LifeExtension®

The Science of Super Fruits

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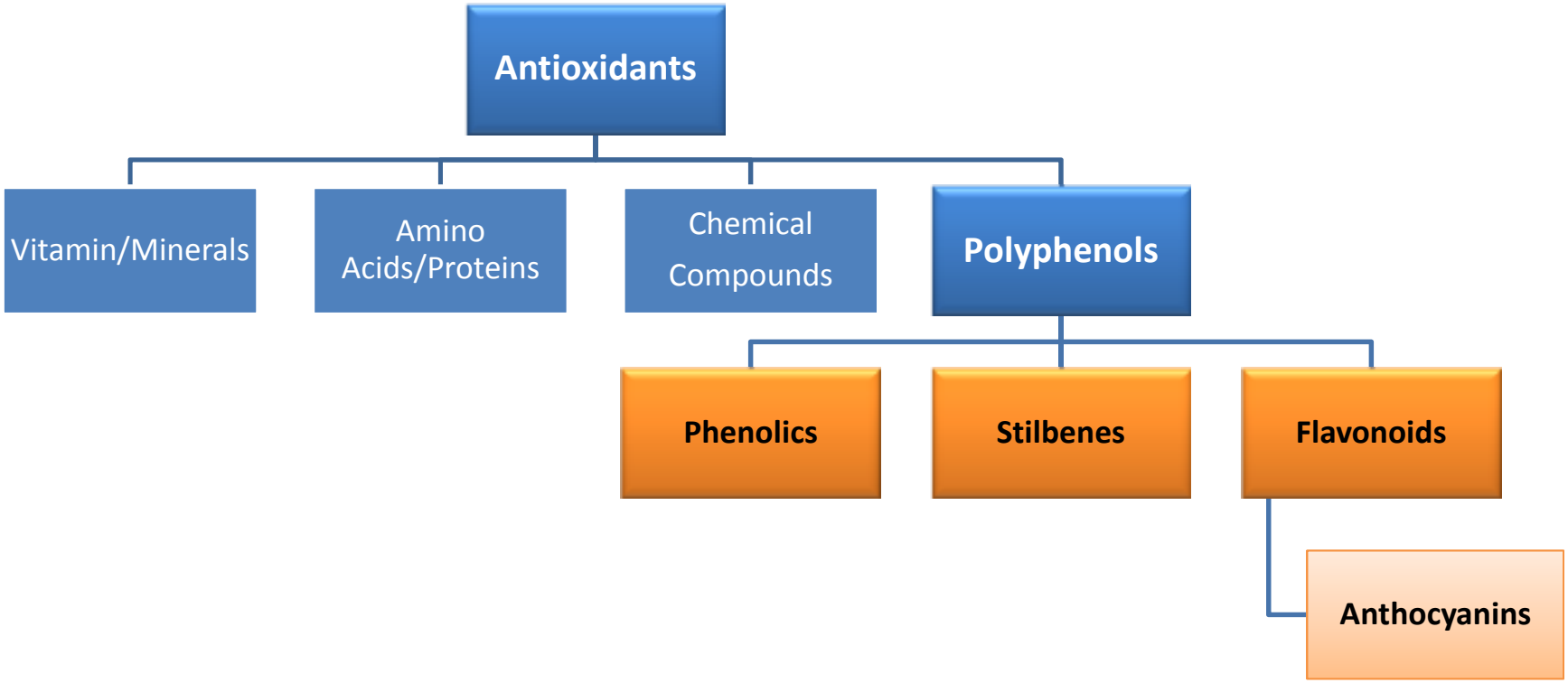
Super Fruits:
Powerful Antioxidant Protection

- Extensive research confirms that the most powerful fruits are those that contain a class of polyphenols known as anthocyanins.
- These nutrients create the deep red, blue, and purple pigments found in plants such as blueberries, elderberries, blackberries, and açaí.

What are Anthocyanins?

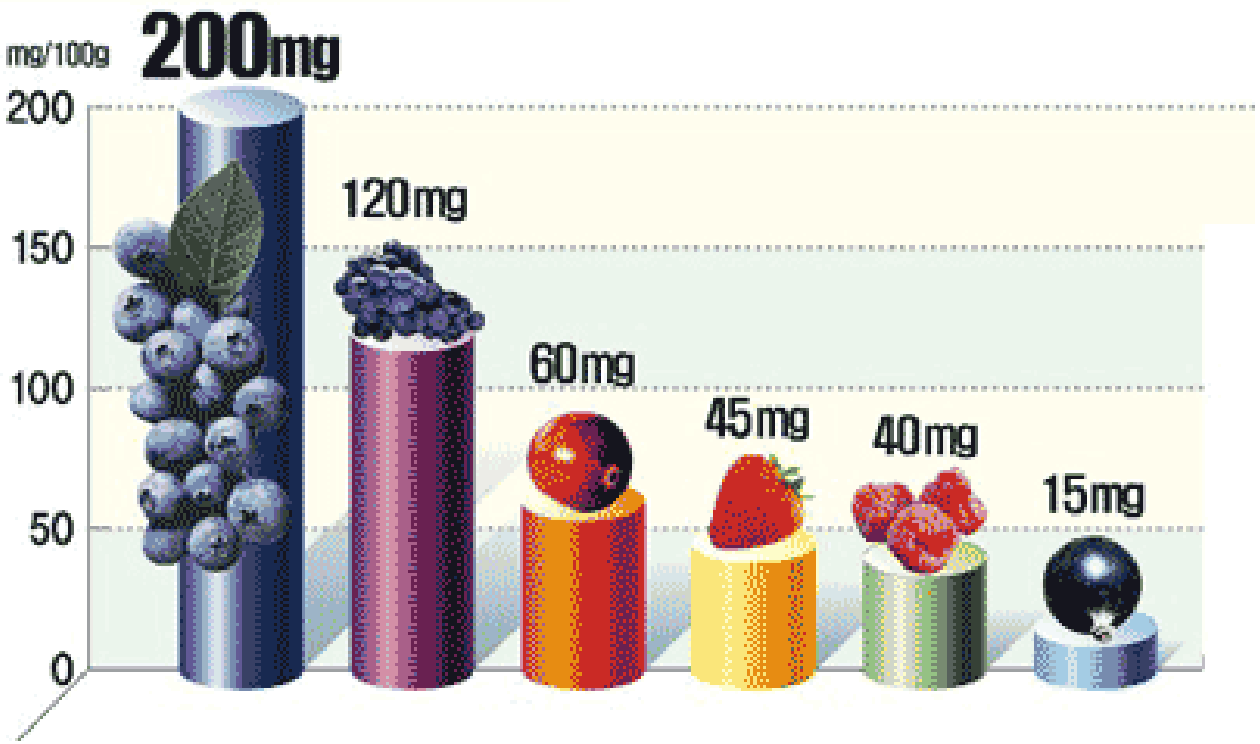


What are Anthocyanins?

- Water-soluble pigments that appear red, purple, or blue depending on the pH.
- Odorless and nearly flavorless.
- Occur in all tissues of higher plants, including leaves, stems, roots, flowers, and fruits.

Mortality Study

- June 26, 2013 in the *Journal of Nutrition*
- 807 subjects underwent dietary questionnaires on polyphenol intake and total urinary polyphenols were measured in urine samples.
- Among participants whose total urinary polyphenols were among the top one-third of participants, had a 30% lower risk of death from all causes than those whose levels were among the lowest third.



Not reliable. Many farming factors will determine anthocyanin content.

LifeExtension®

The “Super” Super Fruits

Scientifically Proven Super Fruits with the Highest Anthocyanin Content

Açaí Berries

- Highest ORAC scores of any fruit or vegetable.
- Inhibits proliferation of colon cancer cells by up to **90%** and human leukemia cells by **56-86%**.
- As a major cardiovascular protector, animal studies showed that it induces long-lasting arterial wall relaxation and reduces total and non-HDL cholesterol.
- Açaí-treated brain tissue showed decreased free radical-induced damage to the lipids and proteins in the tissue, regardless of the area of the brain from which it was taken.

J Agric Food Chem. 2008 May 28;56(10):3593-600.
Agric Food Chem. 2006 Feb 22;54(4):1222-9.
Vasc Pharmacology. 2007 Feb;46(2):97-104.
Nutrition. 2010 Jul-Aug;26(7-8):804-10.
J Med Food. 2009 Oct;12(5):1084-8.

Açaí Berries

- 2011 pilot study, açaí reduced levels of selected markers of metabolic disease in ten overweight humans.
  - Fasting glucose and insulin
  - Total cholesterol levels
  - Reduced post-meal glucose

500 mg per day
Standardized to 10% polyphenols

Nutr J. 2011 May 12;10:45.

Aronia Berries (Chokeberries)

- Decreases oxidation of fats and cholesterol.
- Provides anti-clotting effect and reduces exercise-induced oxidative damage to red blood cells.
- Significant cholesterol-lowering effect (animal models).
- Protective effects on the liver and supports healthy glucose metabolism.

Nutr Rev. 2010 Mar;68(3):168-77.
Phytother Res. Epub 2012 Apr 4.
Int J Sport Nutr Exerc Metab. 2005 Feb 15;15(1):48-58.
Plant Foods Hum Nutr. 2007 Mar;62(1):19-24.
Folia Med (Plovdiv). 2006;48(2):57-62.
Methods Find Exp Clin Pharmacol. 2007 Mar;29(2):101-5.

Aronia Berries (Chokeberries)

- Inhibited proliferation or killed
  - Human cervical tumors
  - Malignant brain tumors
- Reduced biological markers of colon cancer, and helped prevent gastric ulcers.

450 mg per day
Standardized to 10% polyphenols

J Med Food. 2012 Aug;15(8):700-6
Oncol Rep. 2012 Oct;28(4):1435-42.
Nutr Cancer. 2006;54(1):84-93.
Exp Toxicol Pathol. 2005 Apr;56(6):385-92.

Bilberry (Blueberry Relative)

- Preventions cardiovascular disease by inhibiting the *angiotensin-converting enzyme*(ACE), which contributes to hypertension.
- Extract of bilberry helps increase enzymes that inhibit oxidative stress in the eyes, suggesting it protects against age-related eye disorders, such as macular degeneration.
- In 2012, a study found that bilberries may prevent the early, gene-related changes that precede obesity- and diabetes-related visual impairment.

J Agric Food Chem. 2009 Jun 10;57(11):4626-9.
J Nutr. 2010 Mar;140(3):527-33.
Invest Ophthalmol Vis Sci.2007 May;48(5):2343-9.
Mol Vis. 2012;18:2338-51.

Bilberry

- These berries inhibit proliferation of breast cancer cells and induce apoptosis in animal models.
- Bilberry extract defends against intestinal cancer.

100 mg per day
Standardized to 36% polyphenols

J Med Food. 2010 Feb 4.
Cancer Prev Res (Phila). 2009 Jul;2(7):625-33.
J Agric Food Chem. 2004 Oct 6;52(20):6122-8.
J Nutr. 2007 Oct;137(10):2285-90.

Blackcurrant

- A scientific review published in 2012 noted the therapeutic potential of blackcurrants against heart, nerve and eye disease, kidney stones and diabetic neuropathy.
- Cardioprotective benefits:
  - Enhance the synthesis of nitric oxide
  - Improving the functioning of blood vessels
  - Reduces LDL oxidation
- Reduces muscle fatigue and stiffness.

Food Funct. 2012 Aug;3(8):795-809.
Jpn J Pharmacol. 2002 May;89(1):29-35.
Nutr Metab Cardiovasc Dis. 2000 Dec;10(6):331-7.
Eur J Appl Physiol. 2005 May;94(1-2):36-45.

Blackcurrant

- Decreases symptoms of tired eyes.
- Inhibits the growth of harmful bacteria, provides anti-viral activity and alleviates allergy-driven airway inflammation.

500 mg per day
Standardized to 25% polyphenols

Altern Med Rev. 2000 Dec;5(6):553-62.
Acta Virol. 2001;45(4):209-15.

Blueberries

- Enhance cognitive performance and protect against age-related decline of memory and brain function.
- Blueberries help protect the aorta and the myocardium, and may prevent heart failure following myocardial infarction. They lower blood pressure and lipid peroxidation.

Neurobiol Aging. 2007 Aug;28(8):1187-94.
Rejuvenation Res. 2008 Oct;11(5):891-901.
J Med Food. 2005;8(1):8-13.
PLoS One. 2009 Jun 19;4(6).
J Agric Food Chem. Epub 2011 Nov 29.

Blueberries

- They have also been found to improve insulin resistance and glucose control in pre-clinical models.
- In the laboratory, blueberry induced self-destruction among oral, breast, colon, and prostate cancer cells.

250 to 500 mg per day
Standardized to 25 to 50% polyphenols

J Agric Food Chem. Epub 2011 Nov 29.
J Nutr. 2009 Aug;139(8):1510-6.
J Agric Food Chem. 2006 Dec 13;54(25):9329-39.

Cherries - Sweet & Tart

- Potent cardiovascular, antidiabetic and anti-inflammatory effects.
- 2012 study found tart cherry intake reduced gout attacks by **35%**.
- Tart cherries have also been found effective in suppressing inflammation-induced pain.
- Reduces blood levels of triglycerides, cholesterol, glucose, and insulin, as well as the amount of cholesterol stored in the liver.

J Nutr. 2003 Jun;133(6):1826-9.
Biochem Biophys Res Commun. 1995 Sep 25;214(3):755-9.
Arthritis Rheum. Epub 2012 Sep 28.
Behav Brain Res. 2004 Aug 12;153(1);181-8.
N Engl J Med. 2000 Mar 23;342(12):836-43.

Sweet & Tart Cherries

- Provide perillyl *alcohol*—shown to prevent development, or limit progression, of several cancer types.
- Anthocyanins and cyanidin supplements from cherries were fed to mice with a genetic susceptibility to colon cancer:
  - Fewer tumors developed than those who did not receive the cherry-based supplement.

500 to 1200 mg per day
Standardized to 50% polyphenols

Oncology. 2006;70(1):13-8.
Breast Cancer Res Treat. 2004 Apr;84(3):251-60.
Cancer Lett. 2006 May 18;236(2):222-8.
Cancer Lett. 2003 May 8;194(1):13-9.

Elderberry

- Natural anti-viral activity:
  - A placebo-controlled, double-blind study showed it reduced the duration of the flu to as little as 2-4 days.
  - In lab studies, elderberry was found to bind to H1N1 swine flu virus, blocking its ability to infect host cells—exhibiting certain activity comparable to that of Tamiflu.
  - In cell culture studies shown to be effective against at least 10 different strains of influenza.

Eur Cytokine Netw. 2001 Apr-Jun;12(2):290-6.
J Altern Complement Med. 1995;1(4):361-9.
Phytochemistry. 2009 Jul;70(10):1255-61.

Elderberry

- Reduces fat and cholesterol oxidation.
- Significantly protecting endothelial cells against oxidative stress.

500 to 1200 mg per day
Standardized to 50% polyphenols

J Physiol Biochem. 2009 Sep;65(3):297-304.
Free Radic Biol Med. 2000 Jul 1;29(1):51-60.
Appl Physiol Nutr Metab. 2012 Jun;37(3):472-9.

Grapes

- Block the proliferation of prostate, colon, leukemia, and other cancer cells.
- Prevent platelet aggregation, LDL oxidation, high blood cholesterol, reduce fatty streaks in the aorta, minimize inflammation and prevent decreased blood flow to the brain.
- Seeds act as ACE inhibitors, lowering blood pressure (-6/-4).

J Nutr. 2003 Jul;133(7 Suppl):2440S-3S.
Thorax. 2004 Nov;59(11):981-5.
Chin Med J (Engl.). 2006 Mar 5;119(5):417-21.
Food Chem Toxicol.2010 Mar;48(3):903-9.
Int J Mol Med. Epub 2012 Oct 1.

Grapes

- Grapes may help combat Parkinson's, Alzheimer's, and other neurodegenerative diseases.
- In an animal model of Parkinson's, whole grape extract was shown not only to preserve motor function, but to extend the life span.

150 to 300 mg per day (whole)
Standardized to 50% polyphenols

J Alzheimers Dis. 2010;22(2):653-61.
Rejuvenation Res. 2009 Oct;12(5):321-31.

Pomegranate

- Reduces arterial plaque, lowers blood pressure and improving blood lipid profiles.
- Reduces adverse effects caused by metabolic syndrome.
- Initiates apoptosis (programmed cell death) and inhibits the proliferation of prostate, lung, colon, and other cancers.
- Consuming pomegranate slowed the rising levels of prostate-specific antigen (PSA) in prostate cancer patients.

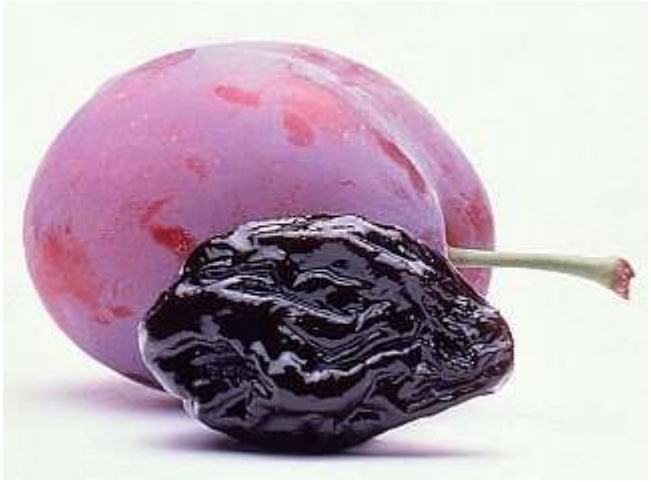
Proc Natl Acad Sci USA. 2005 Oct 11;102(41):14813-8.
Clin Cancer Res. 2006 Jul 1;12(13):4018-26
Clin Nutr.2004 Jun;23(3):423-33.
Atherosclerosis. 2001 Sep;158(1):195-8.
Food Funct. Epub 2012 Oct 12.

Pomegranate

- This amazing fruit:
  - Reduces inflammation.
  - Enhances drug antibacterial activity.
  - Suppresses inflammation and joint damage in rheumatoid arthritis.
  - Supports the skin's underlying structure.
  - Lowers the production of collagen-degrading enzymes, resulting in younger-looking skin.

500 mg per day
Standardized to 30% polyphenols

J Nutr Biochem. 2009 Jul 17.
Food Chem Toxicol. 2012 Sep 11;50(12):4302-9.
Nutrition. 2008 Jul-Aug;24(7-8):733-43.
Ethnopharmacol. 2006 Feb 20;103(3):311-8.



Prunes (Common or European Dried Plum)

- According to a 2011 review, the prune is the fruit that is the *most* effective at both preventing and reversing bone loss in part due to suppressing the rate of bone turnover.
- Prunes have also been shown to improve the body's ability to absorb iron.

Br J Nutr. 2011 Sep;106(6):923-30.
Br J Nutr. 1987 May;57(3):331-43.

Prunes

- In rats, prune consumption produced changes in the bowel that suggest a protective effect against colon cancer.
- In obese rats, extract of plum also reduced blood levels of glucose and insulin, and increased insulin sensitivity.

100 mg per day
Standardized to 50% polyphenols

Nutr Cancer. 2005;53(1):117-25.
Biomed Res. 2005 Oct;26(5):193-200.

Raspberry

- Rich source of ellagic acid, a well-known antioxidant.
- Scientists recently established that ellagic acid suppresses oxidative stress and inflammation
- This may provide a useful dietary supplement to decrease the characteristic changes associated with metabolic syndrome.
- Also, findings suggest that moderate consumption of raspberry juices helps prevent the development of atherosclerosis through improved antioxidant status and serum lipid profiles.

Drug Metab Dispos. 2011 Sep;39(9):1680-8.
J Agric Food Chem. 2012 Feb 8;60(5):1167-74.
Eur J Nutr. Epub 2012 Apr 27.

Raspberry

- Protect against DNA damage in colon cancer cells, and inhibit colon cancer invasion.
- Induces cancer cell death for oral, breast, cervical, and prostate cancers (in the lab).

500 mg per day
Standardized to 50% polyphenols

Int J Mol Sci. 2008;9:327-41.
J Carcinog. 2007 April 18;6:4.
J Agric Food Chem. 2008 May 14;56(9):3016-23.
J Agric Food Chem. 2006 May 31;54(11):3773-8.
Food Funct. 2011 Jul;2(7):400-5.

Strawberry

- Shown to inhibit the growth of oral, colon, prostate, liver *and* breast cancers.
- Researchers confirmed in 2012 that, although eating more berries may reduce cognitive decline in elderly humans, flavonoid-rich blueberries and strawberries offer the most benefit.
- Reduce the formation of unwanted blood clots, which may help prevent heart attack and stroke, lower total and LDL cholesterol, improve lipid peroxidation, and decrease biomarkers of atherosclerosis.

J Agric Food Chem. 2008 Feb 13;56(3):670-5.
J Agric Food Chem. 2003 Nov 5;51(23):6887-92.
Am J Alzheimers Dis Other Demen. 2012 Aug;27(5):358.
Blood Coagul Fibrinolysis. 2005 Oct;16(7):501-9.
Int J Food Sci Nutr. 2012 May;63(3):353-7.

Strawberry

- Strawberries favorably affect postprandial inflammation and insulin sensitivity.
- In a compelling study, overweight humans were given either a strawberry drink or a placebo drink following a high carbohydrate, moderate fat meal.
- The strawberry group showed lower levels of biomarkers for inflammation and a reduction in postprandial insulin response.

Usually provided in elixir
Standardization NA

Br J Nutr. 2011;106:913-22.

Thank You!

- www.lef.org/LWG300W
- 1-800-226-2370

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  - Live Thursdays 3PM ET
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  - www.HealthyTalkMD.com

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