Intake of whole apples or clear apple juice has contrasting effects on plasma lipids in healthy volunteers - DTU Orbit (19/01/2019)

**PURPOSE:**
Fruit consumption is associated with a decreased risk of CVD in cohort studies and is therefore endorsed by health authorities as part of the '5 or more a day' campaigns. A glass of fruit juice is generally counted as one serving. Fruit may cause protection by affecting common risk factors of CVD.

**METHODS:**
Apples are among the most commonly consumed fruits and were chosen for a comprehensive 5 × 4 weeks dietary crossover study to assess the effects of whole apples (550 g/day), apple pomace (22 g/day), clear and cloudy apple juices (500 ml/day), or no supplement on lipoproteins and blood pressure in a group of 23 healthy volunteers.

**RESULTS:**
The intervention significantly affected serum total and LDL-cholesterol. Trends towards a lower serum LDL-concentration were observed after whole apple (6.7 %), pomace (7.9 %) and cloudy juice (2.2 %) intake. On the other hand, LDL-cholesterol concentrations increased by 6.9 % with clear juice compared to whole apples and pomace. There was no effect on HDL-cholesterol, TAG, weight, waist-to-hip ratio, blood pressure, inflammation (hs-CRP), composition of the gut microbiota or markers of glucose metabolism (insulin, IGF1 and IGFBP3).

**CONCLUSIONS:**
Apples are rich in polyphenols and pectin, two potentially bioactive constituents; however, these constituents segregate differently during processing into juice products and clear juice is free of pectin and other cell wall components. We conclude that the fibre component is necessary for the cholesterol-lowering effect of apples in healthy humans and that clear apple juice may not be a suitable surrogate for the whole fruit in nutritional recommendations.

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