Howard County
Health Department

Ricin Fact Sheet

What is ricin?

Ricin is a poison found naturally in castor beans. If castor beans are chewed and swallowed, the released ricin can cause injury. Ricin can be made from the waste material left over from processing castor beans. It can be made in the form of a powder, a mist or a pellet, or it can be dissolved in water or weak acid.

What are the different ways that ricin is prepared?

Depending on the preparation, the toxicity of ricin varies widely. **Crude preparation** does not include any processing. A crude preparation of ricin may be as simple as crushing a castor bean. It poses no danger of large-scale exposure and is unlikely to cause serious illness or death. **Concentrated product** has been processed in some way. Concentrated product poses a threat, but only to those in close proximity to it who are not wearing protective clothing when handling the item that contains the ricin (e.g., a letter). It does NOT pose an imminent threat to the population as a whole. **Highly refined product** is the most processed and lethal preparation of ricin toxin. Highly refined product is very rare due to how labor and technology intensive it is to create. Due to the large amount of castor beans needed to create a highly refined product, it is very unlikely someone could try to make it without coming to the attention of authorities.

How can you be exposed to ricin?

Ricin poisoning is rare, and death from ricin poisoning is even rarer. It would take a deliberate act to make ricin and use it to poison people. Unintentional exposure to ricin is highly unlikely, except through the ingestion of castor beans. If made into a partially purified material or refined into a terrorist or warfare agent, ricin could potentially be used to expose people through the air, food or water. In a few rare cases, injections of ricin have led to poisoning.

Ricin poisoning is not contagious. Ricin-associated illness cannot be spread from person to person through casual contact. However, if you come into contact with someone who has ricin on their body or clothes, you could become exposed to it.

How does ricin work and what are the signs and symptoms of ricin exposure?

Ricin works by getting inside the cells of a person's body and preventing the cells from making the proteins they need. Without the proteins, cells die. Eventually this is harmful to the whole body, and death may occur. Effects of ricin poisoning depend on whether ricin was inhaled, ingested or injected.

If ricin is ingested, initial symptoms typically occur in less than 6-12 hours. These initial symptoms are most likely to affect the gastrointestinal system and include nausea, vomiting and abdominal pain. The symptoms of ricin poisoning are then likely to rapidly progress (generally over 12-24 hours) to include problems such as severe dehydration and kidney and liver problems.

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If ricin is inhaled, initial symptoms may occur as early as 4-6 hours after exposure, but serious symptoms could also occur as late as 24 hours after exposure. The initial symptoms are likely to affect the respiratory system and can include difficulty breathing, shortness of breath, chest tightness and cough. The symptoms of ricin poisoning are then likely to rapidly progress (generally over 12-24 hours) to include problems such as worsening respiratory symptoms, pulmonary edema (fluid within the lungs) and, eventually, respiratory failure.

Death from ricin poisoning can take place within 36 to 72 hours of exposure, depending on the route of exposure (inhalation, ingestion or injection) and the dose received.

How is ricin poisoning treated?

No antidote exists for ricin. Therefore, the most important factor is avoiding ricin exposure in the first place. If exposure cannot be avoided, it is essential to get the ricin off or out of the body as quickly as possible.

After exposure, ricin poisoning is treated by giving victims supportive medical care to minimize the effects of the poisoning. The types of supportive medical care depend on several factors, such as the route by which victims are poisoned (that is, whether poisoning is by inhalation, ingestion, or skin or eye exposure). Care could include such measures as helping victims breathe, giving them intravenous fluids (fluids given through a needle inserted into a vein), giving them medications to treat conditions such as seizure and low blood pressure, flushing their stomachs with activated charcoal (if the ricin has been very recently ingested), or washing out their eyes with water if the eyes are irritated.

How can you protect yourself if you think you have been exposed to ricin?

Get fresh air right away by leaving the area where the ricin was released. If the ricin release was outside, move away from the area. If the ricin release was indoors, get out of the building.

If you are near a release of ricin, emergency coordinators may tell you to either evacuate the area or to “shelter in place” inside a building to avoid being exposed.

If you think you may have been exposed to ricin, you should remove your clothing, rapidly wash your entire body with soap and water, and get medical care as quickly as possible. If someone has ingested ricin, do not induce vomiting or give fluids to drink. Seek medical attention right away. Dial 911.