Researchers find link between blueberries, grapes and apples and reduced risk of type 2 diabetes

August 29 2013

Eating more whole fruits, particularly blueberries, grapes and apples, is associated with a lower risk of type 2 diabetes, with greater fruit juice consumption having an adverse effect, a paper published today in *BMJ* suggests.

Increasing fruit consumption has been recommended for the prevention of many chronic diseases, including type 2 diabetes. However, studies have generated some mixed results.

Researchers from the UK, USA and Singapore therefore looked to examine the association of individual fruit consumption in relation to type 2 diabetes risk. Data were used from three prospective cohort studies among US adults: the Nurses' Health Study (NHS 1984 – 2008), the Nurses' Health Study II (NHS II 1991-2009) and the Health Professionals Follow-up Study (HPFS 1986 – 2008).

There were 187,382 participants totalling 3,464,641 years of follow-up. The study included both men and women (151,209 women and 36,173 men). Participants who reported a diagnosis of diabetes, cardiovascular disease or cancer at baseline were excluded.

Ten individual fruits were used in the study: grapes or raisins; peaches, plums or apricots; prunes; bananas; cantaloupe; apples or pears; oranges; grapefruit; strawberries; blueberries. Fruit juice included apple; orange;

grapefruit and other fruit juices. Food frequency questionnaires were used every four years to assess participants' habitual diet, asking how often, on average, they consumed each food in a standard portion size. Participants could choose from nine possible responses, ranging from "never, or less than once per month" to "six or more times per day".

Information was gathered on participants' body height and weight, cigarette smoking, physical activity, multivitamin use and family history of diabetes. Information for women was collected on menopausal status, post-menopausal hormone use and oral contraceptive use.

Results showed that 12,198 out of 187,382 (6.5%) participants developed diabetes

Total whole fruit consumption correlated positively with age, physical activity, multivitamin use, total energy intake and fruit juice consumption. Three servings per week of blueberries; grapes and raisins; apples and pears significantly reduced the risk of type 2 diabetes.

In contrast, greater consumption of fruit juice was associated with increased type 2 diabetes risk. Substitution of whole fruits for fruit juice was associated with a lower risk, except strawberries and cantaloupe melon.

Results showed that 12,198 out of 187,382 participants developed diabetes so the overall risk in the populations studied over many years was 6.5%. Among those who had three servings per week of individual whole fruits rather than fruit juice the overall risk was itself reduced by 7%.

Replacing three servings per week of fruit juice with individual whole fruits reduced the risk of type 2 diabetes by 7%.

The researchers conclude that there is a significant difference in the associations between individual fruits and the risk of type 2 diabetes and that greater consumption of specific whole fruits "particularly blueberries, grapes and apples was significantly associated with lower type 2 diabetes risk whereas greater fruit juice consumption was associated with a higher risk". They say the results support recommendations to increase the consumption of a variety of whole fruits as a measure for diabetes prevention.

Provided by British Medical Journal