University of Michigan Health System
University of Michigan Integrative Medicine

Healing Foods Pyramid™

Dark Chocolate is included in the Healing Foods Pyramid™ as part of a balanced, whole foods, plant-based diet. This Food Pyramid emphasizes foods that nourish the body, sustain energy over time, contain healing qualities and essential nutrients, and support a sustainable environment.

What are the recommended servings per week?

- Up to 7 ounces per week, average 1 ounce per day

Why choose dark chocolate?

- Contains flavonoids called procyanidins & epicatechins; flavonoids are part of a group of antioxidants known as polyphenols and are found in a variety of foods including dark chocolate, tea, red wine, and various fruits and vegetables
- Decreases LDL ("bad") cholesterol oxidation
- Reduces the risk of blood clots
- Increases blood flow in arteries and the heart
- May lower high blood pressure
- Cocoa may have a beneficial effect on cholesterol levels because it consists mainly of stearic acid and oleic acid. Stearic acid is a saturated fat, but unlike most saturated fatty acids, it does not raise blood cholesterol levels. Oleic acid, a monounsaturated fat, does not raise cholesterol and may even reduce it.
- May improve mood and pleasure by boosting serotonin and endorphin levels in the brain
- Regular intake is associated with better cognitive performance in the elderly
Contains a number of minerals, including calcium, magnesium, and potassium

What is chocolate?

Chocolate is made using beans harvested from the cocoa tree, *Theobroma cacao*. The beans are removed from their pod, fermented, dried, roasted and then ground to produce a cocoa mass or cocoa liquor. Cocoa liquor can be pressed to yield cocoa butter and cocoa cake which is ground up into cocoa powder. Cocoa liquor can also be combined with cocoa butter, sugar, vanilla, (and milk, in milk chocolate) to make chocolate.

What is dark chocolate?

Dark chocolate is also known as "bittersweet" or "semisweet" chocolate. It contains a high percentage (≥ 60%) of cocoa solids, and little or no added sugar. Dark chocolate has a rich, intense flavor, and is found in chocolate bars, candies and baking chocolate.

What qualities should you look for in dark chocolate?

- ≥ 60% cocoa
- Made from cocoa butter instead of fats such as palm and coconut oils. Although cocoa butter does contain significant amounts of saturated fat in the form of stearic acid, it has been shown to have a neutral effect on cholesterol unlike the saturated fat in both palm and coconut oils.
- Made without the use of 'hydrogenated' or 'partially hydrogenated' oils, which are known to negatively impact cholesterol.
- Darker is better: *phytochemicals*, like *flavonoids*, contribute to pigment. More flavonoids means darker chocolate and potentially greater health benefits.
- Chocolate is only as good as its ingredients; look for dark chocolate made from organic or fairly traded cocoa beans (Find a list of fair trade certified chocolate producers at: http://www.transfairusa.org/)

Special Considerations: Milk vs. Dark Chocolate:

- Milk binds to *antioxidants* in chocolate making them unavailable; therefore, milk chocolate is not a good antioxidant source
- To get the benefits of antioxidants, avoid drinking milk with dark chocolate
- White chocolate contains no cocoa solids and therefore is not a good source of antioxidants

Chocolate: Comparisons of Antioxidant Activity and Cocoa Content

<table>
<thead>
<tr>
<th>Listed from highest level of antioxidant activity to lowest level</th>
<th>Percentage of Cocoa (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocoa Powder</td>
<td>~ 88-96</td>
</tr>
<tr>
<td>Dark Chocolate/ Baking Chocolate</td>
<td>~ 45-80</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Milk Chocolate</td>
<td>~ 5-7</td>
</tr>
<tr>
<td>White Chocolate</td>
<td>~ 0</td>
</tr>
</tbody>
</table>

What are the health concerns of chocolate?

Caffeine

There are measurable amounts of caffeine in dark chocolate; individuals who are sensitive to caffeine should be aware of this when considering adding dark chocolate to their diet.

Kidney Stones

Chocolate contains oxalates which can lead to an increase in urinary oxalate excretion. Increased urinary oxalate increases the risk of kidney stone formation. As a result, those individuals prone to developing kidney stones should reduce their intake of oxalate from food - including chocolate - as a way to reduce urinary oxalate.

Migraine Headaches

Dark chocolate, which contains a natural chemical, tyramine, is thought to trigger migraines although the data is inconclusive. Not all individuals who suffer from migraines are sensitive to tyramine. Individuals who suffer from migraines may consider experimenting to determine if dark chocolate is a trigger for them.

Ideas for Healthy Dark Chocolate Consumption

1. High-quality chocolate contains a high percentage of cocoa solids (~ 60 %). It is brown or dark brown in color, and is glossy. Avoid purchasing chocolate that has a grayish tone, white spots on the surface, or small holes.
2. A small portion of high quality dark chocolate is recommended. Be aware, dark chocolate is high in calories and fat, so consume sparingly.
3. To avoid overindulging in dark chocolate, eat it after you have enjoyed a nice lunch or dinner.
4. Have a piece of fruit prior to dark chocolate to help satisfy your sweet craving.
5. Take your time- dark chocolate is rich and has complex flavors, eat it slowly and mindfully to increase enjoyment.
6. Try dipping fresh fruit in melted dark chocolate for a divine dessert- Mmmmm.
7. Buy Local: see if your town has a Chocolatier. Buying high quality dark chocolate can be a delicious way to support local artisans.
Resources

Caffeine: How does it Affect Blood Pressure?
Mayo Clinic
www.mayoclinic.com
Accessed June 15, 2009

Candies, semisweet chocolate
USDA Agricultural Research Service – Nutrient Data Laboratory
http://www.nal.usda.gov/fnic/foodcomp/search/
Accessed June 15, 2009

Chocolate
British Nutrition Foundation
www.nutrition.org.uk
Accessed June 15, 2009

Chocolate’s Dark Secret
WebMD Website
http://my.webmd.com
Accessed June 15, 2009

Dark Heart Healthy Chocolate
WebMD Website
http://my.webmd.com
Accessed June 15, 2009

How much caffeine is in your daily habit?
Mayo Clinic
www.mayoclinic.com
Accessed June 15, 2009

Inventory of the health and nutrition attributes of cocoa and chocolate:
December 2005
International Cocoa Organization
www.icco.org/questions/nutrition.htm
Accessed July 1, 2009

Tips for avoiding migraine headache triggers
WebMD Website
www.webmd.com
Accessed July 1, 2009

Original Research and Review Articles


The Healing Foods Pyramid™ was created by the Nutrition Education Team at the University of Michigan Integrative Medicine, Department of Family Medicine in 2005 and updated in 2009.

Back to top

© copyright 2014 Regents of the University of Michigan - University of Michigan Integrative Medicine
For questions and licensing information please call Dr. Sara Warber at 734-998-7120 x 260 or email umim-hfp@umich.edu.

University of Michigan Health System, 1500 E. Medical Center Drive Ann Arbor, MI 48109 734-936-4000
© copyright 2014 Regents of the University of Michigan / Template developed & maintained by: Public Relations & Marketing Communications.
Contact UMHS

The University of Michigan Health System Web site does not provide specific medical advice and does not endorse any medical or professional service obtained through information provided on this site or any links to this site.
Complete disclaimer and Privacy Statement