

# toxtidbits

THE MARYLAND POISON CENTER'S MONTHLY UPDATE.  
NEWS. ADVANCES. INFORMATION.

## What is "Krokodil"?

"Krokodil" (also known as "Crocodil" or "Kroc") is a slang term for desomorphine, a homemade opioid analgesic. It is used as a heroin substitute, primarily in Russia where heroin is expensive and in short supply. Estimates of Krokodil users in Russia have ranged from more than 100,000 to one million. Desomorphine is made easily from codeine tablets (available over-the-counter in Russia prior to June 2012) and other chemicals which may include iodine, red phosphorous, gasoline, paint thinner, lighter fluid and hydrochloric acid.

The opioid effects of desomorphine are similar to heroin but it has a faster onset and is more potent. When injected, the duration of desomorphine is much shorter, less than two hours. The short duration accounts for the high addiction potential of the drug. Since desomorphine takes at least thirty to sixty minutes to synthesize, users often spend most of their day making the drug so that they can inject again to prevent withdrawal symptoms.

The slang term "Krokodil" might be derived from the name of a precursor (alpha-chlorocodide), but more likely from the appearance of the injection site: a greenish color and scaly, like a crocodile. The drug that is injected is probably contaminated with the harsh chemicals used to manufacture it as well as other toxins (e.g. heavy metals), causing immediate damage to blood vessels and surrounding tissue. Abscesses, infections, thrombophlebitis, necrosis, bone destruction and gangrene are common findings in regular users, often requiring amputations. In Russia, the average life span of a regular user of Krokodil is one to two years.

Recently, there have been widely distributed news reports of possible "Krokodil" cases in the United States. The first two possible cases occurred in the Phoenix area in September 2013, and involved soft tissue injury consistent with what has been seen with Krokodil. Other similar cases quickly surfaced in Illinois, Utah and elsewhere, with patients developing tissue damage at injection sites. However, to date, no cases have been confirmed in the United States, and some have been determined to be infections after injecting heroin. The Drug Enforcement Agency has not obtained any drug samples that have tested positive for desomorphine. Because heroin is easy to get in the United States and codeine is a controlled prescription drug, there is little incentive to make and use Krokodil in place of heroin. Until evidence shows that Krokodil has been involved, other causes of lesions in IV drug abusers should be explored.

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## Did you know?

**Desomorphine was first synthesized in 1932 in the United States.**

Desomorphine was originally intended to be an alternative to morphine with greater analgesic potency. However, it was quickly discovered that its addiction potential was greater than with morphine, limiting its usefulness. It was named a controlled drug in the United States in 1936 and is currently a Schedule I controlled substance. Desomorphine was marketed as an analgesic in Switzerland under the trade name Permonid until 1952. It continued to be manufactured for a single Swiss patient until 1981.

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