

SCIENCE REFERENCES BACKGROUND

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For more information on Narconon Drug Education go to: www.drug-education.org

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NARCONON DRUG EDUCATION SCIENCE REFERENCES

Narconon Drug Education Presentations Science References and Background

With so many speculations and opinions regarding drug use and abuse, it is no wonder that the field is inundated with false information.

Narconon drug education presentations and teacher lesson plans provide people with the *truth* about drugs, often for the first time. They are dedicated to enlightening people of *all* ages so they can make the rational decision to live drug free.

In order to provide a more in-depth background of Narconon drug education presentations, we are presenting this compilation of scientific documentation from doctors, researchers and professional scientists. These documents provide a more in-depth view of the facts presented in Narconon drug education presentations.

This book covers topics such as: drug toxicity and drugs acting as poisons; the basic effects of drugs; alcohol, tobacco and the media; drug residues and metabolites in the body; the nutritional deficiencies drugs create and the mental effects of drugs (on memory, emotions, etc.).This book additionally provides background information on the subject of drug education itself and its importance in society.

Use this book to get more information and to give others who are interested a more thorough understanding of both Narconon drug education presentations and the Narconon teacher lesson plans, and the science underlying them.

Note: The information contained in the miscellaneous researches and studies berein do not necessarily represent the views of Narconon International or any of its affiliates.

The Necessity of Drug Prevention and Education

The cost to society of drug abuse and addiction is immense. The work and funds necessary to rehabilitate each individual, though essential, just adds to this liability. While working diligently to help individuals already addicted, it is vital to engage in a worldwide effort to prevent further substance abuse and halt the degeneration of our cultures.

Narconon drug education presentations and drug education lessons cover a variety of different substances and aspects of substance abuse. Our interactive presentations speak to people at their level of understanding. The Narconon drug education program provides youth and adults alike with the truth about drugs so they can live successful, drug-free lives. It is necessary that we work quickly, shoulder to shoulder with friends and neighbors in communities and cities, to achieve an alive and drug-free society.

The Narconon drug education program does not focus on "harm reduction," nor does it use exaggerations as "scare tactics" to keep kids away from drugs. Narconon focuses on education first and foremost. We know if children are given the truth about drugs, and are given all the information, they can and will make the right decision—a decision they know is the right decision, to live drug free.

The key points to keeping kids drug free are *knowledge, responsibility* and *control*. If children are given the truth about drugs, if they *know* and *understand* what drugs are and how using drugs will affect their future, and if they know that *they* are responsible for their decisions in regards to drugs, they *will be responsible* for their actions and make the right decision, and *control* their own lives (and those of their friends) to stay drug free.



The National Clemer an Attiction and Substance Abuse at Cituretea University

Malignant Neglect: Substance Abuse and America's Schools

September 2001

Funded by:

Conrad N. Hilton Foundation Primerica Financial Services The Atlantic Philanthropies Without the active engagement of parents, students and community members in broad efforts to prevent substance use, curriculum programs alone are little more than "feel good" Band-Aids on the problem of student substance use and abuse.

("Malignant Neglect: Substance Abuse and America's Schools," The National Center on Addiction and Substance Abuse at Columbia University, 2001 Sep)

Under zero-tolerance socalled prevention education has consistently delivered biased and even false information.... As a result, we (the US) deliver indoctrination instead of education, and indoctrination falls flat in the face of experience common among young people in the USA.... That such "scare tactics" do not work and are if anything counterproductive has been rediscovered at least three times in the 100-year history of drug prevention in the USA, beginning long ago in the alcohol temperance movement....

The key to developmental learning is the relationship between adults and young people rather than the content of a curriculum package. The right kind of relationship involves trust... It involves respect... It involves flexibility... It involves responsibility...

Relationship and process are the keys to learning when that learning is about choosing a healthy and productive way of living...

("Harm Reduction Prevention Policy: A Public Health Perspective on High-Risk Youth Behavior," Skager, R. 2002 Jul) DRUG POLICY ALLIANCE



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Harm Reduction Prevention Policy: A Public Health Perspective on High-Risk Youth Behavior

Bager, Rainey PKB, "Harm Bastacken Prevention Pulsy: A Public Realth Paragettive on High-Rok Truck Bastavin." Heatum Address for Winder School in the Sun Contentive, Brothem, Australia, July 5, 2003.

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"Drugs essentially are poisons. The degree they are taken determines the effect. A small amount gives a stimulant. A greater amount acts as a sedative. A larger amount acts as a poison and can kill one dead.

"This is true of any drug. Each has a different amount."

L. Ron Hubbard, August 1968

The fact that all drugs are basically poisons has been supported and documented in many cases. Though they are certainly not lethal in all cases, the essential character of a drug is that of a poison and all drugs can be dangerous in this way. As early as the 19th century, it was noted that "Poisons and medicines are oftentimes the same substances given with different intents." *(Latham, 1875)*

The stimulatory effects of poisons has been noted and used in practices such as homeopathy. (*Bastide, Lagache, 1997*)

The depressant and lethal effects of drugs are also broadly observed. It is for this reason that extensive testing of drug products is done—to find the exact amount that will produce toxic effects in both short-term and long-term administration and most importantly a lethally toxic effect. *(The Merck Manual of Diagnosis and Therapy)*

Herb-drug interactions

Alone Papil-Rimon

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("Herb-Drug Interactions," Fugh-Berman A. Lancet, 2000, 355(9198): 134-8) The [cellular] receptor for a specific compound tends to come in two flavors: stimulatory or inhibitory. When the concentration of the drug is low, the stimulatory type of receptor is more likely to be activated; at higher levels, inhibition takes over. Opiates work this way, for example.

("Sipping From a Poisoned Chalice," Kaiser J. Science, 2003 Oct 17; 302(5644): 376-9)



The initial statement of the "Arndt law" was that "weak stimuli slightly accelerate the vital activity, middle-strong stimuli raise it, strong ones suppress it and very strong ones halt it."

("Is Similia Principle Related to the Arndt-Schultz Law and Hormesis?" Bastide M, et al. Paper presented at the 53rd Congress of the Int Homeo Medi League, Amsterdam, 1998 Apr)

IS SIMILIA PRINCIPLE RELATED TO THE ARNDT-SCHULTZ LAW AND HORMESIS ?

Madeleine Bastide*, Agnés Lagache**

*Ph.D., Professor of Immunilegy, Laboratory of Immunology, Faculty of Pharmacy, University Montpellier L France **Ph.D., Professor of Philesophy, Paris, France.

Paper presented at the 33 congress of the IPAR, I International Homeopathic Medical Legane, Antaredam, April, 1998

Since two centuries, blomcopathy is characterized by the similia law: a patient needs to be cored by the remedy which produces in a healthy subject the same morbid phenomena as those observed in this patient. The idea of cancelling the symptoms by using "homosopathic" remedy around several hypothesis such as the Arash-Schulz law. The idea of the caration by a standaring process induced by a pathegenic substance second to be possible and sometimes the similarity was robuced to by a pathegenic substance second to be possible and sometimes the similarity around by a pathegenic substance second of these hypothesis.

Areach stated firstly that "sensit ational's alignedy accordenate the visal activity, middle-serving ational raise di, strong once suppress it and very strong ones hall it". Schultz published various estamples of your gives this stimulation by using subtoxic concentrations of various process such as isolate, bromsine, assembless acid etc.; the Arado-Schultz law was expressed as follows: "Every stimulation on a living relf after's an activity which is insurably proportional to the intensity of the stimulation, 1946a, 1990. Obserbaum and Cambar, 19943, Southans and Efficien (1944), who reported the stimulatory effect of an antifungal when used at low dones, proposed the terms of "hormensis" defined as "the intensitiony effect of subishibitory concentrations of any toxic substance on any organises". Subbing (1983) developed the concept with many other scientists. Hormensis is considered as a non-specific phenomenon concentration of any toxic substance on any organism. It exists for all the living organisms. This "action-reaction " model shows the efficacy in the "visal activity" in Eghting the posion in a non-specific way even though specific defence moderoles are also syntheticed. It has been shown in a very moders and important pathological model that a single door of an antitizensempressive substance circipating is sub-toinduce increased hymphokine-activated killer activity [Arinaga, 1944]. It was demonstrated by Wagnet et al. [1988] that low dones of cytomistic agents stimulate human granulocytes and property stimulate provth. This phenomenous anneed Arado-Schultz law or hornesis is considered below (Fig.1).

Evaluation Of Drug

Toxicity

In the USA, the Food and Drug Administration (FDA) regulators the investigation of drugs. Pharmanning and the storage data from salinal (prediction) studies are radionized to the FDA as part of on application for an investigational new drug (DSD) if these this downsmitten that the drug is self-simulation and effective, beams (classical) studies are radionized to there phases; data from these tenders are submitted to part of a new drug application (NDA). Although the FDA is required to this actions are radionized to find a new drug application (NDA). Although the FDA is required to this actions are radionized to find a new drug application (NDA). Although the FDA is required to this actions are radionized to find a new drug application (NDA), arongeng the YDA results that from these tendens are radionized to the phases;

ANIMAL STUDIES

The plasmuothinetic, plasmuothynamic, and texicologic properties of a drog neuri be evaluated and documented in anisotic according to FDA regulations (Ocorl Laboratory Plastices) before truthy in bosons. Two main surroup/focus are main: The effects of cleanisch in appropriately soliced laboratory nationals apply to humans, and the use of high doces in these anisotic is a scoreasy and salid anched for discorrecting penalisis tend on the sure of high doces in these anisotic is a scoreasy and salid anched for discorrecting penalisis medi and the sure to faunt true -incidence toxic response.

The solidy of a drug in determined by studying the acent, subchronic, and chemic toricity of the drug in several animal spectre.

Acute Toxicity

Initial accent testinity medies are constructed to descension the initial does $(1.D_{30} \approx 1.D_{30})$, the does required to kill 30% or 20%, respectively, of the bidecatory assimult), toxic try mytoms, and the time symptoms appear. Usersly, at least three species of animals (including one consolution) are used, and active trajectly is determined by more than one administration mode. In recent year, force animals have been used to determine leftsoly, with a corresponding reduction in precision. The presto promises a not assessing the overall toxicity assessment in homans, because the $1.D_{30}$ or $1.D_{30}$ has to the predictive value noises accompanied by due lines incare to main state using training measures often than dueb.

Subchronic Taxicity.

Subchronic trackity stuffine, availabeted in at least two animal species, smally consist of thely administration of the dosp for up to 90 days. In each species, at least three dose levels are used, varying

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transmit and the local sections. The

Adverse Drug Reactions

Adverse drug machines (AZNa) include a wide wainty of testic drug machines that occur during treatment. The term would be socialed mathemapeutic overdosage (eg. toxicities due to accidental exposure or attempted suicide) and lack. of efficacy.

Physicians play an important role in documenting ALRs, particularly those associated with newly marketed deeps. Even if physicians cannot attribute a cannot role to the deep, they should report all serious or unexpected ALRs to the FDAV ALR membring program. MoRWaith, as early order optimes, David through and the reporting can unexpected ALRs be elsevidated and investigated facther. MoRWarks does monitors changes in the nature or frequency of ALRs due to aging of the population, changes in the disease, and the introduction of new, concernent theory processor. *Tool Reports and Contexpected ALRs between the population of the testicated and the population of an and AMD Deep Evolutions estimates in simple forms for reporting ALRs to the FDA. Forems are mailed to all physicians at least yearly as part of the <i>FDA Cong Evolution* and may be obtained day or night by calling 800-800-1088, Information about reporting ALRs is available at www.ida gast modewatch. Nations, pharmacicta, and other health care present disorded to the spectra of the starts.

ADRs are needly classified as mild (de-inst require an antidate, therapy, or prolongation of bospitalization) moderate (require a change in, but not necessarily constant of, the drug and may prolong hospitalization or require special treatment) servers (are potonially life threatwang, requiring discontinuation of the drug and specific treatment of the adverse resultion), or lothal (directly or indirectly contributes to the patient's death).

For marketed despt in the USA, ADBs account for 3 to 7% of all hospitalizations. In prospective studies, ADBs occurred during 13 to 10% of hospitalizations, and about 18 to 20% of the ADBs were server. The inscidence of during 13 to 10% to undersore, zone (0.5 to 0.5% have been suggested, but they include many patients with notions and complex diseases.

The incidence and severity of ADRs can be influenced by patient-related factors (eg. npt. set, disease, genetic factors, prographic factors) and by desp-related factors (eg. type of desp, rents of administration, duration of therapy, diseage, Neuralability). For example, the incidence is probably higher and waveling growter the elderly. The errors to which prescribing and patient compliance orose contribute to the incidence of ADRs is undrate. Initial acute toxicity studies are conducted to determine the lethal dose (... the dose required to kill 50% or 90%, respectively, of the laboratory animals), toxic symptoms, and the time symptoms appear.

("Evaluation of Drug Toxicity," The Merck Manual of Diagnosis and Therapy, Sect. 22, Clinical Pharmacology; Chapter 302, Drug Toxicity)

Adverse drug reactions (ADRs) include a wide variety of toxic drug reactions that occur during treatment....

For marketed drugs in the USA, adverse drug reactions account for 3 to 7% of all hospitalizations.

("Adverse Drug Reactions," The Merck Manual of Diagnosis and Therapy, Sect. 22, Clinical Pharmacology; Chapter 302, Drug Toxicity) Small doses of amphetamines can make you feel alert and energetic. They can increase your breathing and heart rates, decrease your appetite, and dilate your pupils.

Overdose can cause delusions, hallucinations, high fever, delirium, seizures, coma, stroke, heart failure and death. Use with alcohol and other drugs is especially dangerous.

("ABCs of Amphetamines," Alberta Alcohol and Drug Abuse Commission website at http://corp.aadac.com/ content/corporate/other_drugs/ amphetamines_abcs.pdf)

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penalts of occosmolightly despinency and typeractivity. Here are no benger used medically to treat depression and obsetty because of their dampions also directs.

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Werts of short-term use

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Suplements own who start the drug with shored parindex this peting/hepatitis and AEEE biological parides, which do not disense in worst, damage blood useds, kidneys, heigs, and brain these.

Effects of long-term use

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Amphetamines and **Addiction**

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"Not only LSD but other chemical poisons and toxins, preservatives, pesticides, etc., as well as medical drugs and the long list of heavy street drugs (angel dust, heroin, marijuana, etc.) can lodge in the tissues and remain in the body for years....

"Thus it seems that any or all of these hostile biochemical substances can get caught up in the tissues and their accumulation probably disarranges the biochemistry and fluid balance of the body."

L. Ron Hubbard, February 1978

Drugs and their metabolites are among the many fat-soluble compounds that store in body tissues. The rapid movement of drugs from the bloodstream into a number of body tissues has been observed and carefully studied for over half a century. Less well understood is exactly how long they may remain in these tissues and the subsequent effects on health. However, it is generally agreed that elimination rates measured by urine testing often misrepresent metabolism and storage. (Abernathy, 1983)

Lacking a full understanding of the long-term effects of licit and illicit drugs on the body and the fact that drugs can lodge in the tissues, many people have created unwanted consequences by excessive use of both legal and illegal drugs. Storage in tissues has been documented and contributes to the accumulated stores of toxins. This is important for people to understand in order to comprehend the full scope of drug effects, including symptoms such as irritability, impaired memory, fatigue and depression. LSD flashbacks may also be due to this fact.

rinted from Annals of the New York Academy of Sciences Volume 66, Article 3, pages 435-44 March 15, 1982

THE DISTRIBUTION AND METABOLISM OF LYSERGIC ACID DIETHYLAMIDE

By Julius Anelrod,* Roscoe O. Brady** Bornard Witkop,*** and Edward V. Evarts*

tional Institutes of Health, Public Health Service, Department of Health, Education, and Wellare Bethrada, Md

Although lysergic acid diethylamide (LSD), the hallocinegeric agent, has been the subject of numerous inves-tigations, little is traven about its biologic fate. In sport studies Boyd et al.1 and Solid et al.2 have examined the tissue distribution of C14-labeled LSD is mice. Soil and his overwelen? have shown that the C14-labeled material measured in tissues included LSD, as well as transformation products of the deg. Lanc, Corleti, and international measurements includes the losse levels of LSD in mice by the use of a biancary providers based on the antagonism of LSD in services induced contraction of the uterus of the nat. These investigators however, did not show that possible biologically active inandomation products of LSD were excluded from the assay proce-

nt of a specific and sensitive method for the estimation of LSD in biological materials has en abled us to study the tissue distribution, escretion, rate of biotramiformation, and metabolism of the drug as well as the suborflular processes involved in its transformation.

Methods and Materials

Estimation of LSD connext. LSD was isolated from sodium chieride-saturated biological material at an alkaline pH by extraction into hopsate. The LSD in the hopsate extract was returned to dihat hydrochloric acid and its quantity was estimated questofloworometrically. Proceedings: Biological materials (up to 5 nd.) was added to a 60 nd. glass-stoppend bottle that held 25 nd. of n heptane containing 2 per cent issump! alcohol, 0.5 nd. of 1 N NaOH, and about 3 gas, of sodium chloride. The

both was shaken for 30 minutes and their contributed. Twenty nil, of the hoptane phase were transformed to a 40-m1, glass supported contribute table containing 3 mil, of 0.004 N IBCL, and the table was shaken for 10 minutes. An adquest of the acid phase was transformed to a quarta covertie, and the LSD context was determined by measuring its fluorescence in a Farmand or Bowmand spectrofluorophotometer at 645 mm after activation at 325

As little as 0.001 mg, per ml. of LSD could be determined by this procedure. Concentrations of the drug greater than 10 mg, may be measured spectrohotometrically at 310 mm

National Institute of Mental Health.

** National Institute of Neurological Diseases and Blindness. *** National Institute of Arthritis and Metabolic Diseases.

After administration of LSD, the drug is found in all tissues in the following order of decreasing concentrations: bile, plasma, lung, liver, kidney, brain, intestines, spleen, cerebrospinal fluid, muscle and fat... There is no hindrance in the passage of the drug across the bloodbrain barrier.

LSD is almost completely metabolized in the body, only negligible amounts of the drug being excreted in the urine or stools.

("The Distribution and Metabolism of Lysergic Acid Diethylamide," Axelrod J, et al. Ann NY Acad Sci, 1957 Mar 14; 66(3): 435-44)

The active ingredient in marijuana, tetrahydrocannibol (THC), is fat soluble and remains in the brain, lungs and reproductive organs for weeks.

("Substance Abuse: A Comprehensive Textbook," Lowinson JH, et al. Williams & Wilkins, 1997; pg 977)

SUBSTANCE ABUSE

A Comprehensive Textbook

Third Edition

Editors

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Williams & Wilkins

Drugs circulate through the bloodstream and enter the tissues in the body. Drug residues can stay in the blood or fat or other tissues for varying lengths of time.



InterScience

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Research Article

The pharmacotkinetics of THC is fat and brain: resulting functional responses to marihuana smoking

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Kaywords

blood brain barrier, heart rate, lipid bilayer, marthwara, gharmacokinetics, pleasant perception (PSP), THC; 7TM receptor, molecular transmission, senotrotics GPCR int sensory Abstract

A pleasant sensory perception (PSP), the high of THC or of marihuana consumption, is a consistent functional response to this drug only manihested by man, and which occurs concurrently will an increased heart rate. However, it has not been possible to relate consistently magnitude and daration of these functional markers to THC plasma. consistently imagistude and duration of these functional markers to THC plasma concentration, whatever the route of administration. A re-analysis of all the analysis of the analy

concentration or the line in the integra (solid) call the integra of the instance of the 13¹⁴ molecularity. Then there in that would be related to the number of functional THC receptor sites in the lipid bilayer. THC would be related to the number of functional THC relationships a material streaming on the specific noiseptor site and bilgin layer physicochemical interactions. Regist gatalise and site insteams of the site site and bilgin layer physicochemical interactions. Regist gatalise and site insteams of the site site of a site of an end bilgin layer rate limited uptake into brain may be a general philogenatic mechanism which would protect the site of the site o

Rapid uptake and slow release of [psychoactive] THC in fat associated with a [slow] uptake into the brain may be a general... mechanism which would protect brain function from prolonged exposure to foreign, biologically active compounds] like THC and other fat soluble drugs.

("The Pharmacokinetics of THC in Fat and Brain: Resulting Functional Responses to Marijuana Smoking," Nahas G. Hum Psychopharmaco: Clin & Exp, 2001 Apr; 16(3))

Reduction of Drug Residues: Applications in Drug Rehabilitation

Mogue Mitchin, M.D. Shelley Evckmann, Ph. D. F. Michael Winner Presented at the 123rd Annual Morthing of The Annual Conting of The Annual Conting of The

It is increasingly evident that the accumulation of drug residens and their lapsphile pseudolites in the body plays a role in-drug addiction. Such residues are associated with persistent symptoms and their multilization from body more into blood correlates with drug craving.

A densitilitation method developed by E, Ron Hubbard was specifically suggested at reducing levels of fai stered chemical modes in the body and thereby afteriating the long-term effects of sock com-paneds. We were interested in determining whether drugs were eliminated during the program and, if so, what types of symptomatic charges notaried as a consequence.

Concentrations of drug metabolizes in both reseal and arise new measured in right clients who had been actively using drugs prior to restaurest with the Habbard program. Teratorest occurred at the Narisson drug reliabilization center in Law Augeles, Coccisio, ampletamice, and betravduorprior National data prelamination comer in Lon Augers, Louisne, amplementer, and reconstructures methodicies reset derived by furmerscent immensuogi is both reset and arbits of these cleans. Following start of treatment, metabolite concentration increased in risker ownat or arises in free cases. In two cases the level of drug was being detaylise prior to treatment, but howard elevisitike while during the developmentation program. Design elevision is the first started in the store detaylise A segmate series of 20% cleans with a kintery of drug above rated the series() of their spraghouse before and after treatment with the Hubbard program. Prov to treatment their clear spraghouses come before and after treatment with the Hubbard program. Prov to treatment their clear spraghouses come before and after treatment with the Hubbard program. Prov to treatment their clear spraghouses come before and after treatment with the Hubbard program.

plaiets included failpor, irritability, depression, intolerance of stress, reduced attention span and decreased mental acuity. These same compleme were dominant in these who had enaued active drop about over a year prior to toutonest. Following treasment, both past and current sours reported marked improvement in cyciptions with most referency to correct range. This detectful alone program reprises a vital inservation in drug rehabilitation: an approach aimed at a long term tesharists of the produposition for strug about

Broakers of many drugs - including LSD, physicyclipter, occurse, martjasmi and disorgami and Karon to accumulate in the body. These compounds may be related for extended periods of time, and are repressibly abundant in iting term, bard core iting mater. Perioderic implement associated with drug abuse often linger long after druse has counted. The con-

sidensition that accounsisted residues may play a role in the persistence of symptoms led to the de ment of a grouptum atomic at realaxing levels of loneign compounds in the body and thereby assist the resource of the relativability. or of complores, led to the developResidues of many drugs including LSD, phencyclidine, cocaine, marijuana and diazepam [trade name, Valium]—are known to accumulate in the body. These compounds may be retained for extended periods of time, and are especially abundant in long-term, hardcore drug users.

Persistent symptoms associated with drug abuse often linger long after abuse has ceased.

("Reduction of Drug Residues: Applications in Drug Rehabilitation," Shields M, et al. Presented at the 123rd Annual Meeting of the American Public Health Association)

...[there is] redistribution of THC into tissue... Subsequent detection represents an equilibrium...

Urinary cannabinoid [any of the active chemicals in marijuana] levels were consistently demonstrated for 21 to 36 days of [supervised abstinence after terminated use of marijuana].

If cannabinoids are retained... there could be cognitive, affective, and behavioral effects of marijuana that are more profound and chronic than previously appreciated.

("Persistence of Urinary Marijuana Levels After Supervised Abstinence," Dackis CA, et al. Am J Psychiatry, 1982; 139(9): 1196-8) American Internal of Psychiatry, 139-9, September 1982

PERSISTENCE OF URINARY MARIJUANA LEVELS AFTER SUPERVISED ABSTINENCE

Charles A. Dackis, M.D., A.I. C. Pottaik, M.D., William Associa, M.D., And Mark S. Gold, M.D.

The authors present a case report of the presence of arismry consultancials during 21 days of impervised abstinues plant-threads murphanes are and previde data on 6 similar cours. They disrus the dimensional implications of the previous-of coundrinoids. (Nex J Psychiatry 130:1706-1308, 1982).

The use of h_{-} -ternal-decommutation (TDRC) in the form of multipants, or the inner perturbation, but increased stradyly over the part decode. Although perpetuted datagets uses land with maripanus our are continuouslik, also are affective on memory, moment constrained on perpetute fractions, and the pultersners, remaininging al, and conformation is near the evolution function percent (11). Multipants can predicted parts reactions and, in process with excitantly mercipiest providents symptoms (11). TextRemons, the role of multipants in the evolutions of polyadranese above the long been studied of parts of multipants in the evolution of polyadranese above the studies of multipants in the evolutions before the evolution between the reserved in the transment and degrees of experiment of perpetuted accounts of substance above and the provident accounts of substance above and the provident approximates processing the strategies of the evolution of perpetuted accounts of substance above and the provident approximation of perpetuted accounts of substance above and the termination of the evolution of perpetuted accounts of substance above and the termination of the evolution of the evolution. The evolution of the evolution. The evolution is the evolution of the evolution of the evolution of the evolution of the evolution. The evolution of the evolution. The evolution of the evolution. The evolution of the evolution

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Cast Report

Mr. A was a 20 year-old summrined, anemployed admitted to our recomprychastic evaluation and for twanness of homin dependence. He also used marijanes, recaine, ampletasemen, ineduapacione, admitted, and hullmanepure. Although to discurbed marijanes use statisticariere, ineduprate, he stated on admission that he sensibility for the two detected of againty from herein with multihastic over 4 days.

Phencyclidine (PCP) has been shown to persist in fat tissues, an observation thought to account for some of the longlasting behavioral effects.

("Persistence of Phencyclidine (PCP) and Metabolites in Brain and Adipose Tissue...," Misra AL, et al. Res Commun Chem Pathol Pharmacal, 1979 Jun; 24(3): 431-45) S NCBI



Persistence of phencyclidine (PCP) and metabolites in brain and adipose tissue and implications for longlasting behavioural effects.

Misra AL, Pontani RB, Bartolomeo J.

PCP and its new metabolites persisted for very prolonged periods in rat brain and adipose tissue after a single 25 mgkg-1 intraperitoreal injection and showed accumulation after multiple dosing. The brain to plasma ratios for PCP between 0.5 h to 48 h after injection mapped between 6 to 8.8 and adipose tissue to plasma ratios between 31 to 113. The concentrations of metabolites of PCP in rat brain (ng-orp), tissue) 1, 2 and 3 weeks after a single 25 mgkg-1 i.p. injection of PCP were approximately 390, 200 and 74 mspectively and those of PCP 12, 6 and 5 mg/g, respectively. The long sojourn of PCP is not itsue and relatively slow agrees therefrom explains cumulative effects opon multiple dusing and raises the possibility of multilisation or release of large accounts of deag from fat stores in initiations involving food deprivation, marked weight loss or stress. The previousnes of PCP and its metabolites in brain and high degree of binding with metamin, implying a possible localisation in neurorealism rich substantian signs of milbrain and locus corruleus of pors may help explain the prolonged duration of clinical effects and perioates are neuropsical and cognitive dysfunction several days after PCP administration. Forensic Science International

Foronsic Science International 110 (2000) 34-a6

Drug deposition in adipose tissue and skin: evidence for an alternative source of positive sweat patch tests

Joseph A, Levisky", David L, Bowermae", Wemer W, Joskins', Stoven B, Kasch¹

*10 Asso County Conner 3 Officer, Colorado Springs, CO 80902, USA autore/Molece/Econners, City and County of Ear Promotion, Faell of Antice, EM Byoar Street, Ear Promises, CO 1534

Received 22 December 1999; accepted 11 January 2000

Abstract

In a series of lack and illust drug related deaths, qualitative and quantitative analyses on extenct of adaptest itsues and side were performed by GCMBS. In all cases, the adaptest itsues was focus of an occurs in drugs a concentration force that, angeordinately equal to, or every genera than the contain drugs a concentration force that angeordinately equal to, or every genera than the concentrations of the same analyses from if in the Mool, which may effect a consequence of lang-strenc floring exposure, or neared in the Hood, which may entroyed from the risk to lower adhesiant drugs and generation of the same sector strencoval from the risk to lower adhesiant processor, we can be invitable and attains, exist, and attains ever deforming in period strength and attains, exist, and attains their morphics categories to three geness of sizes. Destented analogs of the analyzes new added to the matrix at the beginning of the inclustion genes. The presence of three illustic drugs in adaptest in the to three geness of sizes in several cases. The presence of three illust drugs in adaptest inser takes individual or bereview and inclustions, especially the use of 'wavat patchest' to monitor necesst consister or berevin sue in chronic drugs users.

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Keywords: Adipose tissue; Skin; Cocaine; Hervin; Sweat patch

1. Introduction

The recent introduction of convenient new devices for sweat collection has made sweat an attractive alternative matrix for the detection of altward doug [1]. Furthers are applied at various positions on the body and are wrom for up to 10 days at a time, and then the dougn that are collected within the patch are extracted and quantitated.

'Conceptualing autors

...it was surprising that drugs generally thought to be more hydrophilic [water-soluble; attracted to water] than lipophilic [fat-soluble] such as cocaine... morphine... methadone... also accumulate in fat and skin....

The data presented in this report show significant drug distribution and storage in skin and subcutaneous fat...

("Drug Deposition in Adipose Tissue and Skin." Levisky JA, et al. Forensic Sci Int, 2000 May 8; 110(1): 35-46)

S NCBI

Pub Med

Prolonged occurrence of cocaine in human saliva and urine after chronic use.

Cone EJ, Weddington WW Jr.

Addiction Research Center, National Institute on Drug Abuse, Baltimore, Maryland 21224.

Cocaine was detected by immunoussay in saliva and urine of chronic cocaine addicts for 5-10 days during abstinence. Confirmation by a less sensitive but highly specific GC/MS assay of unmetabolized cocaine was successful in saliva through the first 24 h of collection and for the initial 4-5 days in urine. Cocaine saliva concentrations and subject scores for cocaine craving and depression declined during this time and correlated significantly. The presence of unmetabolized cocaine in these biofluids long after the last drag administration suggests that multiple dosing and high exposure to cocaine in man leads to accumulation in deep body compartments and subsequent slow release back into circulation and eventual excertion. The prolonged presence of cocaine in saliva and utine may have implications in hesting for cocaine use and in treatment of cocaine withdrawal.

MeSH Terms
Adult

The presence of cocaine in biofluids long after the last drug administration suggests that multiple dosing and high exposure to cocaine in man leads to accumulation in deep body compartments and subsequent slow release back into circulation and eventual excretion. The prolonged presence of cocaine in saliva and urine may have implications in testing for cocaine use and in treatment of cocaine withdrawal.

("Prolonged Occurrence of Cocaine in Human Saliva and Urine After Chronic Use." Cone EJ, et al. J Anal Toxicol, 1989 Mar-Apr; 13(2): 65-8)

...following a single iv injection of 14C-diazepam... Concentration-time profiles of diazepam in the main disposing organs (liver, kidney, lung, brain, heart and small intestine)... indicated that diazepam was distributed rapidly to these organs.... Metabolite levels in... liver and small intestine... exhibited a considerable persistence.

("Tissue Distribution of 14C-Diazepam and Its Metabolites in Rats," Igari Y, et al. Drug Metab Dispos, 1982 Nov; 10(6): 676-9)

GBD Mittalena

Tissue distribution of 14Cdiazepam and its metabolites in rats

Y Igari, Y Sugiyama, Y Sawada, T Iga and M Hana

We have kinetically investigated the tices distribution of 14C- diazepam and described the ppearance and disuppearance of its metabolites (3-sydrotydiazepam, desmethyldiazepam, and sarepum) following a single iv injection of 14C-larepum into rats. Significant amounts of

oxarepum were detected in plasma and various

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tissues in the rat, contrary to previous reports. Concentration time profiles of diazep the main disposing organs (liver, kidney, and long) and the other organs (brain, hear), and small intextine) indicated that diazepum was distributed rapidly to these organs. Concentration-time profiles of diazepam in the main tissues for drug distribution (skin and adipose) indicated that diatepart was slowly distributed to these tissues, whereas that in muscle, which is also responsible for drug distribution, indicated that diazepun was less rapidly distributed to this tissue. Metabolites appeared in plasma and various tissue or organs immediately after iv injection of diazepsen. Metabolites levels in plasma and various tissues or organs were significantly lower than that of diazepam encept for liver and small intestine, where metabolites levels were higher compared to that of disarepart and metabolites exhibited a considerable persistence.

Volume 10, Issue 6, pp. 476–479, 1140:1782 Copyright O 1982 by American Society for Pharmacology and Experimental Thorageu

Residues of drugs can accumulate in the vital organs of the body including the brain, liver, kidney, intestines and spleen.



"In 1977... I stated that LSD apparently stays in the system, lodging in the tissues and mainly the fatty tissues of the body and is liable to go into action again, giving the person unpredictable 'trips.' ["restimulation"]...

"Even medicinal drugs such as diet pills, codeine, novocaine and others have gone into 'restimulation' [released back into circulation, causing the person to re-experience the symptoms of use] years after they were taken and had supposedly been eliminated from the body."

L. Ron Hubbard, February 1978

It is known that drug use can adversely affect an individual, even years after discontinuing use. LSD and other drugs can cause persisting perception disorders or flashbacks, particularly during periods of stress.



("Hallucinogens and Dissasociative Drugs," NIDA website, Research Report Series at http://www.nida. nih.gov/PDF/RRHalluc.pdf)

Some former LSD users report experiences known colloquially as "flashbacks" and called "HPPD" [Hallucinogen Persisting Perception Disorder] by physicians. These episodes are spontaneous, repeated, sometimes continuous recurrences of some of the sensory distortions originally produced by LSD. The experience may include hallucinations, but it most commonly consists of visual disturbances such as seeing false motion on the edges of the field of vision, bright or colored flashes, and halos or trails attached to moving objects. This condition is typically persistent and in some cases remains unchanged for years after individuals have stopped using the drug.

("Hallucinogens and Dissasociative Drugs," NIDA website, Research Report Series at http://www.nida. nih.gov/PDF/RRHalluc.pdf)

NDA REDRICH PORT SORE 1

cases, servery perceptions may liked in a phenomenoi known as synothesia, in which a person secure to hear or feel colors and see sounds.

Hallactuations distort or transform shapes and moseneous, and they may give rise to a perception that time is moving very invelve or that the user's body is changing shape. On some tips, users experience semations that we ensiyable and mentally stimulating and that produce a sense of heighterood understanding. Bad utps, however, include terriffying thoughts and sightmatch forther of anxiety and deepair that include fears of insonaly, death, or known of the deepairs. Bids users quickly develop a table deepare of the develop in

high degree of tolerance for the dwg/n effects. Alse nepeated user diage need increasingly lagge dates to produce similar effects, EUD use also produces sintense for other hultacinogenic drags such as publication and encounter, but net to drags such as marjauna, ampletamines, and PCP, which do not act directly on the sentenic necespoor affected by 2020. Tolesance for EDD is shortd level-mit is load if the user stops thing the drag for several days. There is no evidence that EDD produces physical classic use is support. Three long turns effecture—

presinent psychosis and hallacircigen persisting perception divorder OBPEO, more commonly referred to as "flashfucks" have been associated with use of DM. The causes of these clicts, which in some series occur after a single experience with the day, are not known. *Psychoata* The effocts of 150 can be described as drapinduced psychosis—distortion or disrugation of a presents expective to score 150 users experience deviating psychological efforts framework dissorts of the present after the tip has ended, producing a long-horized pensioner psychosismay include durantic mood military or solid and durant depression, vival visual distarbances, and halacinations. These efforts may find for yours and can affect people who have no history or solid symptoms of more the second second

menty or outer separate as psychological disorder. Hindlinetingper Pervisiting Perviptina Disorder, Store former DD uners report experitenes known collinquidty as "lashbacko" and called "HPPO" by playieans. These episodes are spontaneous, repeated, semetimes continuous recurmences of source of the semony disordimes continuous recurmences of source of the semony disordimes requirement may licklob hullscituations, but it most commonly consists of visual distributions with an seeing thus costs on other object of the field of vision, bright or colored flashex, and hulos or turbs attached hor moving objects. This condition is typically persistent and an some curser semain unchanged for years after individuals have emped using the days. Bocause HPTD symptoms may be instaken for these of other neuroisogical disorders such as stucke or brain tumore, sufficient before the disorder is accuracily diagnosed. There is no coathished treatment for HPTO, abbough some antidepresent drugs may reduce the symptoms. Psycholeneups may help patterns adjust to the confusion associated to inisinitize the fraz, emproved by some, that they are softering busin domage or psychiatric

What are the facts about dissociative drugs?

PCP's forms and effects

PG: developed in the 1956 neotheries, is clouded as a discontrative meshenic. Its sodative and answhere effects are more a feeling of being 'out of body' and desched from their eveloped and house the way never approved for human use because of problems that arous photogenized modes, including operational by patients comparison operational by patients comparison patients.

form became widely abused, but form became widely abused, but the stage in illicit use necreded tapidly as users became disentified with the long delay between

The tissues can release the drug into the bloodstream again.



Article

huchophannacology Publisher: Springer Verlag Ginibri ISSN: 0030-3158 (Pager) 1432-2072 (Onine) DOI: 10.1007a002130000545 Issue: Volume 152, Number 3 Date: October 2000 Pages 200-248

Ecutary (MDMA): a review of its possible persistent psychological effects

Michael John Michael

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Abstract

Advanced Advanced Rescarding and advanced area of "ecotagy" (3.4-methylopioniderpandharpinelaurines. MCRM) has become increasingly widespread phases of economic argenza area within drug. Oscillar the possibility periodistant psychologoal effects of economic argenza area within the use of the possibility periodistant of economic and the production decode argenza area within the use of the possibility periodistant of the production decode argenza area within the use of the possibility periodistant of the production decode argenza area within the second of periodistant of the production decode area are evaluated and response of the presence or absence of periodistant observation and the presence of the presence or absence of production decode with steep disorders, depresented mood, periodistant all and excitation flowers are and attention. There is two factores that there are an area and excitation flowers are and attention. There is two factores that there are all excitation of an advance of the all advances. The possibility that some of these psychological proteins are caused by excitation-resonance of the save the decode in the proteins are caused by excitation-resonance of the save theorems and the other proteins are caused by excitation-resonance of the save theorems and the proteins are caused by excitation-resonance of the save theorem and the proteins are interesting and resonance of the save theorem and the save theorems and the proteins are and the advance of the sociation and the save and the save theorem and the proteins are interesting and resonance of the save and the save theorem and the save and the proteins are interesting and resonance of the save and the save and the save and the proteins are interesting and the save and distributions and the save and the save and the proteins are and the save and the proteins are and the resonance is additioned and the save and the save and the save and the save and the p

Kaywords:

3.4 Methylenedcosytrethersphotamine, MDMA, Ecology, Berchonn, Heuroby Cognitive performance

There is growing evidence that chronic, heavy, recreational use of ecstasy is associated with sleep disorders, depressed mood, persistent elevation of anxiety, impulsiveness and hostility, and selective impairment of episodic memory, working memory and attention. There is tentative evidence that these cognitive deficits persist for at least 6 months after abstinence...

An increasing number of young, heavy ecstasy users are at significant risk of persistent cognitive impairments and disturbances of affect and personality. Some of these problems may remit after abstinence, but residual neurotoxicity... may result in recurrent psychopathology and premature cognitive decline.

("Ecstasy (MDMA): A Review

of its Possible Persistent Psychological Effects," Morgan MJ. Psychopharmaco (Berl), 2000 Oct; 152(3): 230-48)

Long term effects of methamphetamine use can include:

- dependence and addiction psychosis
- paranoia
- hallucinations
- mood disturbances

("Methamphetamine Abuse and Addiction," NIDA website, Research Report Series at http://www.drug abuse.gov/pdf/RRMetham.pdf)



"One of the things that toxins and drugs do is create nutritional deficiencies in the body in the form of vitamin and mineral deficiencies. Obviously a [Vitamin] C deficiency, a [Vitamin] B complex deficiency and a niacin deficiency are brought about by drugs. There may be other deficiencies that we are not aware of at this time. But that list is certain....

"In the case of other toxic substances the probability exists that other vitamins besides B_1 are burned up."

L. Ron Hubbard, August 1978

Scientists and doctors from around the globe have been studying the delicate biochemical balance of the human body for decades. An important discovery is that the interaction of drugs and other substances in the body can adversely affect vitamins and minerals essential to normal functioning of the system. As vitamins and minerals are used in the breakdown and elimination of foreign substances including drugs, they are no longer available for other essential metabolic processes. Further, repeated use of drugs can decrease nutrient absorption and increase their elimination—even if the person's diet is healthy, a rarity in the substance abuse lifestyle. *(Hermann, 2004)*

Understanding drug-nutrient interactions is important in understanding addiction or physical dependence. People may be compelled, through experiencing the negative effects of nutrient deficiencies, to continue taking harmful substances or begin taking stronger substances. Drug-nutrient interactions can lead to deficiencies and imbalances of vitamins and minerals. As drugs are often the source of negative symptoms and aggravate them, the use of more drugs to address side effects can worsen the situation. When those drugs have addictive properties, they can also contribute to addiction.

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Medications, both prescription and over-thecounter, can affect how the body uses nutrients. For individuals taking medications for long periods of time drugnutrient interactions may lead to vitamin or mineral deficiencies.

Medications can decrease nutrient absorption, can slow down nutrient production, can interfere with the body's ability to metabolize nutrients and can increase the loss of a nutrient.

Nutrients affected include potassium, calcium and vitamins A, B, D and E. Certain of these nutrients are important in proper functioning of the heart and other muscles. Lack of certain nutrients can lead to stomach bleeding, muscle weakness and other various conditions.

("Drug-Nutrient Interactions," Hermann J. Oklahoma Cooperative Extension Service Fact Sheet at http://www.osuextra.com/pdfs/ t-3120web.pdf)



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Division of Agricultural Sciences and Natural Resources - Oklahoma State University

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Some Intervelationships Between Deups and Vitamins

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It is noted that needs for both fat and water-soluble vitamins is increased as a consequence of drug therapy. Anticonvulsants such as... phenobarbital can cause vitamin D and folic acid deficiencies. In other situations such as with oral contraceptives or aspirin, only marginal deficiency states may result as reflected by reduced blood or urine levels of large numbers of vitamins and/or reduced enzyme activity.

("Drug-Diet Interactions," Brin M, et al. J Fl Med Assoc, 1979 Apr; 66(4): 424-8)





B Vitamin deficiency and neuropsychiatric syndromes in alcohol misuse.

Cook CC, Hallwood PM, Thomson AD.

Kent Institute of Medicine and Health Sciences, University of Kent at Canterbury, UK.

Alcohol missure and alcohol withdrawal are associated with a variety of neuropsychiatic syndromes, some of which are associated with significant methods and more analysis. B vitamin deficiency is known to contribute to the aetiology of a number of these syndromes, and B vitamin supplementation thus plays a significant part in prophylicis and treatment. In particular, the Wernicke Korsakoff syndrome (WKS), due to thiamine deficiency, is a common condition in association with alcohol misuse, and in associated with high morbidity and mortality. Neotimamide deficiency may result in a rarer condition, alcoholic pellagra encophalogathy, which often has a similar clinical presentation to WKS. This review considers the note of B vitamism in the aetiology and treatment of neuropsychiatric syndromes associated with alcohol misuse, with particular emphasis on WKS.

Publication Types: + Review Alcohol misuse and withdrawal are associated with a variety of neuropsychiatric syndromes... B vitamin deficiency is shown to contribute to the [cause] of a number of these syndromes, and B vitamin supplementation thus plays a significant part in [prevention of the syndromes] and treatment. In particular, the [delirium tremens] syndrome, due to thiamine [B₁] deficiency, is a common condition in association with alcohol misuse...

("B Vitamin Deficiency and Neuropsychiatric Syndromes in Alcohol Misuse," Cook CC, et al. Alcohol Alcoholism, 1998 Jul-Aug; 33(4): 317-36)

Drugs can affect nutritional status by altering nutrient absorption, metabolism, utilization or excretion.

("Drug-Nutrient Interactions," Trovato A, et al. Am Fam Physician, 1991 Nov; 44(5): 1651-8)

Pub

S NCBI



Trovato A, Nublicek DN, Midtling JE.

Medical College of Wisconsin, Milwaukee.

Drug-nutrient interactions are a commonly overflooked aspect of the prescribing practices of physicians. As more pharmaceutical agents become available, atomicot should be focused on interactions of drugs with foods and nutrients. Although drugnutrient interactions are not as common as drug-drug interactions, they can have at impact on therapentic outcome. Drugs can affect nutritional status by altering matisent absorption, metabolism, utilization or excretion. Food, beverages and effectiveness of drugs. Knowledge of drug nutrient interactions can help reduce the incidence of these effects. Physicians should upselion patients about their distary habits so that patients can be informed about possible interactions between a prescribed drug and foods and matterest.

National Library of Medicine SIM "The mind is a communication and control system between the individual and his environment.

"The mind is a network of communications and pictures... The most obvious portion of the mind is recognizable by anyone not in serious condition. This is the mental image picture.... Mental image picture is a copy of the physical universe as it goes by; ... it is a 'photograph' of the physical universe sometime in the past."

L. Ron Hubbard, March 1965

When you think of your home, you probably visualize a picture of it. The function of the mind in recording images is easily observable in this personal demonstration. It has also been verified and documented that these mental images do contain visual perceptions, and operate along the same principles as visual mechanisms.

Journal of

Cognitive Neuroscience

Marriel of Cognitive Neuroscience (2001)2:003-00251 0:2000 The MET Press

Article

Mental Imagery of Faces and Places Activates Corresponding Stimulus-Specific Brain Regions

K. M. O'Craves

Massachusetts General Hospital, NMR Conve

N. Kanwisher

Mesachasetts Institute of Technology

▹ ABSTRACT

What happens in the brain when you conjure up a mental image in your mind's syst? We treated whether the particular regions of extensitiate cortex activated during mental imagery depend on the context of the image. Using functional magnetic resonance imaging (DMRE), we demonstrated selective activation within a region of cortex specialized for face perception during mental imagery of faces, and selective activation within a place-selective cortical region during imagery of places. In a further study, we compared the activation for imagery and perception in these regions, and found present response magnitudes for perceptions than for imagery of the case insens. Finally, we found that it is possible to determine the context of single cognitive events from an inspection of the DMRI data from individual imagery trials. These findings intergeftee evidence that heavyor and perception share common processing mechanisms, and domonotube that the specific treat megions activated during mental imagery depend on the context of the visual imager. These findings strengthen evidence that imagery and perception share common processing mechanisms...

("Mental Imagery of Faces and Places Activates Corresponding Stimulus-Specific Brain Regions," O'Craven KM. J Cogn Neurosc, 2000; 12: 1013-23) In this article we provide further evidence that visual mental imagery and visual perception share modalityspecific mechanisms. This article also verifies that "representing visual information in a mental image" is "activating stored information to create a picture-like mental representation."

("Detecting High-Level and Low-Level Properties in Visual Images and Visual Percepts," Rouw R, et al. Cognition, 1997 May; 63(2): 209-26)

S NCBI Pub Med



Detecting high-level and low-level properties in visual images and visual percepts.

Rouw R, Kondyn SM, Hamel R.

Department of Psychonomics, University of Amsterdam, The Norherlands.

In this article we provide further evidence that visual mental imagry and visual porception share modulity-appecific mechanisms, and we find that representing visual information in a mental image (activating stored information to create a picturelike mental integer (activating stored information to create a picturelike mental image (activating stored information to create a picturelike mental image (activating stored information very lowdetal. Subjects either saw or visualized simple pictures, and rvaluated them for the presence or absence of six types of nonaccidental properties. These properties varied flows very lowlevel ones, such as T junctions, to very high-level ones, such as plobal symmetry. The question was singlehead to be activate information are equally accossible in porcepts and mental images If mental images are equivalent to descriptions of perceptual units and their organization, as some have argued, then subjects should have genetic difficulty accossing low-level properties in a mental image compared to the difficulty they experience when the densing in wishfit. These results of two experiments were charcut: Subjects could evaluate high-level properties more easily than low-level ones, but this difference was the same in imagery and perception.

Therefore metric 3-D information must be preserved in images...

("Mental Imagery and the Third Dimension," Pinker S. J Exp Psychol, 1980 Sep; 109(3): 354-71) S NCBI



Mental imagery and the third dimension.

Pub

Pinker S.

What sort of medium underlies imagery for three-dimensional scenes? In the present investigation, the time subjects took to scan between objects in a mutual images preserve. Subjects studied an open box in which fire objects were suspended, and learned to imagine this display with their eyes-closed. In the first experiment, subjects scansed by tracking an imaginary point maying in straight line between the imagined objects. Scanning times increased linearly with increasing distance between objects in three dimensions. Therefore metric 3-D information must be preserved in images, and images cannot simply be 3-D "unphotes." In a second experiment, subjects scanned across the image by "sighting" objects through an imaginary rifle sight. Here scanning times were found to increase linearly with the two-dimensional separations between objects as they appeared from the original viewing supple. Therefore metric 3-D datasce information in the original perspective view must be preserved in imagers, and images cannot simply be 3-D "scale-enodels" that are necessed from the original perspective view must be preserved in imagers, and images cannot simply be 3-D "scale-enodels" that are instrumed between objects as they appeared from the original viewing treated the display 90 degrees and experiment, subjects mentally rotated the display 90 degrees and between objects as they appeared in this new prespective view by tracking an imaginary rifle signt, as before. Scanning times increased linearity with the two-dimensional separations between objects as they appeared from the are relative viewing perspective. Therefore images can deve the are relative viewing perspective. Therefore images can display metric 2-D distance information in a perspective size were strailly experiment, so mental images cannot simply by "saapshee fpin

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Mental scanning of visual images generated from verbal descriptions: towards a model of image accuracy.

Denis M, Goncalves MR, Memmi D.

LIMSI-CNRS, Universite de Paris-Sud, Orsay, France.

Recent mental scunning experiments have shown that subjects are not only able to construct mental images from vertial descriptions, but that these images haves structural properties similar to those of images derived from perception. In addition, the specific sequencing of a description can affect the internal structure of images of described objects, in particular their metric properties. Discontinuous descriptions require additional exposum to achieve the structural coherence of images committed from continuous descriptions. Thus, the capacity of images to reflect accurately the objects they refer to is not an allor-nothing property, but rather results from strepwise elaboration. This study describes a quantitative model designed to account for the gradual process of image elaboration and the progressive increase in image accuracy. The model posits that the location of a landmark mentioned in a description is not represented as a sharp point in the mental image, but is instead associated with a region atomat this point. Learning the description resentally consists of progressively narrowing each 'region of uncertainty' Recent mental scanning experiments have shown that subjects are not only able to construct mental images from verbal descriptions, but that these images have structural properties similar to those of images derived from perception.

("Mental Scanning of Visual Images Generated from Verbal Descriptions: Towards a Model of Image Accuracy," Denis M. Neuropsych, 1995 Nov; 33(11): 1511-30)

"Drugs are considered valuable by addicts to the degree that they produce some 'desirable effect.'

"But they are dangerous to those around because a person on drugs:

- "a. Has blank periods
- "b. Has unrealities and delusions that remove him from present time [what is going on around him]..."

L. Ron Hubbard, August 1968

People can take drugs specifically to alter their perceptions. Those perceptions can deal with the person himself (how he feels mentally or physically), or they can be of the world around them. Psychiatrists prescribe drugs in an attempt to correct or, in some cases, suppress unwanted feelings and emotions. Doctors prescribe drugs to block or suppress physical pain. Addicts can take drugs to try to elevate their emotions or block off unwanted feelings and emotions.

But the end result can be much more than expected: it is well documented that drugs can change a person's ability to perceive, their ability to recall and relate their past to current circumstances and to their environment, and their ability to make judgments and decisions.



If you use drugs often, you can develop serious personal problems. Using drugs can become more important than family and friends. You may continue using even when your job or schoolwork is suffering, or when you run into financial, spiritual or legal problems. Young people who frequently abuse drugs may not learn how to solve problems, handle their emotions and become mature, responsible adults.

("ABCs of Amphetamines"

Alberta Alcohol and Drug Abuse Commission website at http://corp. aadac.com/ content/corporate/ other_drugs/amphetamines_abcs. pdf)

abc^o Amphetamines

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"Early tests are also showing that the learning rate of a person who has been on drugs is much lower than a nondrug person."

L. Ron Hubbard, February 1978

One of the most significant effects of drug use and abuse is the effect they have on a person's mind and memory. The idea that there are only short-term, minor effects on coordination, learning skills and memory has been disproved by several sources.

The long-term, damaging consequences of drugs are especially significant when referring to substance abuse of young adults who are still developing and at a period in their lives when they are expected to assimilate and utilize information constantly. The importance of remaining drug free becomes especially clear when one sees that substance abuse may lead to a reduction of abilities and skills that determine career path, success and happiness.





MARI



What is the

scope of marijuana se in the United States?

Marijuana use impairs a person's ability to form memories, recall events, and shift attention from one thing to another.

("Marijuana Abuse," NIDA website, Research Report Series at http://www. drugabuse.gov/ researchreports/ marijuana/default.html)

MDMA users were found impaired in terms of episodic prospective memory, as medium to large effects were observed between groups on time-based Appointment and event-based Message subtests... The results of this study also indicate that the ability to recall a future appointment may be related to the frequency of MDMA use and the absolute number of times MDMA was used.

("Prospective Memory Impairment in Abstinent MDMA ('Ecstasy') Users," Zakzanis KK, et al. Psych Press, 2003 May; 8(2): 141-53)





Prospective memory impairment in abstinent MDMA ("Ecstasy") users

Konstantine K. Zakzanis ^{A1}, Donald A. Young ^{A2}, Zacharlah Campbell ^{A1}

^{A5} University of Toronto, Canada ^{A2} Centre for Addiction and Mental Health, Toronto, Canada

Abstract:

Introduction: Quantitative evidence has begun to omerge where human studies suggest that regeated recentional use of units, 4 methylenedicxy-methamphetamine (MDMA or "Ecitaxy") produces lasting impairments in explicit memory. The purpose of this investigation was to further explore the nature and pattern of component memory processes in abatinent MDMA uses.

Methods: Accordingly, 15 MDMA users and 17 matched normal controls completed a brief neuropsychological test battery composed manhy of the Rivermead Behavioural Memory Test (RIM/T), a Stem Completion task, and the Vocabulary subset of the Wachsler Adult Intelligence Scale-III (WAIS-B).

Results: MOMA users were found impaired in terms of episodic prospective memory, as medium to large effects were observed between groups on time-based Appointment and event-based Message subtests of the RDMT. The results of this study also indicate that the ability to recall a

net better i

The typical users showed their long-term memory to be 14 percent worse than the 480 people who had never taken ecstasy and 23 percent worse than the 242 who had never taken drugs at all.

Additionally, the typical users [of ecstasy] made 29 percent more mistakes on the questionnaire form than the people who did not take drugs at all.

The findings also suggest that ecstasy users who take cannabis are suffering from a "double whammy" where both their long-term and short-term memory is being impaired...

("Study Links Ecstasy, Long-Term Memory Loss," CNN.com at http://www.cnn.com/2004/ health/01/15/ecstasy.memory.reut)

CNN.com

HEALTH

Study links ecstasy, long-term memory loss

Provenies, January 16, 2020 Property 12-01 Percent or No. 24475

LONDON, England (Reuters) – People who take the drug ecstasy are more likely to suffer from long-term memory loss, according to a British study published Thursday.

The study, which surveyed users in Europe, the United States and Australia, found that hoose who regularly took the dance club-drug were 20 percent more likely to report problems with their memory than non-users.

Ecitary users who also take cannable were facing a "myriad of memory afficitors," the report said, which could represent "a time bond" of cognitive problems for later life.

The report, led by the University of Neecostrie upon Tyres, said short-term memory was affected by cannelss. Despite some high-profile destins caused by excitany, there has been a widespread genception among young users that the drug is safe.

Users say it heightens awareness, intensifies their encloirs and makes then hell good. But in extreme cases, ecistary can cause splices in body temperatures severe encugh to be tatal.

"Users may think that ecotary is fun and that it feels fairly harmless at the time," said lead researcher Dr Jacqui Rodgen of Nexcastle University in Britain, "However, our results show stight but measurable impairments to memory as a result of use, which is wortying."

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Library of Medicine

Memory deficits associated with recreational use of "ecstasy" (MDMA).

Morgan MJ,

Centre for Substance Abuse Research, Department of Psychology, University of Wales Swamsea, UK. m.j.morgan@swamsea.ac.uk

Evidence from both animal, and human, studies suggests that repeated administration of 3,4-methylenedicotymethamphetamine (MDMA: "exitasy") produces lasting decreases in serotomergic activity. Serotonin in believed to play a modulatory role in a variety of psychological processes, including learning and memory. There are recent reports that polydeug users, who have used exitasy necreationally, exhibit selective impairments in memory. However, these studies did not compare exclass users, with polydrug users who had not taken exitasy, leaving open the possibility that the memory deficits may be associated with a history of use of other illicit drugs. The present study used the Rivermead Behavioural Memory test to investigate immediate and delayed recall in: 25 polydrug-users who had taken more than 20 tablets of exitasy (MDMA group), 22 participants (polydrug controls) who had never taken exitasy, but, otherwise has personal characteristics (e.g. age, gender, education, height, weight), and illicit drugs to bistories, that were prevaily not significantly different from those of the MDMA group, and 19 participants who had not used illicit drugs but who also had similar personal characteristics (non-drug controls). Participants The present findings provide the first evidence that deficits in memory performance in recreational ecstasy users are primarily associated with past exposure to ecstasy, rather than with the other legal and illicit drugs consumed by these individuals...

("Memory Deficits Associated with Recreational Use of 'Ecstasy' (MDMA)," Morgan MJ. Psychopharmacology, 1999; 141: 30-6)

"I have even found that there is such a thing as the 'drug personality.' Drugs can apparently change the attitude of a person from his original personality to one secretly harboring hostilities and hatreds he does not permit to show on the surface."

L. Ron Hubbard, February 1978

Chronic abuse of substances is well-documented as a fast route to a degraded quality of life. While the apparency or reputation of certain drugs has been that of safe and harmless substances, recent studies have shown that, especially among teens, longterm impairment of mental faculty is in fact a real concern.

This is especially important for parents and educators to be aware of, as teens are at a period in their life where cognitive skills, specifically learning ability, are vital to their success. These can be significantly affected by substance abuse. The alteration of normal interpretation of information can additionally be a social barrier in communication and relationships. (Psychopharmacology)

Article



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Original Investigation

Empathy and aggression: two faces of ecstasy? A study of interpretative cognitive bias and mood change in ecstasy

H. Valerie Curran¹, Hoe Rees¹, Thomas Hoers¹, Rosa Hoels⁴ and Alysian Bond²

(1) Clinical Psychopharmacology Unit, University College London, Gower Street, London, VIC2 (887), UK

(2) National Addiction Canthe, Institute of Psychiatry, London, UK

calved: 15 May 2009 Accepted: 7 August 2009 Published with January 2004

Rationale As central 5-hydroxytryptamine (5-HT) is attenuated for a period following a single dose of MEMA (=ecitaey=) and low 5-HT is associated with apprecision.

It imple does in WDMA (in-exiting m) and lise 5-HT is associated with appression, has WDMA users may be more appressive in the days following an acute does of the drug. Dejective This study therefore aimed to obtermine if acutes use of MDMA is associated with appression 4 and 2 days lists. Although Twenty-mine MDMA users and 2 days lists. Although Twenty-mine MDMA users and 2 days lists. All drug to appression and and 7 days lists. All drug to appression and and 7 days lists. Bay 5, participants, performed an interpretative bias lass in which they processed impliquous semences that incurs the index of users and appression and the theory in results we (e.g., "The partner dress the locks").

g. ~ Trap partner stress time more ".) INEXM uses that takes response times in completing antispanue sine sentences that neutral semancies, controls aloneed the spoposite path manade. In a subsequent movemphoto take, MoNA users were non-trap, and responsed takes to adjacentiate than neutral sentences, controls forward the upposed pathwere at adhesis. This were different approximation interpretation takes of the upposed pathwere of adhesis. This were different and approximation temperature takes of the upposed with extent of MONA user. Molecoles, MONA users had the set of the takes of the set of the takes of MONA set. ting, and a ther self-raised appreciation and depression accrete than controls, on day T_1 scie toth proups were certilar.

MDMA (ecstasy) users display a cognitive bias towards interpreting ambiguous information in an aggressive way a few days after taking the drug.

("Empathy and Aggression: Two Faces of Ecstasy?" Curran HV, et al. Psychopharmo (Berl), 2004 May; 173(3-4): 425-33)
A sample of drug users (n = 158) were contacted and interviewed in non-clinical community settings about their use of ecstasy, cocaine powder, and amphetamines and the adverse effects of these drugs. Subjects reported a wide range of adverse effects including anxiety problems, depression, mood swings, feelings of paranoia, and panic attacks. Sleep and appetite disturbances were the most commonly reported problems. About half of all subjects reported depression and paranoid feelings associated with their stimulant use.

("Adverse Effects of Stimulant Drugs in a Community Sample of Drug Users," Williamson S, et al. J Drug Alcohol Depend, 1997 Mar 14; 44(2-3): 87-94)

S NCBI



Adverse effects of stimulant drugs in a community sample of drug users.

Williamson S, Gossop M, Pawis B, Griffiths P, Feantain J, Strang J.

National Addiction Centre, The Maudeley, London, UK.

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A sample of drug users (n = 158) were contacted and interviewed in non-clinical community settings about their use of Ecstary, cocaine proveder, and ampletamines und the adverse effects of these drugs. Subjects reported a wide range of adverse effects including anxiety problems, drypension, mood wings, frelings of paranoia, and panic attacks. Siver and appette discutrbances were the most commonly reported problems. About half of all subjects reported depression and paraneoia feelings mosociated with their stimulata use. Many of these reporting problems stated that these were mild. However, for all drugs, a substantial minority of users reported adverse effects which they rated as 'severet'. Between 30 and 55% of the sample reported having had at least one 'severe' adverse effects (30%) cocaine, 35% Ecstary and 55% ampletamine). There were clear differences between the different drugs in the likelihood and reported severity of adverse effects. Ampletamine use was associated with significantly more adverse effects. A common pattern of drug use involved the use of depressant drugs such as opiants and between in additions to stimulants. The stimulant and depressant users were more likely than the stimulants only users to use stimulants by

Article

Pages 335 - 345

Clinical Rheumatology Publisher: Springer-Varlag London LM ISSN: ST75 Strift (Paper) 1454-9948 (Drime) DOI: 10.1007/j/00870080114 Issue: Volume 18, Number 4 Date: June 1999

on-atersidal Anti-Inflammatory Drugs with Adverse Psychiatric Rea we Cess Reports

Haro-Kuang Jiang ⁸¹ and Deh-Ming Diang ⁴²

Departments of Payshiatry and eumatologu/Immunologu/Wargy, Tri-Bankos General Hospital, Ha se Medical Certer, Taple, Tawan, ROC

Abstract: Adverse thug reactions of non-steroidal anti-onfernmethry drugs (NGAN erg gate prevalent), but there are few reports about possible adverse psychiatric reactions, which may be ground or underestimated. No describe here free performance obtained in many depression describer, one lopidate describe performance describer and one anisotry disorder, who even treaded with NGA to part due to theoremated and one anisotry disorder, who even treaded with NGA to part due to theoremated adverse strategy of the strategy and resonance solutions. All the patients developed a moderate to beyond exercise treat adverse on observing periods, and door head offer throught of multi-tering while undergoing on administration of NEAADs. The psychiatry symptom returned on server possible prevention of NEAADs were strategies and prevented to adverse prevention of the Ad-Ds were strategies and prevented to adverse prevention of the Ad-Ds were strategies and prevented to adverse prevention of the Ad-Ds were strategies and prevented to their trategies of the use or the classifier adverse psychiatric readonships. The case prevented to their trategies on a norter strategies adverse prevention, the development of the strates or adverse prevented to adverse monoil atteas in one trates out adverse preventions to readonships. The case prevented to adverse in norterial development on the strates of the strates and of gap/these strategies on an order and use and adverse preventions, but these and the MEA/Ds.

Kay words Advense polychatric reactions - Non-steroidal anti-inflammatory drugs-Pain-associated sundricine

The references of this article are secured to acbacobers

Adverse drug reactions of non-steroidal anti-inflammatory drugs (NSAIDs) are quite prevalent, but there are few reports about possible adverse psychiatric reactions, which may be ignored or underestimated. We describe here five psychiatric outpatients [with various disorders] ...who were treated with NSAIDs for pain due to rheumatoid arthritis, osteoarthritis or other painful neuromuscular conditions. All five patients developed a moderate to severe depressive state, three patients became obviously paranoid, and four had either thoughts of suicide or an attempt while undergoing co-administration of NSAIDs. The psychiatric symptoms remitted when the NSAIDs were stopped.

("Non-Steroidal Anti-Inflammatory Drugs with Adverse Psychiatric Reactions: Five Case Reports," Jiang HK, et al. Clin Rheumatol, 1999 Jun; 18(4): 339-45)

Daily [marijuana] use in young women was associated with an over fivefold increase in the odds of reporting a state of depression and anxiety... Weekly or more frequent cannabis use in teenagers predicted an approximately twofold increase in risk for later depression and anxiety.

("Cannabis Use and Mental Health in Young People: Cohort Study," Patton GC, et al. BMJ, 2002 Nov 23; 325(7374): 1195-8)

bmj com

THE DESIGNATION PROFESSIONER CONTRACTOR

Copyright © 2002, BMJ BMJ. 2002 November 23; 325(7374): 1195–1198.

Cannabis use and mental health in young people: cohort study

George C Patton, professor of adolescent health,^a Carolyn Coffey, epidemiologist,^a John B Carlin, director of unit,^b Louisa Degenhardt, research fellow,^c Michael Lynskey, visiting research fellow,^d Wayne Hall, professor of bioethics⁶

^aCentre for Adolescent Health, Murdoch Children's Research Institute, Parkville, Victoria 3052, Australia, ^bClinical Epidemiology and Biostatistics Unit, Mardoch Children's Research Institute, ⁵National Drug and Alcobol Research Centre, University of New South Wales, Sydney 2052, Australia, ^dDepartment of Psychiatry, Washington University School of Medicine, St Louis, MO 63110, USA, ⁴Office of Public Policy and Ethics, Institute for Molecular Bioscience, University of Queenland, Brisbane 4072, Australia

High doses or chronic use [of speed or methamphetamine] have been associated with increased nervousness, irritability, paranoia, confusion, anxiety and aggressiveness. Withdrawal from high doses produces severe depression.

("Speed—Methamphetamine," Drugs.com website at www.drugs. com/speed.html)

Drugs.com

Methamphetamine.

To search the internet for further information on Methamphetamine, please click here.

Methamphetamine is a dangerous and unpredictable drug, sometimes lethal, representing the fastest growing <u>drug abuse</u> threat in America today. Methamphetamine is a potent and addictive central nervous system stimulant, closely related chemically to amphetamine, but with greater central nervous system effects. Typically, it is a white, odoriess, bitter-tasting powder that easily dissolves in water, which is snorted, injected, or taken orally. Another common form of the drug is Crystal Methamphetamine (clear, large chunky crystals resembling ice), which is smoked in a manner similar to crack cocaine. The street names for Methamphetamine include Meth, Speed, Chalk, Crystal Meth, Ice and Glass.

Effects of Use

Methamphetamine releases high levels of the neurotransmitter dopamine, which stimulates brain cells, enhancing mood and body movement. Immediately after smoking or intravenous injection, the Methamphetamine user experiences an intense sensation, called a "rush" or "flash", which lasts only a few minutes and is described as extremely

or "flash", which lasts only a few minutes and is described as extremely pleasurable. Oral or intranasal use produces euphoria - a high, but not a rush. Users may become addicted quickly, and use it with increasing frequency and in increasing doise.

Methamphetamine use also increases the <u>heart rate</u>, <u>blood pressure</u>, body temperature, breathing rate and dilates the pupils. Other effects include temporary hyperactivity, insomnia, anorexia and tremors. High doses or chronic use have been associated with increased nervousness, irritability, paranola, confusion, anxiety and aggressiveness. Withdrawal from high doses produces severe depression. "By actual clinical test, the actions of aspirin and other pain depressants are TO IMPEDE THE ELECTRICAL CONDUCTIVITY OF NERVE CHANNELS....

"[As a result] the person is rendered STUPID, blank, forgetful, delusive, irresponsible. A drug user gets into a 'wooden' sort of state, unfeeling, insensitive, unable and definitely not trustworthy, a menace to his fellows actually."

L. Ron Hubbard, October 1969.

As covered earlier, drugs can be taken to attempt to alter perceptions and emotions. It is also well documented that the use of drugs can leave a lasting mark on an individual, far beyond the initial "high" they may produce. Scientists and doctors have studied the effects of various drugs on a person's emotional outlook in life even years after discontinuing use.

It is important for educators and students to know that drugs can alter a person's emotional makeup, even suppressing his or her quality of life, for much longer than just the period of use.



Cannabis is commonly regarded as an innocuous drug.... However, accumulative evidence highlights the risk of dependence and other adverse effects, particularly among people with pre-existing psychiatric disorders....

Cannabis use can lead to a range of short-lived symptoms such as depersonalization, de-realization, a feeling of loss of control, fear of dying, irrational panic and paranoid ideas.

("Psychiatric Effects of Cannabis," Johns A. Brit J Psych, 2001; 178: 116-22)

Among adults, an "amotivational syndrome" has been described, in which chronic cannabis users become apathetic, socially withdrawn, and perform at a level of everyday functioning well below their capacity prior to their cannabis use. Among adolescents, the concern has been about the effects of heavy cannabis use on motivation to undertake the educational and other psychological tasks that are an essential part of the transition from childhood to adulthood.

("The Health and Psychological Consequences of Cannabis Use," National Drug Strategy Monograph Series No. 25)

THE BRITISH JOURNAL OF PSYCHIATRY

SUBSTANCE MISUSE PAPERS

Psychiatric effects of cannabis

ANDREW JOHNS, FRCPsych

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Declaration of Interest This review was commissioned and funded by the Department of Health, but the Findings are those of the author alone.

ABSTRACT

Background Cansabis is commonly regarded as an innocuous drug and the prevalence of lifetime and regular use has increased in most developed countries. However, accumulative evidence highlights the risks of dependence and other adverse effects, particularly among people with pre-existing psychiatric disorders.

Alms To re-evaluate the adverse effects of cannabis in the general population and among vulnerable individuals, including those with serious psychiatric disorders.

Method A wide-ranging review of the topics related to these issues.

Results and conclusions An appreciable proportion of cannabis users report short-lived adverse effects, including psychotic states following heavy consumption, and regular





The health and psychological consequences of cannabis use chapter 7

National Drug Strategy Honograph Saries No. 25

7. The psychological effects of chronic cannabis use

A major concern about the psychological consequences of cannabis use has been the possible effects of its chranic use on psychological adjustment in general, and its impart upon motivation and genformance in occupational and social roles in particular. There have been two variations on this concern depending upon the age of the cannabis user. Among adults, an "amotivational syndrome" has been described, in which chronic cannabis users become apathetic, socially withdrawn, and perform at a level of everyday functioning well below their capacity prior to their cannabis use. Among adultscents, the concern has been about the effects of heavy cannabis use on motivation to undertake the educational and other psychological tasks that are an essential part of the transition from childhood to adulthood. The evidence for each of these adverse outcomes of heavy cannabis use will be considered separately, theginning with the effects on adolescent development, which have understandably provided the greatest concern, and grompted the most research.

7.1 Effects on adolescent development

The effects of heavy cannabis use on adolescent development are of special concern for a number of reasoni. First, adolescents are minors whose decisions about whether or not to use drugs are not conventionally regarded as free and informed in the way that adult choices are (Kleiman, 1989). Second, adolescence is an important period of transition from childhood to adulthood, in which regular cannabis intoxication may be expected to interfere with educational achievement, the process of disengagement from dependence upon parents, the development of relationshos with peers, and making important file choices, such as whether, whom and when to marry, and what occupation to pursue (Baumrind and Moselle, 1985; Polich, Ellickson, Rauter and Kahan, 1994). Third, the age at which drug use begins has implications for subsequent drug use and health and well-being. Early indication of cannabis use predicts an increased risk of escalation to heavier cannabis use, and to

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Drug abuse and headache.

Elkind AlL

New York Medical College, Valhalla.

Substance abuse has been reported frequently in chronic headache patients. The problem exists in most Western countries. Abuse of various compounds frequently leads to a state of dependency. Prescription as well as over-the-counter agents are often abused. Augirin, acetamisophen, and culleine are the most frequently abused compounds. Batalini, ergot alkaloids, NSAIDS, and narcotic and oral or intransaul sympathoniumtics are often abused. Patients with chronic duily headache (reatators of symptom that may staggest a missed type headache. Features of singnaine and muscle contractions headache often coexist in these individuals. It has been suggested that the most frequent came for the transformation of a periodic headache into a duily headache in substance abuse. Substance abuse and drug dependency have multiple curses, and the etiology will reside with the compounds that are used to excess. The problem may arise as a result of poor instructions from the physician, improper diagnosis with gradual eventations and abuse residencement, or a reinforcement mechaniser and a beain stimulation-reward effect. The brain neward system has been stimulated to a lenser

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Prescription as well as over-the-counter agents are often abused. Aspirin, acetaminophen, and caffeine are the most frequently abused compounds.... Patients exhibit a less-thansatisfactory quality of life and are often depressed.

("Drug Abuse and Headache," Elkind AH. Med Clin North Am, 1991 May; 75(3): 717-32)

S NCBI



Use and abuse of over-the-counter analgesic agents.

Abbett FV, Fraser MI.

Department of Psychiatry, McGill University, Montreal QC, fabbottiltpsych.mcgill.ca

Pain and disconfort in everyday life are often treated with overthe-counter (OTC) analgesic medications. These drugs are remarkably utile, but serious side effects can occur. Up to 50% of the population in Western countries uses analgesics regularly, primarily for besideches, other specific pains and febrile illness, hi is not known whether the patterns of use are consistent with good pain management practices. OTC analgesics are also widely used to trut dyughoric mood states and skep disturbances, and high levels of OTC analgesic modication are are associated with psychiatric illness, particularly depressive symptoms, and the use of alcohol, nicotine and califatine. More than 4.g per day of acety balkytic acid (ASA) or a sectaminophen over long periods is considered abuse. Prophe using excessive amounts of OTC analgenics may need score effective treatments for chursic pain, depression or dysthymis. The possibility that these drugs have subtle reinforcing properties needs to be investigated. Certainly phenacertia, which was taken off the market in the 1970s, had intensional protective treatments of the strainly phenacertia. Pain and discomfort in everyday life are often treated with over-the-counter (OTC) analgesic medications. These drugs are remarkably safe, but serious side effects can occur. Up to 70% of the population in Western countries uses analgesics regularly... high levels of OTC analgesic medication use are associated with psychiatric illness, particularly depressive symptoms, and the use of alcohol, nicotine and caffeine.

("Use and Abuse of Over-the-Counter Analgesic Agents," Abbott FV, et al. J Psych, 1998 Jan; 23(1): 13-24) Research in animals links MDMA exposure to long-term damage to neurons that are involved in mood, thinking, and judgment. A study in nonhuman primates showed that exposure to MDMA for only 4 days caused damage to serotonin nerve terminals that was evident 6 to 7 years later. While similar neurotoxicity has not been definitively shown in humans, the wealth of animal research indicating MDMA's damaging properties suggests that MDMA is not a safe drug for human consumption.

("NIDA InfoFacts: MDMA (Ecstasy), Neurotoxicity," NIDA website at http://www.nida.nih.gov/PDF/Info facts/MDMA05.pdf)

ANFOFACTS

Meurotaxicity feasanth in princh links MDMA exposure to long term durage to rearises that are involved in mood, flinking, and judgment. A study in nonhumon primotes showed that exposure to MDMA for unity 4 stays assured domage to senstrain nerve terminals that was evident 6 to 7 years later While similar representation be not been definitively above in humans, the math it privat meanth indicating MEMA's domoging projecties suggests that ACMA's reat a safe sings for human

Hidden Esks Drug Purity Ofter drugs chemically similar to MOMA, such as MOA (methylanediosycomphete-mine, the power strug of MOMA) and PNA (parametrice/completencine, associated with fatalities in the U.S. and Australia) are sametimes solid as ecology These drugs can be rewrotovic or create additional health risks to the user. Also, acutory tablets may contain other sub-stances in addition to MDMA, such as aphedrine (o stimulant); destromethor phan (DBM, a cough suppressent that has PO²-like effects at high dowed; kettarrine (an onesthetic used mostly by subtrinui-ors that she has PO²-like effects); call are their she has for the attents, can brine, cocoine, and methomphatamine. While the conditionation of MDMA with one or more of these drugs may be interestity dangeroux, users might also condition them with advatances such as

maripana and alashel, putting themae at further physical risk.

Extent of Use -

lagy Mark

Comp (CTWG)** CTWG and CDWD members monitor drug use date sources for 21 metropolitan orace notion sources for 21 metropoliton oneon redise-vicits. In many of these transmostioned by CEWG members, MDMA, since used primerify of dance cildus, mass, and cish large somes, to being carel to number of other social settings. In addition, some members reported investigations and MDMA sensorial Anison-American and Hispenic propulations.

The number of MDMA emergency deport ment (ED) mentions decreased in nine CDWG areas from 2001 to 2002, with a significant increase reported only in New ogeneration increase reported any in New Orleans. The highest numbers of AGMA ED mentions in the 2000 partod were in Philodeliphic, Los Angeles, New York, Majon, San Prancisca, Atlanta, Boasan, and Datroit.

2004 Manitoring the Future Survey (MIV)¹¹⁴

Text-priders showed significant changes in MDMA use and related attudes have m ACANA use and named attributes have 2003 to 2004. They reported an increase (<3.0 percett in percented harmfulness of accousted HEMA use, and Steiner*** use decreased, how 3.4 percent to 4.3

March 2000

Page 2 of 2

"When the drugs wear off or start to wear off, the ability to create starts to return and TURNS ON PAINS AND DISCOMFORTS MUCH HARDER. One of the answers a person has for this is MORE drugs.... The compulsion stems from a desire to get rid of the pains and unwanted sensations again. The person gets more and more wooden, requiring more and more quantity and more frequent use."

L. Ron Hubbard, October 1969

Tolerance of a drug over time has been studied by many doctors and researchers. Whether prescription or illicit drugs are used, studies have shown that continued use can require escalation of dose to achieve the earlier desired effect. The end result can be physical or mental addiction to the drug.

abc^e Amphetamines

The angle-statistic luppers, because, pap pills) are a group of 4000 kin statisticans. The original data in indicat angle-statisticans. The fore angle is have due to the statistican statistican and the statistican original extends in the cost of and restatistic and determine (i.e., Pheno damg of these statistic and the house regeneration) uses may be smaller to 640 which dise dues have subset.

These design come in tables and copedate that can be taken endly. They can also appear as off when even tab. chants and preciden, which may be entlied as

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Angliciantism may be provided for somologies (attacks of unconsolidate telepisons) and transmising. They are no longer used mechanils to seen depression and element because of their designous adsorbios.

Bio new ampletantian in trace alcutters, runga and a sense of well-bring, they are sensetimes used Biolity by teach disters, while workers, students, althinus and body builders. But proverus, manufamiling, sufficient year, and prevenyion shopping for ampletantines can result in feets prices estimates

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fects of short-larm use

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At higher desits, you can experience exploring feeding and inpering prophetaniness can produan-tennande proposable such or "Back" that has

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bearbing and shere pain. Some users experiment bultrage of power and sape

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Effects of long-term use

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Amphetamines and Addiction

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files drawny use, rem at low itous, same pain have go dependence. Carrings a same provinces, and serie may go to grunt imagine is offsate seare. They remains a cone for drags to make the share lifety spectrum values the drags offsate seare offrightshared drawn anaphroxamics out cat result in streame treatment, disordered along, around streaments material invariant, disordered along, around streaments material invariant.

For House information, contact plan ticut Midle office, or last 2-460-1244246, or cold pur Midl pile serve, and/or conantest la-role. (Mid-1-100-2401-1 Regular amphetamine users develop tolerance. As their body adapts to the drug, they need larger doses to feel the same effects.

("ABCs of Amphetamines," Alberta Alcohol and Drug Abuse Commission website at http://corp.aadac.com/ content/corporate/other_drugs/ amphetamines_abcs.pdf) They [medical professionals] recognize that achieving the desired degree of analgesia often leads to tolerance requiring dose escalation....

("Opioid Tolerance to Sedation and Analgesia," Ward RM. Ped Research, 2000; 47(6): 705-6)

PEDIATRIC RESEARCH

Aulurie Revuest 41:303-306 (2005) © 2000 [mmational Pullatic Research Journiation, Inc.

COMMENTARY

Opioid Tolerance to Sedation and Analgesia

ROBERT M. WARD

Conversity of Usak, University Mode al Conter 24122, 30 North Medical Drive, Salt Lake City, UT 84132, U.S.A.

"FEW THENCS A doctor does are more important than relieving pain" (_). The clinical use of opioids to treat pain has changed little since the days of Oslet, except for the development of many synthetic compounds such as methadone, fentaryl, and alfertanil (_)a). Morphine remains the mainstay of clinical treatment in many settings and the prototype opioid whose effects, both deviced and undesired, are familiar to clinicians. They recognise that achieving the desired degree of analgesia often leads to to interace requiring dose escalation accompanied by hypowratilation and decreased gastruintestinal motility. The symptoms of opioid withdrawal in newborns of mothers addicted to heroin, morphine, or methadone are familiar to pediatriciums. The clinical problems associated with opioid therapy in polaritics were reviewed recently by Sweech and Anand (_). Recent investigations have revealed many of the mechanisms involved in these processes, which have lead to potential therapeutic options to reduce tolerance and enhance analgesia.

Several reviews have been published recently that describe and diagram intracellular events associated with opioid analyesia and tolerance (2–6). Discussions of the differences between the proposed michanisms in these reviews show that our understanding of these processes is still incomplete (2, 5). Some of the disagreements

The chronic abuse of many drugs produces both marked tolerance and physical dependence. Marked tolerance to cannabis has been observed in experimental animals and humans.

("Cannabis Dependence and Tolerance Production," Compton DR, et al. Adv Alcohol Subst Abuse, 1990; 9(102): 129-47)

S NCBI



Cannabis dependence and tolerance production.

Compton DR, Dewey WL, Martin BR.

Pub

Department of Pharmacology and Toxicology. Medical College of Virginia, Virginia Commonwealth University, Richmond 23298.

The chronic abuse of many drugs produces both marked tolerance and physical dependence. Marked interance to cannabis has been observed in experimential animals and humann. However, reports of physical dependence, as characterized by significant withdrawal symptomatology upon cessation of chronic cannabis exposure, has not been well established or clearly defined in any species. The abuse potential of cannabis is more readily observed in humans than in experimental animal investigations. This may be due to the physicchemical characteristics of cannabis or delta 9.THC, which complicates this type of animal experimentation. It is more likely that the greatest diangers of cannabis abuse involve the pharmacological effects of the drug upon the central nervous system and other organs, rather than the development of dependence.



Research Report Series - Prescription Drugs: Abuse and Addiction

CNS depressants

What are CNS depressants?

CNS depressants are substances that can slow normal brain function, because of this property, some CNS depressants are useful in the treatment of anxiety and sleep disorders. Among the medications that are commonly prescribed for these purposes are the following:

- Barbiturates, such as mephoberbital (Hobaral) and periobarbital sodium (Nembutal), which are used to treat anxiety, tension, and sleep disorders.
- Benucofastigamen, such as starspars (salaure), chloridiasteonide HCI (Ultrium), and diprastalen (Nama), which one to prescriber to treat enviro, acude some reactions, and pars; attacks; the inverse existing benucolisegones, such as transmism (inscisor) and estansian (ProSon) (an lasprescribed for short-term transmism (index) devices.
- In higher doses, some CNS depressants can be used as general anesthetics.

How do CNS depressants affect the brain and body? If one uses these drugs long term, the body will develop tolerance for the drugs, and larger doses will be needed to achieve the same initial effects. In addition, continued use can lead to physical dependence and—when use is reduced or stopped— withdrawal [period of physical readjustment to functioning without drugs, usually accompanied by painful or uncomfortable symptoms].

("CNS [Central Nervous System] Depressants," NIDA website, Research Report Series at http:// www.nida.nih.gov/research reports/prescription.html) Heroin also produces profound degrees of tolerance and physical dependence, which are also powerful motivating factors for compulsive use and abuse.... Once they are addicted, the heroin abusers' primary purpose in life becomes seeking and using drugs. The drugs literally change their brains.

Physical dependence develops with higher doses of the drug.... The body adapts to the presence of the drug and withdrawal symptoms occur if use is reduced abruptly.... Some people have shown persistent withdrawal signs for many months.

("Heroin Abuse and Addiction," NIDA website, Research Report Series at http://www.drugabuse. gov/ ResearchReports/Heroin/ heroin3.html)



43

The media plays a large role in people beginning to use drugs.

The role of media and technology in our lives is becoming sometimes more significant than family members and friends. This may be especially true for youth who are constantly bombarded by advertising and marketing strategies and pressure from peers to stay at the cutting edge of trends.

Certain interests, particularly those of alcohol and other drugs, have used this powerful position to push their products on unsuspecting youth internationally.

Alcohol Advertising Exposure and Adolescer Alcohol Use: A Comparison of Exposure Measures

Jennifer B. Unger ^{A1}, Darleen Schuster ^{A1}, Jennifer Zogg ^{A1}, Clyde W. Dent ^{A1}, Alan W. Staty ^{A1}

^{A1} Institute for Health Promotion and Disease Prevention Research, University of Southern California School of Medione 1990 S. Frienordt Box 8 Alhambra CA 91803 USA.

Abstract

Taylor & Francis

Previous studies have noted an association between exposure to alcohol advertising and adolescent adohol use. However, exposure to alcohol advertising has been messured in sinclus ways by many researches. This study examined several different messures of exposure to alcohol advertising, including general television exposure, appound to belevised sports, perceived frequency of accord advertising exposure, advertisement, recognition, receptivity to slochol marketing, recail of brain names, and liking of alcohol advertisements. Logistic regression analyses were used to assess the association of each measure with alcohol use or interforms. In a sample of 501 addrescents in California, several advertising exposure measures were estoccated logisficantly with alcohol use or ascale of advertisement liking, a scale of measures were estoccated logisficantly advertisement and recommending for the possible confounding effects of the other advertising expoluse measures. Results suggest that both cognitive and affective responses to alcohol In a sample of 591 adolescents in California, several advertising exposure measures were associated significantly with alcohol use....

("Alcohol Advertising Exposure and Adolescent Alcohol Use: A Comparison of Exposure Measures," Unger JB, et al. Addiction Research Theory, 2003 Jun; 11(3): 177-93) Increased television and music video viewing are risk factors for the onset of alcohol use in adolescents. Attempts to prevent adolescent alcohol use should address the adverse influences of alcohol use in the media.

("Television and Music Video Exposure and Risk of Adolescent Alcohol Use," Robinson TN, et al. Pediatrics, 1998 Nov; 102(5): 54)

PEDIATRICS

Televisian and Music Video Exposure and Risk of Addresent Alcohol Use Thomo N. Robinson, Riefes L. Chen and Joel D. Killen Public (1998) 107:54-DOI: 10.1542/publ.102.3.e54

This information is current as of March 29, 3005

The online version of this article, along with updated information and services, in located on the World Wale Web at: http://www.podatelos.org/cpicostearthal/102.51454

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> American Academy of Pediatrics CATED THE THE MANCEN OF MAL CHEE

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Research prior to 1990 documented that children learn behaviors and have their value systems shaped by media.

("Impact of Media on Children and Adolescents: A 10-Year Review of the Research," Villani S. J Am Acad Child Adolesc Psych, 2001 Apr; 40(4): 392-401)

RETRABLIE UPDATE REVIEW.

The artist of 10 pare spelares in child and addenses pipelwary legans in July 1995. Spec are veloced an consultance and six ASL/AP Consume on Berneylaures. But for the imperators of new second or is chined or developmental applicants. The authors have been added to place as animal helps the to or their article of theory. 10110-01

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Age-Specific Multi-State Drug Initiation Models: Insight-from Considering Heterogeneity

infection, i.e., almost all individuals either recover or pet immune or remain infector. Recovery from drug consumption may be diverse for different users. It may be a healing process, if the user was addeted, or the user's free choice to quit consumption, or the result of drug enforcement policies [1].

consumption, or the result of drug endosconstant policies [1]. Neverthetices, drug use is clearly contagious in the armse that use by some individuals affects the probability that others will use through multiple mechanisms, it a very literal sense, most merer are introduced to a drug by a friend or relative; the more drug users there are, the encer likely an individual is to be offered the drug [2]. At a mutuck level, the larger the market, the more drug the endosconient risk, and the safer it in to try drugs [3]. At a reputational level, experiences of others can be instrumental in silapsing perceptions of the riskness of drugs, and these perceptions in turns influence ministics [4]. Individ, the very fact that the mechanism of routentiation does not involve physical contact or interaction means that the dynamics of contagion can be more complex and more interpoling. Looking at drug use and the process of institution is noteed drugs it is to clear that the decision of a new-same to start consemption depends strongly not only on the

Looking at drug use and the process of initiation in more detail, it is clear that the decision of a non-user to strat consumption depends strongly not only on the individual's immediate, personal social revisionment, but also on the overall regutation of a drug in society, a.g., as portuged in movies or news media. That means, an individual might want so use drugs even if none of the individual's associates enversages that deview. And, conversely, an individual way feat drugs even if no one he or she knows has sufficied heren. This mugh explanation hows already the complexity of drug initiation and the

This mugh explanation shows already the complexity of drug initiation and the large number of parameters influencing this process. The complexity grows if the age dependency of those factors is taken into comsideration. The disadvantages of complex models siem from the lack of data for parameter identification and the difficultion is analyzing them. Hence, in this paper as we introduce agedependency into models of drug use, we attive to keep other aspects of the models malarively simple.

More specifically, the additional insight considered and quantified in this paper is that the influence of a drug marr on a non-sour vulnerable to initiation can depend on the ages of both individuals. A storens pare of thi might look on plo and seek to emistate an eightness year old, but othet and try in do exactly the apposite of what his or here parent's presention is perceived to be doing. So drug use by an 18 year old might encourage a 18 year old to initiate even though drug use by a 18 year old might discourage it. Or perhaps for some drugs and some situations, use by a 38 year old is a stronger endorsement than is use by an 18 year old. Which were one beliaved, there is to way as incorporate such effects into a clusting modrh. There are agr-specific epidemiological models in the lineatore [5,6], but as mentioned above, the precenses of contaging in is different for drug ministion. Therline, these models are not capable of describing the dynamics of a drug epidencie: Looking at drug use and the process of initiation in more detail, it is clear that the decision of a non-user to start consumption depends strongly not only on the individual's immediate, personal social environment but also on the overall reputation of a drug in society, e.g., as portrayed in movies or news media.

("Age-Specific Multi-State Drug Initiation Models: Insights From Considering Heterogeneity," Almeder C, et al. United Nations Office on Drugs and Crime, 2001; L111: 1-2)

"Positioning... means putting a subject (like 'shaving cream') into a relative position with other products. People only remember, they say, by relating one thing to another.

"A position is where you put a product in somebody's life or mind and in relation to other products."

L. Ron Hubbard, September 1988

One of the most powerful places to advertise anything is in a movie.

Movies "position" drugs, tobacco and alcohol in a positive light. Movies position drugs and drinking with success, with the "good times in life" and thereby they create an interest in kids experimenting with drugs.

Our personal experience may recall to us films where substances have been portrayed in a positive light. Then again, we may not be able to recall specifically where we saw this portrayed, but personally associate smoking or drinking alcohol with wealth, success or popularity. This is due in part to the intentional advertising of such products in movies and is a perfect example of how youth are taken advantage of.

Aware of the movie and not of the advertising per se, they become more susceptible to positive connotations of substance use and abuse through the positioning of these items with things they find desirable. The tobacco and alcohol companies are not ignorant of this effect and actually use the film industry for advertising purposes.



Alcohol, tobacco staples of movies, music, study finds

BY JAMES ROBINSON

Despite mounting political pressure on the entertainment industry, tobacco and alcohol use is pervasive in the movies and in music most popular among young people, according to a study led by Donald F. Roberts, the Thomas More Storke Professor of Communication.

The study is being released in Washington today by the Office of National Drug Control Policy and the U.S. Department of Health and Human Services' Substance Abuse and Mental Health Services Administration.

The extent of alcohol and tobacco use "was the single most striking finding," Roberts said. "This is a world where alcohol and tobacco is similar to the air we breathe. It's all around us all the time," he said. Despite mounting political pressure on the entertainment industry, tobacco and alcohol use is pervasive in the movies and in music most popular among young people, according to a study led by Donald F. Roberts, the Thomas More Storke Professor of Communication.

The study found that 98 percent of movies... had depictions of alcohol, tobacco or illicit drug use.

("Alcohol, Tobacco Staples of Movies, Music, Study Finds," Robinson J. Stanford Online Report at http://news-service.stanford.edu/ news/1999/april28/movies-428.html)

Alcohol advertisers promote their products through placement in movies, and pay a premium to have their brands featured in films. Among the most popular movie rentals in 1996 and 1997, drinking was depicted in more than 90 percent... Even movies for children show characters drinking. A 1999 study... found that among 50 G-rated animated movies made in the past 60 years, half portrayed alcohol use, and half of the drinkers were "good" characters. None of the films depicted the negative health consequences of alcohol use.

("Pricing, Availability and Advertising," Drugstrategies. org website at http:// www.drugstrategies. org/ keepingscore1999/pricing.html)

Millennium Hangover: Keeping Score on Alcohol Drug Birategies

Pricing, Availability and Advertising

Alcohol Excise Taxes Most young people can easily afford to buy slochol. In real dolars, alcohol costs less today than in 1891 because slochol excise tax rates have talled to keep up with inflation is according to the fleer helitude's 1998 annual report, brevens can lock torward to increased domestic sales over the next several press if they "can accould spiniter new tax or regulatory measures." ... With a cost as to as 54, the average teenager can easily afford to buy a sin pack of beer

Interchers at the National Bureau of Economic Research timete that if alcohol taxes had kept pace with inflaton too 1951. He number of youth who drink beer aculd have laned by 24 percent.

Underage dividers are not the only consumers effected by the cost of alcohol. Price increases reduce consumption tetra among adult heavy dimixers, with subsequent reductors is controls levels ($_{22}$ a 9 percent drop is control deaths corresponds to every 10 percent increase in alcoho even on the control of the set of the control of the contro PR. 22

The Federal government also collects alcohol excise taxes to per 12 ounce can of beer, 82:14 for a 750 mL bottle of fastiled spirits and an everage of 45t for a 750 mL bottle of entry, ____However, alcohol excent tax everance pale in comparison to the costs alcohol imposes on society, in 1980 excent al event all other and events (257 biblo) _____while comparison to the costs accord imposes on society, in two accord costs were estimated at nearly 575 billion, 2 while contineed Federal, state and local alcohol tax revenues reached just \$17 billion : juin 1998, alcohol excise laws isolected by the Federal government totalest \$7.5 billion. It revenue, which goes into the general treasury fund along with toblocod excise its invenues, in not asimated for alcohol prevention and treatment programs.

In the highest quartile [one group of four, used in statistical analysis] of exposure to movie smoking, 17% (107) of students had initiated smoking, compared with only 3% (22) in the lowest quartile.

[These] results provide strong evidence that viewing smoking in movies promotes smoking initiation among adolescents.

("Effect of Viewing Smoking in Movies on Adolescent Smoking Initiation: a Cohort Study," Dalton MA, et al. J Pediatr, 2004 Jan; 144(1): 137-8)

@ Effect of viewing smoking in movies on adolescent smoking initiation: a cohort study

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fia haise Muhifu Ia Sistu Ia Sistu Ia fia Ia fia Ia fia Ia fia Ia fia	The Problem Sector 10 Problem Res Serving Top Box Office Week of Harch 14, 2005:					
	Smoking	Film	Rating	Director	0.00	
	0	Robots	PG	Chris Wedge and Carlos Saldania	0	Smoke Free Smoke had Negative Consequence Promotes
	0	The Pacifier	PG	Atem Shankman	۲	
	9	Be Cool	PG-13	F. Gary Gary	3	
	0	Hostage	R	Rorent Emilio Sirt	0	amoking
	0	Hitch	PG-13	Andy Tennant		
	0	Hillion Dollar Beby	PG-13	Clint Eastwood		
	9	Diary of a Med Black Man	PG-13	Darren Grant		
	3	Constantine		Francis Lawerence		
	0	Man of the House	PG-13	Stephen Herek		
	0	Cursed	PG-13	Wes Craven		

Between May 31, 2002 and May 26, 2003 among the top 10 box office grossing films each week:

73% of all top grossing films contained tobacco.

82% of top grossing PG-13 films contained tobacco, compared to "only" 76% of R rated films. (39% of PG films contained tobacco.)

66% of movies featuring smoking carried youth ratings of G, PG, or PG-13.

Half of all the smoking shots were in movies rated for kids: G, PG, and PG-13 films. (In 1999-2000, only 21% of the tobacco spots were in G, PG, and PG-13 films.)

The movies averaged 12.0 incidents of tobacco per hour, up from 10.6 in 2001-2002 and 7.7 in 2000-2001.

(Smoke Free Movies website at http://www.smokefreemovies.ucsf. edu/problem/now_showing.html)

Our results suggest that viewing smoking in movies strongly predicts whether or not adolescents initiate smoking, and the effect increases significantly with greater exposure. Adolescents who viewed the most smoking in movies were almost three times more likely to initiate smoking than those with the least amount of exposure.

...owning tobacco promotional items and being able to recall cigarette advertisements can double the odds that an adolescent will become an established smoker.

("Effect of Viewing Smoking in Movies on Adolescent Smoking Initiation: a Cohort Study," Dalton MA, et al. J Pediatr, 2004 Jan;

Effect of viewing smoking in movies on adolescent smoking initiation: a cohort study

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NARCONON DRUG EDUCATION

THEORY AND BACKGROUND

The Narconon Drug Abuse Prevention Program: Theory and Background

Illicit drug and alcohol use is a fact of life in today's society. To use or not to use such substances is a decision which all young people must address for themselves at some point in their lives, increasingly at an early age. Governments, schools and social programs have attempted to forestall such abusive behavior by young people through school and community based programs as well as broad advertising campaigns, taxation and law enforcement. Yet the continued presence of substance abuse by youth in this country is unquestionable testimony to the fact that we need to do a more effective job for the sake of our young people and the well-being of our society.

Despite the efforts and concerns of many and the varied approaches utilized to address this issue—ranging from abstinence to harm reduction—the fact remains that we need to make our anti-abuse efforts more effective than they generally are today. Narconon's Drug Abuse Prevention Program is a supplemental program designed to increase the effectiveness of existing antiabuse programs by providing substantive information which young people can understand and utilize to make personal, informed decisions regarding their use of such substances.

The Narconon Drug Abuse Prevention Program provides a distinctive format for the presentation of information to pre-adolescent and teenage students. Presenters are trained in a flexible approach which engages students at their level of understanding and conceptual ability. The goal is to present factual information which students can and will use to decide for themselves whether or not to use drugs and alcohol. The Narconon Drug Abuse Prevention Program is based on the proposition that when young people are provided with accurate facts about drugs and alcohol and about the potential impact of such substances on their physical, mental and emotional health, they will reach their own informed decision concerning their use or not of such substances. Starting from this premise, the Narconon Drug Abuse Prevention Program has been refined through the experience of presenters who have spoken with young people through classroom and school presentations for more than three decades. During this time the presentations have been made to more than 2,100,000 students, in the United States, Europe, the Commonwealth of Independent States, Latin America, Africa and Asia.

The Narconon Drug Abuse Prevention Program is designed as a supplemental presentation to support the substance abuse program that a school is using as its basic drug prevention curriculum. Its presentation is designed to provide information which is either lacking or not clearly presented in other alcohol, tobacco and drug prevention formats.

The Narconon Drug Abuse Prevention Program, although it involves lectures, is not a didactic approach. The high degree of interaction which the presenter develops with the young people is, in fact, a key feature of the program. This is a point which is stressed in the training of presenters as it is well recognized that students must be interested and engaged for learning to occur (Tobler & Stratton, 1997). Fundamental to Narconon Drug Abuse Prevention is the understanding that the program's effectiveness is dependent first upon engaging the cognitive processes of the

students. They must be interested and the delivery process must be sufficiently interactive to ensure their engagement with the materials. Even the most salient materials will lack impact if no one is listening. Thus, presenters are trained to establish a very personal rapport with the students and to maintain their interest by focusing the presentation on their experiences, such as what they have observed personally or seen in the drug use of others. Without in any way glamorizing drug use, presenters in fact do the opposite by discussing the actual long-term deleterious effects of drug abuse. The presenter overtly or implicitly asks the students to think about people and situations in their environment or experience. The creation of a free and open atmosphere where students can question and get their concerns answered is also a vital part of the Narconon Drug Abuse Prevention Presentation. Through this process, the student is brought forward to an understanding that the material being discussed is relevant and credible.

Information-based programs too often focus on the negative. Scare tactics tend to be ignored by teenagers and rendered null for younger children as their subsequent experience proves the information to be overly simplistic-or even patently false. Information as imparted in the Narconon Drug Abuse Prevention Program is different. The presenter does not tell the student what to do or not to do. The focus is on the actual mental and physiological consequences of the substance use. The presenter ensures that the students relate to the information being discussed, encouraging them to examine it and compare it to their own observations. The thrust of the program is to develop in the student the ability to make his or her own informed decision. A lasting impact will be achieved only when the student makes such an informed decision and when the facts upon which that decision rests are ones that the student will continue to hold true in the face of his or her subsequent experiences.

Narconon Drug Abuse Prevention Presenters are trained so that they can cogently present material regarding a wide range of drugs. There is, however, no single presentation which is unvaryingly followed, for three reasons. First, there are very considerable differences in the cognitive skills of pre-teens and those of teenagers. Second, there is likewise a great difference in the awareness and experience of drugs between these two groups. And thirdly, students in classes of the same grade in different schools or areas present very different problems and concerns. Thus, as the presenter interacts with the students, the nature of their questions and the level of their argumentation skill necessitate different approaches for different groups. For example, teenagers may direct the presentation to address the use of ecstasy and its consequences whereas this drug typically is not an issue for pre-adolescents. Similarly, in the earlier years, students may have had little exposure to illicit substances but be concerned about the drinking or smoking of their parents; while teens are likely to be more familiar with marijuana and other illicit substances. The materials addressed in the presentations, therefore, vary dependent upon the concerns and issues of the students.

The impact of drugs on the body and mind is at the heart of the Narconon Drug Abuse Prevention Program. The program presents that drugs are essentially toxic substances. It helps the student understand that a drug might have both a positive and a negative impact. For example, aspirin not only relieves the headache symptom, it may cause gastro-intestinal irritation. On the other hand, medically valued pain killers such as oxycontin and morphine may be abused by those seeking the high or to selfmedicate in response to a physical, mental or emotional difficulty.

Presenters recognize that students have an interest in illicit substances as a source of recreational enjoyment (to "have fun," to "get high") or for a variety of other reasons. The Narconon Drug Abuse Prevention Presenter must be able to help the students understand what they may perceive to be positive effects of drug use and to encourage the students' understanding of the costs associated with such short-term benefits.

The Narconon Drug Abuse Prevention Presenter helps students understand the impact of such illegal or illicit, abused substances. The presenter also helps students to become more aware or appreciative of possible long-term consequences of illicit drug use, including possible negative effects from drugs which may remain stored in the body for different periods of time. As the emphasis in all Narconon Drug Abuse Prevention Presentations is on a high degree of interactivity with and among the students, the level of sophistication of the presentation of this information necessarily varies. The concern and effort in regard to such materials is that the student needs to have an understanding of both the shortand long-term consequences of the use of illicit substances.

From a continued monitoring of satisfaction surveys, it appears that the achievement of this awareness in the students is central to the effectiveness of Narconon Drug Abuse Prevention Presentations. Students who recognize that there are negative costs inherently associated with the apparently positive features of drug use are more able to evaluate for themselves whether or not to use drugs. Moreover, this framework for understanding the costs and the benefits of drugs enables them to view drug use in their environment in a different manner. For example, they can see both the "high" which their friend may obtain from ecstasy, and also the difficulties that the friend experiences when the drug wears off. From this perspective, they are less likely to consider only the ostensibly attractive side of drug use.

Also fundamental to the Narconon Drug Abuse Prevention Program is its emphasis on providing the student with accurate information to facilitate the students' own decision-making process. The presenters are trained to always answer questions honestly and in a manner that the student understands. As students are frequently interested in the apparent positive effects of drugs, the preliminary desirable physical or emotional effects are often discussed, including what occurs that appears to create that impact. But the presenter will also ensure that the student understands the consequent detrimental effects of the drug. The presenters never tell the students not to do drugs. Rather they seek to provide the student with the information upon which to make his or her own decision.

The Narconon Drug Abuse Prevention Program understands that single, stand-alone presentations do not produce sufficient "dosage" of information that it will likely be retained as long as it needs to be. Therefore, the presentations are generally repeated at least yearly and with more sophisticated data as the students mature.

Preliminary analyses of after-presentation surveys have shown that students do understand this concept and find it and the material presented concerning the effects of drugs to be meaningful information upon which to base their future decisions (Beckman, S.L. and Chapman, S.L., 1989).

The basic information which Narconon Drug Abuse Prevention Presenters use is neither new nor controversial. It is taken from such sources as the descriptions of illegal substances found on the websites of organizations such as the National Institute of Drug Abuse, SAMHSA, and ONDCP as well as scientific studies of the disposition of drugs and toxins in the body.

Narconon Drug Abuse Prevention Presenters provide students with information on longer-term effects of drug use so that they can think with the consequences of such actions. One such presentation element concerns the retention in body tissues of certain drug metabolites and their potential for interaction upon the individual at times after the original use of the substance. This is a widely accepted fact supported by a growing body of evidence from the scientific community.

It is the view of the Narconon Drug Abuse Prevention Program that its presentations would poorly serve students if it were to fail to alert them to these dangers, given the evidence of adverse events and potential for long-lasting public health issues. The message that drugs contaminate the body and that this has consequences is essential for students to know. Accordingly, they are given information that there is much evidence that drugs store in body tissues and organs for a period of time and one should thus contemplate that what one puts in his body today may not be gone tomorrow. Satisfaction surveys done after Narconon Drug Abuse Prevention Presentations show consistently that this message is understood and considered by students to be important information which they had not learned elsewhere.

In summary, the Narconon Drug Abuse Prevention program is distinctive in its focus. It places an emphasis upon the presentation of factual material in an interactive manner which takes into account the cognitive abilities and skill levels of the students. It helps students make their own informed decisions regarding drug and alcohol use. It does not utilize "scare tactics" but rather addresses the issue of drugs and drug use from a rational perspective encouraging students to fully consider the long-term consequences of their decisions, not just apparent momentary benefits. The program seeks to provide students with information and understandings which will enable them to make personal, informed decisions not to use abusive substances.

The role of the Narconon Drug Abuse Prevention Program is to supplement a school's alcohol, tobacco and other drug curricula. It provides students with information that they can use in thinking about such substances, which will provide them with a factual understanding that will support their choices through the years. It is our belief, founded in satisfaction survey results, post-presentation discussions with students and teachers and follow-up contacts (including requests for subsequent presentations and referrals to other schools) that Narconon Drug Abuse Prevention Presentations provide young people with needed information and strengthen their decisions to avoid future substance abuse.

Respectfully,

Clark R. N. Carr, CCDC (Certified Chemical Dependency Counselor) President Narconon International

Gary W. Smith, CCDC Executive Director Narconon Arrowhead

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