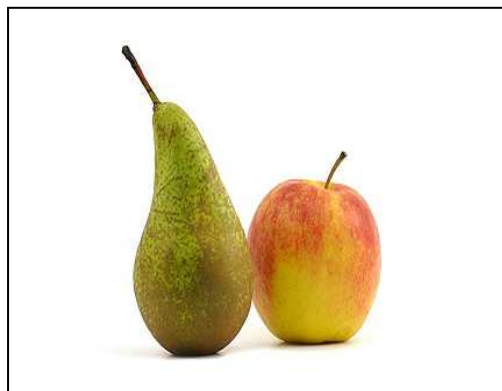


White Fruit (apples, pears) May Reduce the Risk of Strokes by 50%

By Golam Kibria, Ph.D; October 2011

Key points: Dutch study found that eating a lot of fruits and vegetables with white flesh may protect against stroke, in particular apples and pears containing high in dietary fibre and a flavonoid called quercetin.

Dutch researchers found that eating a lot of fruits and vegetables with white flesh may protect against stroke—a recent research results published in the *Journal of the American Heart Association* (25 September 2011; Griep *et al.* 2011). They found that colour of the edible portion of fruits and vegetables reflect the presence of beneficial bioactive phytochemicals such as carotenoids and flavonoids. The study is based on a 10-year stroke incidence in a population-based study of 20,069 men and women, with an average age of 41 (range 20-65 years). The participants were free of cardiovascular diseases at the start of the study and completed a 178-item food frequency questionnaire for the previous year.



Researchers examined the link between fruits and vegetable colour group. Fruits and vegetables were classified into four colour groups such as green, orange/yellow, red/purple, and white fruit and vegetable (Table 1). They found that green, orange/yellow, and red/purple fruits and vegetables were not related to incident stroke, whereas the risk of stroke incidence was 52 percent lower for people with a high intake of white fruits and vegetables compared to people with a low intake. Each 25 gram per day increase in white fruits and vegetable consumption was associated with a 9 percent lower risk of stroke (an average apple is 120 grams). Apples and pears (hard fruits) were the most commonly consumed white fruit and vegetables and were found inversely related with incidence stroke. Other previous prospective cohort studies also found that apples and pears were inversely related to incident stroke (see Keli *et al.* 1996; Knekt *et al.* 2000; Knekt *et al.* 2002; Mink *et al.* 2007). Apples and pears are high in dietary fibre and a flavonoid called quercetin.

Table 1: Classification of fruits and vegetables according to colour groups [Griep *et al.* 2011].

Colour group	Fruit and vegetable subgroup	Proportion of subgroups to colour group	Fruit and Vegetable
Green	Cabbages	18%	Broccoli, brussels sprouts, and green cabbages (Chinese, green, oxhear, sauerkraut, savoy, white)
	Dark green leafy vegetables	15%	Kale and spinach
	Lettuces	13%	Endive and lettuce
	Other green fruits and vegetables	54%	French beans, green sweet pepper, honeydew melon, and kiwi fruit
Orange /yellow	Citrus fruits	78%	Citrus fruit juices, grapefruit, orange, and tangerine,
	Deep orange fruits and vegetables	22%	Cantaloupe, carrot, carrot juice, and peach
Red/purple	Berries	41%	Cherries, grapes, grape and berry juices, and strawberries
	Red vegetables	59%	Red beet, red beet juice, red cabbage, red sweet pepper, tomato, tomato juice, and tomato sauce
White	Allium family bulbs	10%	Garlic, leek and onion
	Hard fruits	55%	Apples and pears, apple juice
	Other white fruits and vegetables	35%	Banana, cauliflower, chicory, cucumber, and mushroom

Since other fruits and vegetable colour groups may protect against other chronic diseases, therefore it essential to consume a lot of fruits and vegetables. Though this initial study results are promising but it may be necessary to conduct some additional research to confirm the validity of this findings.

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