

# Cocaine

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## Cocaine

- Central nervous system stimulant
- Derived from the leaves of the *Erythroxylum coca* plant
- Can be used in powder, liquid, or crystal form
- Can be snorted, inhaled (“freebasing”), or injected
- All the body’s membranes can absorb cocaine (subcutaneous, sublingual, intravaginal, rectal, etc.)

Sources: Finnell & Harris, 2002; Hamid, El-Mallakh, & Vandeveir, 2005; & Visalli, Turkall, & Abdel-Rahman, 2004

## Historical Overview

- Indigenous Peruvians once considered the coca plant to be divine
- They named it “khoka” which means “the plant”
- Europeans changed the name to “coca” after being introduced to the khoka plant around 1530 A.D. after Francisco Pizarro’s conquest of Peru

Source: Ruetsch, BÖni, & Borgeat, 2001

## Historical Overview

- 1859-1860, German scientist, Albert Niemann, coined the term “cocaine” after successfully isolating the main alkaloid of the plant
- 1856, Samuel Percy was the first to suggest that coca leaves could be used as an anesthetic
- 1884 used in clinical practice

Source: Ruetsch, BÖni, & Borgeat, 2001

## Today’s Medical Uses

- Local anesthetic - used primarily by otolaryngologists because of its anesthetic and vasoconstrictive properties
- Nasal packing - emergency department physicians also use a liquid form of cocaine to treat epistaxis, by soaking nasal packing in the liquid before inserting it.
- Used in combination with epinephrine and a synthetic local anesthetic prior suturing wounds in pediatric patients

Sources: Finnell & Harris, 2002 & Ruetsch, BÖni, & Borgeat, 2001

## Pharmacology

- Active ingredient - cocaine hydrochloride
- Classified as a local or topical anesthetic
- Effects of can be seen in as little as 3 seconds and last as long as 90 minutes

Sources: Finnell & Harris, 2002; Hamid, El-Mallakh, & Vandeveir, 2005

## Effects of Cocaine

- Rapid and intensely euphoric sensation commonly called a “rush”
- Increased heart rate
- Chest pain
- Cardiac arrest
- Tremors
- Breathing irregularities
- Hyperthermia
- Intense sweating
- Panic
- Agitation
- Paranoia
- Hallucinations
- Delirium
- Seizures
- Pseudovasculitis

Source: Friedman & Wolfsthal, 2005; Kay & Darke, 2004 & Mateo, Budygin, Morgan, Roberts, & Jones, 2004

## Cocaine Toxicity

- Chest pain
- Hypertension
- Tachycardia
- Myocardial ischemia and/or infarction
- Pulmonary edema
- Aortic rupture or dissection
- Cardiac dysrhythmia
- Hemorrhagic stroke
- Endocarditis
- Myocarditis
- Cardiomyopathy
- Sudden death

Source: Finnell & Harris, 2002

## Common Street Names

- Blow
- Coke
- Charlie
- Pearl flake
- Devil’s dandruff
- Stardust
- Rock
- Snow
- Toot
- Peruvian marching power

Source: Hamid, El-Mallakh, & Vandeveir, 2005

## Street Names continued...

The crystal form of cocaine is also known as:

- Crack
- Base
- Free base
- French fries
- Ready rock
- Rock

Source: Hamid, El-Mallakh, & Vandeveir, 2005

## Testing

- Testing can be done using blood, urine, hair, and sweat
- If maternal cocaine use is suspected, neonatal meconium and hair samples can be used to screen for in utero exposure to cocaine, especially when urine tests are negative

Source: Bar-Oz, Karaskov, & Koren, 2003

## Cocaine Use Statistics

- 1% American youths age 12 to 17 use cocaine
- 2% of young adults age 18-25 use cocaine
- 0.7% of adults age 26 and older use cocaine
- In 2004, nearly 1 million people used cocaine for the first time

Source: U.S. Department of Health and Human Services Office of Applied Studies, 2004

## Resources

- Bar-Oz, B., Klein, J. Karaskov, T., and Koren, G. 2003. Comparison of meconium and neonatal hair analysis for detection of gestational exposure to drugs of abuse. *Archives of Disease in Childhood – Fetal and Neonatal Edition*, 88: 98-100.
- Finnell, J. T. and Harris, C. R. 2002. Cardiovascular toxicity of selected drug overdoses. *Topics in Emergency Medicine*, 22(1): 29-41.
- Friedman, D. R. and Wolfsthal, S. D. 2005. Cocaine-induced pseudovasculitis. *Mayo Clinic Proceedings*, 80(5): 671-673.
- Hamid, H., El-Mallakh, R. S., & Vandevair, K. 2005. Substance abuse: medical and slang terminology. *Southern Medical Journal*, 98(3): 350-362.
- Kaye, S. and Darke, S. 2004. Non-fatal cocaine overdoses among injecting and non-injecting cocaine users in Sydney, Australia. *Addiction*, 99: 1315-1322.
- Mateo, Y., Budygin, E. A., Morgan, D., Roberts, D. C. S., & Jones, S. R. 2004. Fast onset of dopamine uptake inhibition by intravenous cocaine. *European Journal of Neuroscience*, 20: 2838-2842.
- Ruetsch, Y. A., Böni, T., & Borgeat, A. 2001. From cocaine to ropivacaine: the history of local anesthetic drugs. *Current Topics in Medicinal Chemistry*, 1(3): 175-182.
- U.S. Department of Health and Human Services Office of Applied Studies. 2004. *National Survey on Drug Use and Health (NSDUH)*. Retrieved November 17, 2005 from <http://www.oas.samhsa.gov/NSDUH/2k4nsduh/2k4Results/2k4Results.pdf>
- Visalli, T., Turkall, R., and Abdel-Rahman, M. S. 2004. Cocaine hepatotoxicity and its potentiation by lipopolysaccharide: treatment and gender effects. *International Journal of Toxicology*, 23: 163-170.