

Castor Oil May Be Helpful in the Treatment of Dry Eye Disease

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STORY AT-A-GLANCE

- › Researchers with the University of Auckland in New Zealand tested castor oil in the treatment of dry eye disease, with promising results
- › People with blepharitis, an inflammation of the eyelids that's a common cause of dry eye disease, applied a 100% cold pressed castor oil formulation to the eyelid of one eye twice daily for four weeks
- › There was a significant improvement in dry eye symptoms in the eyes treated with castor oil
- › The castor-oil treated eyes had reduced eyelid swelling, visible blood vessels, tangled eyelashes, eyelash loss, dandruff-like flakes and eyelid inflammation
- › Applied topically, castor oil has a variety of beneficial uses for skin and hair health, fungal infections, muscle and joint pain, and more

Castor oil comes from the seeds of the castor bean plant, *Ricinus communis*. It's a pale-yellow liquid with a distinct taste and odor, primarily composed of ricinoleic acid, which accounts for about 90% of its fatty acid content.

Known for its various industrial, medicinal and cosmetic uses, castor oil has been utilized for centuries. Industrially, castor oil is used as a lubricant and in the production of soaps, paints, inks and waxes. Medicinally, it's commonly used as a laxative to relieve

occasional constipation. Researchers with the University of Auckland in New Zealand also tested it in the treatment of dry eye disease, with promising results.

Dry Eye Syndrome Is Increasing in Young and Old

Dry eye disease, also known as dry eye syndrome or keratoconjunctivitis sicca, is a common condition that occurs when your eyes don't produce enough tears or when your tears evaporate too quickly. This results in inflammation and damage to your eye's surface, leading to discomfort and vision problems.

Worldwide, prevalence is up to 50% in certain regions,¹ with risk increasing at age 50 and over. Other risk factors include menopause, autoimmune diseases, extended screen time and wearing contact lenses.

In New Zealand, it's estimated that 58% of people over age 50 have dry eye disease,² for instance, while in the U.S. the condition is increasing in both young and old adults, "making it imperative that clinicians figure out how best to treat it," noted the American Academy of Ophthalmology.³

Blepharitis, an inflammation of the eyelids, particularly at the base of the eyelashes, is one of the most common causes of dry eye disease, accounting for more than 80% of cases, according to the University of Auckland.⁴

"Currently, patients are left grappling with symptoms of dryness, grittiness and, in some cases, watery eyes that feel uncomfortable impacting on their quality of life and work productivity," the study's lead clinical investigator Catherine Jennings explained. "Often patients are left feeling helpless when attempting to manage a chronic condition."⁵

While antibacterial and anti-inflammatory medications are available for treatment, antimicrobial resistance and significant side effects make them unsuitable for long-term use. University of Auckland researchers instead tested cold-pressed castor oil enhanced with mānuka and kanuka oils, applied using a rollerball applicator, for treatment.

Study Shows Castor Oil Benefits Blepharitis, Dry Eye Disease

The study involved 26 people with signs of blepharitis. They applied a 100% cold pressed castor oil formulation to the eyelid of one eye twice daily for four weeks.⁶

At the start, there were no differences between the treated and control eyes. However, after four weeks of treatment, there was a significant improvement in dry eye symptoms in the eyes treated with castor oil. The treated eyes had reduced eyelid swelling, visible blood vessels, tangled eyelashes, eyelash loss, dandruff-like flakes and eyelid inflammation.

Castor oil treatment also led to less staphylococcal and seborrheic crusting on the eyelashes compared to the control eyes. Further, there were no negative side effects reported. According to the study:⁷

"Topical castor oil application effected significant improvements in ocular surface signs and symptoms in patients with blepharitis. The favorable therapeutic profile would suggest that castor oil demonstrates promise as a potential treatment for blepharitis, and support the conduct of further efficacy trials with longer follow up."

The researchers are now conducting a double-blinded, randomized, placebo-controlled study to look further into the effects of castor oil on dry eye and eyelash crusting.⁸ Study author Jennifer Craig, head of the University of Auckland's Ocular Surface Laboratory, said:⁹

"Castor oil has been proposed as a natural product that could offer a safe, effective and easy-to-use alternative to existing therapies."

"My hope is this study will produce evidence-based guidance for clinicians with regard to offering castor oil as a possible management option for patients suffering from blepharitis, so they continue to enjoy a great quality of life, read the books they love, be productive in their work environment and enjoy other visual hobbies."

Craig and colleagues wrote a review about the therapeutic potential of castor oil in managing blepharitis and dry eye, as well as meibomian gland dysfunction (MGD), which causes dryness in the eyes, in 2020, noting:¹⁰

"Castor oil is deemed safe and tolerable, with strong anti-microbial, anti-inflammatory, anti-nociceptive, analgesic, antioxidant, wound healing and vasoconstrictive properties. Its main constituent, ricinoleic acid, has a bipolar molecular structure that promotes the formation of esters, amides and polymers.

These can supplement deficient physiological tear film lipids, enabling enhanced lipid spreading characteristics and reducing aqueous tear evaporation. Studies reveal that castor oil applied topically to the ocular surface has a prolonged residence time, facilitating increased tear film lipid layer thickness, stability, improved ocular surface staining and symptoms."

Topical Castor Oil Has Many Uses

Castor oil is considered one of the world's oldest drugs, perhaps most well-known for its laxative effects and ability to induce labor in pregnant women¹¹ — although I don't recommend using it for the latter purpose.

Applied topically, castor oil may help reduce inflammation and fight infections. It's also sometimes used to treat conditions like arthritis and minor skin infections, and the oil can promote healing of small cuts and abrasions due to its antimicrobial properties.

"The previous pilot study, conducted by our research team, was unique in its use of castor oil in such an application on the eyelids, with the product not known to be used anywhere else in the world for treating blepharitis," Jennings said.¹² However, anecdotal reports suggest that dabbing a small amount of castor oil on your eyelids may also help you fall asleep easier, while topical castor oil is widely used for a variety of haircare and skincare purposes.

Castor oil has a variety of cosmetic uses, and is a popular ingredient in skincare products, due to its ability to deeply moisturize and hydrate the skin. It's often used to treat dry skin and conditions like eczema and psoriasis, as well as in hair care products to support hair growth, reduce dandruff and moisturize the scalp.¹³

Massaging warm castor oil on your scalp (and even your eyebrows) may stimulate the follicles and result in extra hair growth. Do this every night, and you might see improvement in as little as two weeks. Castor oil may work on areas that have been affected by alopecia as well.

In addition to offering a moisturizing effect on hair, the fatty acids in castor oil may nourish the hair follicle. Ricinoleic acid also helps protect the scalp and hair shaft from fungal and microbial infections. It also penetrates the skin and may inhibit prostaglandin D2 synthase, which inhibits hair growth.¹⁴

Castor Oil for Skincare and Fungal Infections

Some people also use castor oil to reduce the appearance of wrinkles and fine lines due to its moisturizing and anti-inflammatory properties. The fatty acids in castor oil help nourish and moisturize dry skin. Due to its viscous nature, it stays put and easily penetrates your skin tissue. Castor oil is considered an occlusive moisturizer, which forms a barrier on the skin, helping to prevent the evaporation of water.¹⁵

Because of castor oil's antimicrobial and anti-inflammatory properties, it may also have some beneficial effects on skin tags, acne and warts. One study published in the Journal of International Toxicology also found that castor oil may have positive effects against occupational dermatitis.¹⁶

Castor oil may even be useful for relieving common infections like ringworm, jock itch (tinea cruris) and athlete's foot. Research also suggests that phytochemical compounds in castor essential oil may relieve infections caused by *Cunninghamella bertholletiae* fungi as well as standard antifungal drugs.¹⁷

To use, simply rub a teaspoon of castor oil between your palms and apply to your skin. You can also mix castor oil with a carrier oil to reduce any risk of irritation.

What Else Is Castor Oil Good For?

If you're in need of a natural laxative, castor oil is "generally regarded as safe and effective" for use as a stimulant laxative,¹⁸ according to the U.S. Food and Drug Administration. Oral ingestion of castor oil can "purge" the digestive tract within two to five hours.

However, remember to take it in the appropriate dose. Adults can take 1 to 2 tablespoons, while children 2 to 12 years old should be given only 1 to 2 teaspoons. Infants under 2 years old are not advised to take more than a teaspoon at a time. When giving it to children, try mixing it in freshly squeezed juice so it becomes more palatable.

Topical application of ricinoleic acid found in castor oil may also exert "remarkable analgesic and anti-inflammatory effects."¹⁹ It's useful for muscle pain relief, to alleviate joint pain and "can be used as an effective therapy" among patients with knee osteoarthritis.²⁰

You can try rubbing castor oil on your muscles after a workout to promote blood circulation and relieve soreness, or massage it onto your joints for pain relief. Ricinoleic acid in castor oil also has a decongestant effect on the lymphatic system, which is responsible for collecting waste from your tissues and carrying it to your bloodstream for elimination. Castor oil, applied topically on your skin, may help jumpstart your lymphatic system.

Is Castor Oil Poisonous?

Castor beans have notable anti-inflammatory, anthelmintic, antibacterial, wound-healing and laxative properties, but they also contain ricin, a poison that can inhibit protein synthesis in cells, leading to cell death. This is why, if chewed and swallowed, castor

beans are toxic. Ricin is also contained in the bean pulp that remains after it's pressed for oil, but ricin isn't found in castor oil.

"Castor oil does not contain ricin because ricin does not partition into the oil," according to the International Journal of Toxicology.²¹ It may be the poison from castor beans that has the longest usage. According to the Toxins review:²²

"The castor plant has been known since time immemorial and its use in the prehistoric era has been evidenced by archaeological findings such as that of the Border Cave in South Africa. Traces of wax containing ricinoleic and ricinelaidic acids were found on a thin wooden stick, which was suggested to be a poison applicator, dating back to about 24,000 years ago."

Ricin prevents protein synthesis and kills your cells through oral, nasal or intravenous transfusion. It's so potent that ingesting or inhaling just 1 milligram may be fatal,²³ just as eating four to eight castor seeds can lead to death.²⁴ There is no antidote for ricin, which is why it's even used as a chemical warfare agent.²⁵

How to Use Castor Oil Safely

While castor beans are highly toxic, castor oil is safe in recommended doses. However, ingesting large quantities can lead to serious gastrointestinal distress, including severe diarrhea and dehydration. Overuse can also disrupt electrolyte balance, so it's important to follow recommended dosages for internal use and to test your skin for sensitivity before topical application.

Further, pregnant women shouldn't use castor oil due to its ability to induce contractions. Even late in pregnancy, I don't recommend using castor oil to stimulate labor. One study reported that all pregnant women who took castor oil experienced nausea afterward.²⁶

Another study also warned that the castor oil-induced contractions may lead to the passage of meconium — a baby's first stool — while still inside the womb, putting them at risk of meconium aspiration that may result in neonatal respiratory distress.²⁷

If you suffer from digestive problems like irritable bowel syndrome, ulcers, cramps, diverticulitis, colitis or hemorrhoids, I advise you to avoid using this oil. Those who have recently undergone surgery should also refrain from using castor oil. And when choosing a product to use, look for organic castor oil from a trustworthy source.

Many commercial castor oils contain pesticide residues and are processed with solvents and other chemicals. For the highest quality oil free of contaminants and with its beneficial components intact, look for organic castor oil.

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