CONDITION

Potato plant poisoning - green tubers and sprouts

Potato plant poisoning is illness caused by eating harmful levels of natural toxins in green, sprouted, damaged, or bitter potatoes.

WHAT IT IS
Poisoning from natural toxins in potatoes or potato plants

BODY SYSTEM
Digestive, nervous, heart and circulation

MAIN SYMPTOMS
Nausea, vomiting, stomach pain, diarrhea

WHAT CAUSES IT
Eating concentrated potato glycoalkaloid toxins

HOW IT IS DIAGNOSED
Exposure history, symptoms, and exclusion of other causes

MAIN TREATMENT
Supportive care, fluids, and medical monitoring

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

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

LONG-TERM OUTLOOK
Most people recover fully after an isolated exposure

Overview

Potato plant poisoning happens after someone eats enough of the natural toxins found in potatoes and other parts of the potato plant. The main toxins are glycoalkaloids called alpha-solanine and alpha-chaconine.

Potatoes normally contain small amounts of these substances. Levels can rise when potatoes are exposed to light, damaged, stored poorly, or allowed to sprout. The toxins are concentrated in sprouts, eyes, the skin, and the outer layers of affected potatoes. Potato leaves, stems, flowers, and berries can also contain harmful amounts and should not be eaten.

A green colour comes from chlorophyll, which is not poisonous. However, greening shows that

the potato has been exposed to conditions that can also increase glycoalkaloids. A bitter or burning taste is another warning sign.

Most reported illness affects the digestive system, causing symptoms such as vomiting and diarrhea. Larger exposures can affect the nervous system, heart, blood pressure, or breathing. Severe poisoning is uncommon, but suspected symptoms should be taken seriously.

This poisoning is not an infection. It cannot spread from one person to another, although several people may become ill if they share the same food.

Symptoms

Symptoms often begin within several hours of eating the affected potato. They can sometimes take longer to appear. The timing and severity are influenced by how much toxin was present, how much was eaten, and the person's body size.

Common symptoms include:

Vomiting and diarrhea may lead to dehydration. Signs include a dry mouth, strong thirst, dark urine, passing less urine, and dizziness when standing.

More serious poisoning can cause confusion, unusual drowsiness, problems with vision, a slow or irregular heartbeat, low blood pressure, or difficulty breathing. Seizures and loss of consciousness are possible in severe cases.

These symptoms can also be caused by foodborne infections and many other conditions. Symptoms alone cannot prove that a potato was responsible.

- Nausea, vomiting, stomach cramps, and diarrhea
- A bitter or burning sensation in the mouth
- Headache, dizziness, tiredness, or weakness
- Sweating or feeling generally unwell

Causes and risk factors

Alpha-solanine and alpha-chaconine help protect the potato plant from insects and disease. In people, high amounts can irritate the digestive tract and interfere with the normal function of cells and nerves.

Glycoalkaloid levels are not evenly spread through a potato. They tend to be highest in the skin and just beneath it, especially around sprouts, eyes, damaged areas, and green patches. The

leaves, stems, flowers, and berry-like fruits of the plant contain more toxin than an ordinary sound tuber.

Factors that may increase the chance of poisoning include:

Not every green or sprouted potato contains the same toxin level. Colour, appearance, and taste cannot measure the amount reliably.

Children may be more affected by a given portion because of their smaller body size. They may also eat potato plant berries or sprouts while exploring.

- Eating potatoes that are extensively green, sprouted, damaged, shrivelled, or bitter
- Eating potato sprouts or other parts of the plant
- Storing potatoes in light or in conditions that encourage damage and sprouting
- Eating a large amount of affected potato
- Having a smaller body size, so the amount eaten is larger relative to body weight

Diagnosis

There is no standard home test for potato glycoalkaloids. Diagnosis is usually based on what was eaten, when symptoms started, whether the potato was green, sprouted, damaged, or bitter, and whether other people who ate it also became ill.

A healthcare professional may check your heart rate, blood pressure, breathing, alertness, and hydration. Blood tests may be used to look for dehydration, changes in body salts called electrolytes, kidney problems, or another explanation for the symptoms. An electrocardiogram, or ECG, may be used to examine the heart's electrical activity when symptoms are significant.

Specialist laboratories can measure glycoalkaloids in food or biological samples, but this testing is not routinely available and is rarely needed for immediate treatment.

Other possible causes may need to be considered. These include infections, other food toxins, medicines, chemicals, and unrelated digestive conditions. If food remains, keep it safely separated in case a poison centre or public health service asks for details. Do not eat more to test its taste.

Treatment and management

There is no specific antidote for potato glycoalkaloid poisoning. Treatment supports the body

while the toxins are cleared.

Stop eating the suspected food. Remove any remaining pieces from the mouth and rinse the mouth with water. Contact a local poison centre for advice, especially if symptoms have started, a child was exposed, or part of the potato plant was eaten.

Do not make yourself or another person vomit. Do not use activated charcoal at home. In selected cases, a healthcare team may consider activated charcoal soon after an exposure, but it can cause harm if used in the wrong situation.

If you are fully awake, swallowing normally, and not vomiting repeatedly, small amounts of fluid may help replace losses. Do not force fluids if swallowing is difficult or the person is very drowsy.

Hospital treatment may include:

Antibiotics like amoxicillin or doxycycline do not treat glycoalkaloid poisoning because bacteria do not cause it.

- Fluids given by mouth or through a vein
- Medicines to control significant nausea or vomiting
- Monitoring of heart rhythm, blood pressure, breathing, and alertness
- Correction of electrolyte changes caused by vomiting or diarrhea
- Breathing support in rare, severe poisoning

Complications

The most likely complication is dehydration from repeated vomiting or diarrhea. Significant fluid loss can affect blood pressure, kidney function, and electrolyte levels.

Vomiting while very drowsy may allow stomach contents to enter the lungs. This is called aspiration and can cause breathing problems or lung inflammation.

Severe toxin effects may disturb the heart rate, lower blood pressure, weaken breathing, or affect consciousness. Seizures, coma, and death have been reported, but these outcomes are uncommon.

Most people who recover from an isolated, uncomplicated exposure are not expected to have lasting problems. Complications are more likely after a large exposure or when severe dehydration, breathing difficulty, or nervous system symptoms occur.

Prevention

Potato glycoalkaloids occur naturally, so their presence cannot be completely prevented. You can reduce exposure by choosing, storing, and preparing potatoes carefully.

Store potatoes in a cool, dark, dry, well-ventilated place. Light encourages greening, while damage and unsuitable storage can encourage toxin production. Check stored potatoes regularly.

Discard potatoes that are extensively green, heavily sprouted, badly damaged, shrivelled, or bitter. Removing a small sprout or peeling a potato may reduce some toxin because concentrations are often highest near the surface. However, this does not make a heavily green or sprouted potato reliably safe.

Cooking does not reliably destroy glycoalkaloids. Some preparation methods may reduce the amount, but boiling, baking, or microwaving should not be used to make a clearly affected potato safe.

Never eat potato leaves, stems, flowers, or berries. Keep these plant parts and discarded sprouts away from young children. Do not rely on tasting a potato to decide whether it is safe; if it tastes unusually bitter or causes burning in the mouth, stop eating it.

Living with it and what to expect

Potato plant poisoning is usually a one-time illness rather than a long-term condition. Mild digestive symptoms often settle as the body clears the toxins and lost fluids are replaced. Recovery may take several days, but the course cannot be predicted from the potato's appearance alone.

Symptoms should gradually improve rather than become more intense. Ongoing vomiting, worsening weakness, reduced urination, confusion, or breathing problems need medical assessment.

After uncomplicated recovery, special long-term treatment is generally not required. The exposure does not create immunity, so another affected potato could cause illness again. Avoiding green, sprouted, damaged, and bitter potatoes reduces the chance of another episode.

A severe exposure may require hospital observation until heart rate, blood pressure, breathing, alertness, and hydration are stable. Follow-up may be needed when poisoning caused kidney problems, aspiration, or another complication.

When to get medical help

Call emergency services now if someone has:

Do not give food, drink, or charcoal to someone who is unconscious, having a seizure, or unable to swallow normally.

Contact a poison centre or seek prompt medical advice after eating a green, sprouted, bitter, or damaged potato if vomiting, diarrhea, stomach pain, dizziness, weakness, or unusual drowsiness develops. Prompt advice is also appropriate when a child has eaten sprouts, potato berries, or another part of the plant, even if the amount is uncertain.

Repeated vomiting, inability to keep fluids down, very little urine, blood in vomit or stool, or symptoms that continue or worsen should be assessed urgently.

Routine follow-up is usually unnecessary after mild symptoms have completely resolved. Arrange follow-up if digestive symptoms persist, hydration remains difficult, or you do not return to your usual level of health.

- Trouble breathing, blue or grey lips, or severe breathing weakness
- Collapsed, fainted, or become difficult to wake
- A seizure
- Severe confusion or rapidly worsening drowsiness
- Signs of shock, such as cold clammy skin with marked weakness

Common questions

Can eating green potatoes kill you?

Severe glycoalkaloid poisoning can be life-threatening, but this is uncommon. The risk is greater with a large amount of highly affected potato or with serious symptoms such as confusion, collapse, seizures, or breathing difficulty.

Is the green part itself poisonous?

The green colour is chlorophyll, which is harmless. However, greening shows that the potato has been exposed to light and may have produced more glycoalkaloid toxins. The colour is a warning sign rather than the toxin itself.

Can I cut off the green part and eat the rest?

Removing the skin, sprouts, and a small localised area may lower the toxin amount, but it cannot confirm that the rest is safe. Discard potatoes that are extensively green, heavily

sprouted, damaged, shrivelled, or bitter.

Does cooking destroy solanine?

Ordinary cooking does not reliably destroy potato glycoalkaloids. Cooking should not be used to make a clearly green, sprouted, or bitter potato safe to eat.

How quickly would I feel sick after eating a bad potato?

Symptoms commonly begin within several hours, although they may be delayed. Digestive symptoms are often the first sign. The timing alone cannot confirm the cause.

I ate a green potato but feel fine. What should I do?

Do not eat any more of it. Feeling well is reassuring, but symptoms may not begin immediately. A local poison centre can assess the amount, timing, food condition, and personal factors. Seek urgent help if significant vomiting, confusion, severe weakness, collapse, seizures, or breathing problems develop.

Sources

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