

A little of what you fancy does you good: or great news about chocolate

[John Livesey](#) PhD
Scientific Officer
[Department of Endocrinology](#)
[Christchurch Hospital](#)
New Zealand

Chocolate is not only delicious but now seems to be good for you, in fact very good for you. Long regarded as seductive but highly calorific and guilt-inducing junk-food, chocolate in fact appears to have remarkable health benefits according to recently published Dutch research¹. Four hundred and seventy healthy elderly men living in Zutphen were studied in 1985 and again in 1990 and 1995 to examine the relationship between their diet and their health. Their average age at the start of the study was 72 and by the year 2000 67% of them had died. From the men's food diaries the researchers calculated their cocoa intake (from all cocoa-containing foods) and noted what these foods were. One third did not eat any cocoa-containing food, the intake of the middle third was 0.9 grams of cocoa per day on average and the third who consumed the largest amounts of cocoa had an average intake of 4.2 grams of cocoa per day.

The most remarkable finding of the study was that the one third of men who consuming the largest amounts of cocoa had a 45 to 50% lower death rate than did the one third who consumed no cocoa. Going along with this, the high cocoa group was also found to have a similarly marked reduction in their death rates from heart disease.

Remarkably, this dramatic reduction in the death rate was seen despite the large majority of the cocoa being eaten in the form of foods high in saturated fat and sugar. More than half of the cocoa consumed was as plain or nut chocolate (28% dark, 22% milk, 3% with nuts) with significant contributions from chocolate confetti sandwich filling (15%), chocolate candy bars such as Bounty Bars and Mars Bars (10%) and boxed chocolates (2%). Of lower fat foods, desserts contributed 5% and cocoa drinks 4%. Only 6% was consumed as cocoa itself.

A further pleasantly surprising feature of the research findings was just how little chocolate was needed to obtain this major reduction in mortality. The four grams or so of cocoa consumed per day by the top third of the men is equivalent to about 13 grams of a dark chocolate containing about 47-48% cocoa solids (for example Whittaker's *Dark Block*, Trade Aid *Dark Chocolate*^{*}) or to about 6 grams of a chocolate containing 70% or more cocoa solids (Whittaker's *Dark Ghana* or Lindt *Excellence Dark 85% Cocoa*). In other words, it amounts to about one or two squares, maybe three, of typical chocolate blocks.

Were the high chocolate consumers heavier? Again the answer is a welcome surprise. They were in fact just a little lighter, the top third of consumers having a body mass index (BMI) of 25.3 whereas the third who never touched cocoa-containing products had a BMI of 25.9. This was despite the high consumers eating in total more calories per day (2400 compared to 2100) while apparently not exercising more, raising the possibility that modest amounts of cocoa increase the basal metabolic rate.

The beneficial effects of eating all this cocoa-containing confectionery did seem to be specifically due to the cocoa content since the level of consumption of sugar confectionery in general was not found to be related to cardiovascular mortality.

Since it was discovered in 1996 that chocolate contained phenolic compounds variously known as polyphenols, flavanols or catechins, there has been considerable interest in its possible health benefits. Chocolate and cocoa have been shown to lower blood pressure (as was also found in the study described above), to improve the efficiency of insulin action and to have anti-inflammatory properties. Very recently it has been reported that the consumption of a cocoa drink for twelve weeks significantly decreases the amount of damage done to human skin by ultraviolet light².

Chocolate is principally composed of cocoa, cocoa butter and sugar. The first two both come from the cocoa bean, the cocoa butter being the fatty portion and the cocoa the non-fat portion. Because the polyphenols are water soluble it is generally assumed that most of the health benefit comes from the cocoa part whereas the cocoa butter contributes only calories and saturated fat, both probably relatively undesirable. Assuming this is true, to maximise the health benefits of chocolate while minimising the number of calories consumed it is preferable to eat chocolate that contains a high proportion of cocoa. The better manufacturers state on their labels the percentage of cocoa solids in their chocolate, for example 48% for Trade Aid's *Dark Chocolate** and 85% for Lindt *Excellence Dark 85% Cocoa*. This figure however includes both the cocoa and the cocoa butter fractions and so does not give the actual proportion of cocoa in the chocolate. However higher percentages of cocoa mass will usually indicate a higher proportion of cocoa.

Another way to compare chocolate bars for cocoa content is to use the proportion of protein per 100 grams (this is stated on the nutritional information label). As neither cocoa butter nor sugar contain protein but cocoa itself is about 19% protein, the more protein in a chocolate bar the more cocoa there is likely to be. Different cocoas and chocolate can vary in polyphenol content too, but this information is not readily available to the consumer except insofar as since polyphenols taste bitter, the more bitter the chocolate is, the more polyphenols it probably contains.

Anyone concerned though about their caloric intake might instead wonder whether they could get their polyphenols from cocoa powder, which has a much lower fat and sugar content than chocolate. Unfortunately, getting your polyphenols from a nice cup of hot cocoa is complicated by the fact that most cocoa powder sold in New Zealand is treated with alkali (so called "Dutching") to make it less acidic, to darken it and to give it a more chocolatey flavour. The problem with Dutching is that it destroys most of the polyphenols in the cocoa. Cadbury's, Pam's, Valrhona and Camino cocoa are all Dutched, tho' Camino is less so than the other three. The only retail source of natural cocoa I have found so far in New Zealand is a Peruvian cocoa from [Piko Wholefoods](#). It is not advertised as natural, but it is pale in colour and it's pH in water is less than 6 (Dutched cocoa has a pH of 7 or above).

In summary, two squares per day of dark chocolate, the darker the better, may very well improve your health as well as being a delicious treat. And the number of calories in two squares of dark chocolate is not large either, only about 60 calories in the case of Whittakers *Dark Ghana* for example, or around 3% of daily calories. Or have a cup of natural cocoa daily

Note: all products named are vegan (apart from Bounty Bars and Mars Bars), those marked * are Fairtrade

References

1. [Buijisse B. et al.](#) *Archives of Internal Medicine* 166:411 (2006).
2. [Heinrich U. et al.](#) *Journal of Nutrition* 136:1565-9 (2006).

Porphyry's People [home page](#). NZT: 18/Jan/08 23:45:16. GMT: 18/Jan/08 10:45:16.