MD_PERELIGYN_ · GUIDE

FRUIT AND CHOLESTEROL

What human trials showed: plums, kiwi, orange and pomegranate juice, avocado, berries, grapes, persimmon and apples

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01 · MAIN POINT

ALL FRUITS IN ONE TABLE

Fruit helps cholesterol, and this was tested in human trials. Most often LDL, the “bad” cholesterol, was measured.

PLUMS AND PRUNES

RESULT LDL lower by 0.30 mmol/L (11.5 mg/dL)
dried plums or juice, 2–12 weeks · 9 comparisons

KIWI

RESULT LDL lower by 0.24 mmol/L (9.3 mg/dL)
most often 2 fruits a day, 7–36 weeks · 7 comparisons

ORANGE JUICE

RESULT LDL lower by 0.22 mmol/L (8.4 mg/dL)
250–1000 mL a day, 3–12 weeks · 9 comparisons

AVOCADO

RESULT LDL lower by 0.06 mmol/L (2.5 mg/dL)
1 fruit a day, 6 months · 1,008 people

POMEGRANATE JUICE

RESULT LDL lower by 0.12 mmol/L (4.8 mg/dL)
most often up to 300 mL a day · 19 comparisons

BERRIES WITH ANTHOCYANINS

RESULT total cholesterol lower by 0.12 mmol/L (4.5 mg/dL)
most often powder or drink, about 8 weeks · 895 people

PERSIMMON

RESULT total cholesterol lower at 3 and 5 g, LDL at 5 g
fiber from young fruit, 12 weeks · 40 people

02 · MECHANISM

WHY FRUIT MATTERS

BY THE KNOWN MECHANISM

- **1.** Soluble fiber turns into a gel in the gut.
- **2.** The gel binds bile acids and they leave the body.
- **3.** The liver makes new bile acids from blood cholesterol.
- **4.** Blood LDL goes down.

In a meta-analysis of 67 trials each gram of soluble fiber a day lowered LDL by 0.057 mmol/L (2.2 mg/dL), and pectin worked as well as oats and psyllium.

IN THE EUROPEAN UNION

The claim “contributes to the maintenance of normal blood cholesterol levels” is allowed for pectin at 6 g a day.

Two more helpers: polyphenols (anthocyanins of dark berries, tannins of persimmon) and the unsaturated fats of avocado.

03 · PLUMS AND KIWI

PRUNES AND KIWI

PLUMS AND PRUNES

dried plums and plum drinks together

LDL LOWER BY

0.30 mmol/L (11.5 mg/dL), 9 comparisons, 592 people in the review

DRIED PLUMS

0.57 mmol/L (21.9 mg/dL), 4 comparisons from 3 trials

8 WEEKS OR LONGER

0.71 mmol/L (27.3 mg/dL), 4 comparisons

PORTIONS

11.5 to 100 g of dried plums a day

KIWI

6 trials, 7 comparisons, 32 to 107 people in each

LDL LOWER BY

0.24 mmol/L (9.3 mg/dL)

BASELINE LDL ABOVE 3.4 MMOL/L (130 MG/DL)

lower by 0.37 mmol/L (14.3 mg/dL), 4 comparisons

HOW EATEN

most often 2 green kiwi a day, kiwi juice in one trial

04 · JUICE AND AVOCADO

ORANGE JUICE AND AVOCADO

ORANGE JUICE

meta-analysis of orange juice trials

LDL LOWER BY

0.22 mmol/L (8.4 mg/dL), 9 comparisons, 386 people across the trials

MORE THAN 500 ML A DAY

0.25 mmol/L (9.9 mg/dL), 3 comparisons

WHAT WAS STUDIED

the juice itself; whole oranges were not tested in these trials

AVOCADO

two trials

1,008 PEOPLE, 6 MONTHS

1 avocado a day: LDL lower by 0.06 mmol/L (2.5 mg/dL), total cholesterol by 0.08 mmol/L (2.9 mg/dL)

45 PEOPLE, 5 WEEKS EACH

avocado diet: LDL lower by 0.35 mmol/L (13.5 mg/dL); oils with the same fat profile by 0.21 mmol/L (8.3 mg/dL)

POMEGRANATE, GRAPES AND BERRIES

POMEGRANATE JUICE

meta-analysis, 19 comparisons

LDL LOWER BY

0.12 mmol/L (4.8 mg/dL)

UP TO 300 ML A DAY

0.16 mmol/L (6 mg/dL)

ALL POMEGRANATE PRODUCTS

37 trials, 2,695 people: LDL did not change, “good” cholesterol HDL rose by 0.06 mmol/L (2.5 mg/dL)

GRAPES

meta-analysis of 48 trials of grape products

RESULT

total cholesterol and LDL went down

BERRIES WITH ANTHOCYANINS

blueberry, cranberry, bilberry, blackcurrant; most often powder or drink

TOTAL CHOLESTEROL LOWER BY

0.12 mmol/L (4.5 mg/dL), 20 comparisons, 895 people

HIGH CARDIOVASCULAR RISK

0.16 mmol/L (6.1 mg/dL), 15 comparisons, 709 people

PERSIMMON AND APPLES

PERSIMMON

double-blind trial

WHO

40 adults with total cholesterol 4.7–6.7 mmol/L (180–259 mg/dL)

WHAT

bars with fiber from young fruit, 3 or 5 g three times a day before meals, 12 weeks

RESULT

total cholesterol went down at both doses, LDL at 5 g

IMPORTANT

The trial gave tannin-rich fiber from young fruit, not ripe persimmon.

APPLES

meta-analysis of 16 trials of apples and apple products

LDL

did not change significantly

AN APPLE

remains a source of pectin

07 · HOW TO USE

SIMPLE STEPS

- **Every day** fruit, and at least one from the list: a handful of prunes, 2 kiwi, one avocado, dark berries.
- **A whole fruit** keeps its fiber. Count juice as a serving of fruit, not as a drink for thirst.
- **Avocado** works well in place of butter, cheese or sausage.
- **Timing.** In plum and kiwi trials LDL went down where they were eaten for 8 weeks or longer. A lipid panel before and after 2–3 months lets you check yourself.

SUMMARY

LDL went down most with plums, kiwi and orange juice: by 0.22–0.30 mmol/L (8.4–11.5 mg/dL). Pomegranate and avocado gave a smaller drop, and berries and persimmon fiber lowered total cholesterol.

08 · WHEN TO SEE A DOCTOR

FRUIT ADDS TO YOUR DOCTOR'S PLAN

- LDL **4.9 mmol/L (190 mg/dL) or higher**.
- High cholesterol runs in close relatives.
- You have already had heart or vascular disease.
- Diabetes: agree the amount of fruit and juice with your doctor.

IMPORTANT

Fruit adds to the plan made with your doctor and does not replace it.

09 · SOURCES

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Educational material, does not replace a doctor's consultation

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