



Why learn to love your lycopene?

What is lycopene?

Lycopene is a kind of carotenoid present in many fruits and vegetables, particularly tomatoes, carrots and red capsicum. Lycopene is fat-soluble pigment, red in colour and possesses a capacity to absorb UV light.¹ It is also described as a carotenoid without pro-vitamin A activity.² It is also known by the names psi-carotene and all- trans lycopene.^{2,3}

The richest sources of lycopene are tomato products including tomato juice, tomato sauce, and cooked tomato products. Lycopene is also found in rosehips, red grapefruit, guava and watermelon.²

Bioavailability

The bio-availability of lycopene is dependent on the presence of (or bio-transformation to) a specific isomeric form. Cis- lycopene is the most bioavailable form of lycopene.³ Heating lycopene facilitates its transformation from the more commonly found trans-lycopene to the cis-lycopene form. Lycopene supplements seem to have similar bio-availability to lycopene derived from foodstuffs.⁴

Pharmacology

Lycopene prevents oxidative damage to cells. It is a potent anti-oxidant and because it travels in the blood attached to LDL cholesterol making it able to inhibit the oxidation of low density lipoproteins (LDL) in vitro.⁵ It has also been suggested that mechanisms such as modulation of cellular gap junction communication and hormonal and immune system pathways may also be involved.⁵

Clinical trials

Epidemiological studies suggest that lycopene is associated with a lower risk of heart disease and cancer.^{6,7} Further studies of lycopene levels in stomach cancer and cervical cancer indicate an association between lower levels of lycopene and cancer.^{8,9} None of these studies represents strong evidence of causation in relation to lycopene intakes and reduction of risk. Associations with other confounding risk factors have not been discounted by these trials.



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However lycopene has been the subject of very few clinical trials.

A clinical trial using 60 mg/day of lycopene in healthy subjects showed a significant reduction in cholesterol of 14% in plasma LDL cholesterol after three months.¹⁰

Increasing dietary lycopene to 16mg daily has shown an effect in decreasing the erythema of sunburn. This effect was only significant at week 10.¹¹

Epidemiological studies have demonstrated an inverse correlation between high intakes of tomato-based foods and the risk of prostate cancer.⁷

Two small studies on the use of lycopene in prostate cancer suggest that increasing lycopene intakes may decrease tumour size in prostate cancer which has not spread. It also reduces Prostate Specific Antigen levels (PSA).^{12,13}

Adverse effects

None have been noted.^{1,2,3}

Interactions

None noted.^{1,2,3}

Dosage

Recommended daily allowances of lycopene is 35mg per day which can be obtained through two glasses of tomato juice.⁵

Trials have used 16mg daily for sunburn protection and 60mg/daily for a hypocholesteraemic effect.^{10,11}

In prostate cancer 30 mg of lycopene in tomato-based products were used in both clinical trials.^{12,13}

Pregnancy

Safety has not been tested in pregnancy, however epidemiological evidence suggests normal dietary sources of lycopene is safe.

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