

Facts:

from the Colorado Department of Public Health and Environment



Ricin: Questions and Answers

What is ricin?

- Ricin is a poison. It is made from the waste left over from processing castor beans to make castor oil.
- Ricin can be in the form of a powder, a mist, or a pellet, or it can be dissolved in water or weak acid.

How is ricin used?

- Ricin has some limited medical use in bone marrow transplants and cancer treatment.
- Accidental exposure to ricin is nearly impossible. It would take a deliberate act to make ricin and use it to poison people.

How does ricin poison people?

- Inhalation (breathing): People can breathe in ricin mist or powder and be poisoned.
- Ingestion (swallowing): Ricin placed into water or food can be swallowed.
- Injection: Ricin pellets or ricin dissolved in a liquid can be injected into people's bodies.

How much ricin does it take to kill someone?

- Depending on how a person is exposed (inhalation, ingestion, or injection), as little as 500 micrograms of ricin -- which would fit on the head of a pin -- could kill an adult.
- It would take more ricin to kill people if it were swallowed.

How does ricin make people sick?

- Ricin gets inside the cells of a person's body and prevents the cells from making the proteins they need.

Without the proteins, the cells die.

- Eventually the process harms the whole body and may eventually cause death.

What are the signs and symptoms of ricin poisoning?

The major signs and symptoms of ricin poisoning depend on how you are exposed and how much ricin you are exposed to.

Many organs in the body may be affected by ricin poisoning. The signs and symptoms listed below can be caused by many other illnesses, as well as ricin poisoning.

- **Inhalation:** Within a few hours of inhaling ricin, you could have difficulty breathing, fever, cough, nausea, and a tight feeling in the chest. This could be followed by heavy sweating. Fluid may begin to build up in your lungs, making breathing even more difficult, causing your skin to turn blue. Low blood pressure and difficulty breathing may lead to death.
- **Ingestion:** If you swallowed enough ricin, you could begin to vomit and develop diarrhea. This could progress to bloody diarrhea. The loss of body fluids may lead to severe dehydration, followed by low blood pressure. Other signs and symptoms may include hallucinations, seizures, and blood in the urine. Within several days, your liver, spleen, and kidneys could shut down, causing death.

- **Skin and eye exposure:** Ricin in a powder or mist can cause redness and pain of your skin and eyes. Showing these signs and symptoms does not necessarily mean that a person has been exposed to ricin.

How soon would I notice health effects after exposure to ricin?

- The information that exists on ricin poisoning in humans is very limited. Much of what we know comes from animal studies and a few human cases.
- For ricin poisoning by ingestion (swallowing), the first symptoms would begin within 6 hours of exposure.
- For ricin poisoning by inhalation (breathing), the first symptoms would begin within 8 hours.
- Following severe ricin poisoning, the damage done to vital organs may be long-lasting or even permanent.

How is ricin poisoning treated?

There is no positive way to confirm that a person has been exposed to ricin.

In cases of known exposure to ricin, people with symptoms should seek immediate medical care.

- There is no antidote for ricin poisoning.
- If your skin is exposed to ricin, it is important to clean the ricin off with soap and water.
- Medical help for ricin poisoning is limited to supportive care to reduce the effects of the poisoning as much as possible. This could include

helping victims breathe, giving them fluids intravenously (through a needle inserted into a vein), giving medications for seizures and low blood pressure, removing the toxin from their stomach with activated charcoal, or washing their eyes with water if their eyes are irritated.

Is ricin poisoning contagious?

No. Ricin poisoning is not spread from person to person.

Can ricin be “aerosolized” like anthrax?

Yes. Ricin can be processed into a fine powder and sprayed into the air.

Will the irradiation equipment used by the postal service have any effect on ricin?

The U.S. Postal Service’s equipment that radiates the mail may help destroy ricin. The Centers for Disease Control and Prevention still considers ricin to be just as dangerous even after irradiation.

If I have been around ricin, could I have carried it home?

- If someone released ricin into the air, ricin could settle on your clothing and might be carried into your home.
- It is unlikely that you could carry enough ricin into your home on your clothes or shoes to be poisonous.



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What should I do if I am exposed to ricin?

- Leave the area where the ricin was released. If the ricin was released outdoors, move away from the area. If the ricin release was indoors, get out of the building.
- Emergency coordinators may tell you to either evacuate the area or to stay inside a building to avoid being exposed to the chemical.
- If you think you may have been exposed to ricin, remove your clothing, rapidly wash your entire body with soap and water, and get medical care as quickly as possible. Any clothing that has to be pulled over your head should be cut off instead of pulled over the head.
- If your eyes are burning or your vision is blurred, rinse your eyes with plain water for 10 to 15 minutes. If you wear contact lenses, remove them and put them with the contaminated clothing. Do not put the contacts back in your eyes, even if they are not disposable contacts. If you wear eyeglasses, wash them with soap and water. You can put your eyeglasses on after you wash them.
- If you are helping other people, avoid touching any contaminated areas.
- After washing, place your clothing inside a plastic bag. Avoid touching contaminated areas of the clothing. If you can’t avoid touching contaminated areas, or you aren’t sure where the contaminated areas are, wear rubber gloves, turn the bag inside out and use it to pick up the clothing, or put the clothing in the bag using tongs, tool handles, sticks, or similar objects. Anything that touches the contaminated clothing also should be placed in the bag. If you wear contacts, put them in the plastic bag, too.
- Seal the bag, and then seal that bag inside another plastic bag. Emergency personnel will arrange for disposal. Do not handle the plastic bags yourself.
- If someone has swallowed ricin, do NOT induce vomiting or give fluids to drink. Get medical attention right away.

Reliable sources of information

Colorado HELP hotline

www.cohelp.us
1-877-462-2911 (toll-free)
M-F 7 a.m. – 11 p.m.; S-S 9:30 a.m. – 8 p.m.

Colorado Department of Public Health and Environment

www.cdphe.state.co.us
303-692-2700
1-800-866-7689 (toll-free)

Centers for Disease Control and Prevention (CDC)

<http://www.bt.cdc.gov/agent/ricin/>
1-800-311-3435 (toll-free)
1-888-232-6348 (TTY)