative damage and amyloid pathology in an Alzheimer transgenic mouse. *J Neurosci* 2001 Nov 1;21(21):8370-7.
- Mergen S and the Editor, Univ of California at Berkley Wellness Letter. *The Wellness Encyclopedia of food and nutrition*. New York: Health Letter Associates 1992.
- Tsai CJ, Leitzmann MF, Hu FB, Willett WC, Giovannucci EL. . Frequent nut consumption and decreased risk of cholecystectomy in women. *Am J Clin Nutr*. 2004 Jul;80(1):76-81.
- Wien MA, Sabate JM, Ikle DN, Cole SE, Kandeel FR. Almonds vs complex carbohydrates in a weight reduction program. *Int J Obes Relat Metab Disord*. 2003 Nov;27(11):1365-72.
- Wood, Rebecca. *The Whole Foods Encyclopedia*. New York, NY: Prentice-Hall Press; 1988.

- Zittlau E. [Effect of sweet Almonds on the stress ulcer in rats].
Dtsch Tierarztl Wochenschr 1985 Apr 9;92(4):151-4.