Lycopene with Lyc-O-Mato®

INGREDIENTS
In recent years, several studies have suggested the positive benefits of consuming vegetable and fruits rich in antioxidant nutrients. Consequently, dietary guidelines have been formulated worldwide to increase the consumption of plant-based foods that are good sources of carotenoids and other phytochemicals. Lycopene, a member of the carotenoid family, is a very powerful antioxidant. It is also responsible for the red color of many fruits and vegetables (in tomatoes but also in guavas, watermelons, apricots, and pink grapefruits). Lycopene attained GRAS (Generally Recognized as Safe) status in 2005 and was found to be safe for human consumption as a dietary supplement.

Lycopene with Lyc-O-Mato® is a highly purified tomato extract naturally rich in antioxidant lycopene and other carotenoids.

BENEFITS
- Lycopene with Lyc-O-Mato® helps promote cardiovascular health
- Lycopene with Lyc-O-Mato® helps promote men’s health
- Lycopene with Lyc-O-Mato® may help promote healthy bones in menopausal women
- Non-GMO, Soy Free, Gluten Free

EXTENDED BENEFITS
The importance of lycopene as a powerful antioxidant
Carotenoids are natural pigments synthesized by plants and certain microorganisms but not by humans. They serve as light-absorbing pigment during the process of photosynthesis and provide protection against photosensitization. The structure of each carotenoid determines the color, photochemical properties, and chemical reactivities of the molecule. Some dietary carotenoids such as β-carotene serve as an important source of vitamin A.

Lycopene is a lipid-soluble carotenoid antioxidant that is highly unsaturated with an open straight chain backbone made of 11 conjugated double bonds. Lycopene lacks the β-ionone ring structure and is therefore without provitamin A activity.

Many commonly regarded biologic effects and health benefits of lycopene (and other carotenoids) are based on its ability to quench reactive oxygen species (ROS) generated by oxidative stress. The accumulation of ROS (either as a result of lifestyle activities or impaired repair mechanisms) can lead to the oxidation of vital cellular biomolecules. Lycopene, a powerful antioxidant, can interact with ROS and prevent the cellular oxidation. The quenching capacity of carotenoids depends primarily on the number of conjugated double bonds. When compared to other carotenoids such as β-carotene and α-tocopherol, lycopene demonstrated the highest quenching capability.

Lycopene with Lyc-O-Mato® helps promote cardiovascular health
Several epidemiological indications suggest that increasing the intake of lycopene by dietary food or supplement can increase the serum level of lycopene and therefore may help promoting cardiovascular health.

Studies have been conducted in animals and humans and shown positive outcomes on cardiovascular health when using lycopene as a powerful oxidant quencher.

Lycopene with Lyc-O-Mato® helps promote men’s health
Tomatoes are the primary dietary source of lycopene, a non-provitamin A carotenoid that has potent antioxidant activity. The presence of lycopene in the prostate and testes at concentrations that are biologically active in laboratory studies has led to more studies in humans to support the idea that lycopene consumption may help promote men’s health.

Supplement Facts
Serving Size 2 softgels
Servings per container 60 servings

<table>
<thead>
<tr>
<th>Amount per serving</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lycopene (from Lyc-O-Mato®)</td>
<td>20 mg</td>
</tr>
</tbody>
</table>

♦ Daily Value not established.

Other Ingredients: Rice bran oil, medium chain triglycerides, yellow beeswax, silica, softgel capsule (gelatin, glycerin, purified water).

Suggested Adult Use: Take 2 softgels daily with or without food, or as recommended by a nutritionally-informed physician.

Non-GMO / Gluten Free / Soy Free

Store in a cool dry place.

Lyc-O-Mato® is a registered trademark of LycoRed, Natural Products Industries, Ltd.

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.
Lycopene with Lyc-O-Mato® may promote healthy bones in menopausal women*

Because of its powerful antioxidant property, lycopene has been used in clinical studies to evaluate its capability to promote bone health in menopausal women by protecting their bone from oxidative stress induced by reactive oxygen species.12

**PHARMACOLOGICAL & CLINICAL STUDIES**

*In vitro and in vivo* studies to evaluate the effect of supplemental lycopene on cardiovascular system, found that lycopene has the ability to inhibit cellular cholesterol synthesis by inhibiting HMGCoA reductase, a principal endogenous enzyme involved in cholesterol synthesis. Consequently, they highlighted the importance of lycopene in promoting cardiovascular health.13

Many factors can affect human cardiovascular health. One of them is the oxidative stress that can develop in the body and can lead to negative effect on vascular function. A single-blind, placebo-controlled study with 31 participants, was conducted to assess the vascular function, oxidative stress and LDL oxidation in response to an 8-week treatment with lycopene with Lyc-O-Mato® (one capsule daily of placebo or a 250 mg-capsule that contains 15mg lycopene and other carotenes + vitamins). The results of this pilot study show that lycopene with Lyc-O-Mato® can improve vascular function and promote cardiovascular health14.

To evaluate the effect of lycopene with Lyc-O-Mato® on cardiovascular health, 50 subjects were enrolled in a double blind cross-over study where they were given capsules of Lyc-O-Mato® containing 15 mg of lycopene daily or placebo. After a 6-week treatment, there was a significant reduction of the blood pressure in subjects that received lycopene and no side effects were recorded. The positive outcome of this study makes this future of tomato extract promising for cardiovascular health.15

In a double-blind trial involving 72 individuals, placebo or lycopene (7 mg/day) were given daily for 2 months. The results show that lycopene improves endothelial function (one of the best indicators of vascular health) and cardiovascular health overall.16 Similar results were found in another clinical study conducted in 126 participants. These individuals were randomized to receive placebo, lycopene 6 mg, or lycopene 15 mg daily for 8 weeks. The results show that serum lycopene increased in a dose-dependent manner. More, the 15 mg/day group had higher effect on oxidative stress leading to a better action on promoting vascular function and cardiovascular health.17

By providing evidence for an inverse relationship between plasma levels of the dietary lipid-soluble antioxidant lycopene, the study suggests the possibility of an atheroprotective effect of lycopene.18

Excessive generation of reactive oxygen species (ROS) containing free oxygen radicals has been identified as one of the causes of male infertility. When ingested, lycopene is a key component of human redox-defense mechanism against free radicals. Lycopene is found in high concentrations in the testes and seminal plasma and decreased levels have been demonstrated in men suffering from infertility. In 2000, thirty men were enrolled for the trial. All patients were administered 2000 mcg of Lycopene, twice a day for three months. The results were very positive as they showed statistically an improvement in concentration and sperm motility in all men.19

A scientific article that reviewed several clinical trials, reported the benefits of lycopene on prostate health. Higher plasma level of lycopene correlates with better prostate health.7 More, based on several clinical studies, lycopene (ranging from 8 mg/day up to 30 mg/day-depending on the clinical study) demonstrates some positive effects on prostate health with the decrease of the serum PSA (prostate-specific antigen) levels.20

In a study that included infertile male subjects, capsules containing 10 mg of highly purified lycopene were taken twice daily for 3 months. The result showed that lycopene was well-tolerated with no side effects. This positive outcome found with male fertility supports lycopene may promote men’s health.21

Osteoclasts have been shown to produce reactive oxygen species (ROS) that can stimulate bone resorption. In this experimental work, researchers explored the effect of lycopene on mineral resorption by inhibiting osteoclast formation and the production of ROS. They used cells from bone marrow prepared from rat femur. The findings led to the conclusion that lycopene inhibits the formation of ROS-secreting osteoclasts and that lycopene could be a key component in promoting healthy bones.22

In a cross-sectional study, 33 postmenopausal women aged 50–60 years provided seven-day dietary records and blood samples. Serum samples were used to measure serum lycopene, lipid peroxidation, and bone alkaline phosphatase (BAP). The results showed that groups with higher lycopene intake, as determined from the dietary records, had higher serum lycopene (p<0.02). Similarly, groups with higher serum lycopene had lower protein oxidation (p<0.05). These results suggest that the dietary antioxidant lycopene reduces oxidative stress and the levels of bone turnover markers in postmenopausal women, and may be beneficial in promoting healthy bones.23

Based on several *in vitro and in vivo* studies, carotenoids were found to have the capability to inhibit bone resorption and stimulate proliferation and differentiation of osteoblasts not only in menopausal women but in elderly population. In the Framingham osteoporosis study, the association of carotenoids intakes (lycopene and other major carotenoids) and bone mineral density (BMD) in men and women was analyzed. It was concluded that carotenoids have potential protective effect on bones and BDM.24

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.*


5. FDA GRAS Notification for Tomato Lycopene. Flood MT, Keller and Heckman LLP. Nov 2005


* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.