

PHYSIOLOGY

Withdrawal From Drugs

➤ **METHADONE**, a drug doctors have now adopted for treatment of addicts, has been used on Federal prisoners since 1948.

Down on the "Narcotics Farm," in Lexington, Ky., methadone has been making the addicts' painful withdrawal from the habit a little bit easier.

The synthetic drug is much the same as morphine in its uses and effects. Methadone is given to patients to withdraw them from their addiction to opiates. Habit-forming itself, methadone is given in small, controlled doses during a short period of time. The final withdrawal from methadone does not leave the patient with severe suffering.

The milder withdrawal effects of methadone compared to morphine are its main advantage. Dr. Everette May of the National Institutes of Health who has studied the chemistry of this synthetic pain-killer says that withdrawal symptoms last longer with methadone than with morphine. Some patients would prefer the sudden, total withdrawal treatment or cold-turkey method, he says, but methadone is much safer.

Methadone is no wonder drug for addicts, but it is just about the best now available. A similar drug, phenazocine, developed by Dr. May and Dr. Nathan B. Eddy, also

of NIH, is a more potent pain-killer, has a shorter withdrawal period and entails somewhat less risk of addiction than methadone. The Lexington authorities, however, believe the advantages over methadone are not great enough to warrant changing to phenazocine therapy.

The American Medical Association has endorsed the use of methadone to tide addicts over until they can be admitted to institutions. Such treatment was formerly feared to be unethical.

Physicians have used methadone, however, as a pain-killer. Since it can be taken orally, it is helpful in treating chronic, intermittent pain. As a pain-killer, methadone is more widely used in Europe. American hospitals rely mainly on morphine and Demerol.

The drug came to the U.S. after World War II. It was discovered in the files of the I. G. Farbenindustrie, a chemical cartel. It was developed as a pain-killer by the Germans who did not have the opium to produce morphine.

Because it is a synthetic, and thus hard to come by, there has been little illicit traffic in methadone.

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BIOCHEMISTRY

Stress Response Controlled by Brain

➤ **FOR THE FIRST** time in human beings, how the brain controls chemical or hormonal responses to stress has been demonstrated.

A group of patients being evaluated for surgical treatment of epilepsy were observed by Drs. Arnold J. Mandell, Loring F. Chapman, Robert W. Rand and Richard D. Walter of the Neuropsychiatric Institute of the University of California, Los Angeles.

Tiny wires were implanted in deep brain centers to locate precisely the abnormal brain segments responsible for epilepsy so that they could be removed by surgery. In the process of surgical evaluation, the investigators were able to study normal parts of the brain.

By sending small electric currents through the wires, it was possible to stimulate brain structures thought to be involved in the stress response. These structures are called the limbic system and include parts of the brain known as the amygdala and hippocampus.

Electrical stimulation of these sites initiates a series of hormonal responses that start in the pituitary or master gland, and extend to the adrenal glands atop the kidneys.

This series of hormonal events is known as the stress response.

It has been demonstrated many times in experimental animals. But until the new techniques for brain surgery were introduced in man, it was not shown in human beings.

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PSYCHOLOGY

Drug Addicts Need Medicine Not Punishment

➤ **MEDICINE** must come before punishment in treating drug addicts, committees of the American Medical Association and the National Academy of Sciences recommend. Stressing that drug addicts are sick people, not criminals, the committee urged a comprehensive overhaul of U.S. law and policy on addiction.

Treatment and rehabilitation centers, the AMA and Academy committees recommend, are keys to solving the addiction problem. The core of the problem is not readjusting the addict's body to a drugless state, but helping his mind to overcome the desire to flee from reality by taking drugs.

If the underlying causes of addiction are not cleared up, the addict is likely to return to the habit even after he has been withdrawn for a period of time.

Between the lines of the committee's report, there is criticism of the position taken by the Federal Bureau of Narcotics and its supporters. They regard addiction as a crime subject to police control and prison cures.

The report, however, called for better coordination of penal and medical treatments and recommended developing medical groups to collaborate with the Federal Bureau and state agencies on the addiction problem. It was made at the request of retired Judge E. Barrett Prettyman of the U.S. Court of Appeals, Washington, chairman of the President's Advisory Commission on Narcotic and Drug Abuse.

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Questions

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GENERAL SCIENCE—On what subjects has the National Bureau of Standards prepared extensive tables? p. 6.

SPACE—What do scientists now believe is the shape of the earth? p. 7.

TECHNOLOGY—How far below the earth's surface would radio waves, in a new communications system, travel? p. 13.

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