



Public Health
England

Protecting and improving the nation's health

External reference group – 5 A Day logo

Paper for information: 'Progress on rapid review of fruit juice and fruit and vegetable consumption'.

Agenda item: 6

Please see attached paper for information.

‘Rapid review on fruit juice and fruit and vegetable consumption’ – update on progress

Background – fruit juice

1. A review of the evidence on fruit juice consumption and cardiovascular disease was requested in order to assess the relationship between fruit juice and health since the 5-a-day message was accepted.

Literature search

2. A literature search was performed in PubMed to identify prospective cohort studies and randomised controlled trials which assessed the relationship between fruit juice intake and cardiovascular disease and markers for disease risk. The risk markers included were blood pressure, total cholesterol, LDL cholesterol, HDL cholesterol, triacylglycerol and vascular function. No start date was specified for the search, which was conducted up to the middle of November 2014.
3. The search was performed using a set of terms adapted from published systematic reviews to increase the likelihood of capturing the available evidence, but it is important to note that this exercise is not intended to be a systematic review.

Inclusion and exclusion criteria

4. Studies were included if they met the following criteria:
 - prospective cohort studies
 - randomised controlled trials
 - included an appropriate control group
 - published in English
 - conducted in humans
 - participants are healthy or at increased risk of disease
 - investigated fruit juice including tomato juice, as tomatoes are considered as a fruit
 - the endpoint was cardiovascular disease or markers for disease risk such as total cholesterol, LDL, HDL, TAG, blood pressure and vascular function
5. Studies were excluded for the following reasons:
 - ecological, cross sectional, case control studies, case reports or animal studies
 - if trials did not state that participants had been randomly allocated to the intervention group.
 - subjects with cardiovascular, lung, liver, diabetes mellitus, kidney or any other chronic disease.
 - use of fruit juice powder
 - fruit cordial/squash
 - vegetable or a combination of fruit and vegetable juice

- the effect of fruit juice alone could not be ascertained, eg, RCTs that compared one fruit juice with another, fruit juice fortified with sterols or other components or if the studies included multi-component interventions

Result of search

6. In total, three prospective cohort studies and 13 RCTs were identified that met the inclusion criteria.
7. The evidence is currently being assessed and a paper detailing the findings will be provided for the next meeting.
8. A systematic review of trials exploring the effect of fruit juice consumption on blood cholesterol and blood pressure, which was published in 2013, was identified. However, this paper included studies in people with pre-existing disease and studies using reconstituted dried fruit juice; therefore, it was not used as a primary source of evidence for this review.

Background- fruit and vegetables

9. A review of the evidence to determine if there were any grounds for setting specific portion size for children in terms of fruit and vegetable consumption was undertaken.

Literature search

10. A literature search was performed in PubMed to identify studies that assessed the intake of fruit and vegetables during childhood and adolescence and subsequent cardiovascular risk in adulthood.
11. The same cardiovascular search terms were used as for the fruit juice literature search and terms for fruit and vegetables were taken from published reviews.
12. No start date was specified for the search, which was conducted up to the middle of November 2014.

Inclusion and exclusion criteria

13. Studies were included if they met the following criteria:
 - prospective cohort studies
 - randomised controlled trials (unlikely to be identified given the nature of the question)
 - published in English
 - conducted in humans
 - participants are healthy or at increased risk of disease
 - conducted in children and adolescents up to the age of 18 years.

14. Studies were excluded for the following reasons:

- ecological, cross sectional, case control studies, case reports or animal studies
- subjects with cardiovascular, lung, liver, diabetes mellitus, kidney or any other chronic disease.
- studies conducted in adults

Result of search

15. Two prospective cohort studies were identified. There were no relevant randomised controlled trials found in the search.

16. It will subsequently be considered whether these two studies represent sufficient evidence to answer the question.

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