

How to prevent and treat pesticide poisoning

Pesticides are designed to kill living organisms, so they need to be handled with great care. Follow the label instructions to ensure pesticides do not affect your health, the health of your neighbours, the general public or harm non-target plants, water, soil or wildlife. Because of the potential health hazard, anyone who works with pesticides should treat them with the utmost respect and employ sound protective measures as instructed on the label to counter the risks.

How pesticides poison

Poisonous chemicals can injure or kill people by interfering with their biochemical and physiological functions.

Pesticides can enter the body through the skin (dermal), mouth (orally), lungs (breathing), eyes (ocular) and by accidental injection. Skin absorption is the most likely way a pesticide will enter the body. The danger of skin absorption is greatest when it is hot and humid, and the skin is wet with sweat.

The nature and extent of injury depends upon the toxicity of the chemical and the dose that enters the body. Some pesticides are very toxic and cause poisoning at quite low doses so that only a few drops can cause severe illness or death. The acute hazard level of the active ingredient of a pesticide is specified using a signal heading and poison schedule. Products with very low toxicity have no Signal Heading and are unscheduled. Products labelled 'Dangerous Poison' (Schedule 7) have a high to extremely high toxicity. Products labelled as 'Poison' (Schedule 6) have a moderate toxicity. Products labelled 'Caution' (Schedule 5) have a

slight toxicity. Always wear the protective clothing and gear indicated on the label when handling and using pesticides. Some pesticides are not Scheduled, however, protective gear should still be worn if suggested on the label or Material Safety Data Sheet (MSDS).

Effects of poisoning

Pesticides commonly used in agriculture may belong to the organophosphate (OP) and carbamate chemical groups and include products such as: Tokuthion®, Monitor®, Nitofol®, Orthene®, Supracide®, Chlorfos®, Lorsban®, Gesapon®, Rogor®, etc. - all OP's and Sevin®, Septene®, Lannate®, etc. - all carbamates.

When absorbed, these pesticides inactivate cholinesterase enzymes in the body, and muscular spasms and overactivity of certain glands occur, causing many and varied symptoms. Early symptoms include headache, fatigue, giddiness, sweating, blurred vision, nausea, vomiting, abdominal cramps and diarrhoea. More dramatic symptoms of poisoning include numbness, chest tightness, changes in heart rate, general muscle weakness, difficulty in walking, pin-point pupils, excessive salivation (dribbling), and an increase in the severity of the original symptoms.

The first signs of acute OP and carbamate poisoning occur within a few minutes (or a few hours at most) of exposure. Severe poisoning may result in convulsions and coma which can lead to death.

Most symptoms of toxic poisoning are reversible and don't cause permanent damage in the long term. However, some toxicity effects cause irreversible damage.



- *Acute* poisoning occurs from a single exposure when a person is accidentally splashed or sprayed, or swallows a pesticide. Obvious symptoms appear immediately and urgent treatment is required.
- *Cumulative poisoning* occurs from repeated exposure to small doses of pesticides over a lengthy period of time. This type of poisoning is insidious because the level of poison builds up slowly and is only detected when the levels get high enough and symptoms appear.
- *Pesticides* can also irritate the skin and eyes (topical effects) and induce allergic reactions.

Serious OP and carbamate poisonings need to be treated with atropine. Atropine is far superior as an antidote when intravenously injected by a doctor.

Labels of anti-cholinesterase compounds include in the Safety Directions, 'Obtain an emergency supply of atropine tablets 0.6mg'. These tablets can be obtained in packs of 20 without a prescription. They should only be administered on the advice of a doctor or the Poisons Information Centre.

Pesticide precautions

Obtain **Material Safety Data Sheets** (MSDS) for the pesticides you use. These sheets have details about precautions for use, safe handling and storage, manufacturer's contact point, emergency procedures, health effects and first-aid. These sheets are available from the manufacturer or chemical resellers.

- Before using a pesticide, always check the label for its toxicity and the recommended safety and first-aid procedures.
- If you have to spray by yourself, always tell someone where you will be spraying and how long you will be away.
- Don't carry pesticide containers in the cabin of trucks or utes or in the passenger section of cars. Secure the containers in a spill tray or separate compartment.
- Take great care when mixing and applying pesticides, and when entering or working in treated areas after spraying, as the risk of poisoning is greatest at these times.

Obey the **re-entry** time on the pesticide label. This period is the time it takes until all sprays have dried, dusts settled or vapours dispersed. Poisoning may occur from breathing pesticide fumes (such as in greenhouses), but more usually from handling treated plants too soon after spraying. During the re-entry period, no hand labour should be performed in the treated area without protective clothing until the designated re-entry time has elapsed. Machinery should also be excluded during the re-entry period. Where no label warnings are provided it is best to wait at least 24 hours after spraying with Schedule 6 pesticides and 48 hours with Schedule 7 pesticides. Wait 48 hours where wettable powder formulations of Schedule 6 pesticides have been used and cultural operations require contact with the sprayed foliage.

Have regular blood and urine tests

For some pesticides, tests are now available. OP tests will detect poisoning and will indicate whether your protective clothing and safety measures are adequate when handling and using pesticides. You can arrange the tests through your local doctor, WorkCover Authorised Medical Practitioner or at the outpatient section of most larger hospitals.

You need to have the tests **before** you handle or spray pesticides. This is to establish a baseline for any tests you may have after spraying operations have begun for the season. This baseline is essential so the results of later tests can be interpreted properly.

Prominently display the telephone numbers for your local GP, hospital and the Poisons Information Centre, on 131 126 (24 hours). Keep a **First Aid Kit** of soap, clean towel and 20 litres of clean water.

First aid treatment

First Aid is not a substitute for professional medical attention. Always seek professional help after giving First Aid treatment such as thorough washing. Recommended First Aid procedures for each pesticide are printed on the label. Make sure you read them before using the pesticide.

Immediately and thoroughly drench any area of skin that comes into contact with the spray mix, and especially product concentrate, with water (remove any contaminated clothing) cleanse with soap and water, rinse again, cleanse again and then rinse again.

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