

Heroin Encyclopedia Article

Heroin

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Contents

Heroin Encyclopedia Article.....	1
Contents.....	2
Heroin.....	3

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In 1868, Alexander Crum Brown (1838-1922), professor of chemistry at the University of Edinburgh in Scotland, and Thomas Fraser (1841-1920) examined quaternary ammonium salts of various alkaloids (organic compounds) and found that they, unlike the parent alkaloid, had a paralyzing effect. This established that chemical structure (arrangement of atoms) could confer particular types of biological activity on given molecules. Researchers became interested in altering the chemical structure of other compounds to produce changes in biological activity. One of these was Alder Wright, a chemistry lecturer at St. Mary's Hospital Medical School in London. He mixed morphine and codeine with organic acids and produced diacetylmorphine, which was tested in 1874 by F. M. Pierce but not put into use.

In the 1890s, Heinrich Dresler (1849-1929) of the Frederick Bayer pharmaceutical company in Germany, started seeking a substitute for morphine, which depressed respiration and therefore sometimes killed severely injured patients. In 1898 he rediscovered diacetylmorphine, which he considered the ideal morphine substitute--nonaddictive (like the earlier morphine analogues), effective in relieving pain, and with no depressant effect on breathing. Bayer immediately began marketing the drug under the trade name Heroin, advertising it as, among other things, "the sedative for coughs." Heroin rapidly became popular worldwide. Four years later it was discovered that heroin, far from being benign, was one of the world's most addictive substances, prompting many countries to soon pass laws to strictly control its use.

Heroin is extremely addictive partly because long-term use increases tolerance, requiring the user to take larger doses to achieve the same "euphoric" effect. After prolonged use, withdrawal symptoms--like aches, sweating and chills, and tremors--can be severe. Recent studies have linked some cases of heroin addiction to a gene on chromosome 11. This gene codes for a dopamine receptor on brain cells, and some drug addicts appear to have a long form of the gene. Heroin addiction remains a serious problem today.