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# Individual set of auto-injector against Toxic Warfare Agents



Individual auto-injector kits which have been included in the equipment of the Polish soldier for several years, contain

- ▶ *atropine - a natural antagonist of acetylcholine, which - following the inhibition of the AChE activity by CWAs - excessively accumulates on neuromuscular junctions and synapses of the nervous system, which results in characteristic muscarinic-like and nicotinic-like symptoms,*
- ▶ *pralidoxime+ atropine - a reactivator of the CWA-blocked enzyme AChE (acetylcholinesterase),*
- ▶ *diazepam - which has sedative and anticonvulsant effect*



An individual auto-injector kit contains auto-injectors designed for intramuscular administration of drugs for self-aid or buddy-aid on the battlefield

Administration of drugs (antidotes) by means of auto-injectors saves the lives and health of soldiers before they receive specialist medical care (e.g. in hospital).

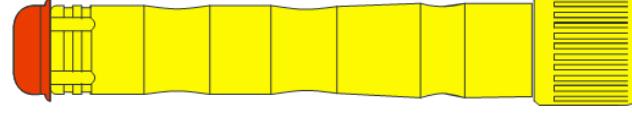
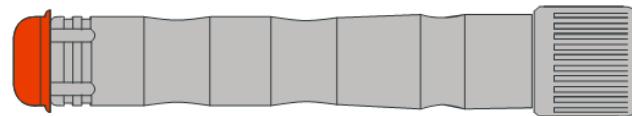
Auto-injectors contain:

- ▶ drugs (antidotes) for treating poisoning with nerve chemical warfare agents, i.e. sarin, soman, tabun and VX, or,
- ▶ An auto-injector is an easy-to-use device, and it can be used by every soldier on the battlefield, if necessary. To ensure proper use of auto-injectors and the drugs (antidotes) contained therein, every soldier should undergo theoretical and practical training (with the use of training auto-injectors), under the supervision of a doctor.

## Components of Auto-Injector

An individual auto-injector kit injector comprises the following auto-injectors:

- ▶ brown (large), with a yellow cap, containing 2 mg of atropine sulphate and 600 mg of pralidoxime chloride,
- ▶ yellow (small), containing 2 mg of atropine sulphate,
- ▶ grey (small), containing 10 mg of diazepam, contained in a collective packaging (in the shape of an eyeglasses case), which is to be carried in a special canvas pouch that can be fit in the MOLLE system;

		COLOR		Weight <sup>1</sup>
1	single chamber	bright yellow ATROPINE		35 g
		Grey- DIAZEPAM		
2	dual chamber	light brown/bright yellow PRALIDOXIME +ATROPINE		42 g

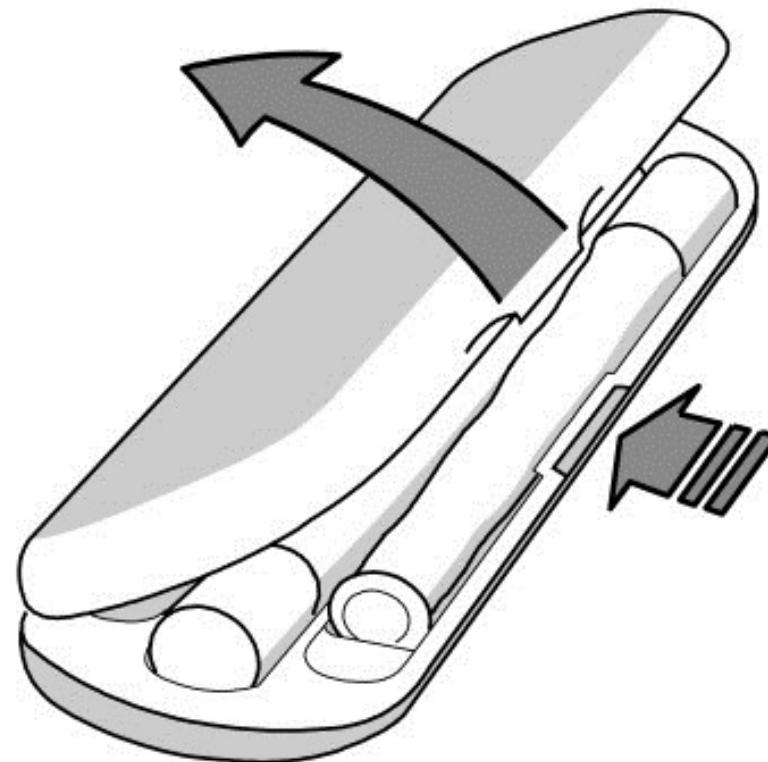


## Principle of operation of auto-injectors

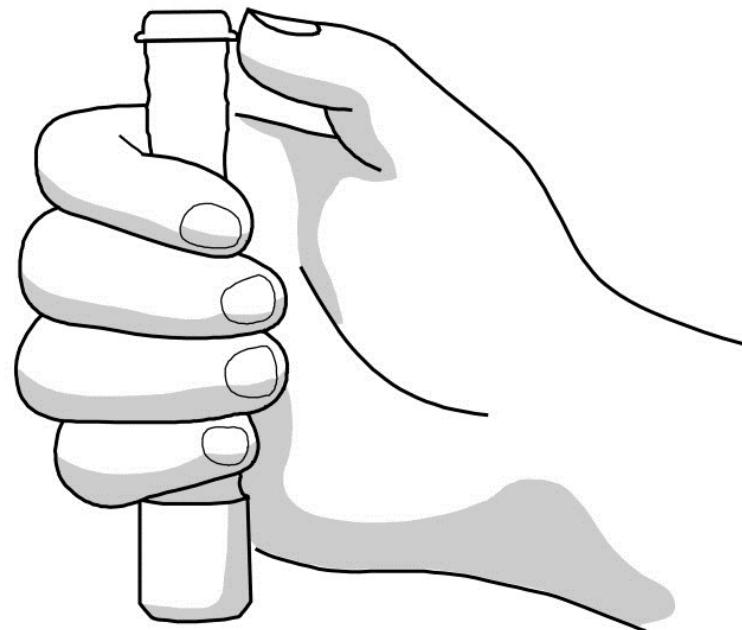
- ▶ An auto-injector has a container with drugs (antidotes). Once the triggering mechanism is released, the needle comes out automatically and is inserted into the body (into the muscles, at the site where an auto-injector is positioned)
- ▶ The drugs are injected into the body via the needle introduced into the muscles. Drug administration, that is complete emptying of the drug container, takes below 6 seconds at the most.
- ▶ Insertion of the needle is usually accompanied by slight pain, comparable to the one experienced when given an intramuscular injection in hospital to administer a drug, or during the blood drawing procedure.

## Preparing an auto-injector for use

- ▶ Remove the auto-injector from the outer protecting packaging directly before use - Figure 1 (by pressing the case safety catch).

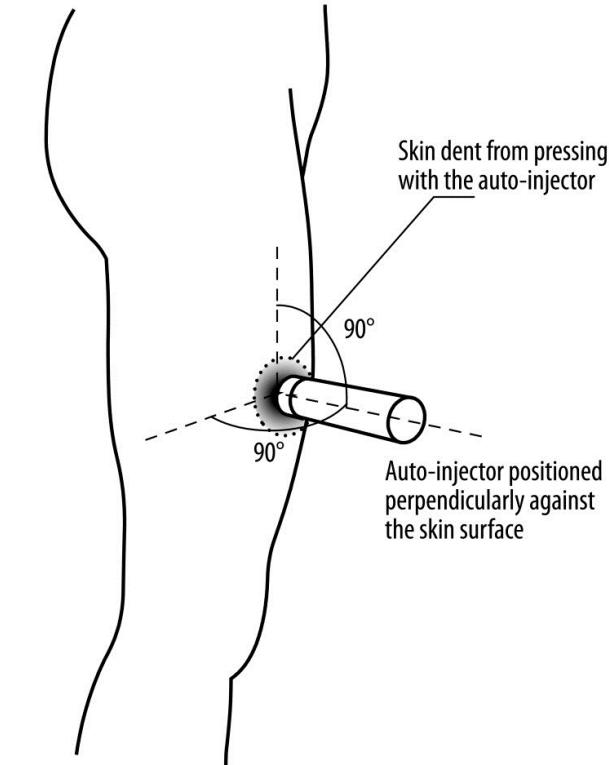
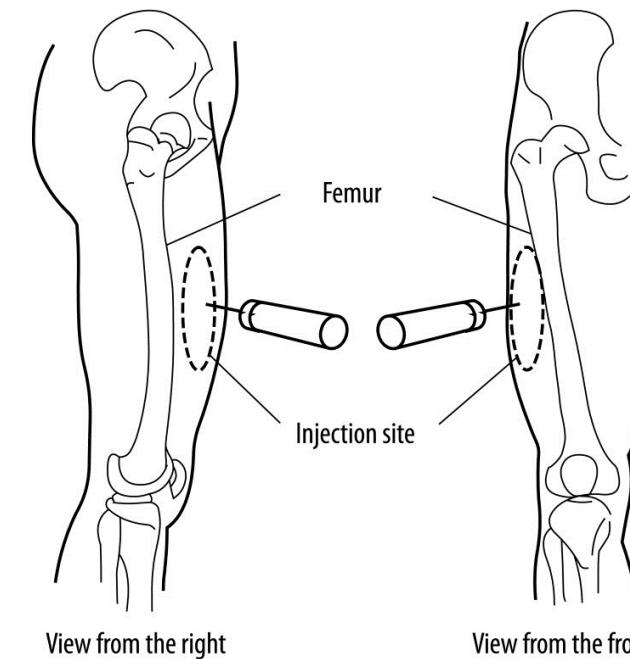


- ▶ Hold the auto-injector in the hand that is used for most activities - Figure 2 (right hand if you are a right-handed person). If the dominant hand is injured, use the auto-injector with the healthy (fit) hand.

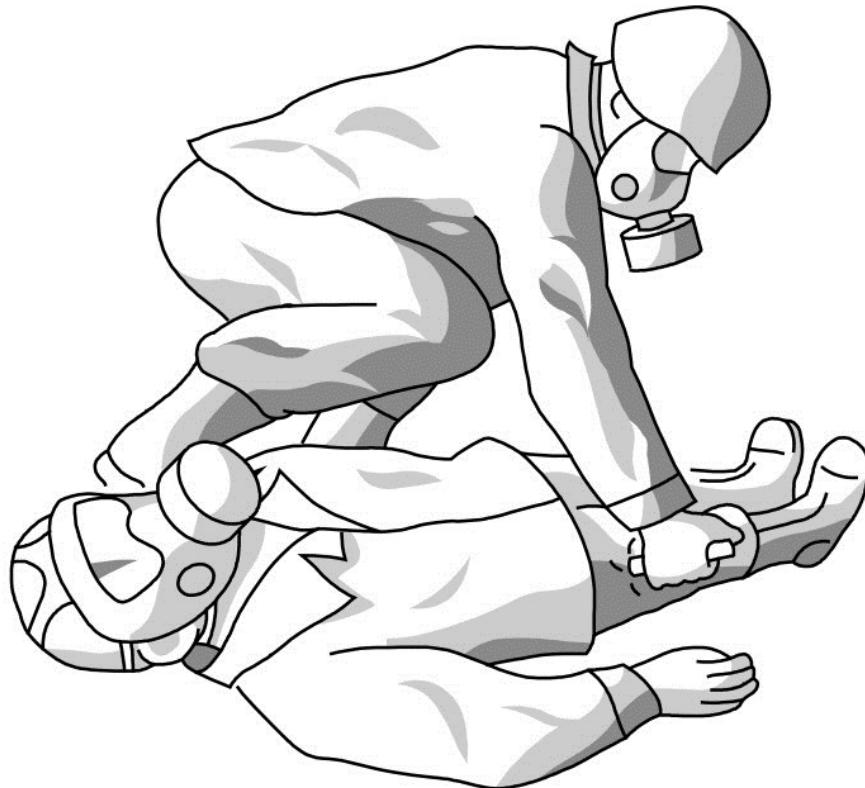


## Positioning the auto-injector for injection

- ▶ The needle end of the auto-injector should be positioned against the injection site and pressed hard enough for the skin to dent slightly at the site where the auto-injector is positioned.
- ▶ Position the auto-injector perpendicularly (at the angle of 90 degrees) against the body surface. Incorrect positioning of the auto-injector while administering the drug can result in its damage or failure to administer the dose. Correct positioning of the auto-injector is shown in Figure 3.



Use of the auto-injector for buddy-aid - injection into the thigh.



**The drug is administered automatically, once the triggering mechanism is released. You should wait for about 6 seconds for the auto-injector to be emptied. While administering the drugs, the auto-injector must not be detached from the body surface or redirected.**

Treatment of poisoning with nerve CWAs should be provided immediately once the poisoning symptoms occur. Auto-injectors for self-aid or buddy-aid allow immediate injection of necessary drugs (antidotes).

Treatment on the battlefield with the use of auto-injectors with antidotes is an indispensable, life-saving stage of treating CWA poisoning, which will be continued by medical staff at the next stages of medical evacuation.

Auto-injectors must not be used if there are no symptoms of poisoning with nerve CWAs. Unjustified use of auto-injectors can entail unfavourable effects on health and reduce combat abilities of soldiers

## Sequence of use of auto-injectors

In the event of poisoning with nerve CWAs:

- ▶ yellow auto-injectors atropine should be used as first
- ▶ brown auto-injector with a yellow cap (containing atropine and pralidoxime) should be used as a second
- ▶ followed, if need be, by an anticonvulsant with the use of a grey auto-injector (in accordance with the principles

## Principles for use of auto-injectors in buddy-aid

- ▶ First, one should rescue oneself, then one can start rescuing others. Auto-injectors can be used for rescuing other soldiers (buddy-aid), who are not able to self-administer the drugs due to sustained injuries or intensified symptoms of poisoning.
- ▶ In buddy-aid, auto-injectors from the rescued person's kit are to be used as first, then, from the rescuer's own kit or the kit belonging to a casualty or a person who has not been poisoned. Prior to using the auto-injector, the injured person should have a gas mask put on.

## Brown auto-injector with a yellow cap (two drugs: atropine and pralidoxime)

- ▶ In case of symptoms of poisoning with nerve CWAs, use yellow auto-injector with a (atropine)
- ▶ An additional autoinjector with pralidoxime+atropine should be used after 5-10 minutes from administration of the previous dose of atropine the poisoned person experiences significant increase in the heart rate (rapid heartbeat) and mouth dryness

## Grey auto-injector (diazepam)

An auto-injector with diazepam is to be used if:

- ▶ convulsions have not occurred yet, but the poisoned person has already received three doses of atropine (including the green auto-injector) or
- ▶ convulsions occur in the poisoned person.

## Requirements regarding usage safety.

- Because Auto injector contain substances of a very potent influence on the human organism, it is necessary to maintain strict precaution measures and to follow provisions and recommendations of their use.
- Use according to instructions only.

## Service and repair.

- Usage of an individual kit of spare parts and/or of a repair kit that could be carried together with Auto injectors is not anticipated.
- Auto injectors do not require any special maintenance procedures.

## Storage and transport conditions.

- Auto injectors are designed to be stored, transported, and carried in field conditions and temporary accommodations (tent, shelter, hiding places, etc.).
- Auto injectors may be transported by any means of transport.
- Auto injectors should be stored in rooms protected against direct solar radiation and at room temperature (2°C - 25°C).