CONDITION

Nicotine poisoning

Nicotine poisoning is illness caused by swallowing, inhaling, or absorbing more nicotine than the body can safely handle.

WHAT IT IS
Illness from too much nicotine entering the body

BODY SYSTEM
Nervous system, heart and circulation, and digestive system

MAIN SYMPTOMS
Nausea, vomiting, dizziness, fast or slow heartbeat

WHAT CAUSES IT
Swallowing, inhaling, or absorbing excessive nicotine

HOW IT IS DIAGNOSED
Exposure history, symptoms, and clinical assessment

MAIN TREATMENT
Poison-control guidance, monitoring, and supportive hospital care

CAN IT BE CURED?
Yes - most recover with prompt care

IS IT AN EMERGENCY?
Sometimes - breathing trouble, seizures, collapse, or severe confusion

LONG-TERM OUTLOOK
Usually full recovery after a brief exposure

Overview

Nicotine poisoning happens when too much nicotine enters the body. Nicotine is found in cigarettes, cigars, chewing tobacco, nicotine pouches, e-cigarette liquids, and products used to help people stop smoking.

The body absorbs nicotine through the mouth, lungs, stomach, eyes, and skin. Poisoning can follow swallowing, inhaling, or spilling a concentrated nicotine product. Using several nicotine products close together can also cause illness.

Nicotine affects the nervous system and the signals controlling the heart, breathing, digestion, and muscles. Early effects can overstimulate these systems. A larger exposure may then slow them down.

Liquid nicotine deserves particular care. Even a small volume may contain a concentrated amount, and young children can be exposed by tasting or swallowing it. Nicotine liquids may also be absorbed through the skin.

Symptoms often begin quickly, sometimes within minutes. Anyone with a suspected exposure should receive prompt advice from a poison service rather than waiting for symptoms to become severe.

Symptoms

Early symptoms are often related to stimulation of the nervous and digestive systems. They may include:

With a more serious exposure, nicotine can begin to suppress normal body functions. This may cause a slow or irregular heartbeat, low blood pressure, severe weakness, breathing difficulty, seizures, or loss of consciousness.

Symptoms usually start within the first hour after swallowing or inhaling nicotine. Skin exposure may cause a slower or more prolonged onset, especially if wet clothing remains against the skin. Long-acting nicotine products may also produce symptoms over a longer period.

Vomiting is common, but its absence does not prove that an exposure is safe. The type and concentration of the product, how it entered the body, and the person's size all affect the risk.

- Nausea, vomiting, stomach pain, or increased saliva
- Headache, dizziness, sweating, or pale skin
- Restlessness, confusion, weakness, or shaking
- A fast heartbeat, raised blood pressure, or rapid breathing

Causes and risk factors

Nicotine poisoning is caused by more nicotine entering the body than it can safely process. Common situations include:

Young children are at particular risk because of their smaller body size and tendency to put objects in their mouths. Bright packaging, sweet scents, and flavoured liquids may make some products more appealing to them.

The risk is also influenced by nicotine concentration, the amount involved, the route of

exposure, and how long nicotine stays in contact with the skin or eyes. Someone who regularly uses nicotine may tolerate some effects differently, but regular use does not protect against poisoning.

People who work with tobacco plants or wet tobacco leaves may absorb nicotine through their skin. This can cause a form of occupational nicotine poisoning sometimes called green tobacco sickness.

- A child swallowing e-cigarette liquid, tobacco, nicotine gum, or a pouch
- E-cigarette liquid leaking onto the skin or splashing into the eyes
- Swallowing liquid nicotine intentionally or accidentally
- Using multiple nicotine products within a short time
- Chewing or swallowing nicotine products in a way they were not intended to be used
- Heavy exposure while mixing or handling concentrated nicotine

Diagnosis

Nicotine poisoning is usually diagnosed from the exposure history and the pattern of symptoms. Useful details include the product name, nicotine concentration, approximate amount, time of exposure, and whether it was swallowed, inhaled, spilled, or splashed.

Bring the container or a photograph of its label if it is safe to do so. Do not delay emergency care while looking for packaging.

There is no single blood test that quickly confirms how severe an acute nicotine exposure is. Tests for nicotine or cotinine, a substance produced when the body breaks down nicotine, are not usually needed for immediate treatment.

In hospital, clinicians may monitor heart rhythm, breathing, oxygen level, blood pressure, and alertness. Blood tests may be used to check blood sugar, salts, kidney function, or the body's acid balance when symptoms are moderate or severe. Other causes may need to be considered because nausea, dizziness, confusion, and heartbeat changes can occur in many conditions.

Treatment and management

There is no specific antidote that removes nicotine from the body. Treatment focuses on stopping further exposure, watching for complications, and supporting breathing and

circulation while the body clears the nicotine.

Contact a poison information service promptly after a suspected exposure. In the United States, Poison Help is available at 1-800-222-1222. Elsewhere, use your local poison centre or emergency service. Keep the product container nearby when calling.

For nicotine on the skin, remove contaminated clothing and wash the affected skin thoroughly with soap and water. Avoid touching contaminated material with bare hands. For an eye splash, rinse the eye with clean, lukewarm water and obtain poison-service advice.

Move away from vapour or spray exposure into fresh air if this can be done safely. Do not enter an enclosed contaminated area without appropriate protection.

Do not make yourself or another person vomit. Do not give food, drink, or home remedies unless a poison specialist or healthcare professional advises it.

Some mild exposures can be monitored at home under poison-centre guidance. A person with significant symptoms may need observation in an emergency department. Hospital care can include heart and oxygen monitoring, intravenous fluids, medicines for nausea or seizures, and support for an abnormal heart rate or blood pressure. Severe breathing problems may require assisted ventilation.

Activated charcoal is occasionally considered after certain recent ingestions, but it is not suitable for every exposure and can be harmful if vomiting or reduced alertness makes choking more likely. It should only be used when directed by a qualified healthcare professional.

Complications

Most people recover without lasting effects when the exposure stops and appropriate care is provided. Complications are more likely after a large or concentrated exposure.

Possible complications include an abnormal heart rhythm, very low blood pressure, seizures, or breathing failure. Repeated vomiting may cause dehydration. Vomit entering the lungs can lead to inflammation or infection.

A severe lack of oxygen can injure the brain or other organs, although this is not the usual course. Skin or eye contact may cause local irritation in addition to nicotine's effects throughout the body.

Nicotine poisoning is separate from nicotine dependence. However, repeated symptoms from frequent nicotine use may be a sign that the amount or combination of products is unsafe and that support with nicotine use would be helpful.

Prevention

Most accidental nicotine poisoning can be prevented. Store all nicotine and tobacco products locked away, out of sight and reach of children and pets. A high shelf alone may not be enough.

Keep liquids in their original child-resistant containers. Never transfer e-cigarette liquid into a drink bottle, cup, food container, or unlabelled container. Close the cap immediately after use and clean spills promptly while protecting your skin.

Avoid mixing concentrated nicotine unless you have suitable training and protective equipment. Wear gloves recommended for the product when handling nicotine liquid, and wash exposed skin immediately.

Use nicotine replacement products only as their labels direct. Avoid combining products unless a healthcare professional has helped you plan how to use them safely. Dispose of used patches, pouches, cartridges, and liquid containers securely because they may still contain nicotine.

Teach children that nicotine products are not food or sweets. Visitors' bags, coats, and luggage may also contain cigarettes, vapes, gum, or medicines, so consider where these are placed.

Living with it and what to expect

Nicotine poisoning is usually a short-term condition rather than an ongoing illness. Mild symptoms often improve as the body breaks down and removes the nicotine. More serious exposures may require several hours of monitoring or hospital care.

The exact course cannot be predicted from symptoms alone. Concentrated liquids, long-acting products, skin exposure, and an uncertain swallowed amount can make observation more important.

After a brief exposure with full recovery, most people do not need long-term medical treatment. Follow any discharge instructions about rest, fluids, activity, or follow-up. Arrange routine medical review if symptoms such as nausea, cough, dizziness, or palpitations continue after the expected recovery period.

A child's accidental exposure does not mean that poisoning will happen again, but it is an opportunity to review storage throughout the home. If poisoning resulted from frequent or combined nicotine use, support is available for reducing or stopping nicotine. Dependence can make cutting down difficult, and this is not a personal failure.

Intentional swallowing or use during a period of distress needs further support after the immediate medical problem is treated. Emergency and mental health services can help with

both safety and ongoing care.

When to get medical help

Call emergency services now if the person:

Place an unconscious but breathing person on their side if you can do so safely. Do not put anything in their mouth. Begin emergency first aid if advised by the emergency dispatcher.

Contact a poison information service immediately after a child swallows or may have swallowed nicotine. Do the same after exposure to concentrated liquid, an unknown amount, or any exposure causing vomiting, dizziness, shaking, confusion, weakness, or heartbeat changes. Do not wait for severe symptoms.

For skin or eye exposure, start rinsing straight away and call for advice. Emergency care may still be needed if symptoms develop.

Routine follow-up is appropriate after recovery if symptoms linger, exposure has happened more than once, or you want help changing nicotine use. Routine follow-up should not replace urgent poison advice for a recent exposure.

- Has trouble breathing, blue or grey lips, or very slow breathing
- Has a seizure, collapses, or cannot be awakened
- Is severely confused or cannot stand safely
- Has chest pain or signs of a dangerous heartbeat problem

Common questions

How much nicotine causes poisoning?

There is no single amount that is safe to use as a cutoff. Risk changes with the product's concentration, the amount absorbed, the route of exposure, body size, and whether symptoms are present. Treat an unknown amount or concentrated-liquid exposure as potentially important and contact a poison service.

Can vaping cause nicotine poisoning?

Yes. Poisoning can occur from inhaling too much nicotine, swallowing e-cigarette liquid, or absorbing spilled liquid through the skin. Using high-concentration products or vaping repeatedly over a short period can increase exposure.

How long does nicotine poisoning last?

Mild symptoms may settle within a few hours, but the course depends on the product and route of exposure. Long-acting products or nicotine absorbed through the skin may cause longer symptoms. Severe poisoning can require extended monitoring and hospital treatment.

What should I do if a child swallows nicotine liquid?

Remove the product, wipe out the mouth gently, and call a poison information service immediately. Do not cause vomiting or give food or drink unless directed. Call emergency services for breathing trouble, seizures, collapse, or reduced alertness.

Should I make myself vomit after swallowing nicotine?

No. Vomiting can lead to choking or allow material to enter the lungs. Contact a poison service for instructions based on the specific product and exposure.

Can you fully recover from nicotine poisoning?

Yes, most people recover fully after a brief exposure, especially when further exposure stops and care is provided promptly. A severe episode involving prolonged breathing or circulation problems has a greater risk of lasting complications.

Sources

- Centers for Disease Control and Prevention and National Institute for Occupational Safety and Health: Nicotine - Systemic Agent
- MedlinePlus Medical Encyclopedia: Nicotine poisoning
- National Capital Poison Center: Tobacco and nicotine poisoning
- Royal Children's Hospital Melbourne Clinical Practice Guideline: Nicotine poisoning
- US Food and Drug Administration: Accidental exposures to e-liquids and prevention guidance