

# Astaxanthin

This antioxidant shows promise in fighting macular degeneration and boosting immune function. BY JULIA TOLLIVER MARANAN

## Health Claims

ASTAXANTHIN IS TOUTED as a potent antioxidant that prevents and slows macular degeneration, an age-related disease of the eyes, and enhances immunity, possibly protecting against cancer.

## What It Is

This fat-soluble carotenoid is found in the red yeast *Phaffia rhodozyma*, used in Asian cooking. It's also produced by the algae *Haematococcus* and accumulates in the muscles of salmon, shrimp, trout, and other pink seafood when they eat this algae, which is what gives them their pink hue.

## How It Works

Astaxanthin kills free radicals in your body, staving off age-related diseases like macular degeneration by preventing these unstable molecules from damaging your cells, according to Timothy Maher, Ph.D., astaxanthin researcher and pharmaceutical sciences professor at the Massachusetts College of Pharmacy and Health Sciences in Boston.

Astaxanthin also boosts the functioning of your immune system by increasing the number and activity of T cells and

macrophages, two kinds of protective cells that fight infection and cancer.

## Evidence

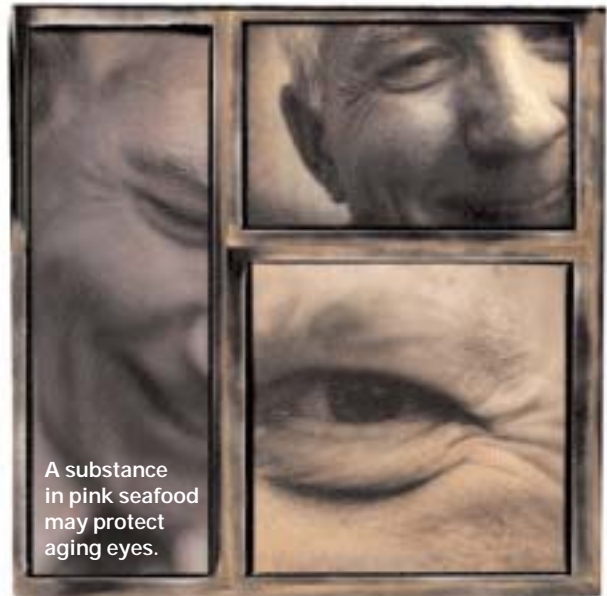
Medical use of astaxanthin is still new, and only test tube and animal studies on the substance have been published.

A study published in 1996 in *Fisheries Science* found astaxanthin to be nearly three times stronger than lutein and 550 times more potent than vitamin E in antioxidant activity tests. A *Journal of Agricultural and Food Chemistry* study in 2000 found astaxanthin to be 4.5 times stronger than beta carotene. Other studies have shown varying results.

Astaxanthin has generated a lot of interest as a treatment for macular degeneration. No research has been published in a scientific journal that links astaxanthin with a reduced risk of macular degeneration. However, in 1996, scientists at the University of Illinois in Chicago found that astaxanthin protected the retinas of rats exposed to damaging light. This study was published in a U.S. patent.

## The Bottom Line

PRELIMINARY STUDIES SUGGEST THAT ASTAXANTHIN IS A potent antioxidant that could prevent macular degeneration and cancer; however, more research is needed.



In a placebo-controlled study published last year in *Nutrition and Cancer*, dietary astaxanthin increased T cell activity in mice with cancer. Scientists fed astaxanthin (the equivalent of 2.73 mg a day for a 150-pound human) to one group of mice for three weeks. Then they injected the mice with cancerous cells. Three weeks after the injections, tumors in the astaxanthin-fed group shrank to approximately half the size of those in the control group.

And a study published in *Comparative Biochemistry and Physiology, Part C: Toxicology & Pharmacology* last January showed that in a group of 320 ducklings, those given astaxanthin for three weeks had nearly three times more

macrophages than the control group. Researchers believe the macrophages help fight cancer.

## How to Take It

Astaxanthin is available in pill form. Take up to 2 mg per day to prevent macular degeneration or cancer, recommends James McMillan, M.D., an eye physician and surgeon in Bellevue, Wash.

Pink seafoods provide astaxanthin in varying amounts. You can get up to five times of the recommended daily amount, a level that's still safe, in one serving of salmon.

## Caveats

No adverse effects have been reported by people consuming astaxanthin, whether in pill form, or in yeast or seafood. Nonetheless, there have not been long-term safety studies of supplemental astaxanthin in humans. ●

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