

Super Fruit Handbook – *Part 1*

Natural Ways to Fight Joint Pain, Improve
Your Memory, Maintain a Healthy Heart and More!



Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Disclaimer: The information in this book is provided for informational purposes and is not meant to be a substitute for medical or other advice provided by your doctor or medical professional. This report is **not** intended to be used as a medical source or the information in this report is **not** intended to be used for diagnosing or treating a problem or disease.

The information and/or statements made in this report are the option of the author. The products mentioned in this report have not been evaluated by any statutory or professional body and are not intended to diagnose, treat, cure, or prevent any disease. If you believe or suspect you may have a health condition, problem or other, please consult your professional healthcare provider immediately.

In addition, the author of this book is not a doctor, registered nurse or holds any health license. However, the author is an individual dedicated to researching, compiling and sharing the amazing scientific evidence conducted on the fruits by many leading research organizations and Universities across the globe. The author is committed to living a healthy and natural lifestyle by using the gifts Mother Nature has provided.

You have reseller rights of this book. You do not have permission to change, add or delete information to this book. The author is not associated with any of the products mentioned in this book. Compiled and written by Joe Thomas.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Contents

Current Super Fruits:	8
Emerging Super Fruits:	8
What is an Antioxidant?.....	11
What are Anthocyanins?	12
Introduction: The Tart Cherry	13
Nutritional Information on Select Tart Cherry Products.....	14
Selected Nutrients in Tart Cherries Compared to Other Fruits.....	16
Tart Cherries Offer a Supermarket of Antioxidant Compounds.....	18
Tart Cherries Help Fight Joint Pain Due to Arthritis.....	19
Tart Cherries Help To Reduce Uric Acid and Fight Gout Pain.....	20
What is the Cause of these Painful Crystals?.....	20
How Tart Cherries Fight Gout?	21
How Anthocyanins Fight Gout Pain?	21
Get a Good Night's Sleep with Tart Cherries	22
Melatonin Levels in Different Tart Cherry Products:	22
What is Melatonin?	22
Tart Cherries Help to Fight the Factors of Heart Disease and Diabetes.....	23
Tart Cherries Help to Fight Muscle Pain.....	24
Ten Ways to Incorporate Tart Cherries into Your Daily Route	25
Tart Cherry Supplements and Tart Cherry Products	27
Introduction: Acai	29

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

The Acai: What is it?	30
Acai Nutrition Information	30
Acai Research Update	31
Total oxidant scavenging capacities of Euterpe oleracea Mart. (Acai) fruits	31
Total oxidant scavenging capacity of Euterpe oleracea Mart. (acai) seeds and identification of their polyphenolic compounds	31
Antioxidant capacity and other bioactivities of the freeze-dried Amazonian palm berry, Euterpe oleraceae mart. (acai)	32
Endothelium-dependent vasodilator effect of Euterpe oleracea Mart. (Acai) extracts in mesenteric vascular bed of the rat	33
Inhibitory effects of Euterpe oleracea Mart. on nitric oxide production and iNOS expression	34
Antioxidant Capacity Author: Schauss AG, Wu X, Prior RL, Ou B, Huang D, Owens J, Agarwal A, Jensen GS, Hart AN, Shanbrom E.	35
Phytochemical and Nutrient Composition	36
Endothelium-Dependent Vasodilator Effect of Acai	36
A Substitute for Wheat in Foods	37
Total Oxidant Scavenging Capacity	38
Antioxidant Activity of Fruits	39
Phytochemical Composition and Pigment Stability	39
Phytochemical composition and pigment stability of Acai (Euterpe oleracea Mart.)	40
Seven Ways to Incorporate Acai into Your Daily Route	41
Great Tasting Acai Recipes	42
Acai Supplements and Acai Products	42
Introduction: The Cranberry	44
History of the Cranberry	46
Cranberries Offer a Supermarket of Antioxidant Compounds	47

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Cranberries Help Fight Urinary Tract Infections	48
How the Cranberry Prevents Bacteria From Sticking?	49
Cranberry Juice Alters the E. Coli Membrane	49
Cranberries and Healthy Teeth and Dental Health	50
Cranberries Help to Fight LDL (bad) Cholesterol	51
Cranberries Help to Fight Kidney Stone Formation	53
Cranberries Help to Fight the Herpes Virus	53
Ten Ways to Incorporate Cranberries into Your Daily Route	54
Great Tasting Cranberry Recipes	55
Sea Breeze	55
Cranberry, Crab Meat and Cream Cheese Appetizers	56
Cranberry Mustard Dipping Sauce	56
Introduction: The Blueberry!	58
The Wild Blueberry is Nature's #1 Antioxidant Fruit!	59
Wild Blueberries Rank Low on the Glycemic Index	59
The Glycemic Index Explained	59
What Makes the Blueberry an Effective Eye Soother?	60
Blueberries are Good Brain Food	60
Blueberries and Heart Health	62
Blueberry Supplements and Blueberry Products	62
Introduction: The Pomegranate	64
The Pomegranate: What is it?	65
Pomegranate Preparation and Nutrition	66
Selection and Storage	66

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Storage	66
Uses & Preparation.....	67
Pomegranate Nutrition Facts.....	69
Pomegranate Research Update	70
Ten Ways to Incorporate Pomegranates into Your Daily Route	83
Great Tasting Pomegranate Recipes	84
Pomegranate Supplements and Pomegranate Products	93
Sources for Additional Information on Antioxidants, Anthocyanins and Super Fruits:	95
Additional References:	95

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Introduction: Super Fruits

Welcome to the world of super fruits!

Super fruits have been around since the beginning of time, yet they have only caught the attention of the general public within the last several years. The term super fruit is merely a marketing term, yet the natural health benefits provided by the underlying fruit is truly amazing.

In fact, the term Super fruit is widely believed to be first used in the food and beverage industry in 2004. The term itself refers to fruits that offers exceptional antioxidant quality and that are high in nutrient value. In addition, the underlying fruit must have an appealing taste. Thus, a super fruit must offer three-value added benefits:

- good taste
- good nutrient value
- natural health benefits to the body (anticipated health benefits)

In addition, many of the fruits and berries on the super fruit list have similar compounds, phytonutrients and minerals. Since the majority of fruits have similar compounds it is not solely one compound that gives the fruit its unique healing ability. Research suggests it is the unique make up of these compound and how these compounds interact with each other is what gives the underlying fruit it specific health benefits.

Based upon the medical research and emerging medical research and the evidence for potential health benefits two super fruit lists exist: the actual super fruit list and the emerging super fruit list. The difference is between the two list is the fruits listed on the emerging list have not officially classified as a super fruit, but they do have emerging medical research and have medical evidence of significant phytochemical or anti-disease properties.

First is the official list of super fruits, while the second is a list of the emerging super fruits.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Current Super Fruits:

- acai (*Euterpe oleracea*)
- blueberry (*Vaccinium angustifolium* and *Vaccinium corymbosum*)
- cranberry (*Vaccinium macrocarpon*)
- grape red (*Vitis vinifera*),
- guarana (*Paullinia cupana*)
- mangosteen (*Garcinia mangostana*)
- noni (*Morinda citrifolia*)
- pomegranate (*Punica granatum*)
- seabuckthorn (*Hippophae rhamnoides*)
- wolfberry – goji - (*Lycium barbarum*)

Emerging Super Fruits:

- acerola (Barbados cherry, *Malpighia emarginata*, *Malpighia glabra*)
- baobab (*Adansonia digitata*)
- bilberry (*Vaccinium myrtillus*)
- black raspberry (*Rubus occidentalis*)
- black chokeberry ("aronia", *Aronia melanocarpa*)
- blackcurrant (*Ribes nigrum*)
- camu camu (*Myrciaria dubia*)
- cupuaçu (*Theobroma grandiflorum*)
- durian (*Durio kutejensis*)
- elderberry (*Sambucus canadensis*, *Sambucus nigra*)
- Indian gooseberry (amalaka, amla, *Phyllanthus emblica*)
- kiwifruit (*Actinidia deliciosa*)
- longan (*Dimocarpus longan*)
- lychee (*Litchi chinensis*)
- manlingonberry (*Vaccinium vitis-idaea*)

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

- longgo (*Mangifera indica*)
- muscadine grape (*Vitis rotundifolia*)
- papaya (*Carica papaya*)
- red bayberry (yumberry, *Myrica rubra*)
- red guava (*Psidium guajava*, many species)
- saskatoon berry (*Amelanchier alnifolia*, Nutt)
- sour (tart) cherry (*Prunus cerasus*)
- tamarind (*Tamarindus indica*)
- wild cherry (sweet, *Prunus avium*)
- yuzu (*Citrus ichangensis* x *C. reticulata*)

For example, the wild blueberry, which become known as a super fruit, due to United States Department of Agriculture assays on the antioxidant strength of the ORAC (oxygen radical absorbance capacity) for 100 common foods.¹ As time passed, additional and analyses were published at several other berries and fruits were added including acai, wolfberry (goji berry), cranberry and elderberry.^{1,2,3,4}

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Below is a chart listing the key ingredients, related health benefits and key antioxidants of the super fruits. In addition, I included the tart cherry from the emerging super fruit list on the list too.

Super fruit	Primary Nutrients	Select Key Antioxidants	Recent Medical Evidence
Acai	dietary fiber	Anthocyanins, ORAC value	leukemia
Blueberry	Vitamin C	anthocyanins	brain support
Cranberry	vitamin C	anthocyanins	oral bacteria, urinary tract
Grape	manganese	resveratrol	atherosclerosis
Guarana	n/a	n/a	brain support
Mangosteen	dietary fiber	excarp xanthones	leukemia
Noni	vitamin C, potassium	lignans	inflammation
Pomegranate	vitamin C	ellagic acid	prostate cancer
Seabuckthorn	vitamins A,C,E	carotenoids	inflammation
Wolfberry	dietary fiber, riboflavin	carotenoids, polyphenols	neurological disease
Tart Cherry	dietary fiber, potassium	melatonin, anthocyanins	arthritis, gout, heart disease

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Source: Various websites and information sources from the Internet

This book will share some of the research conducted on 4 current super fruits and one emerging super fruit. The fruits that are included in the Super Fruit Handbook – Part 1 include:

Acai – Super Fruit – Heart health and cholesterol

Tart Cherry – Emerging Super Fruit – Arthritis, gout, inflammation and heart health

Cranberry – Super Fruit – Urinary tract infections and oral bacteria

Wild Blueberry – Super Fruit – Eye sight and short term memory

Pomegranate – Super Fruit – Heart health and cholesterol

Future versions of the Super Fruit Handbook will deliver the medical research information on 4 current super fruits and 1 emerging super fruit.

What is an Antioxidant?

An antioxidant is defined as “various substances (as beta-carotene, vitamin C, and alpha-tocopherol) that inhibit oxidation promoted by oxygen and peroxides and may help to protect the body from the effects of free radicals.”

In other words, antioxidants deactivate free radicals in the body. Thousands of studies have repeatedly shown that maintaining high levels of antioxidants helps to reduce a person’s risk for disease, stimulates the immune systems and may even slow the aging process. So what is a free radical?

Free radicals are unstable molecules that have lost an oxygen molecule. These unstable molecules steal oxygen molecules from healthy cells. One example of the affects of free radicals on healthy cells is the browning of a freshly cut apple or potato.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

If you have ever cut an apple or a potato and let it set on the counter for 20 minutes you have witnessed the affects of free radicals on healthy cells. The browning of the exposed fruit is what is called “cellular rust” and this is similar to what occurs in the body. Antioxidants fight these free radicals. That is why it is vital to eat a healthy diet and food that is high in ORAC value.

ORAC or Oxygen Radical Absorption Capability measures the total antioxidant value of different foods. ORAC values indicate how many free radicals a specific food can absorb and deactivate. ⁵ (OU 2001). The more free radicals a food can absorb the higher its ORAC value score. Thus, the higher the score, the better the food is in helping the body to fight disease and stay healthy.

Nutrition experts estimate that the body needs a daily consumption of 3,000 to 5,000 ORAC units to reach significant oxygen capacity in the blood and realize the health benefits of ORAC in food.

What are Anthocyanins?

Anthocyanins are responsible for giving nature its vibrant colors. Anthocyanins are present in every fruit and vegetable that has color. You can see the overwhelming presence of this pigment when you visit an orchard or the fresh produce section of your local grocery store. Anthocyanins are present in blueberries, cherries, strawberries, apples, and red raspberries to name a few. In addition, anthocyanins are the phytochemicals responsible for changing the colors of the leaves during the Autumn months from green to fiery red, orange, purple, yellow and more.

Anthocyanins have long been the study of botanists due to their phytoprotective capabilities. To date, over 300 distinct types of Anthocyanins have been identified. Based upon research, Anthocyanins belong to one class of flavonoids. Flavonoids include a number of different classes including flavones, flavonones, flavon-3-ols and flavonols to name a few. Different classes of flavonoids have different oxidations states. Thus, from an oxidative standpoint, different fruits and vegetables offer different oxidative degrees or ORAC values.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

So to stay health and help your body fight off the harmful effects of free radicals you need to consume high ORAC foods including the super fruits included in the Part 1 of the Super Fruit Handbook.

Introduction: The Tart Cherry

The tart cherry has a long history of fighting pain and inflammation in the body, naturally. For decades, stories of the healing benefits of the tart cherry have been the source of legend and folklore. For many pain suffers, the tart cherry is considered “Mother Nature’s Joint Pain Fighter”. Due to the widely published side effects of modern prescription medicine to fight arthritis pain, many are searching out natural alternatives and the tart cherry is answering the call.



In addition, many of the world’s leading research organizations are studying this ruby red fruit with amazing results. These studies are funded by research universities, USDA grants, private companies and public grants. So interest in the pain fighting capability of the tart cherry is more than a small group of naturalists, it also includes the smartest and most educated individuals in food research.

This special report will introduce you to the antioxidant-rich properties of the tart cherry. Ongoing research from medical universities suggests tart cherries may...

- Provide the body with high levels of ORAC units
- Ease joint pain due to gout and arthritis
- Fighting muscle pain due to physical exercise
- Help the body get a more restful night’s sleep

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Like many foods, tart cherries are a natural source of a broad range of anti-oxidants. However, the unique makeup and combination of the anti-oxidants in tart cherries are what make this tiny fruit so special. Tart cherries are high in fiber and are an excellent source of potassium, beta carotene, melatonin, flavonoids, anthocyanins and more.

In addition, when comparing tart cherries to other types of fruit, the tart cherry offers higher nutrient values. For example, frozen tart cherries are higher in beta carotene and thiamin than frozen blueberries and strawberries. The levels of vitamin A and beta carotene are 19 times higher than these same two frozen fruits. (I have included a complete chart below for your review)

But before we go any further, let's take a closer look at the nutritional information* for several different types of tart cherry products:

Nutritional Information on Select Tart Cherry Products

A daily serving (1/4 cup – 45g) of dried tart cherries provides the following:

- 138 Calories
- 4.55 g protein
- 28.9g Carbohydrates
- .23g Fat

A daily serving (1 oz. – 28.3g) of tart cherry juice concentrate

- 74 Calories
- .92 g protein
- 17.5g Carbohydrates
- 0g Fat



Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

A daily serving (1/2 cup – 67g) of frozen tart cherries

- 28 Calories
- .65 g protein
- 6.35g Carbohydrates
- .4g Fat

A daily serving (1/2 oz. – 121g) of canned tart cherries

- 37 Calories
- .90 g protein
- 8.13g Carbohydrates
- .07g Fat

* Nutritional analysis conducted by the American Analytical Chemistry Laboratories Corporation

Selected Nutrients in Tart Cherries Compared to Other Fruits

Select Fruit (100 grams)	Vitamin A IU	Beta Carotene MCG	Vitamin B6 MG	Thiamin MG	Iron MG	Potassium MG
Tart Cherries Frozen	870	522	.067	.044	.53	124
Watermelon Raw	569	303	.045	.033	.24	112
Peaches Raw	326	162	.025	.024	.25	190
Blueberries Frozen	46	28	.059	.032	.18	54
Strawberries Frozen	45	27	.028	.022	.75	148
Raspberries Raw	33	12	.055	.032	.69	151
Oranges Raw	225	71	.060	.087	.10	181

Source: USDA National Nutrient Database

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

As the above chart indicates tart cherry offer are a power-packed way of getting the vital nutrients your needs to stay healthy.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Tart Cherries Offer a Supermarket of Antioxidant Compounds



The good news about tart cherries and their natural healing benefits just keeps coming. Medical schools and research universities continue to publish more evidence showing the amazing health benefits of this tiny red fruit.

Research shows tart cherries have at least 17 naturally occurring compounds that offer an entire range of healthy benefits.

According to an article published in 2006 in the *American Journal of Clinical Nutrition* the tart cherry ranked 14 of the top 50 foods in a study for total ORAC content per serving – the ORAC value of the tart cherry surpassed red wine, orange juice, prune and even dark chocolate.

Cherry Product	ORAC (units per serving)
Frozen Cherries – ½ cup	1,362
Dried Cherries – ¼ cup	3,060
Cherry Juice Concentrate – 1 oz.	3,622

*Research conducted at Jean Mayer USDA Human Research Center on Aging and Brunswick Laboratory

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Tart Cherries Help Fight Joint Pain Due to Arthritis

To the legions of joint pain sufferers the tart cherry is a welcome natural relief. Many do not want to take prescription joint pain medication due to the unhealthy side effects reported just a few years ago. Tart cherries help to reduce joint pain due to arthritis naturally.

According to research from Michigan State University, tart cherries inhibit COX 1 and COX 2 (cyclooxygenase 1 and 2) enzymes and prevent inflammation in the body. Tart cherries help the body to produce similar types of chemical process as non-steroidal anti-inflammatory drugs (NSAIDS). Some examples of NSAIDS drugs are ibuprofen and aspirin.

NSAIDS work by inhibiting two popular enzymes, COX 1 and COX 2 (cyclooxygenase I and II). These enzymes are naturally produced in the body to respond to pain. NSAIDS prevent chemical messages from binding to COX 1 and COX 2. Thus, the messages are not delivered, so the body doesn't become inflamed and doesn't feel the pain. Tart cherries contain natural COX 1 and COX 2 inhibitors that function in the same manner to NSAIDS. The inhibitors found in the tart cherries are of the flavonoids class. Unlike NSAIDS, research shows these flavonoids protect against stomach damage. So in other words, the compounds in the tart cherry are natural COX-1 and COX-2 inhibitors.

In addition, research published from Michigan State University reveal the natural inhibitors found in tart cherries act superior to over-the-counter (OTC) pain relievers. This research also mentions these inhibitors are most effective when consumed from concentrated forms of tart cherries products.



Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Concentrated forms of tart cherry products include tart cherry juice concentrate, tart cherry powder and tart cherry capsules.

Tart Cherries Help To Reduce Uric Acid and Fight Gout Pain

Gout is actually a form of arthritis. Gout pain is the result of the buildup of uric acid in the body. Uric acid is a result of crystal-like formations that travel through out the body via the blood stream. These jagged crystals are the cause of the redness, swelling and pain that gout is infamously known for.

What is the Cause of these Painful Crystals?

Gout is normally associated with high concentrations of uric acid in the body. Uric acid is produced in the liver. As the uric acid level increases little needlelike crystals of salt form. These are called monosodium urate (MSU). As these tiny crystals travel the body they tend to collect in the open spaces between the joints and cause pain and inflammation.

Here is a brief list of some of the top causes of the causes of these painful crystals, aka gout:

1. If you have a family history of gout, you may also suffer from gout.
2. Being overweight also contributes to gout.
3. Drinking excess alcohol or people drinking large amounts of alcohol on a continued basis can contribute to gout.
4. People who had an organ transplant are more likely to have gout than those who have not an organ transplant.
5. Men are more likely to get gout than women, however more women are reporting this painful disease.
6. The consumption of high purines food including seafood, alcohol and meats like animal kidney and liver.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

How Tart Cherries Fight Gout?

Tart cherries help to reduce the uric acid level in the body.

A study conducted by the USDA Human Nutrition Research Center at the University of California, Davis on healthy woman (ages 20 -40) who ate two servings of tart cherries (280 grams) showed a 15 percent decrease in uric acid levels. The subjects also had lower levels of nitric oxide and C-reactive protein ⁶

In addition, a ground breaking study in 1950 found daily consumption of tart cherries helped to relieve gout attacks and the joint pain associated with arthritis. After eating tart cherries, the participants in the study had lower blood levels of uric acid. ⁷

The unique makeup of the phytochemicals in the tart cherry provide gout sufferers the world over the ability to eliminate gout pain.

How Anthocyanins Fight Gout Pain?

Anthocyanins are incredible in how they help the body to fight cell and tissue damage. When a part of the body becomes inflamed or suffers a gout attack, connective tissues begin to tear and separate. This causes the capillaries to break and burst, thus allowing blood to spill over to surrounding area and tissue. During this point, anthocyanins begin to combat any destructive enzymes to prevent further damage. In addition, they begin protecting the damaged tissue to preventing further damage. After all of this, Anthocyanins help to restore the damaged tissues to its original state.

So the tart cherry helps to restore the tissue and prevent inflammation. So how much tart cherry should an individual consume to begin to realize a benefit? According to published research from Michigan State University, as little as 20 cherries is enough to combat the enzymes damaging the tissue and causing joint pain and inflammation.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Get a Good Night's Sleep with Tart Cherries

One area of continued interest regarding the tart cherry is the presence of melatonin.

Melatonin helps to regulate the body's rhythmic patterns – it helps control sleepiness during the night and wakefulness during the day. According to research from the University of Texas the amounts of melatonin present in tart cherries can produce a positive outcome in the body.

Melatonin is usually not found in fruits. However, Tart cherries have high levels of naturally occurring melatonin. In addition, different types of tart cherry products have different melatonin levels.

Melatonin Levels in Different Tart Cherry Products:

Fresh Tart Cherries:	Up to 13.5 nanograms (ng) of Melatonin per gram
Tart Cherry Juice Concentrate:	Has up to 10 times more the Melatonin per gram when compared to the raw fruit.
Tart Cherry Powder:	137+ ng per gram
(Cherry powder is used to make tart cherry capsules)	

Thanks to advances in food science technology, different production methods are able to extract different levels of this naturally occurring compound and deliver them to you.

What is Melatonin?

Melatonin is produced in the pineal gland, which is located at the base of the brain. In addition to controlling the body's rhythmic clock, melatonin also acts as an antioxidant. It helps to combat free radicals in the body. Additional research from the University of Texas indicates melatonin is both soluble in both fat and water. This helps this compound to penetrate some cells that

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

vitamins cannot enter, thus melatonin is more potent than vitamins A, C, and E. Although melatonin is available without a prescription, food experts recommend consuming this beneficial compound through whole food consumption like tart cherries.



Tart Cherries Help to Fight the Factors of Heart Disease and Diabetes

In 2008 research results from the University of Michigan Cardiovascular Center shows that tart cherry powder showed good results with reducing factors associated with heart disease and diabetes. The results of this groundbreaking research were presented at the 2008 Experimental Biology meeting held in San Diego, CA by individuals from the University of Michigan

Cardioprotection Research Laboratory.

This research was conducted on the rats. U of M is currently preparing clinical trials working with human participants. In short, the rats in the research study were given whole tart cherry powder. Tart cherry powder is made from whole tart cherries that have been powdered down to create a convenient and consumer friendly way to enjoy the natural health benefits of whole tart cherries.

The rats were divided into two groups. The first group was given tart cherry powder, while the second group wasn't. The rats given the tart cherry powder during the study had significantly lower blood levels of triglycerides and cholesterol than the rats that didn't receive the tart cherry powder.

In addition, the tart cherry rats didn't build up as much fat in the belly or gain as much weight as those who didn't receive the cherry powder. Belly fat is just one factor linked to cardiovascular disease. Some of the tests conducted on the subjects during the test were measured on variables linked to Type 2 diabetes and cardiovascular disease. Blood samples from the cherry-fed

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

participants showed much lower levels of the specific molecules that indicate the kind of inflammation that has been linked to diabetes and heart disease.

The results of these finding built on the results that the University of Michigan team presented in 2007. This previous experiment involved lean rats that were prone to impaired glucose tolerance, high blood pressure and high cholesterol. The participants in the 2007 study were also divided into two groups – a low fat diet with tart cherries and a low fat diet without tart cherries. In the earlier test, the cherry-fed rats had lowed oxidative stress, less fat storage, lower blood sugar and lower total cholesterol.

According to the researchers that conducted the test, the findings were very exciting and encouraging. At the end of the 2007 study, the rats were tested for blood level glucose, cholesterol and triglyceride levels. In addition to plasma inflammation tests, the participants are received DEXA scans to measure body and to see where fat had collected. By the end of the study, the rats that received tart cherry powder had lower body weight, lower fat mass and lower total triglyceride and cholesterol than the rats that didn't receive the tart cherry powder.

Tart Cherries Help to Fight Muscle Pain

The anti-inflammatory properties of the tart cherry not only reduce pain due to arthritis and gout but also muscle pain due to physical exercise.

Much research has been conducted on the anti-inflammatory benefits of tarts regarding joint pain and heart related issues. The University of Vermont and colleagues at New York's Nicholas Institute of Sports Medicine and Athletic Trauma and Cornell University conducted a study on a fresh, highly-concentrated tart cherry juice blend in preventing the symptoms of muscle pain and damage on 14 male



Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

college students. This was a placebo-controlled study by the researchers.

The study had the participants either drink a placebo or a bottle of a cherry juice blend twice a day for three days before exercising. The 12-ounce bottle of juice contained the liquid equivalent of 50 to 60 tart cherries. During the study the participants were asked to perform exercises including contractions in the muscle. The participants were asked to tense and flex one arm 20 times.

The study rated the muscle soreness on a scale of one to ten. According to the study, there was a significant difference in the degree of muscle strength between the tart cherry juice product and the placebo. Those drinking the placebo, muscle strength fell by 22 percent while those drinking the cherry juice product fell by only 4 percent. In addition, the average pain score between the placebo and the cherry drink was 3.2 compared to only 2.4. The results indicated muscle pain was less with those that drink the cherry juice.

So no matter your age, if you have sore muscles consider adding tart cherry juice to your daily diet.

Ten Ways to Incorporate Tart Cherries into Your Daily Route



Due to today's active and hectic lifestyles, incorporating cherries into your daily diet may seem difficult. However, here are a ten simple ways to enjoy the natural health benefits of cherries everyday:

1. *Straight from the Bag* – Buy single serve dried cherries or 8 oz. dried cherry bags and keep them in your office drawer or purse for a quick healthy snack.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

2. *Cherries on the Run* – Add an ounce of tart cherry juice concentrate to your water bottle and shake. This will make a 100% pure and refreshing cherry drink to enjoy while biking, driving or walking. It may even reduce muscle soreness about a busy day.
3. *A Fruity Parfait* – Mix some granola and yogurt with frozen cherries for tasty snack.
4. *Blend It* – Add some ice, wheat germ, a banana, cherry juice concentrate and a dash of low-fat milk and start the day off right with a cool, anti-oxidant rich smoothie.
5. *Breakfast Additions* – Add a handful of dried or frozen cherries to your favorite cereal or oatmeal.
6. *Tart Cherry capsules*- Tart cherry capsules are a great way to get to the anti-oxidant benefits of this superfruit. They are convenient, easy-to-travel and they don't need refrigeration. Two tart cherry capsules equal the anti-oxidant equivalent of 5 glasses of tart cherry juice without the sugar.
7. *Make a Cherry Salad* – Add some tasty dried cherries to your favorite salad and taste the cherry difference.
8. *Dinner Additions* – Dried cherries make a great addition to couscous, rice pilaf and pasta.
9. *Cookies and Desserts* – Chop up some dried cherries and add them to muffins or cookies.
10. *Sprinkle Away* – Sprinkle tart cherry powder on all types of food for both a yummy cherry taste and a meal rich in anti-oxidants. Tart cherry powder is very versatile.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Tart Cherry Supplements and Tart Cherry Products

The tart cherry offers a number of different ways to enjoy its health benefits including dried tart cherries, tart cherry juice concentrate, tart cherry capsules and more. Below are the many different types of tart cherry products available.

- **Fresh Tart Cherries:** When in season, you can get fresh cherries straight from the farmers market or the produce section of your local store. Unfortunately, fresh tart cherries are only in season for a few short weeks during the summer months. Thus, finding fresh cherries may be very difficult. However, only a few farms ship cherries while they are in season. One Northern Michigan-based farm that ships fresh cherries during the summer months is the Smith Farm and Orchard.
- **Frozen Tart Cherries:** Enjoy a few thawed cherries in your pancakes or muffins. To get your hands on frozen cherries visit the refrigeration section of your local grocery store. However, it may be difficult to find frozen tart cherries due to the fact they are not a widely popular product for grocery and gourmet stores. A good source for frozen tart cherries is Meijer.
www.meijer.com
- **Canned Tart Cherries:** Canned cherries can be found in your local grocery store. They are usually most popular during the holiday season. Check with your local grocery store for availability.
- **Dried Tart Cherries:** A handful of dried cherries make a great healthy snack or an addition to your morning cereal. They also make a good alternative to the candy in the candy jar next to your computer. Remember a ¼ cup of dried cherries delivers 3,060 ORAC units and 15% of the recommended daily allowance of fiber. Dried cherries make a great choice since they are available year round. One source for dried cherries is Traverse Bay Farms
www.traversebayfarms.com The Company will ship dried tart cherries directly to your home or office.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

- **Tart Cherry Juice Concentrate:** It takes approximately 100 tart cherries to make one ounce of tart cherry juice. Each of tart cherry juice concentrate delivers 3,622 ORAC units. This is well within the daily recommended range of 3,000 – 5,000 ORAC units recommended. Remember research indicates ORAC helps the body to fight free radicals, disease and may even help the aging process. Tart cherry juice concentrate is a concentrated way to get the natural health benefits of this ruby red fruit. Traverse Bay Farms www.traversebayfarms.com is also a good source for tart cherry juice concentrate.
- **Tart Cherry Capsules:** Tart cherry capsules are the most convenient and easiest way to get the natural health benefits of the tart cherry. When buying tart cherry capsules make sure they are a whole cherry supplements. A whole cherry supplement uses the entire tart cherry, excluding the pit and the stem, is used to produce the tart cherry capsules. Every part of the tart cherry is used, including the skin and the pulp of the fruit. By using the whole cherry you are getting the synergistic benefits of the whole tart cherry. A good source for whole tart cherry capsules is Fruit Advantage www.fruitadvantage.com
- **Tart Cherry Powder:** Tart cherry powder is used to make the tart cherry supplements. Only a few companies sell tart cherry powder, so it is difficult to find. However, you can search the internet by using the search term “tart cherry powder”. Again, make sure the tart cherry powder you purchase uses the whole cherry.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Introduction: Acai

Acai is pronounced a-sigh-ee. The name of this fruit was given to it by the Brazilians living along the Amazon River. They called both the palm tree and the fruit “acai”. Acai is a wildly popular fruit that is high in antioxidants and a long history of use in South America. A few of the main reasons for the increased interest in this Southern Hemisphere fruit is taste and new scientific research showing its amazing health benefits. The Acai fruit has been featured on national television as well as on many of the national talk shows.

This purplish-black berry fruit has been used and added as both a drink and as a food ingredient including seafood, bread, energy bars, ice cream and even energy-boosting juice drinks. In addition to being a food and food ingredient, the Acai is also available in powder form and in easy-to-swallow capsules.

According to research, the Acai offers a whole host of health benefits including heart health advantages. This fruit is known to be a rich source of a compound called Anthocyanins. In addition, to being an excellent source of Anthocyanins, the Acai is also source of dietary fiber, protein and both omega-6 and omega-9 fatty acids. These two compounds are believed to have a protective effect on the cardiovascular system and heart health. The antioxidants in the Acai also play a vital role in slowing down the aging process.

Ongoing research from medical universities suggests Acai may...

- Provide the body with high levels of ORAC units
- Help fight cholesterol
- Help slow the aging process
- Help maintain heart health and more...

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

The Acai: What is it?

The Acai is an egg-shaped fruit that is approximately 1.5 centimeters in size. The actual fruit has a deep purplish-red pulp and a large seed. The seed itself is so huge that it makes up approximately 80 percent the size of the fruit.

The Acai is usually found growing along the almost limitless tributaries feeding the Amazon River as well as along the banks of the this mighty river itself. Three species of trees are capable of growing the Acai including *Euterpe edulis*, *Euterpe oleracea* and *Euterpe precatoria*. These trees are known as South American palm trees. The size of these palms can range from six feet to over 100 feet in size. The harvest season for the Acai is in July and December.

Acai Nutrition Information

One measurement of a fruits antioxidant capacity is called an ORAC Assay. This test rates how particular foods fights free radical activity. In 1992, A scientist with the National Institutes of Aging and the United States Department of Agriculture developed the ORAC Assay. A sample of freeze-dried Acai pulp was determined the total ORAC value of the sampling was 1027. This makes the Acai the highest fruit and vegetable ever tested by the ORAC assay.

AIMBR Life Sciences, a research organization, has researched and reported the the acai fruit contains the following nutrients:

B-vitamins	Folate	Potassium
Beta-carotene	Iodine	Copper
Selenium	Iron	Vitamin C
Calcium	Magnesium	Vitamin D

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Vitamin E

Zinc

Acai Research Update

Total oxidant scavenging capacities of *Euterpe oleracea* Mart. (Acai) fruits

Author: R Lichtenthaler, et al.

Source: Lichtenthaler R, Rodrigues RB, Maia JG, Papagiannopoulos M, Fabricius H, Marx F.

Total oxidant scavenging capacities of *Euterpe oleracea* Mart. (Acai) fruits. Int J Food Sci Nutr. 2005 Feb;56(1):53-64.

The antioxidant capacities of 11 commercial and non-commercial samples of *Euterpe oleracea* Mart. (acai) fruit pulp were studied with the total oxidant scavenging capacity assay in a modified and automated version against three reactive oxygen species. The antioxidant capacities of all purple acai samples were found to be excellent against peroxy radicals, good against peroxynitrite and poor against hydroxyl radicals compared with common European fruit and vegetable juices recently analysed. In all cases the correlation between sample concentration and antioxidant capacities was non-linear. The antioxidant capacities against all three reactive oxygen species of the fruit pulp from one white acai variety were very low. The phenolic compounds in purple acai fruit pulp were identified by high-performance liquid chromatography-mass spectrometry, and the two major anthocyanins, cyanidin-3-glucoside and cyanidin-3-rutinoside, were quantified by high-performance liquid chromatography-visible spectrometry. The contributions of the anthocyanins to the overall antioxidant capacities of the fruit were estimated to be only approximately 10%. Obviously, compounds not yet identified are responsible for the major part of the antioxidant capacities of the acai fruit pulp.

Total oxidant scavenging capacity of *Euterpe oleracea* Mart. (acai) seeds and identification of their polyphenolic compounds

Author: RB Rodrigues, et al.

Source: Rodrigues RB, Lichtenthaler R, Zimmermann BF, Papagiannopoulos M, Fabricius H,

Super Fruit Handbook

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Marx F, Maia JG, Almeida O. Total oxidant scavenging capacity of *Euterpe oleracea* Mart. (acai) seeds and identification of their polyphenolic compounds. *J Agric Food Chem*. 2006 Jun 14;54(12):4162-7

The antioxidant capacity of methanol and ethanol seed extracts from *Euterpe oleracea* Mart. (acai) against the reactive oxygen species (ROS) peroxy radicals, peroxynitrite, and hydroxyl radicals was studied with the total oxidant scavenging capacity (TOSC) assay in a modified and automated version. Cold methanol digestion was the most efficient extraction method with respect to the antioxidant capacity. The extracts exhibit good antioxidant capacity against peroxy radicals, similar to the capacity of the pulp. The antioxidant capacity against peroxynitrite and hydroxyl radicals is even higher. The main antioxidants identified by HPLC-MS and HPLC-CEAD are five different procyanidins (di- through pentamers); furthermore, protocatechuic acid and epicatechin were identified as minor compounds. Determination of TOSC values of HPLC seed extract fractions indicates that the procyanidins contribute substantially to the overall antioxidant capacity. In addition, however, other compounds that have not yet been identified are responsible for a large part of the observed antioxidant capacity

Antioxidant capacity and other bioactivities of the freeze-dried Amazonian palm berry, *Euterpe oleraceae* mart. (acai)

Author: AG Schauss, et al.

Source: Schauss AG, Wu X, Prior RL, Ou B, Huang D, Owens J, Agarwal A, Jensen GS, Hart AN, Shanbrom E. Antioxidant capacity and other bioactivities of the freeze-dried Amazonian palm berry, *Euterpe oleraceae* mart. (acai). *J Agric Food Chem*. 2006 Nov 1;54(22):8604-10

The fruit of *Euterpe oleraceae*, commonly known as acai, has been demonstrated to exhibit significantly high antioxidant capacity in vitro, especially for superoxide and peroxy scavenging, and, therefore, may have possible health benefits. In this study, the antioxidant capacities of freeze-dried acai fruit pulp/skin powder (OptiAcai) were evaluated by different assays with various free radical sources. It was found to have exceptional activity against superoxide in the superoxide scavenging (SOD) assay, the highest of any food reported to date against the peroxy radical as measured by the oxygen radical absorbance capacity assay with

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

fluorescein as the fluorescent probe (ORACFL), and mild activity against both the peroxynitrite and hydroxyl radical by the peroxynitrite averting capacity (NORAC) and hydroxyl radical averting capacity (HORAC) assays, respectively. The SOD of acai was 1614 units/g, an extremely high scavenging capacity for O₂*-, by far the highest of any fruit or vegetable tested to date. Total phenolics were also tested as comparison. In the total antioxidant (TAO) assay, antioxidants in acai were differentiated into "slow-acting" and "fast-acting" components. An assay measuring inhibition of reactive oxygen species (ROS) formation in freshly purified human neutrophils showed that antioxidants in acai are able to enter human cells in a fully functional form and to perform an oxygen quenching function at very low doses. Furthermore, other bioactivities related to anti-inflammation and immune functions were also investigated. Acai was found to be a potential cyclooxygenase (COX)-1 and COX-2 inhibitor. It also showed a weak effect on lipopolysaccharide (LPS)-induced nitric oxide but no effect on either lymphocyte proliferation and phagocytic capacity

Endothelium-dependent vasodilator effect of *Euterpe oleracea* Mart. (Acai) extracts in mesenteric vascular bed of the rat

Author: AP Rocha, et al.

Source: Rocha AP, Carvalho LC, Sousa MA, Madeira SV, Sousa PJ, Tano T, Schini-Kerth VB, Resende AC, Soares de Moura R. Endothelium-dependent vasodilator effect of *Euterpe oleracea* Mart. (Acai) extracts in mesenteric vascular bed of the rat. *Vascul Pharmacol*. 2007 Feb;46(2):97-104

Acai (*Euterpe oleracea* Mart.) a fruit from the Amazon region, largely consumed in Brazil is rich in polyphenols. Experiments were undertaken to determine whether hydro-alcoholic extract obtained from stone of acai induces a vasodilator effect in the rat mesenteric vascular bed precontracted with norepinephrine (NE) and, if so, to elucidate the underlying mechanism. Acai stone extract (ASE, 0.3-100 microg) induced a long-lasting endothelium-dependent vasodilation that was significantly reduced by N(G)-nitro-L-arginine methyl ester (L-NAME) and (1)H-[1,2,3] oxadiazolo [4,4-a] quinoxalin-1-one (ODQ) and abolished by KCl (45 mM) plus L-NAME. In vessels precontracted with NE and KCl (45 mM) or treated with K(Ca)(+2) channel blockers

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

(charybdotoxin plus apamin), the effect of ASE was significantly reduced. However this effect is not affected by indomethacin, glybenclamide and 4-aminopyridine. Atropine, pyrilamine, yohimbine and HOE 140 significantly reduced the vasodilator effect of acetylcholine, histamine, clonidine and bradykinin, respectively, but did not change the vasodilator effect of ASE. In cultured endothelial cells ASE (100 microg/mL) induced the formation of NO that was reduced by N(G)-nitro-L-arginine (L-NA, 100 microM). The present study demonstrates that the vasodilator effect of ASE is dependent on activation of NO-cGMP pathway and may also involve endothelium-derived hyperpolarizing factor (EDHF) release. The vasodilator effect suggests a possibility to use ASE as a medicinal plant, in the treatment of cardiovascular diseases

Inhibitory effects of *Euterpe oleracea* Mart. on nitric oxide production and iNOS expression

Author: ME Matheus, et al.

Source: Matheus ME, de Oliveira Fernandes SB, Silveira CS, Rodrigues VP, de Sousa Menezes F, Fernandes PD. Inhibitory effects of *Euterpe oleracea* Mart. on nitric oxide production and iNOS expression. *J Ethnopharmacol.* 2006 Sep 19;107(2):291-6

The palm *Euterpe oleracea* is a plant of great economic value in Brazil. Although the heart of palm extracted from its trunk is considered a delicacy the world over, its fruits are popular only among Brazilians. In some poor regions of Brazil, there are reports on the popular use of its juice in the treatment of several disorders, mainly those of oxidative onset as cardiovascular ones. Because of its wide utilization; because there are very few scientific studies of this species, and to discover if its use in folk medicine for problems related with oxidation is in fact justifiable, we decided, in this study, to evaluate the effects of *Euterpe oleracea* flowers, fruits and spikes fractions on: nitric oxide (NO) production, NO scavenger capacity, and on the expression of inducible nitric oxide synthase enzyme, as well. Results showed that the fractions obtained from fruits were the most potent in inhibiting NO production, followed by those from flowers and spikes. Only in high doses, did some fractions reduce cell viability. Reduction on NO production was not due to NO scavenger activity. These results were accompanied by inhibition of iNOS expression. The more pronounced effect was observed in the fractions in which the concentration

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

of cyanidin-3-O-glucoside and cyanidin-3-O-rhamnoside were higher. To sum up, our results indicate that fractions from *Euterpe oleracea* inhibits NO production by reducing the levels of inducible nitric oxide synthase expression

Antioxidant Capacity Author: Schauss AG, Wu X, Prior RL, Ou B, Huang D, Owens J, Agarwal A, Jensen GS, Hart AN, Shanbrom E.

Source: J Agric Food Chem. 2006 Nov 1;54(22):8604-10

Natural and Medicinal Products Research, AIMBR Life Sciences, 4117 South Meridian, Puyallup, Washington 98373, USA. alex@aibmr.com The fruit of *Euterpe oleracea*, commonly known as acai, has been demonstrated to exhibit significantly high antioxidant capacity in vitro, especially for superoxide and peroxyl scavenging, and, therefore, may have possible health benefits. In this study, the antioxidant capacities of freeze-dried acai fruit pulp/skin powder (OptiAcai) were evaluated by different assays with various free radical sources. It was found to have exceptional activity against superoxide in the superoxide scavenging (SOD) assay, the highest of any food reported to date against the peroxyl radical as measured by the oxygen radical absorbance capacity assay with fluorescein as the fluorescent probe (ORACFL), and mild activity against both the peroxynitrite and hydroxyl radical by the peroxynitrite averting capacity (NORAC) and hydroxyl radical averting capacity (HORAC) assays, respectively. The SOD of acai was 1614 units/g, an extremely high scavenging capacity for $O_2^{\cdot-}$, by far the highest of any fruit or vegetable tested to date. Total phenolics were also tested as comparison. In the total antioxidant (TAO) assay, antioxidants in acai were differentiated into "slow-acting" and "fast-acting" components. An assay measuring inhibition of reactive oxygen species (ROS) formation in freshly purified human neutrophils showed that antioxidants in acai are able to enter human cells in a fully functional form and to perform an oxygen quenching function at very low doses. Furthermore, other bioactivities related to anti-inflammation and immune functions were also investigated. Acai was found to be a potential cyclooxygenase (COX)-1 and COX-2 inhibitor. It also showed a weak effect on lipopolysaccharide (LPS)-induced nitric oxide but no effect on either lymphocyte proliferation and phagocytic capacity. PMID: 17061840

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Phytochemical and Nutrient Composition

Author: Schauss AG, Wu X, Prior RL, Ou B, Patel D, Huang D, Kababick JP.

Source: J Agric Food Chem. 2006 Nov 1;54(22):8598-603

Natural and Medicinal Products Research, AIMBR Life Sciences, 4117 South Meridian, Puyallup, Washington 98373, USA. alex@aibmr.com Euterpe oleraceae is a large palm tree indigenous to the Amazon River and its tributaries and estuaries in South America. Its fruit, known as acai, is of great economic value to native people. In this study, a standardized freeze-dried acai fruit pulp/skin powder was used for all analyses and tests. Among many findings, anthocyanins (ACNs), proanthocyanidins (PACs), and other flavonoids were found to be the major phytochemicals. Two ACNs, cyanidin 3-glucoside and cyanidin 3-rutinoside were found to be predominant ACNs; three others were also found as minor ACNs. The total content of ACNs was measured as 3.1919 mg/g dry weight (DW). Polymers were found to be the major PACs. The concentration of total PACs was calculated as 12.89 mg/g DW. Other flavonoids, namely, homoorientin, orientin, isovitexin, scoparin, and taxifolin deoxyhexose, along with several unknown flavonoids, were also detected. Resveratrol was found but at a very low concentration. In addition, components including fatty acids, amino acids, sterols, minerals, and other nutrients were analyzed and quantified. Total polyunsaturated fatty acid, total monounsaturated fatty acid, and total saturated fatty acids contributed to 11.1%, 60.2%, and 28.7% of total fatty acid. Oleic acid (53.9%) and palmitic acid (26.7%) were found to be the two dominant fatty acids. Nineteen amino acids were found; the total amino acid content was determined to be 7.59% of total weight. The total sterols accounted for 0.048% by weight of powder. The three sterols B-sitosterol, campesterol, and stigmasterol were identified. A complete nutrient analysis is also presented. Microbiological analysis was also performed. PMID: 17061839

Endothelium-Dependent Vasodilator Effect of Acai

Author: Rocha AP, Carvalho LC, Sousa MA, Madeira SV, Sousa PJ, Tano T, Schini-Kerth VB, Resende AC, Soares de Moura R.

Source: Department of Pharmacology and Psychobiology, IBRAG, UERJ, Rio de Janeiro, Brazil

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Acai (*Euterpe oleracea* Mart.) a fruit from the Amazon region, largely consumed in Brazil is rich in polyphenols. Experiments were undertaken to determine whether hydro-alcoholic extract obtained from stone of acai induces a vasodilator effect in the rat mesenteric vascular bed precontracted with norepinephrine (NE) and, if so, to elucidate the underlying mechanism. Acai stone extract (ASE, 0.3-100 microg) induced a long-lasting endothelium-dependent vasodilation that was significantly reduced by N(G)-nitro-L-arginine methyl ester (L-NAME) and (1)H-[1,2,3] oxadiazolo [4,4-a] quinoxalin-1-one (ODQ) and abolished by KCl (45 mM) plus L-NAME. In vessels precontracted with NE and KCl (45 mM) or treated with K(Ca)(+2) channel blockers (charybdotoxin plus apamin), the effect of ASE was significantly reduced. However this effect is not affected by indomethacin, glybenclamide and 4-aminopyridine. Atropine, pyrilamine, yohimbine and HOE 140 significantly reduced the vasodilator effect of acetylcholine, histamine, clonidine and bradykinin, respectively, but did not change the vasodilator effect of ASE. In cultured endothelial cells ASE (100 microg/mL) induced the formation of NO that was reduced by N(G)-nitro-L-arginine (L-NA, 100 microM). The present study demonstrates that the vasodilator effect of ASE is dependent on activation of NO-cGMP pathway and may also involve endothelium-derived hyperpolarizing factor (EDHF) release. The vasodilator effect suggest a possibility to use ASE as a medicinal plant, in the treatment of cardiovascular diseases. PMID: 17049314 [PubMed - in process]

A Substitute for Wheat in Foods

Author: Sangronis E, Teixeira P, Otero M, Guerra M, Hidalgo G.

Source: Departamento de Procesos Biologicos y Bioquimicos, Universidad Simon Bolivar, Caracas, Venezuela

In this study, flours from manaca or acai (*Euterpe oleracea* Mart), sweet potato (*Ipomea batatas*), and yam (*Dioscorea* spp.), species grown in the Venezuelan Amazon, were obtained. The proximal composition, water activity (a_w), Fe, Ca, Zn, Mg, Cu, Na and K content were determined for the flours of manaca, sweet potato and yam. These flours were used as ingredients of products for the inhabitants of the indigenous populations of the Venezuelan Amazon (Piaroa and Hiwi). Two types of products that traditionally contain wheat flour in their

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

formulation (ingredient they know by transculturation) were formulated; an attempt to substitute it totally or partially by the manaca, sweet potato and/or yam flours was made. For the selection of the products to be formulated, the preferences and eating habits of the indigenous communities and ease and simplicity of the preparations to be developed, were considered. The two products formulated were cookies and "small cakes". To decide on the formulation(s) of the final product(s), sensorial evaluations were made in the laboratory and in the indigenous communities Piaroa and Hiwi. High fat content (16%), dietetic fiber (59.7%) and iron (25 mg / 100 g) in manaca or acai flour were remarkable. Two types of cookies and two of "small cakes" were equally accepted by the indigenous communities. Cookies supply a high iron amount (about 24%). The feasibility of substituting the wheat flour by manaca, sweet potato and yam flour in products accepted by two ethnic populations of the Venezuelan Amazon was demonstrated

Total Oxidant Scavenging Capacity

Author: Lichtenthaler R, Rodrigues RB, Maia JG, Papagiannopoulos M, Fabricius H, Marx F.

Source: Institute of Nutritional and Food Sciences, University of Bonn, Bonn, Germany

The antioxidant capacities of 11 commercial and non-commercial samples of *Euterpe oleracea* Mart. (acai) fruit pulp were studied with the total oxidant scavenging capacity assay in a modified and automated version against three reactive oxygen species. The antioxidant capacities of all purple acai samples were found to be excellent against peroxy radicals, good against peroxynitrite and poor against hydroxyl radicals compared with common European fruit and vegetable juices recently analysed. In all cases the correlation between sample concentration and antioxidant capacities was non-linear. The antioxidant capacities against all three reactive oxygen species of the fruit pulp from one white acai variety were very low. The phenolic compounds in purple acai fruit pulp were identified by high-performance liquid chromatography-mass spectrometry, and the two major anthocyanins, cyanidin-3-glucoside and cyanidin-3-rutinoside, were quantified by high-performance liquid chromatography-visible spectrometry. The contributions of the anthocyanins to the overall antioxidant capacities of the fruit were estimated to be only approximately 10%. Obviously, compounds not yet identified are responsible for the major part of the antioxidant capacities of the acai fruit pulp

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Antioxidant Activity of Fruits

Author: Hassimotto NM, Genovese MI, Lajolo FM.

Source: Laboratorio de Quimica, Bioquimica e Biologia Molecular de Alimentos, Departamento de Alimentos e Nutricao Experimental, FCF, Universidade de Sao Paulo, Av. Prof. Lineu Prestes 580, Bloco 14, 05508-900 Sao Paulo, SP, Brazil

Fruits, vegetables, and commercial frozen pulps (FP) consumed in the Brazilian diet were analyzed for antioxidant activities using two different methods, one that determines the inhibition of copper-induced peroxidation of liposome and another based on the inhibition of the co-oxidation of linoleic acid and beta-carotene. The anthocyanin-rich samples showed the highest, concentration-dependent, antioxidant activities in both systems. In the liposome system, at both 10 and 50 microM gallic acid equivalent (GAE) addition levels, the neutral and acidic flavonoids of red cabbage, red lettuce, black bean, mulberry, Gala apple peel, jambolao, acai FP, mulberry FP, and the acidic flavonoids of acerola FP showed the highest antioxidant activities (>85% inhibition). In the beta-carotene bleaching system, the samples cited above plus red guava gave inhibition values >70%. On the other hand, some samples showed pro-oxidant activity in the liposome system coincident with a low antioxidant activity in the beta-carotene system. There was no relationship between total phenolics content, vitamin C, and antioxidant activity, suggesting that the antioxidant activity is a result of a combination of different compounds having synergic and antagonistic effects

Phytochemical Composition and Pigment Stability

Author: Del Pozo-Insfran D, Brenes CH, Talcott ST.

Source: Department of Food Science and Human Nutrition, University of Florida, P.O. Box 110370, Gainesville, Florida 32611-0370, USA.

Anthocyanin and polyphenolic compounds present in acai (*Euterpe oleracea* Mart.) were determined and their respective contribution to the overall antioxidant capacity established. Color stability of acai anthocyanins against hydrogen peroxide (0 and 30 mmol/L) over a range of temperatures (10-30 degrees C) was also determined and compared to common anthocyanin sources. Additionally, stability in a model beverage system was evaluated in the presence of

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

ascorbic acid and naturally occurring polyphenolic cofactors. Cyanidin 3-glucoside (1040 mg/L) was the predominant anthocyanin in acai and correlated to antioxidant content, while 16 other polyphenolics were detected from 4 to 212 mg/L. Red grape anthocyanins were most stable in the presence of hydrogen peroxide, while acai and pigments rich in acylated anthocyanins displayed lower color stability in a temperature-dependent manner. In the presence of ascorbic acid, acylated anthocyanin sources generally had increased color stability. Acai was recognized for its functional properties for use in food and nutraceutical products

Phytochemical composition and pigment stability of Acai (*Euterpe oleracea* Mart.)

Author: D Del Pozo-Insfran, et al.

Source: Del Pozo-Insfran D, Brenes CH, Talcott ST. Phytochemical composition and pigment stability of Acai (*Euterpe oleracea* Mart.). J Agric Food Chem. 2004 Mar 24;52(6):1539-45

Anthocyanin and polyphenolic compounds present in acai (*Euterpe oleracea* Mart.) were determined and their respective contribution to the overall antioxidant capacity established. Color stability of acai anthocyanins against hydrogen peroxide (0 and 30 mmol/L) over a range of temperatures (10-30 degrees C) was also determined and compared to common anthocyanin sources. Additionally, stability in a model beverage system was evaluated in the presence of ascorbic acid and naturally occurring polyphenolic cofactors. Cyanidin 3-glucoside (1040 mg/L) was the predominant anthocyanin in acai and correlated to antioxidant content, while 16 other polyphenolics were detected from 4 to 212 mg/L. Red grape anthocyanins were most stable in the presence of hydrogen peroxide, while acai and pigments rich in acylated anthocyanins displayed lower color stability in a temperature-dependent manner. In the presence of ascorbic acid, acylated anthocyanin sources generally had increased color stability. Acai was recognized for its functional properties for use in food and nutraceutical products

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Seven Ways to Incorporate Acai into Your Daily Route



Due to today's active and hectic lifestyles, incorporating Acai into your daily diet may seem difficult. However, here are seven simple ways to enjoy the natural health benefits of Acai everyday:

1. *Straight from the Bag* – Buy single serve dried cranberries or 8 oz. dried cranberry bags and keep them in your office drawer or purse for a quick healthy snack.
2. *Acai in a drink* – Add an ounce of Acai juice to your water bottle and shake. This will make a 100% pure and refreshing drink.
3. *A Fruity Parfait* – Mix some Acai powder with yogurt for a tasty and healthy snack.
4. *Blend It* – Add some ice, wheat germ, a banana and Acai juice to start the day off right with a cool, anti-oxidant rich smoothie.
5. *Acai capsules*- Acai capsules are a great way to get to the anti-oxidant benefits of this superfruit. They are convenient, easy-to-travel and they don't need refrigeration.
6. *Dinner Additions* – Acai makes a great addition to any menu.
7. *Sprinkle Away* – Sprinkle Acai powder on all types of food.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Great Tasting Acai Recipes

Below are some great tasting Acai recipes for you to taste and sample.

ACAI RECIPES

Source: Unknown

Traditional Brazilian Style

Take 7 Oz. (200 grams) Açaí into a blender. Add 1/2 cup of soy milk or juice and 1 banana (you can also add other fruits like strawberry/mango/etc). Blend until smooth and serve in a bowl topped with sliced bananas and granola.

Açaí Frooty Power Smoothie

Blend 7 Oz. (200 grams) of Açaí Frooty with 1 cup of juice or soy milk, 1 banana, 1/4 cup strawberries or other fruit and 1/2 cup ice and/or yogurt.

Açaí Drink - 8 Oz

Blend 3.5 Oz. (100 grams) of Açaí (powder or smoothie pack) with 1 cup of Apple Juice or soy milk, 1/2 banana or Strawberries or other fruit and 1/2 cup of ice and / or yogurt.

Acai Supplements and Acai Products

The Acai offers a number of different ways to enjoy its health benefits including juice, pulp and powder and more. Below are the many different types of Acai products available.

- **Frozen Acai Pulp:** Enjoy thawed Acai pulp in your smoothies and drinks. To get your hands on frozen Acai or frozen pulp visit the refrigeration section of your local grocery store. However, it may be difficult to find frozen Acai due to the fact they are not a widely popular product for grocery and gourmet stores.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

- **Acai Juice:** Remember research indicates ORAC helps the body to fight free radicals, disease and may even help the aging process. Acai juice is available in a number of juice and smoothie companies including Jamba Juice www.jambajuice.com In addition to Jamba Juice, Acai juice is also available from Mona Vie www.mymonavie.com and Sambazon www.sambazon.com
- **Acai Capsules:** Acai capsules are an ideal and an easy way to get the natural health benefits of the Acai. Acai capsules are available from Sambazon www.sambazon.com
- **Acai Powder:** Acai powder is used to make Acai supplements. Many companies sell Acai powder, but here are some excellent sources for Acai powder including Sambazon www.sambazon.com and

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Introduction: The Cranberry



The cranberry has a long history of fighting urinary tract infections, fighting the dental health issues and being an excellent source of anti-oxidants and more, naturally. For decades, stories of the urinary tract benefits of the cranberry have been the source of legend and folklore. For many urinary tract suffers, the cranberry is considered “Mother Nature’s urinary tract fighter”. In addition, the cranberry is also being called the natural anti-adhesion fruit.

Many of the world’s leading research organizations are studying this little fruit with amazing results. These studies are funded by research universities, private companies and public grants. So interest in its urinary tract fighting ability and the anti-adhesion capability of the cranberry includes more than a small group of naturalists, it also includes the smartest and most educated individuals in food research.

This special report will introduce you to the antioxidant-rich properties of the cranberry. Ongoing research from medical universities suggests cranberries may...

- Provide the body with high levels of ORAC units
- Help fight urinary tract infections
- Help fight bad cholesterol
- Help maintain healthy teeth and dental health
- Help fight the herpes virus

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Like many foods, cranberries are a natural source of a broad range of anti-oxidants. However, the unique makeup and combination of the anti-oxidants in cranberries are what make this tiny fruit so special. Cranberries are a very good source of dietary fiber and are an excellent source of Vitamin C, flavonoids, anthocyanins, including proanthocyanidins and are a good source of manganese and vitamin K. Cranberries offers very good vitamin C and fiber values.

But before we go any further, let's take a closer look at some of the nutritional information a ½ cup of cranberries:

Cranberries 0.50 cup 47.50 grams 23.27 calories				
Nutrient	Amount	DV (%)	Nutrient Density	World's Healthiest Foods Rating
vitamin C	6.41 mg	10.7	8.3	excellent
dietary fiber	1.99 g	8.0	6.2	very good
manganese	0.07 mg	3.5	2.7	good
vitamin K	2.42 mcg	3.0	2.3	good

Source: U.S. Food and Drug Administration's "Reference Values for Nutrition Labeling."

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

History of the Cranberry

The cranberry has an interesting history since it is only one of three fruits native to North America. The other two native fruits are concord grapes and blueberries. The craneberry was a staple of Native Americans for a tasty ingredient for all types of meals. In addition, the cranberry was used as a dye for blankets, rugs and even used as an ingredient to treat arrow wounds.



The Native Americans taught the early settlers the secrets of the cranberry. The cranberry received its name from the “crane berry” because the plant’s appearance is a slender and downward hanging blossom resembling the head and neck of the crane. Over time the word was shortened to “cranberry”.

The commercial cultivation of the cranberry began in 1816 in Cape Cod, Massachusetts by Captain Henry Hall. The captain noticed the cranberries in his bogs grew better when sand blew over the cranberry bogs. After noticing this, the captain began spreading sand on his wet bogs. This technique was quickly copied and was used by a number of budding cranberry farms, thus the cranberry industry was born.

Cranberry vines grow in beds layered in sand and peat. These growing areas are called bogs. Cranberries are harvested by using two methods – wet and dry.

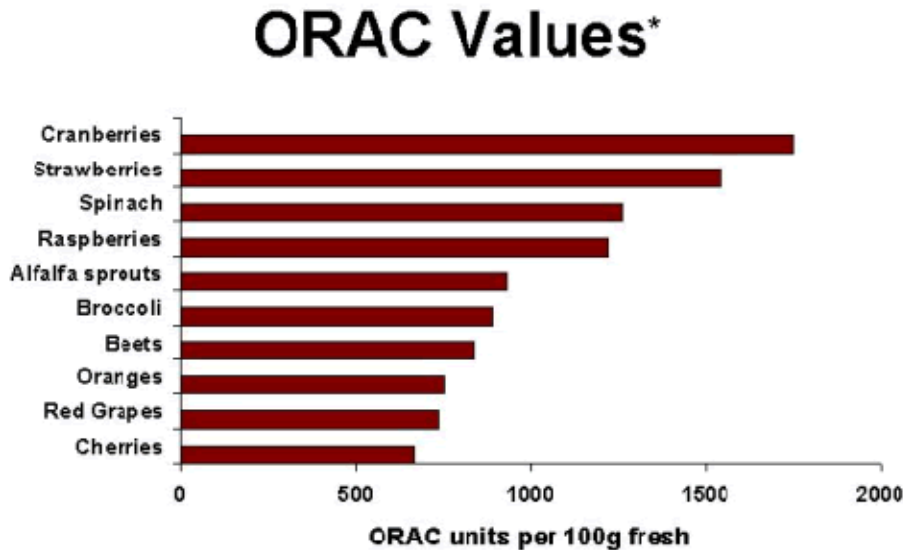
Dry harvested cranberries are sold as fresh fruit and the fruit is “combed” off the vine by mechanical machines. Wet harvested cranberries are harvested by flooding the bogs with water and using mechanical harvesters to agitate the water. This causes the cranberries to disconnect from the vine and float to the top. Once these newly dislodged cranberries are floating atop the water, they are collected into trucks. Wet harvested berries are used to produce sauce, juice and dried cranberries.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Cranberries Offer a Supermarket of Antioxidant Compounds

The good news about cranberries and their natural anti-adhesion benefits just keeps coming. Medical schools and research universities continue to publish more evidence showing the amazing health benefits of this tiny red fruit. Below is a chart with the ORAC value of the cranberry compared to other fruit and vegetables.



* Source: USDA-Agricultural Research Service

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Cranberries Help Fight Urinary Tract Infections

A urinary tract infection (UTI) afflicts both women and men, so for those who have suffered this unpleasant experience, the cranberry is a welcome natural solution. Many do not want to take prescription medication due to personal choices and the potential for unhealthy side effects. Cranberries help to reduce UTI's.

According to research cranberries contain proanthocyanidins. These inhibit adhesion of bacteria to the bladder itself. This compound prevents Escherichia coli (E. coli) from sticking to the walls and reproducing, thus greatly reducing the occurrence for an infection. It is the proanthocyanidins that are the secret agents of the cranberry to prevent a urinary tract infection UTI.



"The cranberry's proanthocyanidins are structurally different than the proanthocyanidins found in other plant foods tested, which may explain why cranberry has unique bacterial antiadhesion activity and helps to maintain urinary tract health" said Dr. Amy Howell, a researcher at Rutgers University.

In 1998, Dr. Amy Howell first reported the anti-adhesion properties of the cranberry. In addition, according to presentations at the 2002 Experimental Biology conference it was reported that a single eight-ounce glass of cranberry juice prevented E. coli from sticking to the walls of the bladder of six volunteers. ¹ The proanthocyanidins found in cranberries not only inhibits bacteria from adhering to the bladder, but this anti-sticking benefit can last up to 10 hours after consumption. ²

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

How the Cranberry Prevents Bacteria From Sticking?

The latest of a series of studies presented in September 12, 2006 at the American Chemical Society tells the story of how the cranberry helps to prevent bacteria from sticking. This groundbreaking research was conducted by Terri Camesano from Worcester Polytechnic Institute. The research showed that the compounds in cranberry juice have the ability to actually alter E. coli bacteria and to prevent them from causing a urinary tract infection.

E. coli can be responsible for a whole host of health related issues including kidney infections, urinary tract infections, tooth decay and gastroenteritis. The agent responsible for attacking and changing the E. coli are a group of tannins called proanthocyanidins. Once altered the changed E. coli may be prevented from adhering to the cells in the body. Adhesion is the first step in any sort of infection taking shape in the body. If you can prevent adhesion, you may be able to prevent infection.

Cranberry Juice Alters the E. Coli Membrane

In the February 2006 edition of *Biotechnology and Bioengineering*, a published article from Camesano showed that E. coli fimbriae that was exposed to cranberry juice become compressed. Fimbriae are tiny tendrils on the outer membrane of certain types of E. coli bacteria that is most responsible for the urinary tract infections. Since the fimbriae is compressed this prevents it from binding tightly to the urinary tract, thus greatly reducing its ability to remain in place long enough to begin a UTI.

Additional research from Camesano indicates that cranberry juice can transform E. coli in even more radical ways than previously understand. In a study conducted on bacteria grown in various environments of either cranberry tannins or cranberry juice, the E. coli bacteria actually transformed behavior from a gram-negative to exhibiting gram-positive behavior. E. coli is normally a gram-negative rod-shaped bacterium, however when it was exposed to the cranberry

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

environment, it transformed into a spherical-shaped bacterium and exhibited behavior of a gram-positive bacteria. Since positive and negative bacteria differ primarily in structure the results suggest that the cranberry can alter E. coli's membrane.

In addition, Camesano also presented preliminary findings that when E. coli is exposed to cranberry juice, the E. coli loses its ability to secrete indole. Indole is a molecule that is involved in bacterial communication called quorum sensing. This communication is used by the E. coli to determine if enough bacteria is present to launch a successful infection attack. If the E. coli can't communicate, it may not be able to launch an attack on the body.

Cranberry Juice Creates an Energy Barrier to Help Fight Bacteria

In the August 2006 edition of *Colloids and Surfaces*, Camesano published that cranberry juice can create an energy barrier that prevents bacteria from getting close the urinary tract walls. This natural force field actually prevents these tiny organisms from adhering in the first place.

Cranberries and Healthy Teeth and Dental Health

Healthy teeth and positive dental health is vital not only for a positive social encounters but for maintaining a healthy body and lifestyle. Dental plaque can contribute to a whole host of health issues including bad breath, heart issues and more. Plaque is composed primarily of bacteria that can attach to the gums and teeth. In addition the attaching the to teeth and gums, oral bacteria also attaches to other bacteria in the mouth thus forming a colony of bacteria in the mouth.

Cranberry juice has a unique component referred to as a high-molecular-weight nondialysable material (NDM). This NDM has the ability to inhibit and reverse the colonization of certain oral bacteria that is responsible for periodontal disease and dental plaque.³

Dental plaque is the result of oral bacteria that has attached itself to the gums and teeth. As you know, plaque soon becomes very hard. In addition, plaque may comprise of hundred of species

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

of bacteria and can be resistant to saliva and brushing. Once the bacterium hardens, it is your dentist's job to scrape the plaque off with highly specialized dental tools. Dental plaque can be a major cause of periodontal disease.⁴

Cranberries amazing anti-adhesion ability not only prevents bacteria from sticking to the walls of your bladder, it also helps oral bacteria from sticking to your teeth and gums.



Cranberries Help to Fight LDL (bad) Cholesterol

Research from the University of Scranton, indicates that cranberries can help to decrease levels of LDL (bad cholesterol) and total cholesterol. These research results have been shown on both test tube results and in human studies.

The results of the study were presented at the 225th meeting of the American Chemical Society. The research was funded by the U.S. Cranberry Institute. The study showed the results of the cholesterol levels of 19 participants in the study. The research measured the cholesterol levels of the subjects with high cholesterol. Ten of the participants were given cranberry juice with an artificial sweetener, while the remaining were given no added sugar cranberry juice. Each study participant drank one 8-ounce glass of cranberry juice a day for the first month, then the subjects were instructed to drink two glasses for the next month and finally three glasses for the third and final month. The research subjects were not monitored nor baseline measured for exercise, diet or alcohol consumption.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

The study results indicated HDL (good) cholesterol increased by an average of 10% after drinking three glasses of cranberry juice per day. However, no changes were recorded in changes to overall cholesterol levels.

Cranberries Help to Fight Kidney Stone Formation

Cranberries are a natural source of quinic acid. This is an acidic compound that is not broken down in the body but is excreted in the urine, unchanged. The quinic acid causes the urine to become just acidic enough to prevent calcium and phosphate ions from joining together and forming insoluble kidney stones.

In one study conducted on cranberry juice and kidney stones, the subjects of the study were divided into two groups. The first group drank 2 cups of cranberry juice for two weeks that was diluted with 6 cups of water, while the second group drank tap water for the same period. After the initial period, the groups were switched in which the subjects that drink tap water began drinking cranberry juice, while the cranberry juice drinkers began drinking tap water for an additional two weeks. In both groups, those drinking cranberry juice were found to have significantly and uniquely urinary factors: citrate excretion increased, oxalate and phosphate excretion decrease and supersaturation of calcium oxalate was measured and the results were significantly lower.

Cranberries Help to Fight the Herpes Virus

Cranberries are Mother Nature's Anti-adhesion fruit. Similar to its ability to protect against UTI by prevent bacteria from sticking to the bladder walls, the proanthocyanidin A-1 compound found in cranberries may help fight the herpes virus. These results were published in the October 2004 issue of the *Journal of Science, Food and Agriculture*. The study showed that the cranberry may also effective in combating the herpes simplex virus (HSV-2), the cause of genital herpes. Although this research was not conducted on humans, the results are certainly promising and we are looking forward to studies involving human subjects

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Ten Ways to Incorporate Cranberries into Your Daily Route



Due to today's active and hectic lifestyles, incorporating cranberries into your daily diet may seem difficult. However, here are ten simple ways to enjoy the natural health benefits of cranberries everyday:

8. *Straight from the Bag* – Buy single serve dried cranberries or 8 oz. dried cranberry bags and keep them in your office drawer or purse for a quick healthy snack.
9. *Cranberries on the Run* – Add an ounce of cranberry juice concentrate to your water bottle and shake. This will make a 100% pure and refreshing cranberry drink to enjoy while biking, driving or walking.
10. *A Fruity Parfait* – Mix some granola and yogurt with frozen cranberries for tasty snack.
11. *Blend It* – Add some ice, wheat germ, a banana, cranberry juice concentrate and a dash of low-fat milk and start the day off right with a cool, anti-oxidant rich smoothie.
12. *Breakfast Additions* – Add a handful of dried cranberries to your favorite cereal or oatmeal.
13. *Cranberry capsules*- Cranberry capsules are a great way to get to the anti-oxidant benefits of this superfruit. They are convenient, easy-to-travel and they don't need refrigeration.
14. *Make a Cranberry Salad* – Add some tasty dried cranberries to your favorite salad and taste the cranberry difference.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

15. *Dinner Additions* – Dried cranberries make a great addition to couscous, rice pilaf and pasta.

16. *Cookies and Desserts* – Chop up some dried cranberries and add them to muffins or cookies.

17. *Sprinkle Away* – Sprinkle cranberry powder on all types of food for both a yummy cranberry taste and a meal rich in anti-oxidants. Cranberry powder is very versatile.

Great Tasting Cranberry Recipes

Source: www.oceanspray.com

Below are some great tasting cranberry recipes for you to taste and sample.

Sea Breeze

INGREDIENTS:

3 ounces Ocean Spray® Cranberry Juice Cocktail, chilled

3 ounces Ocean Spray® 100% White Grapefruit Juice

1 1/2 ounces Absolut® Vodka

DIRECTIONS:

Pour all ingredients into a tall glass filled with ice.

Makes 1 serving

Ultimate Party Meatballs

INGREDIENTS:

2 1-pound bags frozen pre-cooked cocktail-size meatballs (about 64 meatballs)

1 16-ounce can Ocean Spray® Jellied Cranberry Sauce

1 12-ounce bottle Heinz® Chili Sauce

DIRECTIONS:

Combine cranberry sauce and chili sauce in a large saucepan. Cook over medium heat, whisking

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

occasionally, until the cranberry sauce is melted and smooth.

Add meatballs; stir gently to coat. Cook over medium-low heat, stirring occasionally, 12 to 15 minutes or until meatballs are heated through. Place in chafing dish or slow cooker to keep warm.

Tip: To spice it up even more, add a teaspoon of cumin and a 1/4 teaspoon of cayenne to the sauce while it is cooking.

Cranberry, Crab Meat and Cream Cheese Appetizers

INGREDIENTS:

1/2 cup Ocean Spray® Whole Berry Cranberry Sauce
1/3 cup cream cheese, softened
1/4 cup minced crab meat
2 tablespoons green onion, white and green parts, sliced
15 individual mini-phyllo shells, thawed

DIRECTIONS:

Preheat oven to 375°F. Place cranberry sauce in a small mixing bowl; beat with a fork or wire whisk until smooth.

Combine cream cheese, crab meat and green onion in a small mixing bowl. Fill each shell with about 1 teaspoon of the cream cheese mixture. Top with 1/2 teaspoon cranberry sauce.

Bake for 10 minutes or until heated through.

Makes 15 individual servings.

Cranberry Mustard Dipping Sauce

INGREDIENTS:

1/2 cup Ocean Spray® Jellied Cranberry Sauce
1 1/2 tablespoons grainy Dijon mustard

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

1 tablespoon brown sugar

DIRECTIONS:

Combine ingredients in a small mixing bowl, whisking until smooth. Serve hot or at room temperature as a dip with chicken, ham, pork or shrimp.

Makes 1/2 cup.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Introduction: The Blueberry!

It has long been a common belief that certain foods provide natural health benefits and these foods offer much more than just dietary value. In addition, new research is revealing that certain foods have natural health benefits, natural healing and disease fighting properties. This is proven since many medicines of today start with the basically the same ingredients found in nature.

This special report will introduce you the antioxidant-rich properties of a little blue fruit called the blueberry. Ongoing research from medical universities show that blueberry can benefit the human body by:

- Improving eye strain and vision
- Improving brain and memory function
- Fighting urinary tract infections
- Providing the body with high levels of ORAC units

Blueberry, like many other foods are a natural source of antioxidants. In addition to the naturally occurring antioxidants, blueberry also have a number of naturally occurring antioxidants including Anthocyanins. But, before we go any further, I will define both: antioxidants and Anthocyanins.

Below is the nutrition information for several different types of blueberry products:

A daily serving (1/4 cup – 100g) of fresh blueberries provides the following:

- 84 Calories
- 1.10 g protein
- 21.45 g Carbohydrates
- .49g Fat

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

A daily serving (1 oz. – 100g) of frozen blueberry

- 28 Calories
- .65 g protein
- 18.86 g Carbohydrates
- .99 g Fat

The Wild Blueberry is Nature's #1 Antioxidant Fruit!

In 2004, the Journal of Agricultural and Food Chemistry showed research results conducted by the USDA on this little blue fruit. The research results revealed the antioxidant capacity of the wild had the highest antioxidant capacity, per serving, of more than 20 other fruits used in the research. The researchers used ORAC – Oxygen Radical Absorbance Capacity to compare all of the fruits used in the research. The researchers found that a one-cup serving of wild blueberries racked up more total antioxidant capacity than a serving of cranberries, raspberries, plums and cultivated blueberries.

Wild Blueberries Rank Low on the Glycemic Index

The Wild Blueberry scored a 53 on the Glycemic Index (GI) making it a low GI food. Research indicates the low GI foods causes smaller rises in blood glucose levels when compared to high GI foods. Consuming low GI foods are important consideration for those with diabetes.

The Glycemic Index Explained

The Glycemic Index is a popular ranking of carbohydrates foods according to their effects on blood glucose levels. The index compare individuals foods to white bread or glucose and ranked on a total 100-point scale with white bread being the marker for the index. According to the index, a GI ranking of 70 or more is high, 56 to 69 is medium and 55 or less is low. Some high

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

end food examples include corn flakes and crackers, while low-end GI foods include fruits, non-starchy vegetables and beans.

The GI scale is important because it allows everyone, especially people with diabetes to plan healthy meals and wise food consumption decisions. In addition, the GI index may also effect weight loss ability and as appetite control gauge.

What Makes the Blueberry an Effective Eye Soother?

Some research indicates this little blue fruit has high amounts of a naturally occurring compound called anthocyanins. In fact, anthocyanins is what gives the fruit its blue hue. Anthocyanins have an amazing effect in the human body such as strengthening capillaries and peripheral circulation. This would mean it helps to assist the blood flow in and around the eyes. Thus, this improved blood flow may be responsible for the numerous claims of naturally improved vision and the reduction of eye related irritations.

Interestingly, World War II British Air Force pilots who ate blueberry jam on their bread were found to be more accurate in their bombing missions than other pilots. European studies conducted on the bilberry, the European cousin of the blueberry, offers documented evidence between bilberries and improved eyesight. Japanese research touts the ability for blueberries help fight eye fatigue.

Blueberries are Good Brain Food

Several studies conducted on blueberries point to interesting results. A study from the USDA in 1999, showed a diet rich in blueberry extract helped to fight some loss of coordination and balance and showed improved short-term memory in aged rats (1)

A free radical is an unstable oxygen molecule that has lost one or more of its electrons. These unbalanced molecules are extremely reactive with other molecules. To offset this imbalance, free radicals attempt to steal needed electrons from other molecules.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Free radicals have a negative effect on other cells, since they can burst cell membranes and causes cells to malfunction. One of the best ways to think of the affects of free radicals on the body is it causes “cellular rust”. For example, it is free radicals that cause a freshly cut apple or potato to turn brown. Since the brain only accounts for about 2% of the total body weight it represents approximately 20% of oxygen consumption, thus fighting free radicals in the body and brain is vital.

Blueberries are a major source of flavonoids that have diverse biochemical and antioxidant benefits. Research has shown that these flavonoids have the ability to cross the barrier between the brain and blood flow. Short-term and long-term memory is controlled by tiny brain cells called neurons. Researchers believe the unique flavonoids in blueberries may help memory and learning by enhancing the connection between these tiny neurons. By enhancing and improving communication the neurons may regenerate themselves. In addition, food scientists have been able to identify the specific are of the brain responsible for memory-control and learning. This specific area of the brain is the hippocampus. Thus, increased flavonoid consumption can have a positive affect on the memory.

The USDA Human Nutrition and Research Center fed mice blueberry extractions (ie blueberry powder) the equivalent of the person eating one cup of blueberries in an attempt to test motor skills tests. The researchers found that the mice fed to blueberry powder had better motor learning and memory then the non-blueberry fed test groups. After the researchers examined the brains of the control mice, the researchers found a marked decrease in the oxidative stress of two regions of the brain when compared to the control group of mice.

According to the research results, the compound responsible for the neuron production appears to be Anthocyanins. This ubiquitous compound is found all across nature may be the key component to many natural health benefits of the blueberry. In addition, the researcher also have on-going studies on humans and blueberry powder. Preliminary results from this studies show that human test subjects that eat one cup of blueberries per day perform 5-6% better on motor skills test than the control group used in the research

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Blueberries and Heart Health

Blueberries may help to reduce the build-up of LDL, the so called “bad” cholesterol. This contributes to stroke and cardiovascular disease. In addition, the University of Maine investigated the functional affects of structural molecules of the aorta of test rats.

After a 13-week study, a group of test rats received a standard diet that was supplemented with eight percent of wild blueberry powder. The scientists involved in the research focused on the glycosaminoglycans (GAGs). These are carbohydrate molecules in the blood vessel walls of the aorta. The results of the study indicated that diets enhanced with wild blueberries had the ability to significantly alter the structure and composition of the aorta walls of the test subjects and the blueberry-fed group could be the protective factor from the research.

Blueberry Supplements and Blueberry Products

The blueberry offers a number of ways to enjoy the natural health benefits including dried blueberry, blueberry juice concentrate, blueberry capsules and more. Below are some of the ways and sources to incorporate blueberry into your daily diet.

- **Fresh Blueberries:** When in season, you can get fresh blueberries straight from the farm market or the produce section of your local store. Unfortunately, fresh blueberries are only in season for a few short weeks during the summer months. However, several farms ship fresh blueberries. A good source is Richardson Blueberry Farms in Maine.
- **Frozen Blueberries:** Enjoy a few thawed blueberries in your pancakes or muffins. To get your hands on frozen blueberries visit the refrigeration section of your local grocery store.
- **Dried Blueberries:** A handful of dried blueberries make a great healthy snack or an addition to your morning cereal. They also make a good alternative to the candy in the candy jar next to your computer. Dried blueberries make a great choice since they are available year round. One

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

source for dried blueberries is Traverse Bay Farms www.traversebayfarms.com The Company will ship dried blueberry directly to your home or office.

- **Blueberry Juice Concentrate:** Blueberry juice concentrate is a concentrated way to get the natural health benefits of this ruby red fruit. One source for blueberry juice concentrate is Traverse Bay Farms www.traversebayfarms.com
- **Blueberry Extract (Super Fruit Supplements):** Blueberry supplements are the most convenient and easiest way to get the natural health benefits of the blueberry. These super fruit dietary supplements start with the whole blueberry. The entire blueberry is used to produce the blueberry capsules, including the skin and the flesh of the fruit. A good source for blueberry capsules is from Fruit Advantage www.fruitadvantage.com

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Introduction: The Pomegranate



Pomegranates are now being featured as one of the hot new "super foods" that both tastes good and is good for you. Nutritional research confirms that pomegranates contain minerals - potassium, iron and calcium and vital compounds known as phytonutrients, tannins, polyphenols, ellagic acid and anthocyanins that help the body protect against heart

disease, diabetes, cholesterol rheumatoid arthritis and a whole of additional benefits.

Although many of the compounds found in the pomegranate are also found in a number of other fruits, the pomegranate contains particularly high amounts of tannins, ellagic acid and anthocyanins with compared to other fruits.

This special pomegranate report will introduce you to the antioxidant-rich properties of this super fruit. Ongoing research from medical universities suggests pomegranates may...

- Provide the body with high levels of ORAC units
- Help fight bad cholesterol
- Help reduce blood pressure
- Help fight heart disease
- Help flush fats from the digestive tract and more...

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

The Pomegranate: What is it?

A pomegranate is a fruit the size of a large orange. The leathery reddish-pink skin shelters the membranous walls and bitter tissue that house compartments or sacs filled with hundreds of seeds. A translucent red pulp that has a slightly sweet and tart taste surrounds these seeds. Pomegranates are grown in California and throughout Asia and the Mediterranean countries.

The pomegranate is grown for both ornamentation and as a delicious and edible fruit. The fruit is about the size of an apple and has a leathery, deep red to purplish red rind. The most popular pomegranate variety is the Wonderful or Red Wonderful. However, additional varieties exist including Granada and Early Foothill.

The season of the pomegranate ranges from August to December with the peak of the season in November and December. This is one reason this sweet fruit is so popular during the holiday season. In addition, to ensure top quality each pomegranate is hand-picked. A typical acre of pomegranate trees includes 100-110 trees and yields 600-800 28 pound boxes of fruit.

What many people refer to as the pomegranate seed is called an aril. Each aril is actually a delicious pouch of juice that surrounds the seed. A single pomegranate contains 840 arils that are compartmentalized between the tough membranes. A medium size pomegranate yields about $\frac{1}{2}$ - $\frac{3}{4}$ cup of seeds, and $\frac{1}{2}$ of pomegranate juice (4 ounces).



This reddish fruit has a long history of intertwining myth, legend and facts. The ancient myths indicate the pomegranate is the favored fruit by the Gods. In addition, the pomegranate has inspired writers, painters, sculptors and home decorators for centuries. In fact, the writings of Homer and the Bible mention the pomegranate. Greek, Roman, Persian and Hebrew lore mentions the pomegranate symbolizes fertility. In Christianity art, this fruit represents hope and according to Jewish tradition, the pomegranate represents a symbol of prosperity.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

But what is the origin of this fruit? The pomegranate originated in tropical Asia but mainly cultivated in the Mediterranean and the Middle East. The pomegranate made it way to America more than 200 years ago and the Spanish are credited with bringing this fruit to California and the New World.

Pomegranate Preparation and Nutrition

Selection and Storage

Pomegranates are available in the United States from September through December. Select fruit that is heavy for its size with bright, fresh color and blemish-free skin. You can refrigerate whole pomegranates for up to 2 months or store them in a cool, dark place for up to a month.

Pomegranate seeds packed in an airtight container and stored in the freezer will keep for up to 3 months.

Storage

Keep apples in plastic bags in the refrigerator after purchasing to prevent further ripening.

Apples should keep up to six weeks. However, check apples often and remove any apples that begin to decay or the others will do the same.



Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Uses & Preparation

Pomegranates are a versatile fruit and can be used as a garnish on sweet and savory dishes or pressed to extract the juice. To use a pomegranate, cut it in half and pry out the pulp-encased seeds, removing any of the light-colored membrane that adheres. The juice can stain your clothes so be sure to wear an apron or clothing that you don't mind getting stained.



Step 1: Cut the crown (top) end of the pomegranate



Step 2: Lightly score the rind in several places



Step 3: Immerse fruit in a bowl of water and soak for 5 minutes.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More



Step 4: Hold fruit under water and break sections apart, separating seeds from membrane. Seeds will sink while rind and membrane float. This the tasty component of the pomegranate.



Step 5: Skim off and discard membranes and rind.



Step 6: Pour seeds into a colander, drain, and pat dry.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Pomegranate Nutrition Facts

But before we go any further, let's take a closer look at some of the nutritional information a ½ cup of pomegranates arils (pomegranate seeds):

Nutrition Facts

Serving Size: ½ cup of arils (87g)

Servings per medium pomegranate: 3.5

Amount Per Serving

Calories 80 **Calories from Fat** 0

% Daily Value*

Total Fat 0g **0%**

Saturated Fat 0g **0%**

Trans Fat 0g

Cholesterol 0mg **0%**

Sodium 5mg **0%**

Potassium 180mg **5%**

Total Carbohydrate 18g **6%**

Dietary Fiber 5g **20%**

Sugars 12g

Protein 1g

Vitamin A 0% • Vitamin C 4%

Calcium 0% • Iron 2%

*Percent Daily Values are based on a 2,000 calorie diet.
Your daily values may be higher or lower depending
on your calorie needs.

Source: U.S. Food and Drug Administration's "Reference Values for Nutrition Labeling."

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Pomegranate Research Update

Pomegranate juice protects nitric oxide against oxidative destruction and enhances the biological actions of nitric oxide.

Nitric Oxide. 2006 Apr 18; Ignarro LJ, Byrns RE, Sumi D, de Nigris F, Napoli C. Department of Molecular and Medical Pharmacology, David Geffen School of Medicine at UCLA, Los Angeles, CA.



Pomegranate juice, a rich source of potent flavonoid antioxidants, was tested for its capacity to protect nitric oxide against oxidative destruction. Pomegranate juice was found to be a potent inhibitor of superoxide anion-mediated disappearance of NO. Pomegranate juice was much more potent than Concord grape juice, blueberry juice, red wine, ascorbic acid, and dl-alpha-tocopherol. These observations indicate that pomegranate juice possesses potent antioxidant activity that results in marked protection of nitric oxide against oxidative destruction, thereby resulting in augmentation of the biological actions of NO.

Pomegranate fruit extracts can block enzymes that contribute to osteoarthritis according to a Case Western Reserve University School of Medicine study published in the September 2005 issue of the Journal of Nutrition. The study looked at the ability of an extract of pomegranate fruit against Interleukin-1b (IL-1b), a pro-inflammatory protein molecule that plays a key role in cartilage degradation in osteoarthritis. Plant-based flavonoids found in fruits, leaves and vegetables have attracted a lot of attention for their beneficial health effects in various diseases. Pomegranate, in particular, has been found to possess antioxidant and anti-inflammatory properties that have potential therapeutic benefits in a variety of diseases. The Case study demonstrated for the first time the ability of pomegranate fruit extracts to slow the deterioration of human cartilage.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Pomegranate extract may prevent prostate cancer or slow its growth, if results of lab experiments conducted at the University of Wisconsin in Madison translate to real-world benefits.

Pomegranates are high in polyphenolic compounds, making its juice higher in antioxidant activity than red wine and green tea. When they incubated prostate cancer cells with low concentrations of pomegranate extract, they observed a dose-related inhibition of cell growth. In prostate cancer cells driven by male hormones (androgens) and expressing prostate specific antigen (PSA), treatment with pomegranate extract decreased androgen receptors and PSA expression. When human prostate cancer cells were injected into mice, feeding the animals pomegranate extract delayed the appearance of tumors. Tumor growth was significantly inhibited and survival was prolonged.

In men with recurrent prostate cancer, drinking 8 ounces per day of pomegranate juice significantly increases the time it takes for an increase in levels of prostate specific antigen (PSA), an indicator of prostate cancer. Before the men in the study began consuming pomegranate juice, the average PSA doubling time, a measure of tumor activity, was 15 months. The average time after treatment was 37 months. So, there was almost a 2-year increase in the doubling time. Pomegranate juice contains a number of antioxidants thought to have anti-cancer effects, Pomegranate juice contains estrogen-like plant substances called phytoestrogens that could be useful in combating prostate cancer. Pomegranate juice therapy was well tolerated and no serious adverse effects were reported. In addition to the beneficial increase in PSA doubling time, in vitro testing showed decreased cancer cell division and proliferation and increased cancer cell death. Urine testing confirmed the presence of pomegranate antioxidants in all men. The study was funded by the Stewart and Lynda Resnick Trust, which own the POM Wonderful pomegranate juice company.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Drinking pomegranate juice during pregnancy may help reduce the risk of brain injuries in babies.

J Med Food. 2004 Spring;2(4):132-61.

Decreased blood flow and oxygen to an infant's developing brain during pregnancy, birth and early development is linked to premature birth and can lead to brain tissue loss, seizures and mobility impairments such as cerebral palsy. The phenomenon, called hypoxia ischemia, causes brain injury in approximately two of every 1,000 full-term human births and in a very high percentage of babies born before 34 weeks of gestation. Researchers at the Washington University School of Medicine in St. Louis found that newborn mice whose mothers drank water mixed with pomegranate concentrate lost 60 percent less brain tissue than mice whose mothers drank sugar water or other fluids. Pomegranates contain very high concentrations of polyphenols, a substance also found in berries and grapes, which has been shown to potentially have anti-aging and neuroprotective effects.

Concentrated pomegranate juice improves lipid profiles in diabetic patients with hyperlipidemia

J Med Food. 2004 Fall;7(3):305-8.

This study assessed the effect of concentrated pomegranate juice consumption on lipid profiles of type II diabetic patients with hyperlipidemia. In this quasi-experimental study 22 otherwise healthy diabetic patients, 14 women and eight men were recruited from among patients referred to the Iranian Diabetes Society. The patients were followed for 8 weeks to establish a baseline for normal dietary intake before beginning the concentrated pomegranate juice intervention. During the pre-study period a 24-hour food recall and food records (recording flavonoid-rich foods) were completed every 10 days. At the end of the eighth week, anthropometric and biochemical assessments were done. Thereafter the patients consumed 40 g/day of concentrated

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

pomegranate juice for 8 weeks, during which time dietary assessment was continued. After completing the study, anthropometric and blood indices were again evaluated. After consumption of concentrated pomegranate juice, significant reductions were seen in total cholesterol, low-density lipoprotein (LDL)-cholesterol, LDL-cholesterol / high-density lipoprotein (HDL)-cholesterol, and total cholesterol/HDL-cholesterol. But, there were no significant changes in serum triacylglycerol and HDL-cholesterol concentrations.

Anthropometric indices, physical activity, kind and doses of oral hypoglycemic agents, and the intakes of nutrients and flavonoid-rich foods showed no change during the concentrated pomegranate juice consumption period. It is concluded that concentrated pomegranate juice consumption may modify heart disease risk factors in hyperlipidemic patients, and its inclusion therefore in their diets may be beneficial.

Pomegranate extracts potently suppress proliferation, xenograft growth, and invasion of human prostate cancer cells.

J Med Food. 2004 Fall;7(3):274-83.

We completed a multicenter study of the effects of pomegranate cold-pressed (Oil) or supercritical CO(2)-extracted (S) seed oil, fermented juice polyphenols (W), and pericarp polyphenols (P) on human prostate cancer cell xenograft growth in vivo, and/or proliferation, cell cycle distribution, apoptosis, gene expression, and invasion across Matrigel, in vitro. Oil, W, and P each acutely inhibited in vitro proliferation of LNCaP, PC-3, and DU 145 human cancer cell lines. The dose of P required to inhibit cell proliferation of the prostate cancer cell line LNCaP by 50% (ED(50)) was 70 microg/mL, whereas normal prostate epithelial cells (hPrEC) were significantly less affected (ED(50) = 250 g/mL). Overall, this study demonstrates significant antitumor activity of pomegranate-derived materials against human prostate cancer.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Breast cancer chemopreventive properties of pomegranate (*Punica granatum*) fruit extracts in a mouse mammary organ culture.

Eur J Cancer Prev. 2004 Aug;13(4):345-8.

Mehta R, Lansky EP. University of Illinois at Chicago, Chicago

We previously reported anticancer effects of pomegranate extracts in human breast cancer cells in vitro and also chemopreventive activity of pomegranate fermented juice polyphenols (W) in a mouse mammary organ culture. In the present study we decided to expand the investigations to also include an evaluation of the potential chemopreventive efficacy of a purified chromatographic peak of W (Peak B), and also of whole pomegranate seed oil. The results highlight enhanced breast cancer preventive potential both for the purified compound peak B and for pomegranate seed oil, both greater than that previously reported for pomegranate fermented juice polyphenols.

Pomegranate fruit extract can block skin tumor formation in mice exposed to a cancer-causing agent, according to a report in the International Journal of Cancer. Dr. Hasan Mukhtar and colleagues from the University of Wisconsin at Madison conducted a variety of experiments to test the anti-cancer effects of pomegranate, a chemical with strong anti-inflammatory and antioxidant properties. In mice, putting pomegranate on the skin before exposure to the cancer-causing substance TPA inhibited the skin swelling and excessive cell growth that typically occurs. Moreover, mice treated with pomegranate developed fewer skin tumors than untreated mice.



***Punica granatum* (Pomegranate) juice provides an HIV-1 entry inhibitor and candidate topical microbicide.**

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

BMC Infect Dis. 2004 Oct 14;4(1):41.

RESULTS: HIV-1 entry inhibitors from pomegranate juice adsorb onto corn starch. The resulting complex blocks virus binding to CD4 and CXCR4/CCR5 and inhibits infection by primary virus clades A to G and group O. CONCLUSION: These results suggest the possibility of producing an anti-HIV-1 microbicide from inexpensive, widely available sources, whose safety has been established throughout centuries, provided that its quality is adequately standardized and monitored.

Pomegranate juice consumption for 3 years by patients with carotid artery stenosis reduces common carotid intima-media thickness, blood pressure and LDL oxidation.

Clin Nutr. 2004 Jun;23(3):423-33.

Dietary supplementation with polyphenolic antioxidants to animals was shown to be associated with inhibition of LDL oxidation and macrophage foam cell formation, and attenuation of atherosclerosis development. We investigated the effects of pomegranate juice (PJ, which contains potent tannins and anthocyanins) consumption by atherosclerotic patients with carotid artery stenosis (CAS) on the progression of carotid lesions and changes in oxidative stress and blood pressure. Ten patients were supplemented with pomegranate juice for 1 year and five of them continued for up to 3 years. Blood samples were collected before treatment and during pomegranate juice consumption. In the control group that did not consume pomegranate juice, common carotid intima-media thickness (IMT) increased by 9% during 1 year, whereas, pomegranate juice consumption resulted in a significant IMT reduction, by up to 30%, after 1 year. The results of the present study thus suggest that pomegranate juice consumption by patients with CAS decreases carotid IMT and systolic blood pressure and these effects could be related to the potent antioxidant characteristics of pomegranate juice polyphenols.

Differentiation-promoting activity of pomegranate (*Punica granatum*) fruit extracts in HL-60 human promyelocytic leukemia cells.

J Med Food. 2004 Spring;7(1):13-8.

Differentiation refers to the ability of cancer cells to revert to their normal counterparts, and its induction represents an important noncytotoxic therapy for leukemia, and also breast, prostate, and other solid malignancies. Flavonoids are a group of differentiation-inducing chemicals with a potentially lower toxicology profile than retinoids. Flavonoid-rich polyphenol fractions from the pomegranate (*Punica granatum*) fruit exert anti-proliferative, anti-invasive, anti-eicosanoid, and pro-apoptotic actions in breast and prostate cancer cells and anti-angiogenic activities in vitro and in vivo. Here we tested flavonoid-rich fractions from fresh (J) and fermented (W) pomegranate juice and from an aqueous extraction of pomegranate pericarps (P) as potential differentiation-promoting agents of human HL-60 promyelocytic leukemia cells. Four assays were used to assess differentiation: nitro blue tetrazolium reducing activity, nonspecific esterase activity, specific esterase activity, and phagocytic activity. In addition, the effect of these extracts on HL-60 proliferation was evaluated. Extracts W and P were strong promoters of differentiation in all settings, with extract J showing only a relatively mild differentiation-promoting effect. The extracts had proportional inhibitory effects on HL-60 cell proliferation. The results highlight an important, previously unknown, mechanism of the cancer preventive and suppressive potential of pomegranate fermented juice and pericarp extracts.

Preliminary studies on the anti-angiogenic potential of pomegranate fractions in vitro and in vivo.

Angiogenesis. 2003;6(2):121-8.

We previously showed pomegranate seed oil and fermented juice polyphenols to retard oxidation and prostaglandin synthesis, to inhibit breast cancer cell proliferation and invasion, and to

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

promote breast cancer cell apoptosis. Here we evaluated the anti-angiogenic potential of these materials in several ways. We checked a possible effect on angiogenic regulation by measuring vascular endothelial growth factor (VEGF), interleukin-4 (IL-4) and migration inhibitory factor (MIF) in the conditioned media of estrogen sensitive (MCF-7) or estrogen resistant (MDA-MB-231) human breast cancer cells, or immortalized normal human breast epithelial cells (MCF-10A), grown in the presence or absence of pomegranate seed oil (SESCO) or fermented juice polyphenols (W). VEGF was strongly downregulated in MCF-10A and MCF-7, and MIF upregulated in MDA-MB-231, overall showing significant potential for downregulation of angiogenesis by pomegranate fractions. An anti-proliferative effect on angiogenic cells was shown in human umbilical vein endothelial cell (HUVEC) and in myometrial and amniotic fluid fibroblasts, and inhibition of HUVEC tubule formation demonstrated in an in vitro model employing glass carrier beads. Finally, we showed a significant decrease in new blood vessel formation using the chicken chorioallantoic membrane (CAM) model in vivo. In sum, these varied studies employing different models in different laboratories overall demonstrate for the first time an anti-angiogenic potential of pomegranate fractions, suggesting further in vivo and clinical investigations.

Pomegranate extract improves a depressive state and bone properties in menopausal syndrome model ovariectomized mice.

J Ethnopharmacol. 2004 May;92(1):93-101.

Pomegranate is known to contain estrogens (estradiol, estrone, and estriol) and show estrogenic activities in mice. In this study, we investigated whether pomegranate extract is effective on experimental menopausal syndrome in ovariectomized mice. Prolongation of the immobility time in forced swimming test, an index of depression, was measured 14 days after ovariectomy. The bone mineral density (BMD) of the tibia was measured by X-ray absorptiometry and the structure and metabolism of bone were also analyzed by bone histomorphometry. Administration of pomegranate extract (juice and seed extract) for 2 weeks to ovariectomized mice prevented the loss of uterus weight and shortened the immobility time compared with 5% glucose-dosed mice

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

(control). In addition, ovariectomy-induced decrease of BMD was normalized by administration of the pomegranate extract. The bone volume and the trabecular number were significantly increased and the trabecular separation was decreased in the pomegranate-dosed group compared with the control group. Some histological bone formation/resorption parameters were significantly increased by ovariectomy but were normalized by administration of the pomegranate extract. These changes suggest that the pomegranate extract inhibits ovariectomy-stimulated bone turnover. It is thus conceivable that pomegranate is clinically effective on a depressive state and bone loss in menopausal syndrome in women.



Repeated oral administration of high doses of the pomegranate ellagitannin punicalagin to rats for 37 days is not toxic.

J Agric Food Chem. 2003 May 21;51(11):3493-501.

The water-soluble ellagitannin punicalagin has been reported to be toxic to cattle. Taking into account that this antioxidant polyphenol is very abundant in pomegranate juice ($> \text{ or } = 2 \text{ g/L}$), the present study evaluated the possible toxic effect of punicalagin in Sprague-Dawley rats upon repeated oral administration of a 6% punicalagin-containing diet for 37 days. Punicalagin and related metabolites were identified by HPLC-DAD-MS-MS in plasma, liver, and kidney. Five punicalagin-related metabolites were detected in liver and kidney, that is, two ellagic acid derivatives, gallagic acid, 3,8-dihydroxy-6H-dibenzo[b,d]pyran-6-one glucuronide, and 3,8,10-trihydroxy-6H-dibenzo[b,d]pyran-6-one. Feedstuff intake, food utility index, and growth rate were lower in treated rats during the first 15 days without significant adverse effects, which could be due to the lower nutritional value of the punicalagin-enriched diet together with a decrease in its palatability (lower food intake).

No significant differences were found in treated rats in any blood parameter analyzed (including the antioxidant enzymes glutathione peroxidase and superoxide dismutase) with the exception of urea and triglycerides, which remained at low values throughout the experiment. Although the reason for the decrease is unclear, it could be due to the lower nutritional value of the

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

punicalagin-enriched diet with respect to the standard rat food. Histopathological analysis of liver and kidney corroborated the absence of toxicity. In principle, the results reported here, together with the large safety margin considered, indicate the lack of toxic effect of punicalagin in rats during the 37 day period investigated. However, taking into account the high punicalagin content of pomegranate-derived foodstuffs, safety evaluation should be also carried out in humans with a lower dose and during a longer period of intake.

Pomegranate juice flavonoids inhibit low-density lipoprotein oxidation and cardiovascular diseases: studies in atherosclerotic mice and in humans.

Drugs Exp Clin Res. 2002;28(2-3):49-62.

The beneficial health effects attributed to the consumption of fruit and vegetables are related, at least in part, to their antioxidant activity. Of special interest is the inverse relationship between the intake of dietary nutrients rich in polyphenols and cardiovascular diseases. This effect is attributed to polyphenols' ability to inhibit low-density lipoprotein (LDL) oxidation, macrophage foam cell formation and atherosclerosis. Pomegranate polyphenols can protect LDL against cell-mediated oxidation via two pathways, including either direct interaction of the polyphenols with the lipoprotein and/or an indirect effect through accumulation of polyphenols in arterial macrophages. Pomegranate polyphenols were shown to reduce the capacity of macrophages to oxidatively modify LDL, due to their interaction with LDL to inhibit its oxidation by scavenging reactive oxygen species and reactive nitrogen species and also due to accumulation of polyphenols in arterial macrophages; hence, the inhibition of macrophage lipid peroxidation and the formation of lipid peroxide-rich macrophages.

Furthermore, pomegranate polyphenols increase serum paraoxonase activity, resulting in the hydrolysis of lipid peroxides in oxidized lipoproteins and in atherosclerotic lesions. These antioxidative and antiatherogenic effects of pomegranate polyphenols were demonstrated in vitro, as well as in vivo in humans and in atherosclerotic apolipoprotein E deficient mice. Dietary supplementation of polyphenol-rich pomegranate juice to atherosclerotic mice significantly

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

inhibited the development of atherosclerotic lesions and this may be attributed to the protection of LDL against oxidation.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Chemopreventive effects of pomegranate seed oil on skin tumor development in CD1 mice. J Med Food. 2003 Fall;6(3):157-61.

Hora JJ, Maydew ER, Lansky EP, Dwivedi C. Department of Pharmaceutical Sciences, College of Pharmacy, South Dakota State University, Brookings, SD

Pomegranate seed oil was investigated for possible skin cancer chemopreventive efficacy in mice. In the main experiment, two groups consisting each of 30, 4-5-week-old, female CD(1) mice were used. Both groups had skin cancer initiated with an initial topical exposure of 7,12-dimethylbenzanthracene and with biweekly promotion using 12-O-tetradecanoylphorbol 13-acetate (TPA). The experimental group was pretreated with 5% pomegranate seed oil prior to each TPA application. Conclusions: Pomegranate seed oil (5%) significantly decreased tumor incidence, multiplicity, and TPA-induced ODC activity. Overall, the results highlight the potential of pomegranate seed oil as a safe and effective chemopreventive agent against skin cancer.



Studies on antioxidant activity of pomegranate (Punica granatum) peel extract using in vivo models.

J Agric Food Chem. 2002 Aug 14;50(17):4791-5.

Pomegranate (Punica granatum) peel extracts from the pomegranate tree fruit have been shown to possess significant antioxidant activity in various in vitro models. Dried pomegranate peels were powdered and extracted with methanol for 4 h. The dried methanolic extract was fed to albino rats of the Wistar strain, followed by carbon tetrachloride (CCl₄), and the levels of various enzymes, such as catalase, peroxidase, and superoxide dismutase (SOD), and lipid peroxidation were studied. Treatment of rats with a single dose of CCl₄ at 2.0 g/kg of body

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

weight decreases the levels of catalase, SOD, and peroxidase by 81, 49, and 89% respectively, whereas the lipid peroxidation value increased nearly 3-fold. Pretreatment of the rats with a methanolic extract of pomegranate peel at 50 mg/kg (in terms of catechin equivalents) followed by CCl₄ treatment causes preservation of catalase, peroxidase, and SOD to values comparable with control values, whereas lipid peroxidation was brought back by 54% as compared to control. Histopathological studies of the liver were also carried out to determine the hepatoprotection effect exhibited by the pomegranate peel extract against the toxic effects of CCl₄. Histopathological studies of the liver of different groups also support the protective effects exhibited by the MeOH extract of pomegranate peel by restoring the normal hepatic architecture. Pomegranate juice.

Ten Ways to Incorporate Pomegranates into Your Daily Route



Due to today's active and hectic lifestyles, incorporating pomegranates into your daily diet may seem difficult. However, here are six simple ways to enjoy the natural health benefits of pomegranates everyday:

1. *Pomegranates on the Run* – Add an ounce of pomegranate juice concentrate to your water bottle and shake. This will make a 100% pure and refreshing pomegranate drink to enjoy while biking, driving or walking.
2. *A Fruity Parfait* – Mix some granola and yogurt with fresh pomegranates seeds for tasty snack.
3. *Blend It* – Add some ice, wheat germ, a banana, pomegranate juice concentrate and a dash of low-fat milk and start the day off right with a cool, anti-oxidant rich smoothie.
4. *Breakfast Additions* – Add a handful of pomegranate seeds to your favorite cereal or oatmeal.
5. *Pomegranate capsules*- Pomegranate capsules are a great way to get to the anti-oxidant benefits of this super fruit. They are convenient, easy-to-travel and they don't need refrigeration.
6. *Make a Pomegranate Salad* – Add some tasty pomegranate seeds to your favorite salad and taste the pomegranate difference.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

7. *Sprinkle Away* – Sprinkle pomegranate powder on all types of food for both a yummy pomegranate taste and a meal rich in anti-oxidants. Pomegranate powder is very versatile.

Great Tasting Pomegranate Recipes

Below are some great tasting pomegranate recipes for you to taste and sample.

Fall Festival Fruit Salad

Serves 4. Each serving equals three 5 A Day servings

Source: Produce for Better Health

Ingredients

4 cups of spinach leaves, chopped

1 red apple, cored and thinly sliced

¼ lb grapes

1 cantaloupe, or other melon, seeded, pared and cut into chunks

½ cup pomegranate seeds

Core, rinse, and thoroughly drain lettuce. Using a stainless steel knife, cut lettuce into bite-size chunks. Arrange apple slices, grape clusters, and melon wedges on lettuce. Sprinkle pomegranate seeds over top. Chill. When ready to serve, drizzle citrus dressing over all.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Citrus Dressing

½ cup plain yogurt

¼ cup unsweetened orange juice concentrate, thawed

Combine yogurt and orange juice concentrate. Whip until smooth. Makes about 1 cup.

Nutritional Analysis: Calories 186, Fat 2g, Calories from Fat 8%, Cholesterol 2mg, Fiber 4g, Sodium 55mg.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Herbed Pomegranate Salsa

Serves 4. Each serving equals one 5 A Day serving

Source: Unknown

Ingredients

2 Tbsps fresh mint, chopped

2 Tbsps fresh cilantro, chopped

2 Tbsps Italian flat-leaf parsley, chopped

½ cup small red onion, chopped

1 pomegranate, skin and light-colored membrane removed

6 Tbsps fresh lime juice

2 tsps grated lime zest

1 jalapeno pepper, chopped

1 serrano pepper, chopped

1½ cup large tomato, diced

1 Tbsp olive oil

½ tsp salt

1/8 tsp ground white pepper

In a medium bowl, toss together mint, cilantro, Italian flat-leaf parsley, red onion, pomegranate, lime juice, lime zest, jalapeno pepper, serrano pepper, tomato, and olive oil. Season with salt and white pepper. Cover, and chill in the refrigerator at least 2 hours before serving.

Nutritional Analysis: Calories 77, Protein 1g, Carbohydrates 14g, Fat 2g, Calories from Fat 230%, Cholesterol 0mg, Fiber 1g, Sodium 305mg.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Pomegranate and Banana Salad

Serves 4. Each serving equals two 5 A Day servings

Source: Pomegranate Council

Ingredients

2 pomegranates, chilled

4 bananas

1 Tbs palm sugar or brown sugar

2 limes (or ¼ cup freshly squeezed lime juice)

Mix together the juice of the lime and the Tbsp of sugar. Adjust sweet and sour to taste. Score and seed both pomegranates, freeing the seeds. Mound the pomegranate seeds in the center of the salad plates and slice the bananas around the perimeter of the seeds. Drizzle with the prepared lime dressing and serve.

Nutritional Analysis: Calories 83, Protein 1g, Fat 0g, Calories from Fat 0%, Cholesterol 0mg, Fiber 2g, Carbohydrates 21g, Sodium 7mg.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Jicama, Green Bean, and Pomegranate Salad

Serves 4. Each serving equals two 5 A Day servings

Source: Pomegranate Council

Ingredients

1 fresh pomegranate
½ cup pomegranate juice
1 ½ lbs pieces of jicama
2 lbs thin French green beans
¼ cup walnuts
1 Tbsp fresh chopped parsley
1 Tbsp extra-virgin olive oil
1 Tbsp fresh lemon juice

Peel and cut jicama into ¼-inch thick slices. Stack 2 or 3 slices on a cutting board and cut into ¼-inch sticks. Place in a bowl and toss with pomegranate juice. Chill, covered for 30 minutes, tossing occasionally.

Have ready a bowl of ice and cold water, trim green beans. In a saucepan of boiling salted water, blanch beans for 3 minutes, or until crisp-tender. Transfer beans with a slotted spoon into ice water to stop cooking. Drain in colander.

To prepare the pomegranate, follow the 6-step process to get the fresh seeds. Chop the walnuts coarsely. Take out the jicama mixture, and add green beans, pomegranate seeds, and walnuts with salt and pepper to taste. Toss and serve.

Nutritional Analysis: Calories 261, Fat 9g, Calories from Fat 28%, Carbohydrates 44g, Fiber 17g, Cholesterol 0mg, Sodium 23mg.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Pomegranate Syrup (Grenadine)

Makes about eight 1/4 cup servings.

Source: "Uncommon Fruits & Vegetables" by Elizabeth Schneider

Ingredients

2 large pomegranates, seeded (about 2 cups seeds)

1½ cups sugar

Combine seeds and sugar in a non-aluminum saucepan; stir to mix, crushing well, until you have a wet mass. Cover and let stand 12 to 24 hours. Bring to a boil over moderate heat, stirring constantly. Lower heat, and simmer 2 minutes. Strain out seeds, pressing down to extract juice. Pour into a hot sterilized jar. Cover with a piece of cloth or a clean towel until cooled. Cap tightly and refrigerate.

Nutritional Analysis: Calories 171, Protein 0g, Fat 0g, Calories from Fat 0%, Cholesterol 0mg, Carbohydrate 44g, Fiber 0g, Sodium 1mg.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Grilled Eggplant with Pomegranate Sauce

Serves 6. Each serving equals one 5 A Day serving

Source: Pomegranate Council

Ingredients

1 large eggplant

2 Tbsp olive oil

3 cloves garlic

½ cup pomegranate syrup

1 tsp salt

Garnish

Minced parsley

½cup pomegranate seeds

Cut eggplant into ¼-inch slices, and place them on paper towels. Sprinkle slices with salt, and weight them down with heavy plates or a board for 30 minutes. Then pat them dry with paper towels.

Lightly brush eggplant slices with olive oil, and place them on grill. Grill them for 3 minutes on each side, or until they are lightly browned on both sides. Remove from grill. Arrange the eggplant by overlapping the slices on a serving dish.

In a mortar, crush garlic cloves with 2 tsps salt to a paste. In a non-metallic bowl, combine the garlic paste and pomegranate syrup. Spread a little of the mixture on each eggplant slice.

Sprinkle the slices with minced parley and pomegranate seeds for garnish and chill covered.

Nutritional Analysis: Calories 239, Protein 1g, Fat 2g, Calories from Fat 27%, Cholesterol 0mg, Carbohydrate 55g, Fiber 2g, Sodium 397mg.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Spicy Pomegranate Baked Pears

Serves 4. Each serving equals one 5 A Day serving

Source: Pomegranate Council

Ingredients

4 firm baking pears

1 cup pomegranate syrup

2 Tbsp lemon juice

1 cinnamon stick, 2 inches in length

4 whole cloves

Pre-heat oven to 350 degrees F. Peel pears, halve lengthwise, and core. Arrange pears cut side down in a ceramic baking dish. In a non-metallic bowl, combine pomegranate syrup, lemon juice, cinnamon, and cloves. Pour the mixture over the pears, and place in pre-heated oven. Bake for 45 minutes, basting frequently or until pears are tender.

Nutritional Analysis: Calories 342, Protein 1g, Fat 1g, Calories from Fat 5%, Cholesterol 0mg, Carbohydrate 86g, Fiber 5g, Sodium 2mg.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Pomegranate Supplements and Pomegranate Products

The pomegranate offers a number of different ways to enjoy its great taste and natural health benefits including fresh pomegranates, pomegranate juice concentrate, pomegranate capsules, ready-to-drink pomegranate juice, pomegranate jam and even pomegranate martini's and wine. Below are the many different types of pomegranate products available.

- **Fresh Pomegranates:** When in season, you can get fresh pomegranates straight from your local store. Unfortunately, fresh pomegranates are only in season for a short time. Thus, finding fresh pomegranates may be very difficult.
- **Pomegranate Juice Concentrate:** Research indicates ORAC helps the body to fight free radicals, disease and may even help the aging process. Pomegranate juice concentrate is a super charged way to get the natural health benefits of this ancient fruit. However, 100% pure pomegranate juice concentrate is not readily available in most local grocery stores.
- **Pomegranate Capsules:** Pomegranate capsules are the most convenient and easiest way to get the natural health benefits of the pomegranate. Pomegranate capsules are available in various potencies. These are usually measured in the Ellagic Acid amount. Pomegranate capsules are available at 20% Ellagic Acid and 40% Ellagic Acid. As the percent increase so does the potency of the capsule. A 70% Ellagic Acid capsule is available from Fruit Advantage www.fruitadvantage.com. In addition to delivering the 70% Ellagic Acid it also delivers the pomegranate extract too. In fact, one Fruit Advantage Pomegranate capsules equals the Ellagic Acid (anti-oxidant) capacity of 8 glasses of pomegranate juice without the sugar.
- **Ready-to-Drink Pomegranate Juice:** Pomegranate juice has become readily available in many local grocery stores. In addition to pure pomegranate juice, you can also find pomegranate/apple juice blends and more. One source is Wild Oats www.wildoats.com

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

- **Additional Pomegranate Products:** Pomegranate jams, jelly, martini's and wine are creative and innovative products. To find these innovative products conduct a search on the Internet or visit your local grocery store.

Super Fruit Handbook – Part 1 -

Natural Ways to Fight Joint Pain, Improve Your Memory, Maintain a Healthy Heart and More

Sources for Additional Information on Antioxidants, Anthocyanins and Super Fruits:

American Heart Association – www.americanheart.org

American Medical Association – www.ama-assn.org

Center for Disease Control – www.cdc.gov

Food with Benefits – www.foodwithbenefits.com

Fruits and Vegetables Matter – www.fruitsandveggiesmatter.gov

Orchard of Health – www.orchardofhealth.com

5 Day Program - www.5aday.gov

Additional References:

1 Wu X, Beecher GR, Holden JM, Haytowitz DB, Gebhardt SE, Prior RL. Lipophilic and hydrophilic antioxidant capacities of common foods in the United States. *J Agric Food Chem*. 2004 Jun 16;52(12):4026-37.

2 Schauss AG, Wu X, Prior RL et al. Antioxidant capacity and other bioactivities of the freeze-dried Amazonian palm berry, *Euterpe oleracea* Mart. (acai). *J Agric Food Chem*. 2006 Nov 1;54(22):8604-10.

3 Young G, Lawrence R, Schreuder M (2006). *Discovery of the Ultimate Superfood*, Essential Science Publishing, Orem, UT

4 United States Department of Agriculture, Agricultural Research Service, *Oxygen Radical Absorbance Capacity of Selected Foods - 2007*, November 2007

5 - Blau LW, Cherry diet control for gout and arthritis, *Texas Reports on Biology and Medicine*, 1950;8:309-311

6 - Jacob RA, Consumption of cherries lowers plasma urate in healthy women *Journal of Nutrition* 2003; 133:1826-1829

7 - Ou B, Hampsch-Woodhill M, Prior RI, Development and validation of an improved oxygen radical absorption capability assay *Journal of Agricultural Food Chemistry* 2001; 49:4619-1626