

# Preventive Cardiology Clinic

NEWSLETTER

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## CT Imaging For The Early Detection of Coronary Artery Disease: The Coronary Artery Calcium Score

**ROGER ASHMORE, M.D., F.A.C.C.**

Evaluation of risk factors has been the traditional method for estimating risk of future cardiovascular events in asymptomatic patients who have never had chest pain symptoms, a heart attack or required procedures such as bypass surgery or angioplasty and coronary stents. The Framingham risk score incorporates a person's age, sex, cholesterol levels, presence/absence of high blood pressure, diabetes and tobacco use into a model and estimates a person's 10-year risk of developing clinically active coronary heart disease (heart attack, sudden death, or symptoms/angina requiring therapy). The Framingham risk score however, only does a mediocre job predicting risk in the individual patient or who is actually going to develop active disease. Unfortunately, fifty percent of heart attacks occur in previously asymptomatic patients and 1/3 of these will be fatal. One recent study found that 75% of previously asymptomatic patients presenting with a heart attack would not have met criteria for aggressive medical therapy if they had

been evaluated in the days before their heart attack. Blood tests such as advanced cholesterol testing and C-reactive protein levels (CRP) are now available that help predict who may be at risk but also have limitations. If the actual presence or absence of coronary artery disease could be determined before symptoms develop then therapy could be targeted to those individuals who have documented coronary artery disease and are at highest risk.

If a person develops coronary artery disease during their lifetime, calcium is deposited in the vessel wall as part of the atherosclerotic disease process. Within the past decade, specialized CT images (or 'cat scans') of the heart have been able to document the presence or absence of this coronary artery calcium. The amount of coronary calcium present correlates well to the overall amount of coronary artery plaque (atherosclerosis). This is important because coronary artery calcium is detectable in the majority of patients who have a heart attack. Many

studies are also showing the higher the amount of coronary artery calcium present, the higher a person's future risk of heart attack is. Importantly, the absence of detectable coronary artery calcium places a patient at very low risk of future heart attack over the next few years. The coronary artery calcium score can help the patient and their care provider plan effective preventive strategies. If significant coronary artery calcium is detected, the good news is that in addition to a heart healthy lifestyle, medications can effectively and safely lower a person's future risk of having a heart attack. The CT exam is completely noninvasive (no intravenous medications), takes less than 5 minutes to complete and involves a relatively low dose of radiation.

If you would like to know more information regarding CT imaging of the heart for coronary artery calcium scoring, please contact a health care provider at the Heart Center of the Rockies.

# Be Sweet to Your Heart

JENIFER BOWMAN, MS, RD

Yes. Chocolate is good for your heart. But so are carrots, bran muffins and tofu. Just the word chocolate makes us think of something forbidden. Since the fat and calorie content of chocolate are high compared to other nutritious foods, it is often viewed as an unhealthy food that can't possibly be good for anything, especially your heart. Looking deeper at the nutrient and chemical composition of chocolate, there is more to the story. . . .

Chocolate is high in fat and saturated fat; a 1.4oz milk chocolate bar has 13gm total fat and 7gm saturated fat, but it is a less harmful plant fat. Remember chocolate comes from a bean, the cocoa bean. Cocoa butter is the naturally occurring fat found in cocoa beans and is comprised of several different fatty acids. Stearic acid and palmitic acid are saturated fats, oleic acid is a monounsaturated fat and linoleic acid is a polyunsaturated fat. Stearic acid in particular is an unusual saturated fatty acid in that it does not raise blood cholesterol levels to the same extent as other saturated fatty acids, which are mostly from animal sources. This can be explained somewhat by the fact that after absorption, stearic acid is rapidly converted by the body to oleic acid, a monounsaturated fat which can actually improve blood cholesterol levels.

Chocolate is very concentrated in a type of antioxidant called flavonoids. Antioxidants are usually associated with fruits and vegetables. Flavonoids

are also found in red wine, tea (both green and black), oat bran, apples and blueberries just to name a few. The primary class of flavonoid in cocoa and chocolate is flavanols. Several research studies have looked at the effect of flavanols on cardiovascular health. These studies have found flavanols from chocolate to decrease inflammation, reduce platelet activity, improve immune function, and expand arteries, which increases blood flow. All of this is good news for decreasing risk for heart disease. Dark chocolate is more concentrated in flavanols than milk chocolate because milk chocolate has been "diluted" with milk.

Chocolate has a potent antioxidant capacity when compared to other foods such as garlic or blueberries. Antioxidants are important for good health, but nobody knows the exact daily amount required per person. Researchers at Cornell University have shown that hot cocoa contains more antioxidants per cup than a similar serving of red wine or tea. Hot cocoa is lower in fat and calories than chocolate bars. If you are concerned about the amount of sugar in hot cocoa mixes, try a sugar free variety and make it with skim milk or soymilk for a low fat calcium boost. You can drink cocoa either hot or cold, but hot cocoa releases more antioxidants than what is found in cold chocolate milk.

The cocoa bean contains several minerals, some of which are found in high amounts in processed chocolate. In particular calcium, magnesium,

potassium and copper all play a role in preventing high blood pressure.

Now this great news about the health benefits of chocolate doesn't mean I want you to eat dark chocolate bars from dawn to dusk, but to realize that the nutrient content of some foods is more important than the obvious fat and calorie content. A wide variety of foods, especially plant based foods that are rich in vitamins, minerals, fiber and antioxidants are helpful for lowering cholesterol, blood pressure and reducing overall risk for heart disease. That's all for now, I'm off to work on some ideas for chocolate covered tofu.

## Dark Chocolate Dipped Apricots

- 8oz dark chocolate (chocolate chips or squares)
- 16oz sun dried apricots (no sugar added)

Melt chocolate in microwave-safe dish (about 2 minutes, stir after 1 minute and at the end). Holding one apricot at a time, dip half of the apricot in melted chocolate. Cool on waxed paper in the refrigerator or freezer. Store in refrigerator until 30 minutes before serving. Makes 16 servings (1 serving: 4 dipped apricots).

Nutrition Facts per serving: 143 calories, 4.8gm fat, 2.8gm saturated fat, 1gm protein, 26gm carbohydrate, 419mg potassium, 1276IU vitamin A, 1.4mg iron, 0mg sodium, 3.6gm fiber



For more information call (970) 221-1000, (800) 459-4241, or visit [www.heartcenteroftherockies.com](http://www.heartcenteroftherockies.com)

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