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Health Advantages of Pine Nuts (Chilgoza): The Whacky Wintertime Folly

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ABSTRACT

Pine nuts have been a popular source of nutrition since the Paleolithic times. Crunchy and delicious, pine nuts are small seeds of the pine cone. Botanically, the tree belongs to the Pinaceae family. Pine nut is known by several names like cedar nuts, pinon nuts, pinyon nuts and pignoli. It is called chilgoza in Hindi. Chilgoza is found commonly in India, Pakistan and Afghanistan. The seeds are small and elongated, measuring one to two inches in length. Pine nuts help maintain body's hormonal health as they are rich in zinc. Zinc aids in healing and stimulates the activity of about 100 enzymes in the body.They are a rich source of magnesium too. Magnesium is also known as the 'Mood Mineral'. It helps decrease anxiety, stress and depression. These vital nuts calm the body and improve your sleep and memory. So tuck a few into your bag for a quick snack loaded with health.Pine nuts help your body transport and store oxygen. Furthermore, they are great for brain health too. It's a good idea to roast them, as that will reduce the effect of iron inhibitors. The unsaturated fats found in pine nuts help increase insulin sensitivity. In addition, when eaten as a part of the meal, they can reduce the overall glycemic index. This is good news for diabetics.Handful of these seeds help in weight management. The Pinolenic Acid in pine nuts stimulate the intestine to produce a particular hormone that signals the brain to turn off 'Hungry Mode'.Pine nuts are loaded with healthy fats, dietary fiber, plant sterols, arginine, anti-oxidants, vitamins and minerals that are heart protective. The high antioxidant content in the seeds slows down ageing, making you look and feel younger.Since pine nuts are rich in vitamin A and lutein, their consumption on a regular basis will help develop sharp vision. Get that glow with these antioxidants rich seeds: They help control how fast you age by combating free radicals, which play a part in age related deterioration. Make these a part of your daily snacking to rejuvenate your skin and hair. Food has the power to heal when it is unadulterated and used well. The brilliant design of nature offers all nutrients in accordance with the season and climate. It is best to use common sense in choosing foods and not be grappled or confused by the commercial industry, flooded with processed packaged food.

Keywords: *Cholesterol,, CCK , Minerals, Pinolenic acid, Oleic acid,*

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INTRODUCTION

The two prominent pine species known for their large edible kernels include *Pinus sibirica* and *Pinu skoraiensis*. Western (stone) pines have long slender kernels in comparison to the Oriental pines, in which the seeds are broad, large and have higher fat content.Pine nuts feature tough dark-brown outer coat or shell. Inside, its edible kernel has cream white,

delicate buttery flavor, and sweet taste.Chilgoja pine nut (*Pinus gerardiana*) is another distinct pine variety found in the western Himalayan forests of Pakistan, India (Kashmir, Himachal Pradesh), and Afghanistan. Chilgoza pines have similar in appearance as stone pines; featuring long slender, pointed kernels.Pine nuts are one of the calorie-rich edible nuts. 100 g of dry kernels provide 673 calories [1].

Additionally, they comprise of numerous health promoting phytochemicals, vitamins, antioxidants, and minerals.Their high caloric content chiefly comes from fats. Indeed, the nuts are especially rich in monounsaturated fatty acids like oleic acid (18:1 undifferentiated fat) that helps to lower LDL or "bad cholesterol" and increases HDL or "good cholesterol" in the blood. Research studies suggest that Mediterranean diet which contains useful amounts of monounsaturated fatty acids, vitamins, and antioxidants, helps to prevent coronary artery disease and strokes by favoring healthy blood lipid profile.Pine or cedar nuts contain essential fatty acid (the omega-6 fat), pinolenic acid. Recent research has shown its potential use in weight loss by curbing appetite. Pinolenic acid triggers the release of hunger-suppressant enzymes cholecystokinin and Glucagon-like peptide-1 (GLP-1) in the gut. Also, pinolenic acid has thought to have LDL-lowering properties by enhancing hepatic LDL uptake.Likewise in almonds, pines too are an excellent source of vitamin-E; contain about 9.33 mg per 100 g (about 62% of RDA). Vitamin-E is a powerful lipid soluble antioxidant, required for maintaining the integrity of cell membrane of mucosa and skin by protecting it from harmful free oxygen radicals.Furthermore, pines are one of gluten-free tree nuts, and therefore, are a popular ingredient in the preparation of gluten-free food formulas. Such formula preparations can be a healthy alternative in people with wheat food allergy and celiac disease.Pine nuts are an excellent source of the B-complex group of vitamins such as thiamin, riboflavin, niacin, pantothenic acid, vitamin B-6 (pyridoxine) and folates. These vitamins work as co-factors for enzymes in cellular substrate metabolism inside the human body [2, 3]].

Furthermore, pine nuts contain healthy amounts of essential minerals like manganese, potassium, calcium, iron, magnesium, zinc and selenium. At 8.802 mg per 100 g (about 383% of daily recommended intake), pines are one of the richest sources of manganese. Manganese is an all-important co-factor for antioxidant enzyme, superoxide dismutase. Therefore, consumption of pine kernels helps the human body develop resistance against infectious agents and scavenge harmful oxygen-free radicals.Pine nut oil has a delicate flavor with sweet aroma and is being employed in many traditional medicinal remedies. The main chemical components in pine oil are *borneol, bornyl acetate, a and ß-phellandrene, a-pinene and ß-pinene*. Its emollient property helps to keep skin well protected from dryness. It has also been employed in cooking, and as “carrier or base oil” in traditional medicines and aromatherapy, in the pharmaceutical and cosmetic industry[4].

THEREPEUTIC APPLICATIONS

Pine trees grow chiefly in the wild cold and taiga forests of the northern hemisphere, particularly in Siberia and Canada. They are huge, straight erect trees with a large stem which may reach up to 75 feet in height with pyramidal or umbrella-like dense foliage cover. "flowers" of pine tree subsequently develop into a cone. The female cones take about two–three years to mature after pollination. At maturity, the female cones (ovulate or seed cones) may reach from as small as 3 cm long to a very large one reaching about 35 cm. Scales at the base and tip of the cone tend to be small and sterile, and therefore, bear no seeds. Once mature and dry, the cone naturally split open to release the kernel [1].

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Pine nuts are rich in monounsaturated fats that help to lower cholesterol in the blood. Regular consumption of pine nuts increases good cholesterol and reduces bad cholesterol in the body. Oleic acid in pine nuts helps the liver to remove triglycerides from the body. It also favors a healthy blood lipid profile, preventing coronary artery diseases and strokes.Eating a handful of pine nuts can help in weight management. A study has found that swapping healthy unsaturated fats for saturated fats can help you to lose weight without reducing your calorie intake. Pine nuts are very effective in suppressing appetite. Pinolenic acid stimulates CCK (cholecystokinin), a hormone that signals the brain that the stomach is full. This curbs the appetite, keeping you full for a longer time. Pine nuts can decrease food intake by 37%.

Pine nuts are extremely high in antioxidants. These antioxidants kill free radicals that encourage the development of cancer and other types of diseases. It also helps the body develop resistance against infectious agents and viruses. Pine nut is also known for its ability to slow down the ageing process due to its high antioxidant content.Pine nuts contain beta-carotene and antioxidants, which are very beneficial for the health of the eyes. Lutein in pine nuts helps the eyes to filter UV light, preventing macular damage. It also prevents our eyesight from deteriorating with age.Pine nuts are an excellent option for evening snacking. It contains protein that provides an instant source of energy. It also helps to repair and build the muscle tissues. Protein is a slow burning fuel that provides a long lasting energy boost which does not result in burnout. It also helps to improve the body’s use of oxygen, increasing the energy levels.

Vitamin E in pine nuts is required for maintaining the integrity of the cell membranes. It also protects the skin from the harmful UV rays. The emollient properties of pine nut oil keep the skin well moisturized.Pine nut is often pressed to extract its oil. The oil has a delicate flavor and a sweet aroma. It has been used in traditional medicinal application since ancient times. It is used as carrier oil in aromatherapy and in the cosmetic industry. It is also used in cooking and for salad dressings.Pine nut oil has been used since ancient

times to soothe an irritated digestive tract. It is very useful in curing erosive stomach and duodenal ulcers.Pine kernels are a good source of several essential nutrients. It contains Vitamin A, B, C, D and E. It is an excellent source of B complex vitamins like thiamine, riboflavin, pantothenic acid, folate and pyridoxine. Pine nuts are rich in minerals like manganese, potassium, calcium, zinc, selenium and iron. They are rich sources of pinolenic and oleic acid that are very beneficial for the stimulation of hormones. 100 grams of pine nuts contain 675 calories [2-5].

Pine nuts, raw, Nutritional value per 100 g. (Source: USDA National Nutrient data base)		
Principle	Nutrient Value	Percentage of RDA
Energy	673 Kcal	34%
Carbohydrates	13.08 g	10%
Protein	13.69 g	24%
Total Fat	68.37 g	228%
Cholesterol	0 mg	0%
Dietary Fiber	3.7 g	10%
Vitamins		
Folates	34 µg	9%
Niacin	4.387 mg	27%
Pantothenic acid	0.313 mg	6%
Pyridoxine	0.094 mg	7%
Riboflavin	0.227 mg	17%
Thiamin	0.364 mg	30%
Vitamin A	29 IU	1%
Vitamin C	0.8 mg	1%
Vitamin E	9.33 mg	62%
Electrolytes		
Sodium	2 mg	0%
Potassium	597 mg	13%
Minerals		
Calcium	16 mg	1.5%
Copper	1.324 mg	147%
Iron	5.53 mg	69%
Magnesium	251 mg	63%
Manganese	8.802 mg	383%
Phosphorus	575 mg	82%
Selenium	0.7 µg	1%
Zinc	6.45 mg	58%
Phyto-nutrients		
Carotene-ß	17 µg	—
Crypto-xanthin-ß	0 µg	—
Lutein-zeaxanthin	9 µg	—

Culinary uses:

Pine nuts are generally enjoyed raw; these can also be roasted before consumption. As with most nuts, roasting gives pine nuts a distinct taste and aroma. Sprinkle some salt and pepper, and they are ready to eat. Soak the raw nuts in water for a few minutes to bring out their creamy texture and flavor. Roasting pine nuts also minimizes the awful aftertaste that they leave behind.The seeds have a sweet and buttery flavor. It is used extensively in the preparation of pesto and pasta, casseroles and meat curries.The nuts are also added to vegetable and fruit salads. Chopped pine nuts are sprinkled on yoghurt, sundaes and ice cream to add texture to the dishes. They are also added to biscuits, cookies, granola and crunch bars.Sprinkle pine seeds on salads for that extra crunch, full of wholesome health benefits [3].

CONCLUSION

Pine nuts are the good source of high calorie contents and mono-unsaturated fatty acids such as oelic acids that helps to reduce the LDL (Bad) cholesterol level to increase the HDL (Good) cholesterol level in the blood. These mono-unsaturated fatty acids, vitamins

and nutrients are also present in Mediterranean diet, that helps to prevent the coronary artery diseases, strokes, heart attack and hardening of coronary arteries and helps to maintain healthy lipid blood profile.Pine nuts are the excellent source of vitamin E equivalent to almonds and the vitamin E is known as the powerful antioxidant which is lipid soluble and beneficiary for the repairing and maintenance of cell membrane of mucus membranes and skin. It also provides protection against harmful oxygen free radicals.Pine nuts contains vitamin B complex like niacin, riboflavin and thiamin, that helps to speedup the testosterone levels in the men and increase the production of red blood cell and elevating mood by beating stress and anxiety.Pine nuts contains essential antioxidants, that helps to neutralize the free radicals causing cancer and good for promoting cardiovascular health benefits.Pine nuts contains pinoleic acid, that helps to produced the useful appetite suppressing hormones when consumed. These hormones helps to curb your hunger pangs and tell the brain that the stomach is full, which helps to promotes easily and healthy weight lose. So it is good for weight loss.

Pine nuts are rich in magnesium, that is required for the proper nerve and muscle functioning and essential in the conversion of blood sugar in to energy. It also helps to boost your immune system.The presence of calcium is required for building strong bones and healthy teeth, for proper function of the muscles, heart and nervous system.Iron in it helps to prevent anemia and carry oxygen to the other body parts. It also used to build red-blood cells and for repairing worn out cells.Potassium in it helps to maintain the body fluid, heart beat rate and regulate the blood pressure.Folate helps to promote healthy pregnancy and also used in the production of milk and protect from neural tube defect.Regular consumption of pine nuts helps to boost your sex drive, restore your libido and prevent pre-ejaculation.

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