## IT'S NOT ABOUT COMPASSION

NSW's Legalisation of Marijuana as Medicine

**Drug Free Australia** 

## DRUG FREE AUSTRALIA

# NSW's Legalisation of Marijuana as Medicine Summary of Concerns

Drug Free Australia questions why the NSW Working Party on the Use of Cannabis for Medicinal Purposes:

is responding to the agenda of the well-funded drug legalisation lobby which is working towards the defeat of the United Nations Conventions against illicit drugs via incremental changes which include the legalisation of marijuana for medical purposes, marijuana decriminalisation, heroin injecting rooms and heroin on prescription

is subverting the Federal requirement that no medicinal substance can be made available unless it has first been scientifically shown to be both safe and effective, particularly when smoked marijuana has never been scientifically shown to be a safe effective medicine for the treatment of any condition

is elevating questionable subjective anecdotal evidence over evidence-based medicine while simultaneously espousing a commitment to evidence-based research in every other drug policy area

is making the effectiveness of medicine subject to political vote rather than required scientific rigour

is prepared to accept that smoked marijuana has useful medicinal value when every evaluation of the scientific data states that the risks of long-term smoked marijuana far outweigh any benefits

is calling for a 'trial' of marijuana as medicine despite participants not even being required to be registered or monitored as part of regular clinical evaluations

is recommending potentially massive quantities of raw cannabis to be grown for personal use (and presumably anyone else in the neighbourhood) under medical prescription, deserting the principle of controlled and regulated prescription of therapeutic substances

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## **QUESTION 1**

Drug Free Australia questions why the NSW Working Party on the Use of Cannabis for Medicinal Purposes:

is responding to the agenda of the well-funded drug legalisation lobby which is working towards the defeat of the United Nations Conventions against illicit drugs via incremental changes which include the legalisation of marijuana for medical purposes, marijuana decriminalisation, heroin injecting rooms and heroin on prescription

"The consensus here is that medical marijuana is our strongest suit. It is our point of leverage which will move us toward the legalization of marijuana for personal use, and in that process we will break down the power of the narcocracy to wage a war of terror over things."

Richard Cowan – Director of NORML at the 50th anniversary of the discovery of LSD in San Francisco 1993

"I would establish a strictly controlled distribution network through which I would make most drugs, excluding the most dangerous ones like crack, legally available. Initially, I would keep prices low enough to destroy the drug trade. Once that objective was attained I would keep raising the prices, very much like the excise duty on cigarettes, but I would make an exception for registered addicts in order to discourage crime. I would use a portion of the income for prevention and treatment. And I would foster social opprobrium of drug use." Soros on Soros: Staying Ahead of the Curve. New York: John Wiley & Sons, 1995 p 200 - George Soros is named in Time magazine as the most influential financial supporter of the drug legalization movement, providing \$50,000,000 thus far for legalization efforts globall

"Come up with an approach that emphasizes 'treatment and humanitarian endeavors,' he said, hire someone with the political savvy to sit down and negotiate with government officials, and target a few winnable issues, like medical marijuana and the repeal of mandatory minimums." George Soros, quoted by Cynthia Cotts, "Smart Money," Rolling Stone, May 5, 1994.

"I and other members of ADLRF (Australian Drug Law Reform Foundation) believe that the present laws regarding illicit drugs encourage the unsafe use of the substances they prohibit,. They should be reformed so that presently illicit drugs are legalised, and each drug regulated in its manufacture, distribution and use so as to minimise the black markets that presently encourage their abuse and encourage the damage that they do to individuals and to society." Statement by ADLRF member, Peter Watney on Drugtalk, Australia's national drug policy debate listserver, 27 June 2003 10.44 am, defending ADLRF President, Alex Wodak's unwillingness to reply to a particular legalization question posed by Collis Parrett

"(I am sure you have read the recent reports linking cannabis to schizophrenia). As we have managed to reduce the prevalence of smoking (from 70% to 20% in males) and incidence of tobacco related health problems, and also reduced alcohol consumption by about 25% in the last 20 years as well as the number of alcohol related deaths by 20% in the last decade, why do we not tax and regulate cannabis as these controls have been so successful for the legal drugs."

Dr Alex Wodak, President of the Australian Drug Law Reform Foundation and Australia's highest profile advocate of drug legalization - on Drugtalk, 23 November 2002, 9.55 pm

## Damning Evidence Against the Drug Legalisation Lobby

Testimony of Barry R. Mccaffrey Director, Office of National Drug Control Policy (ONDCP) before the House Government Reform and Oversight Committee subcommittee on criminal justice, drug policy, and human resources - the drug legalization movement in America - June 16, 1999

Our nation's democratic system of government is founded upon free and open debate. Our nation holds no beliefs or icons above challenge and examination. We all must be willing to lay the facts and our analysis on the table of public scrutiny, and make the case for what we believe.

However, in the marketplace of ideas, just as in other marketplaces, there are people willing to use deceptive claims, half truths and flawed logic to hawk ill-considered beliefs. Nowhere is this problem more clear than with respect to the drug legalization movement.

Proponents of legalization know that the policy choices they advocate are unacceptable to the American public. Because of this, many advocates of this approach have resorted to concealing their real intentions and seeking to sell the American public legalization by normalizing drugs through a process designed to erode societal disapproval.

For example, ONDCP has expressed reservations about the legalization of hemp as an agricultural product because of the potential for increasing marijuana growth and use. While legitimate hardworking farmers may want to grow the crop to support their families, many of the other proponents of hemp legalization have not been as honest about their goals. A leading hemp activist, is quoted in the San Francisco Examiner and on the Media Awareness Project's homepage (a group advocating drug policy reforms) as saying he "can't support a movement or law that would lift restrictions from industrial hemp and keep them for marijuana." Katherine Seligman, Legalization Sought for Cousin of Pot, San Francisco Examiner, May 9, 1999, C1 (quoting hemp activist Jack Herer). If legalizing hemp is solely about developing a new crop and not about eroding marijuana restrictions, why does this individual only support hemp deregulation if it is linked to the legalization of marijuana?

Similarly, when Ethan Nadelmann Director of the Lindesmith Center (a drug research institute), speaks to the mainstream media, he talks mainly about issues of compassion, like medical marijuana and the need to help patients dying of cancer. However, Mr. Nadelmann's own words in other fora reveal his underlying agenda: legalizing drugs. Here is what he advocates:

<u>"Personally, when I talk about legalization, I mean three things: the first is to make drugs such as marijuana, cocaine, and heroin legal..."</u>
(Ethan Nadelmann, Should Some Drugs Be Legalized?, 6 Issues in Science

and Technology 43-46 (1990).

"I propose a mail order distribution system based on a right of access . . ."
(Ethan Nadelmann, Thinking Seriously About Alternatives to Drug Prohibition, 121 Daedalus 87-132 (1992).

"Any good non-prohibitionist drug policy has to contain three central ingredients. First, possession of small amounts of any drug for personal use has to be legal. Second, there have to be legal means by which adults can obtain drugs of certified quality, purity and quantity. These can vary from state to state and town to town, with the Food and Drug Administration playing a supervisory role in controlling quality, providing information and assuring truth in advertising. And third, citizens have to be empowered in their decisions about drugs. Doctors have a role in all this, but let's not give them all the power". (Ethan Nadelmann and Jan Wenner, Toward a Sane National Drug Policy, Rolling Stone May 5, 1994, 24-26.)

"We can begin by testing low potency cocaine products -- coca-based chewing gum or lozenges, for example, or products like Mariani's wine and the Coca-Cola of the late 19th century -- which by all accounts were as safe as beer and probably not much worse than coffee. If some people want to distill those products into something more potent, let them".(ld.)

"But if there is a lot of PCP use in Washington, then the government comes in and regulates the sale". (Ethan Nadelmann, How to Legalize, interview with Emily Yoffe, Mother Jones, Feb./Mar. 1990, 18-19.)

Mr. Nadelmann's view that drugs, including heroin and other highly addictive and dangerous drugs, should be legalized are widely shared by this core group of like-minded individuals. For example, Mr. Arnold Trebach states:

"Under the legalization plan I propose here, addicts . . . would be able to purchase the heroin and needles they need at reasonable prices from a non-medical drugstore". (Arnold Trebach & James Inciardi, Legalize It? Debating American Drug Policy, 109-110 (1993).

International financier George Soros, who funds the Lindesmith Center, has advocated: "If it were up to me, I would establish a strictly controlled distributor network through which I would make most drugs, excluding the most dangerous ones like crack, legally available." (George Soros, 'Soros on Soros', p. 200 (1995).

William F. Buckley, Jr. has also called for the "*legalization of the sale of most drugs, except to minors*". (William F. Buckley, The War on Drugs is Lost, National Review, Feb. 12, 1996, 35-48.)

Similarly, when the legalization community explains their theory of harm reduction -- the belief that illegal drug use cannot be controlled and, instead, that government should focus on reducing drug-related harms, such as overdoses -- the underlying goal of legalization is still present. For example, in a 1998 article in Foreign Affairs, Mr. Nadelmann expressed that the following

## **EVIDENCE**

were legitimate 'harm reduction' policies: allowing doctors to prescribe heroin for addicts; employing drug analysis units at large dance parties, known as raves, to test the quality of drugs; and decriminalizing possession and retail sale of cannabis and, in some cases, possession of 'hard drugs'. (See Ethan Nadelmann, Commonsense Drug Policy, 77 Foreign Affairs 111-126 (1998).

Legalization, whether it goes by the name harm reduction or some other trumped up moniker, is still legalization. For those who at heart believe in legalization, harm reduction. It should, however, be emphasized that not all advocates of harm reduction support drug legalization. Nor, does harm reduction, by itself, requires legalization. In fact, aspects of the National Drug Control Strategy, such as methadone treatment, properly adopt harm reduction programs as part of a comprehensive, balanced approach to reducing drug use. Nevertheless, the fact remains that many who advocate harm reduction use it as a subterfuge for legalization. Is too often a linguistic ploy to confuse the public, cover their intentions and thereby quell legitimate public inquiry and debate. Changing the name of the plan doesn't constitute a new solution or alter the nature of the problem.

In many instances, these groups not only advocate public policies that promote drug use, they also provide people with information designed to encourage, aid and abet drug use. For example, from the Media Awareness Project (a not-for-profit organization whose self-declared mission is to encourage a re-evaluation of our drug policies) website a child can link to a site that states:

Overthrow the Government! Grow your own stone! It's easy! It's fun! Everybody's doing it! Growing marijuana: a fun hobby the whole family can enjoy! See www.cannabisculture.com/grow

The linked website goes on to provide the reader with all the information needed to grow marijuana, including a company located in Vancouver, Canada that will ship seeds or plants.

The Media Awareness Project website also includes links to instructions about how drug users can defeat drug tests. See www.mapinc.org ('drug links' 7 and 8 link to the following two websites: www.hightimes.com/ht/tow/tes/index.html and www.cannabisculture.com/usage/dtfaq.shtml). Similarly, the websites of both the Drug Policy Foundation, a self proclaimed drug policy reform group, and the Media Awareness Project, both provide links to a site that gives instructions for how to manufacture the drug 'ecstasy'. See www.mapinc.org which includes as part of its site www.mapsorg/news.html www.ecstasy.org/links/index.html/ which then includes www.hyperreal.org~lamont/pharm/faq/faq-mdma-synth.html

This same information is also found on www.lyceum.org/drugs/synth . ./mdma/synthesis/mdma.mda.synthesis

Careful examination of the words -- speeches, webpostings, and writings -- and actions of many who advocate policies to 'reduce the harm' associated with illegal drugs reveals a more radical intent. In reality, their drug policy reform proposals are far too often a thin veneer for drug legalization. See Richard Cowan, Building a New NORML, High Times, Jan. 1993, p. 67. Mr. Cowan has made clear how harm reduction policies fit into the legalization agenda as follows:

Based on our objective of 'Legalization by 97' we must begin by demanding: 1 - immediate access to marijuana for the sick. 2 -- The immediate cessation of all attacks on users, growers and sellers of marijuana. 3 -- An immediate end to lying about marijuana and its users. 4 -- Recognition of the economic and environmental importance of hemp, and studies on how it can be best exploited by American agriculture and industry. (Id.)

What do drug 'legalizers' truly seek? They want drugs made legal -- even though this would dramatically increase drug use rates. They want drugs made widely available, in chewing gums and sodas, over the Internet and at the corner store - even though this would be tantamount to putting drugs in the hands of children. They want our society to no longer frown on drug use -- even though each year drug use contributes to 50,000 deaths CSR Inc., unpublished research prepared for ONDCP, 1999. and costs our society \$110 billion in social costs. NIDA and NIAAA, The Economic Costs of Alcohol and Drug Abuse in the United States, 1992, NIDA/NIH pub. no. 98-4327, Sept. 1998. And, they want the government to play the role of facilitator, handing out drugs like heroin and LSD.

Let me emphasize, there is nothing wrong with advocating for change in public policy. From civil rights to universal suffrage, much of what makes our nation great has been the result of courageous reform efforts. Our nation benefits from the airing of dissent. However, we all have a responsibility to be honest in debate about our motives. We all have an obligation to be open with the American people about the risks inherent in what we advocate. To date, advocates of legalization have not been so forthcoming.

## **QUESTION 2**

Drug Free Australia questions why the NSW Working Party on the Use of Cannabis for Medicinal Purposes:

is subverting the Federal requirement that no medicinal substance can be made available unless it has first been scientifically shown to be both safe and effective, particularly when marijuana has never been scientifically shown to be a safe effective medicine for the treatment of any condition

## Criteria for the acceptance of a drug for medical use:

All active ingredients have to be identified and their chemistry determined. They have to be tested for purity with limits set for all impurities including pesticides, microbe & fungi and their products. These tests have to be validated and reproduced if necessary in an official laboratory.

The cannabis plant contains some 400 chemicals, a multiplicity of ingredients that vary with habitat – impossible to standardise and often contaminated with microbes, fungi or pesticides.<sup>2</sup>

Animal testing will include information on fertility, embryo toxicity, immunotoxicity, mutagenic and carcinogenic potential. Risks to humans, especially pregnant women and lactating mothers, will be evaluated.

Cannabis has been shown to reduce sperm production.<sup>3</sup> Babies born to cannabis-using mothers are smaller, have learning and behavioural problems and are 10 times more likely to develop one form of leukaemia.<sup>4</sup> The immune system is impaired.<sup>5</sup> Smoking herbal cannabis results in the inhalation of four times as much tar as from a tobacco cigarette.<sup>6</sup>

Adequate safety and efficacy trials must be carried out. They must state the method of administration and report on the results from different groups, i.e. healthy volunteers, patients, special groups of the elderly, people with liver and kidney problems and pregnant women. Adverse drug reactions (ADR) have to be stated and include any effects on driving or operating machinery.

It is envisaged that cannabis would be smoked. No medicine prescribed today is smoked. Concentration, motor-co-ordination and memory are all badly affected.<sup>7</sup> Changes in the brain have been observed<sup>8</sup> and U.S.A. clinics are now coping with more cases of psychosis caused by cannabis than by any other drug.

It is essential to note that the content of THC (Tetrahydrocannabinol – the psychoactive ingredient in cannabis) is on average ten times higher than it was in the 1960s. The fat-soluble THC lingers in the body for weeks and the ability to drive safely is impaired for at least 24 hours after smoking cannabis.

## **EVIDENCE**

Although ten times as many people use alcohol, cannabis is implicated in a similar number of road accidents. 12

The drug must be accepted by qualified experts. Their detailed reports need to take account of all the relevant scientific literature and the potential of the drug to cause dependence.

There are numerous accounts of both psychological and physical dependencies in cannabis use. <sup>13</sup> Some 77,000 people are admitted annually to hospitals in U.S.A for cannabis dependence, 8,000 of them as emergencies. <sup>14</sup> To date there are over 12,000 scientific publications relating to cannabis. <sup>15</sup>

THC has already undergone all the medical tests. It is available on prescription in tablet form for the relief of nausea from chemotherapy and appetite stimulation in AIDS patients. However marinol (USA) and nabilone (UK), synthetic forms of THC and identical in action to it, are not the first drugs of choice among oncologists in Washington D.C. ranking only 9<sup>th</sup> in the treatment of mild nausea and 6<sup>th</sup> for more severe nausea. The warning on nabilone reads:

"THC encourages both physical and psychological dependence and is highly abusable. It causes mood changes, loss of memory, psychoses, impairment of co-ordination and perception, and complicates pregnancy".

Other Cannabinoids: Cannabis contains around 60 cannabinoids that are unique to the plant. Some of these could be similarly extracted, purified and tested for safety and efficacy. In the report "Therapeutic Uses Of Cannabis" (BMA, 1997) the British Medical Association said:

"It is considered here that cannabis is unsuitable for medical use. Such use should be confined to known dosages of pure or synthetic cannabinoids given singly or sometimes in combination."

REFERENCES

- 2. Jenike MA. Drug Abuse. In Rubenstein E, Federman DD (eds) *Scientific American Medicine*, Scientific American Inc. 1993.
- Therapeutic Uses of Cannabis, BMA, 1997.
- 3. Issidorides MR. Observations in chronic hashish users. In Nahas GG & Paton WDM (Eds). Marijuana: Biological Effects &c. 1979. Stephanis CN & Issidorides MR. Cellular effects of chronic cannabis use in man. In Nahas GG & Paton WDM (Eds), Marijuana: Chemistry, Biochemistry and Cellular Effects. 1976. Nahas GG & Paton WDM (Eds). Marijuana: Biological Effects, Analysis, Metabolism, Cellular Responses, Reproduction and Brain. Pergamon, NY, 1979.
- 4. Hingson R, Alpert JJ, Day N et al. Effects of maternal drinking and marijuana use on fetal growth and development. *Paediatrics.* 1982. Quas QH, Mariano E, Milman DH et al. Abnormalities in offspring associated with prenatal marijuana exposure. *Dev. Pharm. Thera.* 1985. Day NL, Richardson GA, Goldschmidt L et al. Effect of prenatal marijuana exposure on the cognitive development of offspring at age three. *Neurotox. Teratol.* 1994. Fried PA & Watkinson B. 36 and 48 month neurobehavioral follow up of children prenatally exposed to marijuana, cigarettes and alcohol. *Developmental & Behavioral Pediatrics*, 1990. Robison LL, Buchley JD, Daigle AE et al. Maternal drug use and risk of childhood non-lymphoblastic leukaemia among offspring: An epidemiological investigation implicating marijuana. *Cancer.* 1989. Ward NI et al. Elemental factors in human foetal development. *Jour. Nutrit. Med.* 1990.
- 5. Cabral GA. Marijuana decreases macrophage anti-viral and anti-tumour activities. *Advances in Biosciences*, 80. 1991. Cabral GA & Vasquez R. Delta-9-tetrahydrocannabinol suppresses macrophage extrinsic anti-herpes virus activity. *Proc. Exper. Biol. Med.* 1992. Cabral GA et al. Proc. Soc. Exper. Med.

## **EVIDENCE**

Biol. 1986. Gross G, Roussaki A, Ikenberg H & Drees N. Genital warts do not respond to systemic recombinant interferon alfa-2 treatment during cannabis consumption. *Dermatologia*. 1991. Leuchtenberger C. Effects of marijuana smoke on cellular biochemistry, utilising *in vitro* test systems. Adverse health and behavioural consequences of cannabis use. *Addiction Research Foundation Press*. Toronto, Canada. 1982. Morahan et al. Effects of cannabinoids on host resistance to *Listeria monocytogenes* and *Herpes simplex* virus. *Infect. Immunol*. 23. 1979. Munson & Fehr. Immunological effects of cannabis. Adverse health and behavioural consequences of cannabis use. *Addiction Research Foundation Press*. Toronto, Canada. 1982. Polen MR et al. Health care use by frequent marijuana smokers who do not use tobacco. *Western Jour. Med.* 158. 1993. Specter S, Lancz G, Djev J et al. *Advances in Exper. Med. Biol.* 1991. Zimmerman AM & Raj AY. Influences of cannabinoids on somatic cells in vivo. *Pharmacology* 21. 1980.

- Therapeutic Uses of Cannabis, BMA, 1997. Broom JW et al. Respiratory effects of non-tobacco cigarettes. BMJ, 1987. Caplan GA, Brigham BA. Marijuana smoking and carcinoma of the tongue. Cancer. 1990. Donald PJ. Marijuana and upper respiratory tract malignancy in young patients. Adv. Exp. Med. Biol. 1991. Ferguson RP, Hasson J & Walker S. Metastasic lung cancer in a young marijuana smoker. JAMA. 1989. Marijuana and Health. National Academy of Sciences, Institute of Medicine Report. Washington DC. 1982. Marijuana Rescheduling Petition by NORML Denied by DEA. Federal Register Vol. 54, No 249. 29 Dec 1989. Polen MR et al. Health care use by frequent marijuana smokers who do not use tobacco. Western Jour. Med. 158. 1993. Schwartz RH. American Journ. Dis. Child. 143(6); p 644. 1989. Tashkin DP et al. Respiratory symptoms and lung function in habitual smokers of marijuana alone, smokers of marijuana and tobacco, smokers of tobacco alone and non-smokers. American Review of Respiratory Diseases. 1987. Tashkin DP et al. Longitudinal changes in respiratory systems and lung function in non-smokers, tobacco smokers and heavy habitual smokers of marijuana with or without tobacco. An International Research Report. Proceedings of the Melbourne Symposium on Cannabis, September 1987 (see also Amer. Review of Respiratory Diseases, 1987). Taylor FM. Marijuana as a potential respiratory tract carcinogen: A retrospective analysis of a community hospital population. Southern Med. Jour. 1988. Tennant FS, Guerry RL & Henderson RL. Histopathological & clinical abnormalities of the respiratory system in chronic hashish smokers. Subst. Alcohol Actions Misuse. 1980 Wengen DF. Marijuana and malignant tumours of the upper aerodigestive tract in young patients: On the risk assessment of marijuana. Laryngorhinotologie. 1993.
- 7. Polen MR et al. Health care use by frequent marijuana smokers who do not use tobacco. *Western Jour. Med.* 158. 1993. Schwartz RH. Persistent impairment of short-term memory associated with heavy marijuana use. *Committees of Correspondence Drug Prevention Newsletter.* June 1990. Solowij N, Michie PT & Fox AM. Differential impairments of selective attention due to frequency and duration of Cannabis use. *Biol. Psychiatry.* 1995. Solowij N. Do cognitive impairments recover following cessation of Cannabis use? *Life Sciences* Vol. 56. 1995. Varma VK, Malhotra AK, Dang R, et al. Cannabis and cognitive functions: a prospective study. *Drug Alcohol Depend.* 1988.
- 8. Devane WA et al. Isolation and structure of a brain constituent that binds to the cannabinoid receptor. *Science*. 1992. Lex BW, Griffin ML, et al. Alcohol, marijuana and mood status in young women. *International Journal of the Addictions*. 1989. Mathew RJ. Middle cerebral artery velocity during upright posture after marijuana smoking. *Acta Psych. Scand.* 1992. Nahas GG. Historical outlook of the psychopathology of Cannabis. In *Cannabis: Physiopathology, Epidemiology, Detection*. CRC Press, 1993. Nahas G & Latour C. The human toxicity of marijuana. *The Medical Journal of Australia*. 1992.
- Information supplied by the US Drug Enforcement Agency (DEA).
- 10. Therapeutic Uses of Cannabis, BMA, 1997. See also ref. 6.
- 11. Leirer VO & Yesavage JA. Marijuana carry-over effects on aircraft pilot performance. *Aviation Space & Environmental Medicine*. 1991.
- 12. Soderstrom CA, Triffillis AL et al. Marijuana and alcohol use among 1023 trauma patients: A prospective study. *Arch. Surg. Vol.123, June.* 1988.
- 13. Information supplied on the use of MARINOL by Roxane Laboratories Inc., 1989 revision. Aceto MD et al. Cannabinoid-precipitated withdrawal by a selective antagonist SR141716A. European Journal of Pharmacology. 1995. Adams IB and Martin BR. Cannabis: Pharmacology and Toxicology in Animals and Humans. Journal of Addiction. Vol. 91. 1996. Anthony JC and Helger JE.Syndromes of drug abuse and dependence. In Roberts and Regine (Eds) Psychiatric Disorders in America. New York Free Press Macmillan. 1991. Compton DR, Dewey WL & Martin BR. Cannabis dependence and tolerance production. Advances in Alcohol & Substance Abuse. 1990. Compton DR et al. Cannabinoid structure-activity relationships: correlation of receptor binding and in vivo activities. Journal of Pharmacology and Experimental Therapeutics. 1993 De Fonseca FR, Carrera MRA et al. Activation of corticotropin-releasing factor in the limbic system during cannabinoid withdrawal. Science. 1997. Devane WA et al. Determination and characterisation of a cannabinoid receptor in rat brain. Molecular Pharmacology. 1988 Devane WA et al. Isolation and structure of a brain constituent that binds to the cannabinoid receptor. Science. 1992. Gold MS. Marijuana. Plenum Medical Book Company, New York. 1989. Howlett AC et al. The cannabinoid

receptor: biochemical, anatomical and behavioural characterisation. *Trends in Neuroscience.* 1990. Jones. Cannabis tolerance and dependence. In Fehr KO and Kalant H (Eds) *Adverse Health and Behavioural Consequences of Cannabis Use.* Addiction Research Foundation, Toronto. 1982. Kaplan HB, Martin SS et al. Escalation of marijuana use: Application of a general theory of deviant behaviour. *Jour. Health & Social Behaviour.* 1986. Kaufman E et al. Committee on Drug Abuse of the Council on Psychiatric Services. Position Statement on psychoactive substance use and dependence: update on marijuana and cocaine. *American Journal of Psychiatry.* 1987. Miller NS and Gold MS. The diagnosis of marijuana (cannabis) dependence. *Jour. Subst. Abuse Treatment.* 1989. Miller NS, Gold MS & Pottash AC. A 12-step treatment approach for marijuana (cannabis) dependence. *Jour. Substance Abuse Treatment.* 1989. National Drug & Alcohol Research Centre of Australia *Report.* August 1997. Poulton et al. *New Zealand Medical Journal.* Vol.110. 1997. Schuster CR. Alaskans for Drug-free Youth Newsletter. Winter, 1993/94. Schwartz RH. Marijuana: an overview. *Pediatric Clinics of North America.* 1987. Tanda G, Pontieri FE & Di Chiara G. Cannabinoid and heroin activation of mesolimbic dopamine transmission by a common μ1 opioid receptor mechanism. *Science.* 1997. Tson et al. Physical withdrawal in rats tolerant to delta-9-THC precipitated by a cannabinoid receptor antagonist. *European Journal of Pharmacology.* 1995.

- 14. Hart RH. Bitter Grass. Mentor Press, Kansas, USA.
- 15. Mississippi University Library.
- Bonner R. Marijuana Rescheduling Petitions 57. Federal Register 1992, 10499-10508.

## PEER-REVIEWED STUDIES DEMONSTRATING THE DANGERS OF CANNABIS

Note: the drug legalisation lobby frequently dismisses this large body of evidence as junk science, but it is crucial to note that almost every study listed below is from a peer-reviewed medical or scientific journal, where the methodology, cogency and reliability of conclusions are checked by an expert panel of academics or scientists. Drug Free Australia thanks the Lambton Families in Action website for this list which was submitted to the US Congress.

#### Addiction / Gateway / Drug

**American Journal of Drug & Alcohol Abuse** 1994 Nov.20(4):459-81. (Developmental vicissitudes that promote drug abuse in adolescents.)

**Bailey SL, Flewelling RL, Rachal JV**. Journal of Health and Social Behavior. 1992; 33:51-66. (Predicting continued use of marijuana among adolescents: the relative influence of drug-specific and social context factors.)

Center on Addiction and Substance Abuse at Columbia University (CASA), March 10, 1994. (This analysis proves that, for too many children cigarettes are a drug of entry into the world of illicit drugs.)

Center on Addiction and Substance Abuse at Columbia University (CASA), March 10, 1994. (A 12- year-old who smokes is 30 times more likely to have used illicit drugs than a child of the same age who doesn't smoke.)

Center on Addiction and Substance Abuse at Columbia University (CASA), Oct. 27, 1994. (Children who use marijuana are 85 times more likely to use cocaine than non-marijuana users. 90% of children who used marijuana, smoked or drank first. Children who drink are 50 times more likely to use cocaine than non drinkers.)

Center on Addiction and Substance Abuse at Columbia University (CASA), Oct. 27, 1994. (Children who use gateway drugs - tobacco, alcohol and marijuana - are up to 266 times more likely to use cocaine than those who don't use any gateway drugs.)

Center on Addiction and Substance Abuse at Columbia University (CASA), Oct. 27, 1994. (Children who smoke daily are 13 times more likely to use heroin than children who smoke less often.)

Center on Addiction and Substance Abuse at Columbia University (CASA), Oct. 27, 1994. (Compared with people who used only one gateway drug [tobacco, alcohol and marijuana], children who used all three are 77 times more likely to use cocaine.)

Center on Addiction and Substance Abuse at Columbia University (CASA), Oct. 27, 1994. (Study concludes: Nearly 90% of cocaine users had smoked, drank and used marijuana first.)

**Chait, et al.** 1981. Psychopharmacology 75 (1). (Cross tolerance between marijuana and barbiturates has been demonstrated. This means marijuana users also develop a tolerance for the addicting barbiturates, even before they use any barbiturates. This is more evidence of significant addictive potential of marijuana.)

**Chen, et al.** 1997. Drug and Alcohol Dependence (46). (Of 9,000 daily users of marijuana, 35% of the adolescents and 18% of the adults met the American Psychiatric Association's criteria for dependence (addiction), suggesting that teenagers are much more vulnerable than adults to developing and addiction to marijuana.)

Clark DB, Levent K, Moss HB. Early Adolescent Gateway Drug Use in Sons of Fathers with Substance Use Disorders. Addictive Behaviors 1998; 23: 561-566. (Preadolescent tobacco use and conduct disorders were highly predictive of early adolescent cannabis use achieving 100% sensitivity and 76% specificity.)

**Compton DR, Dewey WL, Martin BR.** Advances in Alcohol and Substance Abuse. 1990;9:129-147. (Cannabis dependence and tolerance production.)

Crowley TJ, Macdonald MJ, Whitmore EA, Mikulich SK. Cannabis dependence, withdrawal, and reinforcing effects among adolescents with conduct symptoms and substance use disorders. Drug and Alcohol Dependence 1998; 50:27-37. (Research from the University of Colorado examining the presence of marijuana dependence in adolescents who are seen for conduct disorders has demonstrated not only the presence of a clear marijuana dependence syndrome in adolescents, but also marijuana withdrawal. Most patients claimed serious problems with cannabis, and 78.6% met adult criteria for cannabis dependence. The drug produces both dependence and withdrawal and potently reinforces cannabis taking.)

**Devane WA.** Science. 1992; 258: 1946-1949 et al. (Isolation and structure of a brain constituent that binds to the cannabinoid receptor.)

**Duffy A, Milin R.** J. Am. Acad Child Adolesc Psychiatry. 1996;35:1618-21. Case Study: Withdrawal Syndrome in Adolescent Chronic Cannabis Users. (Documents clear withdrawal syndrome that jeopardized treatment.)

**Fonseca FR, Carrera MRA, Navarro M, Koob GF, Weiss F**. Science 1997; 276:2050-2053. Activation of corticotropin - releasing factor in the limbic system during

## **EVIDENCE**

cannabinoid withdrawal. (Withdrawal induced by cannabinoid antagonist SR 141716A was associated with elevation of extracellular corticotropin-releasing factor.)

**Gfoerer, Joseph C, Epstein, Joan F.** Federal Office of Applied Studies in SAMHSA. Drug And Alcohol Dependence, vol. 54 (1999) pp 229-237. (Article estimates drug abuse treatment needs for the years 2000-2020 based on current youth marijuana use. The exec. summary states, "Age at first use of marijuana was found to be the most important predictor in these models". The article notes that marijuana "is generally the first illicit drug used by young people".

**Gold MS.** Marijuana. In: Miller NS, ed. Comprehensive handbook of drug and alcohol dependance. New York: Marcel Dekker, 353-82.

**Golub A, Johnson BD,** The Shifting Importance of Alcohol and Marijuana as Gateway Substances among Serious Drug Abusers. J. Stud Alcohol 1994;55: 607-614. (Marijuana's role as a gateway drug to serious drug use appears to have increased.)

**Jones RT, Benowitz W, Bachman I.** Ann NY Acad Sci 1976; 282: 21-239. (Clinical studies of cannabis tolerance and dependencies.)

**Jones, RT.** 1980 NIDA (National Institute on Drug Abuse) Monograph #31. (Marijuana tolerance occurs in humans; high doses produce less and less effect for the user over time.)

Jones RT, Benowitz NL, & Herning RI. 1981. J. Clin. Pharmacol., 21, 143S-152S.

Jones RT, Benowitz N. 1976. Braud MD & Szara S (Ed.), Pharmacology of Marijuana, Vol.2 (pp 620-642). New York: Raven Press. (The 30 Day Trip - Clinical studies of cannabis tolerance and dependence.)

**Journal Psychopharmacology**, April 1998. (A new study has found that chronic marijuana users become aggressive when they stop smoking the drug according to an April 20 press release from the National Institutes on Health. Researchers at Harvard Medical School found evidence that a withdrawal syndrome is associated with abstinence following long-term marijuana use. Researchers concluded that aggressive behavior is part of this syndrome.)

**Kandel DB, Yamaguchi K, Chen K**, Stages of Progression in Drug Involvement from Adolescence to Adulthood: Further Evidence for the Gateway Theory, J Stud. Alcohol; 1992: 447-457. (Very few try illicit drugs other than marijuana without prior use of marijuana.)

**Kandel DB, Davies M,** Archives of General Psychiatry 1996;53:71-80. (High school students who use crack and other drugs.)

**Kaplan HB Martin SS, Johnson RJ, and Robbins CA.** Journal of Health and Social Behavior. 1986; 27:44-61. (Escalation of marijuana use: Application of a general theory of deviant behavior.)

**Kaufman E, et al.** Committee on Drug Abuse of the Council on Psychiatric Services. Am J Psychiatry. 1987;144: 698-702. (Position statement on psychoactive substance use and dependence: update on marijuana and cocaine.)

## **EVIDENCE**

**Keer, et al.** 1991,1994 American Psychiatric Assoc. DSM-IV, United States. Restricted activity days and other problems associated with use of marijuana or cocaine among persons 18 to 44 years of age. (Some marijuana users develop tolerance, abuse, and compulsive use that meet the criteria for formal diagnosis of dependence [addiction].)

**Kelly TH, Foltin RW, Emurian CS, Fischman MW,** J Exp Anal Behav, March 1994;61: 203-211. (Subjects consistently chose the 3.5% dose over either the 0.0% or 2.0% dose. Dose choice was more sensitive to THC content than either reports of drug liking or numbers of cigarettes smoked.)

**Kendler KS, Prescott CA.** Cannabis use, abuse, and dependence in a population based sample of female twins. American Journal of Psychiatry 1998; 155:1016-1022 (Genetic risk factors have a strong impact on the liability for heavy use, abuse, and dependence on marijuana.)

**Kleber, Herbert, MD.** 1988. Journal of Clinical Psychiatry 49:2 (Suppl) pp 3-6. (20% of those who used marijuana 3 to 10 times went on to use cocaine. 75% of those who used marijuana 100 times went on to use cocaine.)

**Lundqvist**, Life Science, Vol. 56 pp 2145 - 2155. (Study describes cannabis dependence. Impaired cognitive skills and functioning were documented in chronic cannabis users.)

**Martin, et al.** 1997. Marijuana: Contemporary Issues in Treatment. (Marijuana "is most definitely addictive and we generally do not perceive of marijuana as having a great addictive potential because it is a long acting drug.")

**Mendelson JH, Mello NK, & Lex BW.** 1984 Am. J. Psychiatry, 414, 1289-1290. (Marijuana withdrawal syndrome in a woman.)

**Miller NS, Gold MS.** Journal of Substance Abuse Treatment, 1989; 6:183-192. (The diagnosis of marijuana [cannabis] dependence.)

**Miller NS, Gold MS, Pottash AC.** Journal of Substance Abuse Treatment. 1989; 6:241-250. (A 12-step treatment approach for marijuana [cannabis] dependence.)

**Mirochnik**, et al. Pediatrics 99:555-559, 1997. (The chronic use of cocaine, particularly when used with marijuana, sets up craving behavior by depleting brain dopamine and norepinephrine.)

**Pedersen JM.** Arctic Medical Research 1992 Apr;51(2):67-71. (Substance abuse among Greenlandic school children.)

**Physicians' Desk Reference 1998.** (Marinol, a pharmaceutical containing the synthesized active ingredient of marijuana, is available now with a doctor's prescription. It is addictive both psychologically and physiologically. Eleven withdrawal symptoms are listed.)

**Simmons MS, Tashkin DP.** Life Sciences 56:2185-2191, 1995. "The Relationship of Tobacco and Marijuana Smoking Characteristics." (Initiation of a new smoking habit can lead to reduced smoking of other substance regardless of which substance was smoked first. Of all smokers of both tobacco and marijuana, one half began smoking tobacco before marijuana, while one third began smoking marijuana first.)

## **EVIDENCE**

**Smith DE, Seymour RE**. Vol.2. No.1: 49-54 Jan. 1997. Journal of Substance Misuse for Nursing, Health and Social Care.(2). (Marijuana withdrawal symptoms in humans include anxiety, depression, irritability, insomnia, tremors and chills.)

**Solowij et al.** Life Sciences, Vol. 56 pp 2127-2134, 1995. (Brain event-related measures normalize during acute marijuana intoxication, suggesting a basis for the physical dependence component of marijuana use.)

**Stephens RS, Roffman RA, Simpson EE.** Journal of Consulting & Clinical Psychology 1993 Dec;61(6):1100-4. (Adult marijuana users seeking treatment.)

**Tanda G, Pontieri FE, Di Chiara G.** Science 1997;276:2048-2050. Cannabinoid and heroin activation of mesolimbic dopamine transmission by a common opioid receptor mechanism. (THC and heroin exert similar effects on mesolimbic dopamine transmission through a common opioid receptor mechanism located in the ventral mesencephalic tegmentum.)

**Wickelgren.** 1997. Science (276). (Two studies published in the June 27, 1997 Science complete the picture of marijuana as an addictive drug, demonstrating that marijuana affects the neurochemistry of the brain in ways similar to heroin, cocaine, alcohol, and tobacco. The strength of the dopamine surge in the brain created by marijuana was shown to be similar to that created by heroin. These studies provide physiological evidence for marijuana acting as a gateway drug that leads to other drug use. One researcher commented these studies "send a powerful message that should raise everyone's awareness about the dangers of marijuana use.")

**Williams JG, Smith JP.** Journal of Substance Abuse 1993;5(3):289-94. (Alcohol and other drug use among adolescents: family and peer influences.)

#### AIDS / HIV / Immune System / Infections

**AIDS Weekly,** p.19, June 28, 1993. (HIV positive marijuana smokers have an increased incidence of bacterial pneumonia compared to non-marijuana smokers.)

**British Medical Association**, Therapeutic Uses of Cannabis. 1997. P.48...."cannabinoids have been shown to have immuno suppressive effect ..... potentially damaging in individuals whose immune system is already compromised by HIV or chemotherapy."

**Cabral, GA et al.** Proc Soc Exp Bio Med 1986;182:181-186. (Marijuana causes decreased resistance to diseases such as herpes.)

**Cabral GA et al.** Adv Exp Med Bio 288: 93-105, 1991. (THC, the main psychoactive ingredient in marijuana, causes immunosuppression.)

**Cabral GA, Vasquez R.** Cannabis: Physiopathology, Epidemiology, Detection. CRC Press 1993:137-153. (Delta-9-THC suppresses macrophage extrinsic anti-herpes virus activity.)

Caiffa WT, Vlahov D, Graham NM, Astemborski J, Solomon L, Nelson KE, and Munoz A. Am J Respir Crit Care Med 150:1493-1498, 1994. (Marijuana smoking increases the incidence of bacterial pneumoniae in AIDS patients. HIV positive smokers progress to full-blown AIDS twice as fast as non-smokers.)

## **EVIDENCE**

**Cusher et al.** Cellular Immunology Vol 154:99-108, 1994. (Low levels of THC inhibited tumor necrosis factor thereby weakening the killing activity of lymphocytes against tumor cells. Marijuana's implication in a number of chronic diseases reflects its harmful impact on the immune system.)

**Daaka Y, Zhu W, Friedman H, Klein T W.** Induction of Interleukin-2 alpha gene by Delta-9-THC is mediated by nuclear factor kB and CBa cannabinoid receptor. DNA and Cell Biology 1997;16:301-309. (THC might augment AIDS development because of an increase in NK-kB which is known to activate the HIV genome and increase retro viral replication.)

**Djeu J et al.** Adv Exp Med Bio 288: 57-62, 1991. (THC, the main psychoactive ingredient in marijuana, causes immunosuppression.)

**Djeu et al.** Drugs of Abuse Immunity and Immunodeficiency, 1991. (THC is able to interfere with the function of white blood cells taken from humans. Both neutrophils, which fight bacterial infection, and mononuclear cells of the immune system, which fight viruses, were suppressed by various concentrations of THC.)

**Fleisher M, Winawer SJ, Zauber AG.** Annals of Internal Medicine. 1991; 115:578-579. (Aspergillosis and marijuana.)

**Gross G, Roussaki A, Ikenberg H, Drees N**. Dermatologica 1991; 183:203-207. (Genital warts do not respond to systemic recombinant interferon alfa-2 treatment during cannabis consumption.)

**Fligiel SF et al.** Chest, 1997. (Marijuana smoking damages the cilia which protect the lungs.)

**Ford and Norris,** Journal of the Acquired Immune Deficiency Syndrome, Vol 7: 389-396, 1994. (This study on the effects of the use of alcohol and marijuana in the context of sexual relationships and the impact of these substances on the consistency of condom use by urban minority youth showed an increase in unprotected sex.)

**Freidman H, Klein TW, Newton C, Daaka Y**. Advances in Experimental and Medical Biology, Vol. 373, pp 103-113, 1995. (Individuals who chronically use marijuana may be more subject to adverse reaction to common bacteria and viruses in the environment than non-users.)

**Hamadeh and associates.** Chest, Vol. 94/2, pp.432-433, 1988. "Invasive aspergillosis has become a significant cause of death in immunosuppressed patients". Physicians should be aware of this potentially lethal complication of marijuana use in compromised hosts such as patients with AIDS or malignancies.)

Juel-Jensen, BE. 1972 Brit. Med. J. iv:296. (Cannabis and recurrent herpes simplex.)

**Kusher DI, et al.** Cellular Immunology Vol 154:99-108. 1994. Effect of the Psychoactive Metabolite of Marijuana, Delta 9 THC. (Study reports that test tube studies show that marijuana metabolites are capable of impairing the ability of human immune cells to kill tumors and destroy fungal cells.)

**Lopez-Cepero M, Friedman M, Klein T, and Friedman J.** 1986 J. Leukocyte Biol.39 : 679. (THC induced suppression of macrophage spreading and phagocytic activity in vitro.)

## **EVIDENCE**

**Miguez-Berbano and associates**, Journal of Clinical Pharmacology 1994;34-1031. (Smoking tobacco or marijuana reduced antioxidant levels in HIV-infected patients. Vitamin E levels were significantly lower in marijuana users, as well as cigarette smokers, compared to non-smoking HIV infected subjects. "The results of this study indicate that both marijuana and cigarettes have a detrimental effect on vitamin E status of HIV-1 infected individuals. These findings are of particular concern in the light of the important role of Vitamin E in immune processes, inhibition of viral activation and the death of immune cells."

#### Mishkin EM, and Cabral GA 1985.

J Gen. Virol. 66: 2539. (Delta-9-THC decreases host resistance to herpes simplex virus type 2 vaginal infection in the B6C3F1 mouse.)

Murison G, Chubb CB, Maeda S, Gemmell MA and Huberman E. Proc. Natl. Acad. Sci. USA. 1987;84: 5414-5418. (Cannabinoids induce incomplete maturation of cultured human leukemia cells.)

**Newton CA et al.** Inject Infect Immun 62:4015-4020, 1994. (THC, the main psychoactive ingredient in marijuana, causes immunosuppression.)

**Nieman RB et al.** AIDS 7:705-710, 1993. (HIV positive smokers progress to full-blown AIDS twice as fast as non smokers.)

**Schwartz RH**, Journal of Hospital and Community Psychiatry, Vol. 38, p. 531, May 1987. (Marijuana use is a factor in preparing the ground for HIV infection.)

**Sidney et al.** American Journal of Public Health, 87:585-590, Marijuana Research Review, 7/97. (Study reflected double mortality in AIDS patients who used marijuana.)

**Spector S et al.** Adv Exp Med Bio 288:47-56, 1991. (THC, the main psychoactive ingredient in marijuana, causes immunosuppression.)

**Tashkin D, Baldwin G.** American Journal of Respiratory and Critical Care Medicine vol 156, 1997. (Cells from both marijuana smokers and cocaine smokers demonstrated severe limitation in their ability to kill bacteria and tumor cells. The cells involved, alveolar macrophages, are part of the immune system of the lung. They are responsible for the elimination of foreign substances such as tumor and infection.)

**Taylor DN, et al.** New England Journal of Medicine 1982; 306:1249-1254. (Salmonellosis associated with marijuana: a multistate outbreak traced by plasmid fingerprinting.)

**Timpone et al.** 1997 AIDS Research and Human Retroviruses, Vol.13 No.4, Marijuana Research Review, 7/97. (Poor results were shown using THC, the main psychoactive ingredient in marijuana, to treat AIDS wasting syndrome.)

**Tindall B, et al.** Aust N Z J Med 18:8-15, 1988. (HIV positive marijuana smokers have an increased incidence of bacterial pneumonia compared to non-marijuana smokers. Marijuana smoking increases the progression to full-blown AIDS in HIV positive persons.)

**Transplantation,** Vol. 61, June 27, 1996. (Marijuana smoke transmits aspergillosis, a fungus having up to a 90% fatality rate if contracted by transplant patients.

## **EVIDENCE**

Researchers have strongly warned against the use of marijuana in immunocompromised patients such as those with AIDS, chronic granulomatous disease, bone marrow transplants and those receiving chemotherapy for small cell lung cancer.)

**Voth EA, Schwartz RH.** Medicinal applications of delta 9 THC and marijuana: a perspective. Annals of Internal Medicine 1997: 126:791-8. (Marijuana is not a panacea. It is an impure weed that introduces immuno compromised patients to bacteria, fungi, and other toxic complications. We recommend sticking with predictable medical therapies and not deviating from FDA approved medicine in exchange for herbal remedies.

**Wallace JM and associates.** Chest, Vol. 105:847-852. (Tobacco smokers had lower percentages of cells in their small airways that had the marker for CD4 or helper T-cells. Marijuana use had the opposite effect of lowering CD8 positive cells, so-called suppressor cells, at the expense of CD4 cells. Tobacco and marijuana have effects on immune cells and blood lymphocyte populations that differ from each other, both in type and magnitude.)

Wambach KG, Byers JB, Harrison DF, Levine P, Imershein AW, Quadagno DM, Maddox K. Journal of Drug Education 1992;22(2):131-46. (Substance use among women at risk for HIV infection.)

**Watzl et al.** Drugs of Abuse Immunity and Immunodeficiency, 1991. (THC is able to interfere with the function of white blood cells taken from humans. Both neutrophils, which fight bacterial infection, and mononuclear cells of the immune system, which fight viruses, were suppressed by various concentrations of THC.)

**Watzl B et al.** Adv Exp Med Bio 288: 63-70, 1991. (THC, the main psychoactive ingredient in marijuana, causes immunosuppression.)

Whitfield RM, Bechtel LM, Starich GH. The impact of ethanol and Marinol/marijuana usage on HIV+/AIDS patients undergoing AZT, DDC, or DDI therapy. Alcohol, Clin Exp Res 1997; 21:122-127. (Marinol/marijuana resulted in lower CD4+ counts and elevated amylase levels within the DDI group. Marinol/marijuana use associated with declining health status in AZT and AZT/DDC groups but did not appear to have worsening health status at one year follow up.)

**Zhu W and colleagues**. The Journal of Pharmacology and Experimental Therapeutics, 274:1001-1007, 1995. (THC causes abnormalities in immune molecules.)

## Behaviour / Psychiatric / Violence / Risk Taking

**Abel E.** 1977. Psychol. Bull.84:193-261. (The relationship between cannabis and violence: A review.)

**Amen DG, Waugh M**. High resolution brain SPECT imaging of marijuana smokers with AD/HD. Journal of Psychoactive Drugs 1998;30:209-214. (Studies on 30 heavy marijuana users with AD/HD shows marked decreased activity in the right and left temporal lobes. Age range 16-46 average 28.)

## **EVIDENCE**

**Andreasson S et al.** Lancet 2:1483-1485, 1987. (Marijuana has long been known to trigger attacks of mental illness, such as bipolar [manic-depressive] psychosis and schizophrenia. It has been shown that marijuana users are six times more likely to develop schizophrenia than are non-users.)

**Andreasson S, Allebeck P, Rydberg U**. Acta Psychiatr Scand 1989;79:505-10. (Schizophrenia in users and nonusers of cannabis, a longitudinal study in Stockholm County.)

**Barnet G, Licko V, Thompson T.** 1985 Psychopharmacology 85: 51-56. (Behavioral pharmacokinetics of marijuana.)

**Bell R, Wechsler H, Johnston LD.** Correlates of college student marijuana use: results of a US national survey. Addiction 1997;92:571-581. (Marijuana use high among students who participate in high risk behaviors such as binge drinking, cigarettes, multiple sex partners, parties of importance.)

**Bowman M.**, Pihl RO. 1973 Psychopharmacologia 29:159-170. (Cannabis: psychological effects

of chronic heavy use: a controlled study of intellectual functioning chronic users of highpotency cannabis.)

**British Medical Association**, Therapeutic Uses of Cannabis. 1997 p.71 ..... "psychosis can be aggravated by some psychoactive cannabinoids."

**Brook U**. International Journal of the Addictions 1993 May;28(7):667-76. (High school pupils' attitude and experience with drugs in Holon, Israel.)

**Brookoff D, Campbell EA, and Shaw LM.** American Journal of Public Health. 1993;83:369-371. (The under reporting of cocaine-related trauma: drug abuse warning network reports vs. hospital toxicology tests.)

**Brookoff D, O'Brien KK, Cook CS, Thompson TD, Williams C.** Characteristics of Participants in Domestic Violence Cases. JAMA 1997; 277:1369-73. (92% of assailants had used alcohol or drugs the day of attack. 10% used marijuana)

Brownstein HH, Shiledar-Baxi H, Goldstein P, and Ryan P. 1992. J. Crime Justice 15:25-44. (The relationship of drugs, drug trafficking, and drug traffickers to homicide.)

Carney MWP, Bacelle L, Robinson B. Br. Med J 1984:288:104. Psychosis after cannabis use.

Center for Substance Abuse Research University of Maryland, College Park Oct.27,1997 Vol.6 Issue 42

(District of Columbia Pretrial Services Agency shows that 72% of juvenile arrestees tested positive for marijuana in August 1997)

**Cherek D, and Steinberg J.** 1987 Adv. Human Psychopharmacol. 4: 239-290. (Effects of drugs on human aggressive behavior.)

**Cherek, DR.** 1993 Psychopharmacology 111 : 163-168. (Smoking marijuana caused increased aggressive behavior in inner-city males.)

## **EVIDENCE**

**Cohen S.** 1979 Drug Abuse Alcoholism Review 2: 1-13. (The effects of combined alcohol-drug abuse on human behavior.)

Dembo R, Washburn M, Wish B, Schmeidler I, Getreu A, Berry E, Williams L, and Blount W.

1987(a) J. Psychoactive Drugs 19: 361-373. (Further examination of the association between heavy marijuana use and crime among youths entering a juvenile detention center.)

**Dembo R, Washburn M, Wish E, Yeung H, Getreu A, Berry E, and Blount W**. 1987(b) J Psychoactive Drugs 19: 47-56. (Heavy marijuana use and crime among youths entering a juvenile detention center.)

**Dembo R, Williams L, Wothke W, and Schmeidler J**. 1992 Deviant Behavior 13:185-215. (Examining a structural model of the relationships among alcohol use, marijuana/hashish use, their effects and emotional and psychological problems over time in a cohort of high risk youths.)

Effect of Marijuana Decriminalization on Hospital Emergency Room Drug Episodes: 1975-1978. (Significantly higher number of DAWN [Drug Abuse Warning Network] marijuana episodes in states who had decriminalized marijuana.)

**Fagan J**. 1990 in M.Toery and J.Wilson (eds.) Drugs and Crime. Chicago: University of Chicago Press pp.241-320. (Intoxication and aggression.)

**Fergusson DM**, **Lynskey MT**, **Horword LJ**. New Zealand Medical Journal 1993 June 23;106(958):247-50. (Patterns of cannabis use among 13-14 year old New Zealanders).

**Ford K, Norris A.** Journal of Acquired Immune Deficiency Syndromes 1994 Apr;7(4):389-96 (Urban minority youth: alcohol and marijuana use and exposure to unprotected intercourse.)

Goldstein PJ, Lipton DS, Spunt BJ, Bellucci PA, Miller T, Cortez N, Khan M, and Kale A. 1987 (Drug Related Involvement in Violent Episodes (DRIVE). Interim Final Report to the National Institute on Drug Abuse.)

Goldstein PJ, Bellucci PA, Spunt BJ, Miller T, Cortez N, Khan M, Durrance R, and Vega A. 1988 (Female Drug Related Involvement in Violent Episodes [FEMDRIVE]. Final report to the National Institute on Drug Abuse.)

**Goldstein PJ.** 1989(a) In N.A. Weiner and M.E. Wolfgang (Eds.) Pathways to Criminal Violence. Beverly Hills, California. Sage Publications, pp.16-48. (Drugs and Violent Crime.)

**Goldstein PJ, Brownstein HH, Ryan PJ, and Bellucci PA.** 1989(b) Contemp. Drug Probl. 16(4): 651-687. (Crack and homicide in New York City, 1988: a conceptually based event analysis.)

**Goldstein PJ, Brownstein H, Ryan P.** 1992(a) (Drug related homicide in New York, 1984 and 1988 Crime Deling. 38:459-476.)

## **EVIDENCE**

**Goldstein PJ, Brownstein HH, Spunt BI, and Fendrich M.** 1992(b) (Drug Relationships in Murder [DREIM]. Final report to the National Institute on Drug Abuse.)

**Gerston SP.** J Clin Psychiatry 1980;41: 60-1. (Long-term adverse effects of brief marijuana usage.)

**Hall W, Solowij N**. Long term cannabis use and mental health. British Journal of Psychiatry. 1997;171:107-108. (Marijuana causes dependence, poor social outcomes in adolescents, impairs cognitive function, and at a minimum precipitates psychosis.)

Harrison P, Fulkerson J, Beebe T. Child Abuse and Neglect, 1997. 21(6): 529-539. "Multiple Substance Use Among Adolescent Physical and Sexual Abuse Victims" (Minnesota student survey finds link between physical/sexual victimization and multiple substance use. A history of physical/sexual abuse was also associated with an increased likelihood of multiple substance use among all grade levels.)

**Jenike MA.** Drug Abuse. In: Rubinstein E, Federman DD, eds, Scientific American Medicine, NY: Scientific American, Inc., 1993. (Marijuana causes many mental disorders, including acute toxic psychosis, panic attacks, flashbacks, delusions, depersonalization, hallucinations, paranoia, depression and "uncontrollable hostility".)

**Kaplan HB, Martin SS, Johnson RJ, Robbins CA.** Journal of Health and Social Behavior. 1986;27:44-61. (Escalation of marijuana use: Application of a general theory of deviant behavior.)

**Knudsen P, Vilmar T**. Acta Psychiatr Scand 1984; 69: 162-74. (Cannabis and neuroleptic agents in schizophrenia.)

**Koukkou M, Lehmann D.** Pharmacopsychiatry 1978;11:220-7 Correlations between cannabis-induced psychopathology and EEG before and after drug ingestion.

**Kouri E, Pope H, Yurgelun-Todd D, Gruber S**. Biol Psychiatry 1995; 38:475-481. Attributes of heavy vs. occasional marijuana smokers in a college population. (Heavy smokers higher rates of other drug use. Definition of heavy and light is questionable, high never smoked more than 10 times per month.)

**Krahn D, Kurth C, Demitrack M, Drewnowski A**. Journal of Substance Abuse 1992;4(4):341-53. (The relationship of dieting severity and bulimic behaviors to alcohol and other drug use in young women.)

**Lacoursiere et al.** American Journal of Psychiatry, 140:242-244, 1982. (Toxic psychosis produced by marijuana smoking while on Antabuse.)

**Lex BW, Griffin ML, Mellow NK, Mendelson JH.** International Journal of the Addictions. 1989;24:405-424. (Alcohol, marijuana, and mood states in young women.)

**Linszen DH, Dingemans PM, Lenior ME.** Schizophrenic disorders. Arch Gen Psychiatry 1994; 51: 273-79. Cannabis abuse and the course of recent-onset. (Cannabis use found to increase frequency of relapse in patients with schizophrenia. In all but one of the patients cannabis use also preceded the onset of their first psychotic symptom.)

Martinez-Arevalo MJ, Calcedo-Ordonez A, Varo-Prieto JR. Alcobendas Mental Health Centre, Madrid, Spain. Br J Psychiatry, May 1994. Vol.164 pgs.679-681

## **EVIDENCE**

Cannabis consumption as a prognostic factor in schizophrenia (Data were analyzed from 62 schizophrenia patients between 18 and 30 years of age, treated at the community mental health centres in Navarra, who had relapsed and then completed a one-year-follow-up study. Factors influencing the course of illness during follow-up were: continuing cannabis consumption; previous cannabis intake; non-compliance with treatment and stress.)

**Mathers DC, Ghodse AH.** British Journal of Psychiatry. 1992;161:648-653. (Cannabis and psychotic illness.)

**Model KE.** Journal of the American Statistical Association 1993; 88:737-747. The Effect of Marijuana Decriminalization on Hospital Emergency Room Drug Episodes: 1975-1978. (Significantly higher number of DAWN marijuana episodes in states who had decriminalized marijuana.)

**Mueser KT, Yarnold PR, Bellack AS.** Acta Psychiatr Scand 1992; 85: 48-55. (Diagnostic and demographic correlates of substance abuse in schizophrenia and major affective disorder.)

**National Institute on Drug Abuse**. Rockville, Maryland: Pp. 136-159. (The drug use -violent delinquency link among adolescent Mexican-Americans.)

**New York State Division of Criminal Justice Services.** 1990 Male and Female Arrests for Violent Crimes since 1970.

**Page JB, Fletcher J, True WR.** 1988 J Psychoactive Drugs 20:57-65. (Psychosociocultural perspective on chronic cannabis use: the Costa Rican follow-up.)

**Physicians' Desk Reference** pp2076. **Lapey, Janet D. MD.** 1993. ("Marinol", which is THC, the main active ingredient in marijuana, causes "decreased ability to control drives and impulses.")

**Poulton RG, Brooke M, Stanton WR, Silva PA.** New Zealand Medical Journal 1997;110: 68-70. Prevalence and correlates of cannabis use and dependence in young New Zealanders. (Prevalence use DSM IIIR defined cannabis dependence assessed at age 18 and 21 increased from 6.6% for 18 to 9.6% at 21. Unemployment or violent behavior more frequent with cannabis use at age 21.)

Rajs, Prof. Jovan Dept. Of Forensic Med. Stockholm, Fugelstad, Anna, Psychologist, Psychiatric Dependency Clinic, St. Gorans Hosp., Stockholm. 28/11/1994 (People who have used cannabis on its own, without simultaneous consumption of other substances, have frequently died in connection with impulsive and unforseen acts of violence. The predominant form of death is suicide.)

Ryan P., Goldstein P., Brownstein H., and Bellucci P. 1990 in M. De La Rosa, E. Lambert and B. Gropper (eds.) Drugs and Violence: Causes, Correlates, and Consequences (research Monograph 103) Rockville, Maryland: National Institute on Drug Abuse pp.239-264. (Who's Right? Different outcomes when police and scientists view the same set of homicide events: New York.1988.)

**Satz P., Fletcher JM., Sutker LL.** 1976 Ann. NY Acad.Sci. 282:266-306. (Neuropsychologic, intellectual and personality correlates of chronic marijuana use in native Costa Ricans.)

## **EVIDENCE**

**Scherrer et al.** The Journal of Nervous and Mental Disease, Vol.184, No. 10. (Studied Antisocial Personality Disorder [ASP] in 1874 pairs of identical male twins. When twins were randomly selected, 8 out of 10 ASP symptoms were more prevalent in persons with lifetime history of marijuana use. Identical twins have the same genetic makeup. This study clearly shows that marijuana use is not an inherited weakness but that drug use causes antisocial personality traits and symptoms.)

Schwartz RH, Peary P, & Mistretta D. Amer. J. Dis. Child. 1986 140(4), 326. Intoxication of Young Children with Marijuana: A Form of Amusement for 'Pot' Smoking Teenage Girls. (This brief report discusses teenage baby-sitters who intoxicated young charges in their care by blowing marijuana smoke into their faces, noses or mouths, making them "high" on pot.)

**Schwartz RH.** Marijuana: an overview. Pediatric clinics of North America. 1987;34:305-317. (Poorly educated subjects or field hands, non peer reviewed journals, in one study- higher rates of absenteeism, delinquency, and reformatories in Costa Rica.)

Simeon DT, Bain BC, Wyatt GE, LeFranc E, Ricketts H, Chambers CC, Tucker MB. Characteristics of Jamaicans who smoke marijuana before sex and their risk status for sexually transmitted diseases. West Indies Medical Journal 1996;45:9. (Higher risk taking if marijuana smoked prior to sex and independent risk factor for STD.)

**Simonds J, and Kashani J**. 1980. Am. J. Drug and Alcohol Abuse 7:305-322. (Specific drug use and violence in delinquent boys.)

Soderstrom, CA, Smith GS, Dischinger PA, McDuff DR, Hebel JR, Gorelick DA, Kerns TJ, et al. Journal of the American Medical Association 1997;227:169-1774. (Psychoactive substance use disorders among seriously injured trauma center patients. 39.7% of patients had urine positive for drugs other than alcohol and nicotine. Lifetime [current] drug dependency rates were cocaine 16.4% [10.6%], marijuana 14.8% [6.5%], opiates 13.8% [10%], hallucinogens 2.3% [0.4%], stimulants 1.9% [0.3%].)

**Solomons K, Neppe VM, Kuyl JM.** SAMJ. 1990;78:476-481. (Toxic cannabis psychosis is a valid entity.)

**Souief MI.** 1976. Ann.NY Acad. Sci. 282:323-343. (Differential association between chronic cannabis use and brain function deficits.)

**Spunt B, Goldstein P, Bellucci P, and Miller T.** 1990(a) Adv. Alcohol Substance Abuse 9:81-99. (Drug relationships in violence among methadone maintenance treatment clients.)

**Spunt B, Goldstein P, Bellucci P, and Miller T.** 1990(b) J. Psychoactive Drugs 22:293-303. (Race / ethnicity and gender differences in the drugs-violence relationship.)

**Spunt et al.** International Journal of the Addictions, Vol. 29:195-213, 1994. The Role of Marijuana in Homicide. (In terms of life-time use, marijuana was reported to be the most common illicit drug used by a sample of 268 murderers incarcerated in New York State correctional facilities. About 25% of prisoners who had used marijuana, had used it in the 24 hour period before the homicide, and ¾ of those said they experienced some kind of effect from the drug when the homicide occurred.)

## **EVIDENCE**

**Spunt B, Brownstein HH, Crimmins SM, Langley S.** Drugs and Homicide by Women. Substance Use and Misuse, 1996;31:825-845. (10% used pot on the day of homicide and 6% were under the influence.)

**Szymanski HV.** Prolonged depersonalisation after marijuana use. Am J Psychiatry 1981;138:231-3.

Tart CT. 1979. Nature 226: 701-704. (Marijuana intoxication: common experiences.)

**Thomas H.** Drug and Alcohol Dependence, 1996;42:201-207. A community survey of adverse effects of cannabis use. (22% reported panic or anxiety episodes and 15% reported psychotic events.)

**Troisi A, Pasini A, Saracco M, Spalletta G.** Psychiatric Symptoms in Male Cannabis Users Not Using Other Illicit Drugs. Addiction 1998; 93:487-492. (Comorbid psychiatric disorders prevalence: 83% with diagnosis of cannabis dependence, 46% with dx of cannabis abuse, and 29% with occasional cannabis use. Severity of depression and other symptoms increased progressively with the degree of involvement with cannabis. Chronic use was associated with a high prevalence of co-morbid psychiatric disorders.)

Tunving K. Acta Psychiatr Scand 1985; 72:209-17. Psychiatric effects of cannabis use.

Van Os J, Bak M, Hanssen M, Bijl RV, de Graaf R and Verdoux H. Cannabis Use and Psychosis: A Longitudinal Population-based Study American Journal of Epidemiology 2002; 156:319-327. A 3-year follow-up (1997–1999)of a general population of 4,045 psychosis-free persons and of 59 subjects in the Netherlands with a baseline diagnosis of psychotic disorder. Found that cannabis use tripled the chance of psychosis in psychosis-free persons, as well as having a poor prognosis for those with an established vulnerability to psychotic disorder.

**Varma,** Drug and Alcohol Dependence, vol. 21, pp. 147-152, 1988. (Psychological tests measuring intelligence, memory, and other mental functions, were given to 26 heavy cannabis users and compared to a control group. Heavy cannabis user - consuming cannabis for 5 years, 20 or more times per month, with daily intake equivalent to 150 mg of THC or 3 to 5 joints. Users react very slowly in performing motor tasks, suffered disability in personal, social and vocational areas, had higher scores for neurotic and psychotic behavior.)

**Watts WD, and Wright L**. 1990 In M. De La Rosa, E. Lambert, and B. Gropper (Eds.) Drugs and Violence. Causes, Correlates, and Consequences (Research Monograph 103)

Yamada T, Kendrix M, Yamada T. The Impact of Alcohol consumption and marijuana use on high school graduation. Health Economics 1996;5:77-92. (Adverse effects of alcohol and marijuana use on high school graduation. Incidence in frequent drinking, frequent marijuana use significantly reduce the probability of high school graduation. Drinking and marijuana are substitute activities.)

**Zaretsky,** Schizophrenia Research, Vol. 11, pp. 3-8, 1993. (Tardive dyskinesia is a condition in which abnormal involuntary movements develop, producing serious neurologic disability. Some patients treated for schizophrenia with drugs such as chlorpromazine, develop this serious condition as a side effect of therapy. A major risk factor for development of this complication of neuroleptic therapy is current or past use of cannabis.)

#### **Cancer / Respiratory**

**Barbers RG et al.** Am Rev Respir Dis. 1987;135:1271-1275. (Differential examination of broncho alveolar lavage cells in tobacco cigarette and marijuana smokers.)

**Barbers RG et al.** Journal of Psychoactive Drugs. 1988;20:15-20. (Chemotaxis of peripheral blood and lung leukocytes obtained from tobacco and marijuana smokers.

Barsky SH, Roth MD, Kleerup EC, Simmons M, Tashkin DP. Histopathologic and Molecular Alterations in Bronchial Epithelium in Habitual Smokers of Marijuana, Cocaine, and / or Tobacco. Journal of the National Cancer Institute, 1998;90:1198-1204. (Bronchial mucosa biopsy specimens and brushings demonstrated statistically significant molecular abnormalities in marijuana and / or cocaine smokers that have been associated with an increased risk of development of lung cancer.)

**Benowitz NL, Jones RT.** J Clin Pharmacol 1981;21 (suppl 8-9):214-235. (Cardiovascular and metabolic considerations in prolonged cannabinoid administration in man.)

**British Medical Association**, Therapeutic Uses of Cannabis. 1997. P.73..... "The health risks associated with smoking tobacco have been well documented and many of the same constituents are present in cannabis smoke, including most of the known carcinogens."

**Buckley J,** Cannabis: Physiopathology, Epidemiology, Detection. CRC Press 1993;155-162. (A case-control study of acute non-lymphoblastic leukemia: evidence for an association with marijuana exposure.)

Cocita-Baldwin G, Tashkin DP, Buckley DM, Park AN, Dubinett SM, Roth MD. Marijuana and cocaine impair alveolar macrophage function and cytokine production. Am J Respir Crit Care Med 1997;156:1606-1613. (Marijuana and cocaine severely limit the ability of alveolar macrophages to kill bacteria and tumor cells. Marijuana smokers smoked at least 5 per day for 5 yrs. Ave 17.9 joints per week and 54 joints per year.)

Denissenko M, Pao A, Tang M, Pfeifer GP. Preferential Formation of Benzo (a)pyrene Adducts at Lung Cancer Mutational Hotspots in P53. Science Vol. 274, 18 October 1996. (These results provide a direct etiological link between a defined chemical carcinogen and human cancer.) An average marijuana cigarette contains 30 nanograms of this carcinogen, compared to 21 nanograms in an average tobacco cigarette (Marijuana and Health, National Academy of Sciences, Institute of Medicine report, 1982). This potent carcinogen suppresses a gene that controls growth of cells. When this gene is damaged, the body becomes more susceptible to cancer. This gene, P53, is related to half of all human cancers and as many as 70% of lung cancers.

**Diaz and colleagues.** Journal of Pharmacology and Experimental Therapeutics, 268:1289-1296, 1994. (Normal human cells, when incubated with concentrations of THC equivalent to that found in the blood of regular smokers of marijuana, cause immune cells to release compounds which promote inflammation within the lungs, and at the same time, suppress the natural defences against external bacterial and viral agents that cause disease.)

## **EVIDENCE**

**Donald PJ**, Otolaryn Head & Neck Surg 94:517-521, 1986. (Cases of cancer, including cancer of the mouth, tongue, larynx, jaw, head, neck, and lungs have been reported in marijuana smokers.)

**Donald PJ.** Adv Exp Med Bio 288:33-46, 1991. (Cases of cancer, including cancer of the mouth, tongue, larynx, jaw, head, neck, and lungs have been reported in marijuana smokers.)

**Ferguson RP et al.** JAMA 261:41-42, 1989. (Cases of cancer, including cancer of the mouth, tongue, larynx, jaw, head, neck, and lungs have been reported in marijuana smokers.)

**Fligiel SE, Venkat H, Gong H, Tashkin DP.** Journal of Psychoactive Drugs. 1988; 20:33-42. (Bronchial pathology in chronic marijuana smokers: a light and electron microscopic study.)

Fligiel SEG, Roth MD, Kleerup EC, Barsky SH, Simmons MS, Tashkin DP. Tracheobronchial histopathology in habitual smokers of cocaine, marijuana, and/or tobacco. Chest 1997;112:319-326 (Smokers of cocaine, marijuana, or tobacco had greater histopathologic abnormalities than controls and the effects were additive. The effects of marijuana were greater than tobacco or cocaine)

**Gong H, et al.** Clin Pharmacol Ther. 1984;35:26-32. (Acute and subacute bronchial effects of oral cannabinoids.)

**Huber GL. Griffith DE, and Langsjoen PM.** 1988 pgs 3-18 in Marijuana: An International Research Report, Monograph Series No.7, edited by G. Chesher, P. Consroe, and R. Musty. Australian Gov. Publ. Service, Canberra, Australia. The Effects of Marijuana on the Respiratory and Cardiovascular Systems. (Respiratory and cardiovascular effects of marijuana are reviewed. Topics include difficulties in studying this population, effects on the lung, lung cancer, paraquat, passive inhalation, experimental lung disease, and cardiovascular effects. In general, effects on the cardiovascular system appear to be primarily beta-agonist in nature with a secondary vagal-mediated CNS effect resulting in an increase in heart rate.)

**Huber, Gary**: Pharm. Biochem. Behavior Vol.40. P630, 1991. National Academy of Sciences, Institute of Medicine Report, Washington DC 1982. (Known carcinogens in marijuana, vinyl chloride, dimethylnitrosamine, methylethylnitrosamine, benz(a)anthracene, benz(a)pyrene.)

Klein TW, Newton C, Widen R, Friedman H. Delta-9-THC injection induces cytokine mediated mortality of mice infected with legionally pneumophila. Journal of Pharmacology and Experimental Therapeutics 1993;267:635-640. (THC injection increases blood levels of acute phase cytokines in infected animal were at least in part responsible for increased mortality.)

**Macinnis DC, Miller KM.** J R Coll Gen Pract 1984;34:575-6. (Fatal coronary artery thrombosis associated with cannabis smoking.)

**Polen et al.** Western Journal of Medicine, Vol. 158, pp 596-601, 1993. (Daily marijuana smokers had a 19% increased risk of out patient visits for respiratory illnesses, a 32% increased risk of injury, and a 9% increased risk of other illnesses compared to non-smokers. They also had a 50% increased risk of being admitted to hospital.)

## **EVIDENCE**

**Ramirez RJ.** American Journal of Medicine. 1990; 88: 5-60N-5-62N. (Acute pulmonary histoplasmosis: newly recognized hazard of marijuana plant hunters.)

**Robison LL. et. al.** Cancer. 1989; 63:1904-1911. (Maternal drug use and risk of childhood non-lymphoblastic leukemia among offspring.)

Roth MD, Arora A, Barsky SH, Kleerup EC, Simmons M, Tashkin DP. Airway inflammation in young marijuana and tobacco smokers. Am J. Respir Crit Care Med 1998;157:928-937. (Conclusion that smoking marijuana by young adults is associated with significant airway inflammation similar to tobacco smoking.)

**Rubenstein KE.** Marihuana: Biological effects. Oxford: Pergamon Press (1979), pp. 89-99. (Determination of cannabinoids in urine by EMIT homogeneous enzyme immunoassay.)

**Sarafian TA, Marques JA, Shau H, Tashkin DP, Roth MD.** Am J Respiratory Molecular and Cell Biology 1999. (In press) (Oxidative stress produced by cannabinoids in marijuana smoke.)

**Schwartz RH, Voth EA, Sheridan MJ.** Southern Medical Journal 1997: 90;167-172. (Marijuana to Prevent Nausea and Vomiting in Cancer Patients: A Survey of Clinical Oncologists.)

**Sridhar K, Inciardi J, eta al.** Journal of Psychoactive Drugs October 1994. Possible Role of Marijuana Smoking as a Carcinogen in the Development of Lung Cancer at a Young Age. (Reports high incidence of early onset lung cancers having history of marijuana or combined with cigarette smoking.)

**Starr et al.** Medical Tribune, page 17, 1994. (The study followed 25 non-tobacco smoking surfers, in excellent physical condition, who smoked an average of 2 marijuana joints per day. Damage and irritation to the lung cells of marijuana smokers was comparable to those who smoked a mean of 28 tobacco cigarettes per day.)

**Tashkin DP, Shapiro BJ, Lee YE, Harper CE.** New England Journal of Medicine 1976;294:125-129. (Subacute effects of heavy marijuana smoking on pulmonary function in healthy men.)

**Tashkin DP,** et. al. Chest. 1980; 78:699-706. (Respiratory status of 74 habitual marijuana smokers.)

**Tashkin DP, Simmons M, Clark V.** Journal of Psychoactive Drugs. 1988; 20:21-25. (Effect of habitual smoking of marijuana alone and with tobacco on nonspecific airways hyperactivity.)

**Tashkin DP.** West J Med 158:635-637, 1993. Is frequent marijuana smoking harmful to health? (Marijuana smoke produces airway injury, acute and chronic bronchitis, lung inflammation, and decreased pulmonary defences against infection. Smoking one marijuana cigarette leads to airway deposition of four times as much cancer-causing tar as does tobacco smoke.)

**Tashkin DJ**, Am J Respir Crit Care Med 1997 156:1606-1613. (Marijuana and cocaine impairment of alveolar macrophages and cytokine production.)

## **EVIDENCE**

**Tashkin DP, Simmons MS, Sherrill DL, Coulson AH.** Heavy habitual marijuana smoking does not cause an accelerated decline in FEV1 with age. Am Respir Crit Care Med 1997; 155:141-148. (Consistent with prior findings and does not negate the previously determined effects.)

**Tashkin DP.** School Psychology International 1999; 20:23-37. (Effects of marijuana on the lung and its defenses against infection and cancer.)

**Taylor FM.** South Med J 81:1213-1216, 1988. (Cases of cancer, including cancer of the mouth, tongue, larynx, jaw, head, neck, and lungs have been reported in marijuana smokers.)

**Tilles DS, et al.** The American Journal of Medicine. 1986;80:601-606. (Marijuana smoking as cause of reduction in single-breath carbon monoxide diffusing capacity.)

**Van Hoozen BE, Cross CE.** Marijuana: Respiratory tract effects. Clinical Reviews in Allergy and Immunology 1997; 15:243-269. (Good review of the literature on the respiratory effects of marijuana.)

**Wu TC, et al.** New England Journal of Medicine. 1988;318:347-351. (Pulmonary hazards of smoking marijuana as compared with tobacco.)

Zhang Z-F, Morgenstern H, Spitz MR, Tashkin DP, Marshall JR, Hsu TC, Schantz SP. Cancer Epidemiology Biomarker & Prevention 1999. (In press) Marijuana use and increased risk of squamous cell carcinoma of the head and neck.

**Zuskin E, Mustajbegovic J, Schachter EN.** Andrija Stampar School of Public Health, Medical Faculty University of Zagreb, Croatia. Am J Ind Med July 1994 Vol.26 pp 103-115. (Our data demonstrate that work in the hemp industry, particularly in small poorly regulated mills, continues to have deleterious effects on respiratory function.)

#### Fetus / Genetic / Hormonal

Ahmad GR, Ahmad N. Journal of Toxicology, Clinical Toxicology. 1990 28:2, 255-260. Passive Consumption of Marijuana Through Milk: A Low Level Chronic Exposure to Delta-9- Tetrahydrocannabinol (THC). (Analysis of urine from children in the northern part of Pakistan who routinely drink milk from buffalo that graze on marijuana revealed that 29% of children, aged 6 months to 3 years, had detectable (by GC/MS) levels of 11-nor-9-carboxy- 9-THC in their urine.)

Astley SJ, Clarren SK, Little RE, Sampson PD, Daling JR. Pediatrics 1992 Jan;89(1):67-77 (Analysis of facial shape in children gestationally exposed to marijuana, alcohol, and/or cocaine.)

**Barnett G, and Chiang CN.** J. Theor Biol. 1983;104:685-692. (Effects of marijuana on testosterone in male subjects.)

**Block RI, Farinpour R, Schlechte JA.** Drug & Alcohol Dependence 1991 Aug; 28(2):121-8. (Effects of chronic marijuana use on testosterone, luteinizing hormone, follicle stimulating hormone, prolactin and cortisol in men and women.)

## **EVIDENCE**

**Brunader RE, Brunader JA, Kugler JP.** Journal of the American Board of Family Practice 1991 Nov-Dec; 4(6):395-8. (Prevalence of cocaine and marijuana use among pregnant women in a military health care setting.)

**Buckley J.** CRC Press 1993; 155-162. Cannabis: Physiopathology, Epidemiology, Detection. (A case control study of acute non-lymphoblastic leukemia: evidence for an association with marijuana exposure.)

Cartwright PS, Schorge JO, McLaughlin FJ. Southern Medical Journal 1991 Jul;84(7):867-70. (Epidemiologic characteristics of drug use during pregnancy: experience in a Nashville hospital.)

**Cornelius MD, Taylor PM, Geva D, Day NL.** Pediatrics 1995;95:738-43. (Prenatal tobacco and marijuana use among adolescents: effects on offspring gestational age, growth, and morphology.)

**Dahl RE, et al.** Archives of Pediatric and Adolescent Medicine. 1995;149:145-50. A Longitudinal Study of Prenatal Marijuana Use. (Researchers conducted sleep studies in 18 three-year-old children with prenatal marijuana exposure and compared them to 20 children not exposed to marijuana. They found that children exposed to marijuana experienced more than two times the number of sleep arousals at night than the comparison group. They also experienced more time awake after each sleep arousal.)

**Day NL, Richardson GA.** Clinics in Perinatology 1991 Mar;18(1):77-91. (Prenatal marijuana use: epidemiology, methodologic issues, and infant outcome.)

Day N, Sambamoorthi U, Taylor P, Richardson G, Robles N, Jhon Y, Scher M, Stoffer D, Cornelius M, Jasperse D. Neurotoxicology & Teratology 1991 May -Jun; 13(3):329-34. (Prenatal marijuana use and neonatal outcome.)

Day N, Cornelius M, Goldschmidt L,

**Richardson G, Robles N, Taylor P**. Neurotoxicology & Teratology 1992 Nov-Dec;14(6):407-14. (The effects of prenatal tobacco and marijuana use on offspring growth from birth through 3 years of age.)

Chiriboga CA. Neurologic Clinics 1993 Aug;11(3):707-28. (Fetal effects.)

**Day NL, Cottreau CM, Richardson GA.** Clinical Obstetrics & Gynaecology 1993 June (2):232-45. (The epidemiology of alcohol, marijuana, and cocaine use among women of childbearing age and pregnant women.)

Day NL, Richardson GA, Goldschmidt L, Robles N, Taylor PM, Stoffer DS, Cornelius MD, Geva D. Neurotoxicology & Teratology 1994 Mar-Apr.16 (2):169-75. Effect of prenatal marijuana exposure on the cognitive development of offspring at age three. (Lower IQ in toddlers linked to prenatal marijuana exposure. The researchers found "significant negative effects of prenatal marijuana exposure on the performance" of both African American and Caucasian children in standard intelligence tests.)

**Frank DA, Bauchner H, Zuckerman BS, Fried L**. Journal of the American Dietetic Association 1992 Feb;92(2): 215-7. (Cocaine and marijuana use during pregnancy by women intending and not intending to breast-feed).

## **EVIDENCE**

**Fried PA.**, Drug and Alcohol Dependence. 1980 6:415-424. (Marijuana use by pregnant women: Neurobehavioral effects in neonates.)

**Fried PA, Watkinson B, Willan.** American Journal of Obstet. Gynecol. 1984; 150: 23-27. (Marijuana use during pregnancy and decreased length of gestation.)

**Fried PA.** Clinical Obstetrics & Gynaecology 1993 Jun;36(2):319-37. (Prenatal exposure to tobacco and marijuana: effects during pregnancy, infancy, and early childhood.)

**Fried PA.** Life Sciences 1995 May 5;56(23-24):2159-68. (The Ottawa Prenatal Prospective Study: methodological issues and findings - it's easy to throw the baby out with the bath water.)

**Fried PA, Watkinson B, Gray R**. Differential effects on cognitive functioning in 9 to 12 year olds prenatally exposed to cigarettes and marijuana. Neurotoxicology and Teratology 1998;20:293-306. (Use of marijuana in utero was negatively associated with executive function tasks that require impulse control and visual analysis/hypothesis testing.)

**George SK, Price J, Hauth JC, Barnette DM, Preston P.** American Journal of Obstetrics & Gynecology 1991 Oct;165(4 Pt 1):924-7. (Drug abuse screening of childbearing age women in Alabama public health clinics.)

**Gold MS.** Marijuana, NY: Plenum Medical Book Co., p.69-71. (In males, marijuana diminishes testosterone production and lowers sperm counts. In females, marijuana disrupts hormone cycles.)

**Greenland S, Richwald GA, Honda GD**, Drug and Alcohol Dependence 1983;11:359-366. (The effects of marijuana use during pregnancy. A study in a low risk homedelivered population. [dysfunctional labor].)

**Hanna EZ, Faden VB, Dufour MC.** Journal of Substance Abuse 1994;6(2): 155-67. (The motivational correlates of drinking, smoking, and illicit drug use during pregnancy.)

Hernandez JT, Hoffman L, Weavil S, Cvejin S, Prange AJ Jr. Biochemical Medicine & Metabolic Biology 1992 Dec;48(3):255-62. (The effect of drug exposure on thyroid hormone levels of newborns.)

**Hingson R, et al.** Pediatrics. 1982; 70:539-546. (Effects of maternal drinking and marijuana use on fetal growth and development.)

Jacobson SW, Jacobson JL, Sokol RJ, Martier SS, Ager JW, Kaplan MG. Neurotoxicology & Teratology 1991 Sep-Oct;13(5):535-40. (Maternal recall of alcohol, cocaine, & marijuana use during pregnancy.)

**Joesoef MR, Beral V, Aral SO, Rolfs RT, Cramer DW.** Annals of Epidemiology 1993 Nov.3 (6):592-4. (Fertility and use of cigarettes, alcohol, marijuana, and cocaine).

**Kendler KS, Prescott CA.** Cannabis use, abuse, and dependence in a population based sample of female twins. American Journal of Psychiatry 1998;155: 1016-1022. (Genetic risk factors have a strong impact on the liability to heavy use, abuse, and dependence of marijuana.)

## **EVIDENCE**

Kliegman RM, Madura D, Kiwi R, Eisenberg I, Yamashita T. Journal of Pediatrics 1994 May 124(5 Pt 1):751-6. (Relation of maternal cocaine use to the risks of prematurity and low birth weight).

**Kline J, Stein Z, Hutzler J.** International Journal of Epidemiology 1987;16:44-51. (Cigarettes, alcohol, and marijuana: varying associations with birth weight.)

**Kolodny RC**, **et al.** The Pharmacology of Marijuana, Raven Press, New York 1976; 217:225. (Depression of plasma testosterone with acute marijuana administration.)

**Maykut MD**, Health consequences of acute and chronic marijuana use. Prog Neuropsychopharmacol Biol Psychiatry 1985;9:209-38. (The drug depresses reproductive function in both sexes and Delta-9-THC crosses the placenta and enters breast milk.)

**Mendelson JH, Mello NK, Ellingvoe J.** The Journal of Pharm. and Exp. Therap. 1985;232:220-222. (Acute effects of marijuana smoking on prolactin levels in human females.)

**Mendelson JH**, et al. Journal of Pharm. Exp. Therapeutics. 1986;237:862-866. (Marijuana smoking suppresses luteinizing hormone in women.)

**Mueller BA, Daling JR, Weiss NS, Moore DR.** Epidemiology. 1990; 1:195-200. (Recreational drug use and the risk of primary infertility.)

**New England Journal of Medicine**, Howards, pg.3312, 1995. (Male infertility is often related to lifestyle factors such as the use of marijuana, anabolic steroids and cocaine.)

Ostrea EM Jr, Brady M, Gause S, Raymundo AL, Stevens M. Pediatrics 1992 Jan;89(1):107-13 (Drug screening of newborns by meconium analysis: a large-scale, prospective, epidemiologic study.)

**Richardson GA, Day NL, McGauhey PJ.** Clinical Obstetrics & Gynecology 1993 Jun;36(2):302-18. (The impact of prenatal marijuana and cocaine use on the infant and child.)

**Robison LL et al.** Cancer 63:1904-1919, 1989. (Babies born to mothers who use marijuana during pregnancy have an eleven-fold increase in nonlymphoblastic leukemia.)

**Shriver MD, Piersel W**. Early Childhood Special Education, v14 n2 p161-83 Sum Journal Article; Review Literature. (The Long-Term Effects of Intrauterine Drug Exposure: Review of Recent Research and Implications for Early Childhood Special Education.)

Streissguth AP, Grant TM, Barr HM, Brown ZA, Martin JC, Mayock DE, Ramey SL, Moore L. American Journal of Obstetrics & Gynecology 1991 May; 164(5 Pt 1):1239-43. (Cocaine and the use of alcohol and other drugs during pregnancy.)

Vaughn AJ, Carzoli RP, Sanchez-Ramos L, Murphy S, Khan N, Chiu T. Obstetrics & Gynecology 1993 Jul;82(1):92-6. (Community-wide estimation of illicit drug use in delivering women: prevalence, demographics, and associated risk factors.)

**Zimmerman S, Zimmerman AM.** The International Journal of Addictions. 1990-1991;25:19-23. (Genetic effects of marijuana.)

**Zuckerman B, et al.** New England Journal of Medicine 1989;320:762-768. (Effects of maternal marijuana and cocaine use on fetal growth.)

Zuckerman B, Frank D, Parker S, Bauchner H, Kayne H, Fried L, Cabral H, and Amaro H. New Eng. J.Med. 1989;321(14), 979. Effects of Maternal Marijuana and Cocaine Use on Fetal Growth. (The authors respond to two issues of their previous article. They insist that the discrepancy between self-reported marijuana versus urine results was not due to passive exposure. They also insist that cocaine and marijuana do indeed cause decreased birth weight.)

Zuckerman B, Bresnahan K. Pediatric Clinics of North America 1991 Dec;

38(6):1387-406. (Developmental and behavioral consequences of prenatal drug and alcohol exposure.)

#### General / Medical / Sidestream / Smoke

Adler P. 1985 Columbus University Press, New York. (Wheeling and Dealing.)

**Bhushan et al.** American Journal of Public Health, 84;675-686, 1994. (Over 7700 infants and young children visiting the pediatric emergency room of a New York City hospital for 6 months in 1992 were screened for evidence of byproducts of marijuana and cocaine in their urine. 11% tested positive for cocaine or marijuana metabolites.)

**Bourdon R.** Marihuana: Chemistry, biochemistry, and cellular effects (Nahas, GG., eds.). New York: Springer-Verlag (1976). (Identification and quantitation of cannabinoids in urine by gallium chelate formation.)

British Medical Association, Therapeutic Uses of Cannabis, 1997: p.77 - "cannabis itself is unsuitable for medical use"; "arguments in favour of sanctioning cannabis for medical use have been based mainly on anecdotal reports ... they do not constitute scientific evidence"; p.60 - "smoked cannabis is clearly not a therapeutic option"; p.55 - "hypotension, palpitations and psychotropic effects ..... occurred with such frequency as to militate against the routine use of cannabis in glaucoma"; p.53 - "evidence of a therapeutic potential for cannabinoids for epilepsy is scanty ..... trials have been small, uncontrolled and have given conflicting results"; p.46 - "ineffective in anorexia nervosa"; p.36 - "tremor and hypokinesia was exacerbated ....."; "no beneficial effects for Parkinson's disease or Huntington's disease"; p.32 - "in 10 patients with MS and 10 normal controls ..... cannabis impaired posture and balance in all subjects, ..... patients became further impaired - but some patients noted subjective improvement".

**Cabral GA et al.** Proc Soc Exp Bio Med 182:181-186, 1986. (Marijuana causes decreased resistance to diseases such as herpes.)

**Campbell AMG, Evans M, Thomson JLG, Williams MJ.** Lancet 1971;ii: 1219-24. (Cerebral atrophy in young cannabis smokers.)

## **EVIDENCE**

**Charles et al.** Clinical Toxicology 14:433-438, 1979. (Marijuana is associated with myocardial infarction and stroke.)

**Clayton RR, Cattarello A**. NIDA Research Monograph 1991;107:29-56. (Prevention intervention research: challenges and opportunities.)

**Cone EJ, Huestis MA.** Therapeutic Drug Monitoring 1993 Dec;15(6):527-32. (Relating blood concentrations of THC and metabolites to pharmacologic effects and time of marijuana usage.)

Crites-Leoni A. Medicinal Use of Marijuana: Is the Debate a Smoke Screen for Movement Toward Legalization? Journal of Legal Medicine 1998; 19;273-304. (Excerpts: "This commentary takes the position that the legalization of medicinal marijuana is unnecessary." "Presentation of marijuana as a medicine that helps people, appears to be an effort by the legalization of marijuana proponents to desensitize the American people to the drug's negative effects. This may cause society to question the illegal status of marijuana." "The potential danger of legalizing marijuana for medicinal purposes is clear. Legalization of the drug for medicinal purposes precipitates legalization of the drug on a higher, more reckless scale.")

**Diasio RB, Ettinger DS, Satterthwaite RN.** Oral levonantradol in the treatment of chemotherapy-induced emesis: preliminary observations. J Clin Pharmacol 1981;21 (suppl 8-9):81-5S. (The incidence of adverse effects is high - a third of patients in some studies experiencing dysphoria and 90% somnolence.)

**Eber, GC.** The Lancet, Vol 343, January 29, 1994. (This extremely complete review of multiple sclerosis therapy puts to rest any contention that smoked marijuana is good for this disorder and can be given without side effects. There simply are no data to support the safe or effective use of either smoked marijuana or dronabinol for treatment of MS.)

**Elsohly MA., Abel CT.** Quarterly Report: Potency Project Report No.32, Oct-Dec 1989. University City, Miss: Research Institute of Pharmaceutical Sciences:1990.

**Friedman GD, Petitti DB, & Bawol RD.** 1983 Am. J. Pub. Health 73(4), 401-05. Prevalence and Correlates of Passive Smoking. (The number of hours per week of passive smoking [tobacco] were directly correlated to alcohol and marijuana use in this study of the extent of passive inhalation of tobacco smoke by 37,881 subjects.)

**Greenburg et al.** Clinical Pharmacology and Therapeutics, Vol. 55:324-328, 1994. (Study shows multiple sclerosis patients are further impaired by smoking low-THC marijuana.)

**Hall W**. Addiction: Highs and Lows Lancet 1997, 350:SIII1. (Evaluating the marijuana mortality study by Sidney et al. suggests that marijuana use is a marker for male homosexual behavior. Also points out that the apparent lack of association to mortality is premature because the mean age of follow up was only 43 years old.)

**Harrison ER, Haaga J, Richards T**. American Journal of Drug & Alcohol Abuse 1993; 19(4):423-41. (Self-reported drug use data: what do they reveal?)

**Health Council of the Netherlands.** Standing Committee on Medicine. Marijuana as Medicine. Rijswijlc Health Council of the Netherlands. 1996 Pub. No. 1996/2. ("On the basis of this literature survey, the Committee has concluded that evidence is insufficient to justify the medical use of marijuana.")

## **EVIDENCE**

**Hendin H, Haas Ap, Singer P, et al.** 1987 Living High: Daily Marijuana Use Among Adults. New York, NY: Human Sciences Press, Inc.

**Huestis M, Cone E.** Forensic Drug Abuse Advisor 1995 Vol.7, Issue 3, pg 20. (Two groups of subjects were given marijuana cigarettes, with two different levels of THC, a naturally occurring substance in marijuana. In both groups, blood cortisol levels peaked after an hour and 15 minutes. Subjects with the higher dose of THC had higher cortisol levels. Levels did not return to normal until five hours after the low dose and nine hours after the high dose.)

**Jones R.** July 1980 In R. Peterson (ed.) Marijuana Research Findings:1980 (Research Monograph 31). Rockville, Maryland: National Institute on Drug Abuse. pp.54-80. (Human effects: an overview.)

**Jones HC, and Lovinger PW.** 1985 Dodd, Mead & Company, NY. 537pp. The Marijuana Question and Science's Search for an Answer. (The authors conclude that "marijuana smoking is dangerous to your health and to society.")

Kaufman Paul L, MD, Madison, Wisconsin. (Arch Ophthalmol. 1998;

116:1512-1513). (However, the duration of action of smoked or ingested marijuana, delta-9-THC (delta-9-THC), or other cannabinoids is unacceptably short: about 3.0 to 3.5 hours. To treat glaucoma, IOP must be controlled around the clock, and thus patient compliance becomes a serious issue. For marijuana to be a viable therapy, it would have to be smoked every 3 hours, and getting patients to put drops in their eyes even a few times a day is very difficult. Furthermore, there is the question of whether cannabinoids can work topically. The supposedly active compound delta-9-THC does not lower IOP when applied topically. Another problem not recognized as relevant to glaucoma 20 or 25 years ago is marijuana's ability to reduce blood pressure. Depending on dosage, frequency, and user experience, the reduction can be rather substantial. Blood flow to the optic nerve may be important to the nerve's health, especially in an adverse environment. In an eye with elevated IOP, or an optic nerve that is not doing well and has unusual susceptibility to changes in IOP, reduced blood flow may be a very important factor in the progression of glaucoma.)

**Lex BW.** Health Psychology 1991; 10(2):121-32. (Some gender differences in alcohol and polysubstance users.)

**Lukas and colleagues**. Pharmacology, Biochemistry and Behavior, Vol. 48: 715-721,1994. (The dangerous side effects of cocaine are amplified when used in conjunction with marijuana. The study found that the increase in heart rate due to cocaine was markedly enhanced if preceded by smoking marijuana, and that the time to the cocaine high was reduced from 2 minutes to 1 minute. There was double the amount of drug absorption evident when marijuana use preceded cocaine use.)

**Lukas SE, Mendelson JH, Benedikt R.** Drug And Alcohol Dependence 1995 37 N2 Feb 131-140. Journal Article. (Electroencephalographic Correlates Of Marijuana-Induced Euphoria.)

**Mathew RJ.** Acta Psychiatr. Scand. 1992;86:173-178. (Middle cerebral artery velocity during upright posture after marijuana smoking.)

## **EVIDENCE**

**McGeer PC, Jakubovic A.** Ultrastructural and biochemical changes induced by marihuana. In: Nahas GG, Paton WDM, eds. Marihuana: biological effects. Oxford: Pergamon Press, 1979:519-31.

**Merrit JC, Perry DD, Russel DN, Jones BF.** Topical Delta-9-THC and aqueous dynamics in glaucoma. J Clin Pharmacol 1981;21 (suppl 8-9):467-71S. (Oral cannabinoids are probably unsuitable for lowering intraocular tension in glaucoma.)

**Moreland et al.** Journal of forensic Sciences 30:997-1002, 1985. (Symptoms consistent with cocaine toxicity in infants and toddlers exposed to smoke of cannabinoids and free base cocaine.)

Nahas, Sutin, Harvey and Agurell. Marijuana and Medicine. Chapter 43, page 537 of the book edited by Waster and Martin state: "As far as the analgesic effectiveness of delta-9-THC and the four THC derivates is concerned, one must question whether it is, in fact, true analgesia. The evidence found in the literature on the analgesic action of THC is not consistent."

**Omoluabi PF.** International Journal of the Addictions 1995 Mar;30(4):445-58. (A review of the incidence of non-prescription psychoactive substance use / misuse in Nigeria.)

**Petraitis J, Flay BR, Miller TQ.** Psychological Bulletin 1995 Jan;117(1): 67-86. (Reviewing theories of adolescent substance use: organizing pieces in the puzzle.)

**Polen MR, Sidney S, Tekawa IS, Sadler M.** Western Journal of Medicine. 1993; 158:596-601. (Health care use by frequent marijuana smokers who do not smoke tobacco.)

**Reddy DC, Singh SP, Tiwari IC, Shukla KP, Srivastava MK.** Indian Journal of Public Health 1993 Jan-Mar;37(1):10-5. (An epidemiological study of cannabis abuse among college students of Varanasi.)

**Schwartz RH.** Marijuana: an overview. Pediatric clinics of North America. 1987;34:305-317. (Poorly educated subjects or field hands, non peer reviewed journals, in one study higher rates of absenteeism, delinquency, and reformatories in Costa Rica.)

**Schwartz RH.** Amer. J. Dis. Child. 1989;143(6), 644. Passive Inhalation of Marijuana, Phencyclidine, and Freebase Cocaine 'Crack' by Infants. (A physician suggests the use of urinalysis for drugs of abuse in the evaluation of puzzling neurologic symptoms in infants. Passive inhalation of crack has caused neurologic symptoms and seizures in infants. Passive inhalation of marijuana has caused sedation in infants.)

**Schwartz RH, Beveridge RA,** Marijuana as an Antiemetic Drug: How Useful Is It Today? Opinions from Clinical Oncologists. Journal of Addictive Diseases. 1994;13:53-65. (1500 adult medical oncologists surveyed. Only 12% of respondents had ever recommended crude marijuana to patients and only 1% had recommended it more than 5 times.)

**Schwartz RH, Voth EA, Sheridan MJ.** Marijuana to Prevent Nausea and Vomiting in Cancer Patients: A Survey of Clinical Oncologists. Southern Medical Journal 1997: 90;167-172. (1500 Adult medical oncologists surveyed. Only 12% of respondents had ever recommended crude marijuana to patients and only 1% had recommended it more than 5 times.)

### Drug Free Australia

#### **EVIDENCE**

**Soderstrom CA, Trifilis AL, Shankar BS, et al**.1988 Arch Surg 123:733-737. (Marijuana and alcohol use among 1,023 patients.)

**St. Pierre TL, Kaltreider DL, Mark MM, Aikin KJ.** American Journal of Community Psychology 1992 Dec;20(6): 673-706. (Drug prevention in a community setting: a longitudinal study of the relative effectiveness of a three year primary prevention program in boys & girls clubs across the nation.)

**Struve FA, Patrick G, Straumanis JJ, Fitz-Gerald MJ, Manno J**. Clin Electroencephalogr 1998 Jan;29(1): 31-36. (EEG sequelae of very long duration marihuana use: pilot findings from topographic quantitative EEG analyses of subjects with 15 to 24 years of cumulative daily exposure to THC demonstrated abnormalities.)

**Volicer L, Stelly M, Morris J, McLaughlin J, Volicer B.** Effects of Dronabinol on anorexia and disturbed behavior in patients with Alzheimer's disease. International Journal of Geriatric Psychiatry 1997; 12:913-919. (Improvement of anorexia. No need for smoking marijuana.)

**Voth EA, Brookoff D**. Book Review of Marijuana The Forbidden Medicine. Annals of Internal Medicine. 1994; 120:348.

**Voth EA, Schwartz RH.** Medicinal applications of delta 9 THC and marijuana: a perspective. Annals of Internal Medicine 1997: 126:791-8

**Zachariah SB**, Stroke 22:406-409, 1991. (Marijuana is associated with myocardial infarction and stroke.)

**Zeidenberg P, Bourdon R, Nahas GG.** American Journal of Psychiatry 134: 76-77 (1977). (Marijuana intoxication by passive inhalation: Documentation by detection of urinary metabolites.)

#### **Impairment / Accidents / Cognitive Functions**

**Abel EL.** 1970. Nature 1227: 1151-1152. (Marijuana and memory.)

**Abel EL.** 1971. Science 173:1038-1040. (Marijuana and memory: acquisition or retrieval?)

**Block RI, Wittenborn JR.** International Journal of the Addictions. 1986;21: 281-285. (Marijuana effects on the speed of memory retrieval in the letter matching task.)

**Brookoff D, Cook CS, Williams C, Mann CS.** New England Journal of Medicine Aug.25,1994 pp 518-522. Testing Reckless Drivers For Cocaine and Marijuana. (A total of 175 subjects were stopped for reckless driving, and 150 submitted urine samples for drug testing at the scene of arrest. 59% tested positive. 13% for cocaine, 33% for marijuana, 12% for both.)

**Chesher GB, Bird KD, Sacramarcos A, Nikas M**. 1985 In Harvey DJ,(ed), Marijuana 1984, Oxford, IRL Press. Pp 621-627. (A comparative study of the dose response relationship of alcohol and

cannabis on human skills performance.)

**Crouch J, et al.** 1993 J Forensic Sci 38: 1342-1353. The prevalence of drugs in fatally injured truck drivers. (Study found 12.8% marijuana and 12.5% alcohol in truck drivers involved in fatal accidents.)

**Darley CF, Tinklenberg JR, Hollister LE, Atkinson RC.** 1973 Memory and Cognition 1:196-200. (Influence of marijuana on storage and retrieval processes in memory.)

**Department Transport Research Report 202.** The incidence of drugs in road accident fatalities. London: HM Stationery Office, 1989. (Department of Transport figures showed that in the period 1984-87 cannabis was the commonest drug [apart from alcohol] found post mortem in fatal road traffic accidents [RTAs]. Cannabis use was estimated to increase the risk of fatal RTAs by a factor of 3.5.)

**Dittrich A, Battig K, Zeppelin JV.** 1973 Psychopharmacologia 29:369-376. (Effects of delta-9-THC on memory, attention and subjective state.)

**Dornbush RL, Fink M, Freedman AM.** 1971 Am. J. Psychiatry 128: 194-197. (Marijuana, memory and perception.)

Elwan O, Hassan AAH, Naseer MA, Elwan F, Deif R, Serafy OE, Banhawy EE, Fatatry ME. Brain aging in a sample of normal Egyptians cognition, education, addiction, and smoking. Journal of Neurological Sciences 1997;148:79-86. (A decline in attention was determined in cannabis addicts consistent with pathological aging. 37 addicts mostly hashish smokers)

Fletcher JM, Page JB, Francis DJ, Copeland MA, Naus MJ, Davis CM, et al. Cognitive correlates of long-term cannabis use in Costa Rican Men. Arch Gen Psych 1996;53:1051-1057. (Older users average use 34 years and younger users average 8 years. Older users showed more disruption of short term memory, working memory, and attention skills.)

**Gerostamoulos J, Drummer OH.** Journal of Forensic Sciences. 1993; 38:649-656. (Incidence of psychoactive cannabinoids in drivers killed in motor vehicle accidents.)

**Gjerde H, Kinn G.**. Forensic Science International 1991;50:57-60. (Impairment in drivers due to cannabis in combination with other drugs.)

**Heishman et al.** Pharmacology Biochemistry and Behavior, Vol. 5, No. 1, pp 93-101, 1997. (This well performed study substantiates observations made in many previous studies that even small doses of alcohol and marijuana impair performance.)

**Jeffery, WK, Hindmarsh, KW, Mullen, PW.** Can. Soc. Forens. Sci. J. Vol.29.No 2 (1996) pp.93-98. The Involvement of Drugs in Driving In Canada; An Update to 1994. (Marijuana was found in 38% of the blood samples taken from 1441 impaired or dead drivers across Canada.)

Kamine et al. Behavior of Pharmacology, Vol. 5:71-78, 1994. (The effects of THC on 8 health subjects (19-32 years of age) all of whom had occasionally used marijuana were studied. Oral THC caused measurable learning deficits which, the authors concluded, might be disastrous in some environments, such as operating "the cab of a speeding locomotive." They pointed out that the "learning deficit from a single dose might become quite relevant if it cumulates over time.")

### Drug Free Australia

#### **EVIDENCE**

**Kirby JM, Maull KI, Fain W.** Southern Medical Journal. 1992; 85:800-802. (Comparability of alcohol and drug use in injured drivers.)

**Kuehnle J, Mendelson JH, Davis KR, New PFJ**. Computed tomographic examination of heavy marijuana smokers. Journal American Medical Association 1977;237:1231-2. (Even social doses seriously impair car driving and aeroplane flying ability because of distortions of time and space estimation, reduced vigilance, and incoordination.)

**Leirer VO, Yesavage JA.** 1991 Aviat Space Environ Med 62: 221-227. (Marijuana carry-over effects on aircraft pilot performance.)

**Leirer VO, Yesavage JA, Morrow DG.** Cannabis: Physiopathology, Epidemiology, Detection. CRC press. 1993 47-60. (Marijuana carry-over effects on psychomotor performance: a chronicle of research.)

**Leon-Carrion J.** Psychological Reports. 1990;67:947-952. (Mental performance in long-term heavy cannabis: a preliminary report.)

**Marzuk PM**, et al. Journal of the American Medical Association 1990; 263:250-256. (Prevalence of recent cocaine use among motor vehicle fatalities in New York City.)

**Mathew, et al,** Life Sciences, 60: 2075-2087, 1997. (This data shows that alterations in perception, emotion, and motor skills may be present in users of marijuana even when it has a very low THC content.)

**Melges FT, Tinklenberg JR, Hollister LE, Gillespie HK**. 1970 Science 168: 1118-1120. (Marijuana and temporal disintegration.)

**Mendhiratta SS, Wig NN, Varma VK.** 1978 Br.J. Psychiatry 132:482-486. (Some psychological correlates of long-term heavy cannabis users.)

Mendhiratta SS, Varma VK, Dong R, Mohhotra AK, Das K, Nehra R. 1988 Br J Addict. 83: 749-753. (Cannabis and cognitive functions: a re-evaluation study.)

**Murray JB.** Journal of General Psychology. 1986;113:23-55. (Marijuana's effects on human cognitive functions, psychomotor functions, and personality.)

**NIDA Notes. (National Institute on Drug Abuse).** NNVol.11N3 Marijuana Memory (Chronic heavy marijuana users showed residual impairment in cognitive abilities a day after they had last used marijuana.)

**Pope HG, Yurgelun-Todd D**, JAMA 1996;275:521-527. (The residual cognitive effects of heavy marijuana use in college students.)

**Reeve VC**, **Robertson WH**, **Grant J**, **et al.** 1983 J Forensic Sci 28: 963-971. (Hemolyzed blood and serum levels of delta-9-THC. Effects on performance of roadside sobriety tests.)

**Reeve JC, Grant JD, Robertson W, et al.** 1983 Drug Alcohol Depend. 1: 167-175. (Plasma concentrations of delta-9-THC and impaired motor function.)

**Schwartz RH, Gruenwald PJ, Klitzner M, Fedio P.** AJDC. 1989;143:1214-1219. (Short-term memory impairment in cannabis dependent adolescents.)

### Drug Free Australia

### **EVIDENCE**

**Soderstrom, CA, et al.** Archives of Surgery Vol.123:733-737. 1988. Marijuana and Alcohol Use Among 1023 Trauma Patients. (Study found that 34.7% of patients received with major trauma injuries had marijuana in their system, 32.6% had alcohol.)

Soderstrom CA, Smith GS, Dischinger PA, McDuff DR, Hebel JR, Gorelick DA, Kerns TJ, et al. Psychoactive substance use disorders among seriously injured trauma center patients. Journal of the American Medical Association 1997; 277:169-1774. (39.7% of patients had urine positive for drugs other than alcohol and nicotine. Lifetime [current] drug dependency rates were cocaine 16.4% [10.6%], marijuana 14.8% [6.5%], opiates 13.8% [10%], hallucinogens 2.3% [0.4%], stimulants 1.9% [0.3%])

**Soderstrom CA, et al.** Cannabis; Physiopathology, Epidemiology, Detection. CRC press 1993;79-91. (Marijuana and alcohol use among 1023 trauma patients.)

**Solowij et al.** Biol Psychiatry, 37; 731-739, 1995. (The ability to focus attention and filter out irrelevant information was measured and was found to be impaired progressively by the number of years of marijuana use, but was unrelated to the frequency of use. The results suggested that a chronic buildup of cannabinoid produces both short and long term impairments of brain function compared to control subjects. Marijuana produces an attention deficit.)

**Solowij et al,** National Drug and Alcohol Research Center, Sydney, Australia. Life Sciences, Vol. 56, pp.2119-2126, 1995. (This study confirms that marijuana use produces difficulty in complex brain functions and, more disturbingly, even after up to 6 months of abstinence these effects were still present.)

**Tinkleberg JR., Megles FT., Hollister LE., Gillespie HK.** 1970 Nature 226: 1171-1172. (Marijuana and Memory.)

Tomaszewski C, Kirk M, Bingham E, Salzman B, Cook R, Kulig K. Urine toxicology screens in drivers suspected of driving while impaired from drugs Clinical Toxicology 1996;34:37-44. (Marijuana found in 66.9% of the drivers stopped for DWI)

**Varma VK, Malhotra AK, Dang R, Das K, Nehra R**. Drug and Alcohol Dependence. 1988;21: 147-152. (Cannabis and cognitive functions: a prospective study.)

**Volkow et al.** Psychiatry Research: Neuro imaging, Vol. 67, pp 29-38, 1996. (Brain glucose metabolism in daily marijuana users at baseline and during marijuana intoxication were studied using positron emission tomography [PET scan]. THC produced lower glucose metabolism in the cerebellar part of the brain. The location of the abnormality in the cerebellum could account for the motor defects and lack of coordination previously reported in these subjects.)

**Yesavage JA, Leirer VO, Denari M, Hollister LE.** Am. J. Psychiatry. 1985;142:1325-1329. (Carry-over effects of marijuana intoxication on aircraft pilot performance; a preliminary report.)

**Wig NN, Varma VK.** 1977 Drug Alcohol Depend 2:211-219. (Patterns of long-term heavy cannabis use in North India and its effects on cognitive functions: a preliminary report.)

**Zimmerman EG, Yeager EP, Soares JR, et al.** 1983 J Forensic Sci 28:957-962. (Measurement of delta-9-THC in whole blood samples from impaired motorists.)

**Zwerling and associates.** Journal of the American Medicine Association, vol. 264, pp.2639 -2643,1990. (Marijuana users had 55% more industrial accidents, 85% more injuries and a 78% increase in absenteeism. The mean absence rate from the job was 7.1% for marijuana users compared to 4% for non-users.)

### **QUESTION 3**

Drug Free Australia questions why the NSW Working Party on the Use of Cannabis for Medicinal Purposes:

is elevating questionable subjective anecdotal evidence over evidence-based medicine while simultaneously espousing a commitment to evidence-based research in every other drug policy area

#### **QUESTION 4**

is making the effectiveness of medicine subject to political vote rather than required scientific rigour

It must be noted that the NSW Working Party on the Use of Cannabis for Medical Purposes chiefly relied on two major international studies on medical marijuana as is noted in the Executive Summary, Volume 1, August 2000.

In light of the evidence, the Working Party has agreed with the conclusions of the British House of Lords and the United States Institute of Medicine that some cannabinoid substances may have value in the treatment of a limited range of medical conditions, namely, HIV-related wasting, nausea caused by cancer chemotherapy, muscle spasm in some neurological disorders, and pain that is unrelieved by conventional analgesics. The Working Party has made recommendations on the type of research that is required to better assess the therapeutic value of cannabis and cannabinoid substances in these conditions.

Briefing Paper 11/99 for the NSW Working Party entitled "The Medical Use of Cannabis – Recent Developments" (Gareth Griffith & Marie Swann) recognizes that the Institute of Medicine Report is the more scientific of the two studies relied on:

In recent months two major reports on the medical use of cannabis/marijuana have been released: the first in November 1998 by the House of Lords Select Committee on Science and Technology, the second in March 1999 by the United States Institute of Medicine (IOM). The purpose of this paper is to present an overview of these reports, as well as to offer some background to the debate concerning the medical use of cannabis/marijuana in the US and UK. Note that of the two main reports under discussion in this paper, the IOM report is the more technically detailed in its consideration and review of the available scientific data. It is, in effect, a scientific report produced by scientists.

#### Drug Free Australia

#### **EVIDENCE**

However, the briefing paper and the Working Party accept the recommendations of the House of Lords study, which unlike the US Institute of Medicine Report, gives heavy weight to anecdotal evidence over scientific studies, and pragmatically recommends smoked marijuana as medicine on the basis that 'everyone is already using it.'

While the rigorously scientific US study condemned the lack of safety in use of smoked marijuana, it did note in its Summary of Chapter 4 that:

Until a nonsmoked rapid-onset cannabinoid drug delivery system becomes available, we acknowledge that there is no clear alternative for people suffering from chronic conditions that might be relieved by smoking marijuana, such as pain or AIDS wasting. One possible approach is to treat patients as n-of-1 clinical trials, in which patients are fully informed of their status as experimental subjects using a harmful drug delivery system and in which their condition is closely monitored and documented under medical supervision, thereby increasing the knowledge base of the risks and benefits of marijuana use under such conditions.

In light of the drug legalization lobby claiming that the Institute of Medicine report supported their calls for the open legalization of smoked marijuana as medicine, John A. Benson, Co-Principal Investigator, in a press statement announcing the release of the report, clarified:

"While we see a future in the development of chemically defined cannabinoid drugs, we see little future in smoked marijuana as a medicine."

The British House of Lords report, which guided the conclusions of the NSW Working Party, took little note of the placebo effect guiding anecdotal accounts concerning the supposed benefits of cannabis.

Due to a placebo effect, a patient may erroneously believe a drug is helpful when it is not.

This is especially true of addictive, mind-altering drugs like marijuana. A marijuana withdrawal syndrome occurs, consisting of anxiety, depression, sleep and appetite disturbances, irritability, tremors, diaphoresis, nausea, muscle convulsions, and restlessness. (1)

Often, persons using marijuana erroneously believe that the drug is helping them combat these symptoms without realizing that actually marijuana is the cause of these effects. Therefore, when a patient anecdotally reports a drug to have medicinal value, this must be followed by objective scientific studies.

For instance, in 1990, Dr. J. P. Frankel conducted a study of the effect of smoked marijuana on his patients with Parkinson's Disease because one of the patients had claimed the drug to be beneficial. Dr. Frankel's study showed that the drug did not improve the symptoms of Parkinson's Disease in any patient, including the patient who had originally believed it useful. (2) Similarly, anecdotal reports had claimed that marijuana caused improvement in multiple sclerosis. However, a scientifically-controlled 1994 study by Dr. H. S. Greenberg showed that smoking marijuana makes symptoms of multiple sclerosis worse. (3)

#### REFERENCES

- 1.
- Gold MS. Marijuana, NY:Plenum Medical Book Co., p. 103, 1989. Frankel JP, Hughes A. J Neurol Neurosurg Psych 53: 436, 1990. Greenberg HS et al. Clin Pharm & Ther 55: 324-328, 1994.
- 2.

### SUMMARY OF SCIENTIFIC STUDIES ON MARIJUANA AS MEDICINE

The tables below constitute a summary of all scientific studies on the medical value of marijuana or cannabinoids up to 1999, as summarized in the United States Institute of Medicine report for that year.

## **PAIN RELIEF**

# Experimentally Induced Acute Pain

Study	Cannabinoid	Trial Type	Testing modality	Delivery system	Result	Study design	Side Effects
Clark WC, Janal	THC		Thermal		Unsuccessful - increase in		
MN, Zeidenberg P,			pain		pain sensitivity		
Nahas GG. 1981.							
Effects of moderate							
and high doses of							
marihuana on							
thermal pain: A							
sensory decision							
theory analysis.							
Journal of Clinical							
Pharmacology							
21:299S—310S.							
Hill SY, Schwin R,	THC		Electrical		Unsuccessful - increase in		
Goodwin DW,			stimulation		pain sensitivity		
Powell BJ. 1974.							
Marihuana and pain.							
Journal of							
Pharmacology and							
Experimental							
Therapeutics							
188:415—418.							
Libman E, Stern	THC		Tourniquet		Unsuccessful - increase in		
MH. 1985. The			pain		pain sensitivity		
effects of delta-9-							
tetrahydrocannabinol							
on cutaneous							
sensitivity and its							

personality. Personality, Personality, Individuality and Difference 6:169— 174  Raft D, Gregg J, Ghia J, Harris L. 1977. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain: Psychological correlates of the analgesic response. Clinical Pharmacology and Therapeutics 21:26—33.
Personality, Individuality and Difference 6:169— 174  Raft D, Gregg J, Ghia J, Harris L. 1977. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain: Psychological correlates of the analgesic response. Clinical Pharmacology and Therapeutics 21:26—33.  Tetrahydro- cannabinol  Tetrahydro- cannabinol  Unsuccessful - no analgesic effect  Variation  Unsuccessful - no analgesic effect  Variation  Unsuccessful - no analgesic effect  Variation  Levonantadol (a synthetic THC analgou) was tested in 56 patients who had moderate to severe postoperative or trauma pain. They were given intramuscular injections of levonantodol or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and hose who received an analgesic,
Individuality and Difference 6:169—174  Raft D, Gregg J, Ghia J, Harris L. 1977. Effects of intravenous tetrahydro-cannabinol on experimental and surgical pain: Psychological correlates of the analgesic response. Clinical Pharmacology and Therapeutics 21:26—33.  Individuality and Difference 6:169—174  Surgical pain — tooth extraction  Unsuccessful - no analgesic effect  Unsuccessful - no analgesic effect  Unsuccessful - no analgesic seffous limitalions: the looth extraction included treatment with the local anesthetic lidocaine, the pain during the procedure was assessed 24 hours later, and there was no positive control. Levonantradol (a synthetic THC analogue) was lested in 56 patients who had moderate to severe postoperative or trauma pain. They were given intramuscular injections of levonantrod or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
Difference 6:169— 174  Raft D, Gregg J, Ghia J, Harris L. 1977. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain: Psychological correlates of the analgesic response. Clinical Pharmacology and Therapeutics 21:26—33.
Raft D, Gregg J, Ghia J, Harris L. 1977. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain: Psychological correlates of the analgesic response. Clinical Pharmacology and Therapeutics 21:26—33.
Raft D, Gregg J, Ghia J, Harris L. 1977. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain: Psychological correlates of the analgesic response. Clinical Pharmacology and Therapeutics 21:26—33.
Ghia J, Harris L. 1977. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain: Psychological correlates of the analgesic response.  Clinical Pharmacology and Therapeutics 21:26—33.
Ghia J, Harris L. 1977. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain: Psychological correlates of the analgesic response. Clinical Pharmacology and Therapeutics 21:26—33.
1977. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain:  Psychological correlates of the analgesic response.  Clinical Pharmacology and Therapeutics 21:26—33.
intravenous tetrahydrocannabinol on experimental and surgical pain: Psychological correlates of the analgesic response.  Clinical Pharmacology and Therapeutics 21:26—33.
tetrahydrocannabinol on experimental and surgical pain:  Psychological correlates of the analgesic response.  Clinical Pharmacology and Therapeutics 21:26—33.
on experimental and surgical pain:  Psychological correlates of the analgesic response.  Clinical Pharmacology and Therapeutics  21:26—33.
there was no positive control. Levonantradol (a synthetic THC analogue) was tested in 56 patients who had moderate to severe postoperative or trauma pain. They were given intramuscular injections of levonantrodol or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
surgical pain:  Psychological correlates of the analogesic response.  Clinical Pharmacology and Therapeutics 21:26—33.
Psychological correlates of the analgesic response. Clinical Pharmacology and Therapeutics 21:26—33.  analogue) was tested in 56 patients who had moderate to severe postoperative or trauma pain. They were given intramuscular injections of levonantrodol or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
correlates of the analgesic response.  Clinical  Pharmacology and Therapeutics 21:26—33.  patients who had moderate to severe postoperative or trauma pain. They were given intramuscular injections of levonantrodol or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
analgesic response.  Clinical  Pharmacology and Therapeutics 21:26—33.  Severe postoperative or trauma pain. They were given intramuscular injections of levonantrodol or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
pain. They were given intramuscular injections of levonantrodol or placebo 24  Therapeutics 21:26—33.  pain. They were given intramuscular injections of levonantrodol or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
Clinical Pharmacology and Therapeutics 21:26—33.  Intramuscular injections of levonantrodol or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
Pharmacology and Therapeutics 21:26—33.  levonantrodol or placebo 24 hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
Therapeutics 21:26—33.  hours after surgery. To control for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
for previous drug exposure, patients with a history of drug abuse or addiction and those who received an analgesic,
patients with a history of drug abuse or addiction and those who received an analgesic,
abuse or addiction and those who received an analgesic,
antiinflammatory, tranquilizer,
sedative, or anesthetic agent
within 24 hours of the test drug
were excluded from the study.
On average, pain relief was
significantly greater in the
levonantradol-treated patients
than in the placebo-treated
patients. Because the authors
did not report the number or
percentage of people who
responded, it is not clear
whether the average represents
consistent pain relief in all levonantradol-treated patients
or whether some people
experienced great relief and a

few experienced none.
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Animal studies - There is available data from animal studies indicate that cannabinoids could be useful analgesics. In general, cannabinoids seem to be mild to moderate analgesics. Opiates, such as morphine and codeine, are the most widely used drugs for the treatment of acute pain, but they are not consistently effective in chronic pain; they often induce nausea and sedation, and tolerance occurs in some patients. Recent research has made it clear that CB<sub>1</sub> receptor agonists act on pathways that partially overlap with those activated by opioids but through pharmacologically distinct mechanisms. Therefore, they would probably have a different side effect profile and perhaps additive or synergistic analgesic efficacy.

### **Chronic Pain**

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
Noyes Jr R, Brunk SF, Baram DA, Canter A. 1975a. Analgesic effect of delta-9-tetrahydrocannabino 1. Journal of Clinical Pharmacology 15:139—143.	Oral doses of THC in pill form – 5mg, 10 mg, 15 mg, 20 mg	double- blind, placebo- controlled study of 10 subjects measuring both pain intensity and pain relief	Cancer pain	Oral pill	Successful - The 15- and 20-mg doses of THC produced significant analgesia. There were no reports of nausea or vomiting. At least half the patients reported increased appetite. Side effects should however be noted for these higher doses.	there were no positive controlsthat is, other analgesics that could provide a better measure of the degree of analgesia produced by THC.	With a 20-mg dose of THC, patients were heavily sedated and exhibited "depersonalization," characterized by a state of dreamy immobility, a sense of unreality, and disconnected thoughts. Five of 36 patients exhibited adverse reactions (extreme anxiety) and were eliminated from the study. Only one patient experienced this effect at the 10-mg dose of THC.
Noyes R, Jr, Brunk SF, Avery DH, Canter A. 1975b. The analgesic properties of delta-9-		single-dose study		Oral pill	Successful - the analgesic effect of 10 mg of THC was equivalent to that of 60 mg of codeine; the effect of 20 mg of THC was equivalent		Similar to study above, though THC was more sedating than codeine.

tetrahydrocannabino 1 and codeine. Clinical Pharmacology and Therapeutics 18:84—89				to that of 120 mg of codeine. (Note that codeine is a relatively weak analgesic.) In a separate publication the same authors published data indicating that patients had improved mood, a sense of well-being, and less anxiety.		
Staquet M, Gantt C, Machin D. 1978. Effect of a nitrogen analog of tetrahydrocannabino 1 on cancer pain. Clinical Pharmacology and Therapeutics 23:397—401.	Nitrogen analogue of THC		Two trials: one compared this analogue with codeine in 30 patients, and a second compared it with placebo or secobarbital, a shortacting barbiturate.	Successful- for mild, moderate, and severe pain, the THC analogue was equivalent to 50 mg of codeine and superior to placebo and to 50 mg of secobarbital.		
Holdcroft A et al. Pain relief with oral cannabinoids in familial Mediterranean fever. Anaesthesia, 1997, 52, 483	Cannabis oil capsules, standardised for THC content	placebo- controlled trial of cannabis	A patient with severe chronic pain of gastro- intestinal origin (diagnosed as familial Mediterran- ean fever)	Provisional success due to being a single patient study the patient's demand for morphine was substantially lower during treatment with cannabis than during a period of placebo treatment	Single patient study	

### Migraine headaches

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
			modality				
El-Mallakh RS.	THC			Smoked	Unsuccessful - it presents		
1987. Marijuana and					three cases of cessation of		
migraine. Headache					daily marijuana smoking		
27:442—443.					followed by migraine		
					attacksnot convincing		
					evidence that marijuana		
					relieves migraine		
					headaches.		

### SUMMARY – PAIN RELIEF

- 1. There is not yet enough evidence from human studies.
- 2. There is solid evidence from preclinical research that cannabinoids reduce pain in animals.
- 3. There is no evidence that marijuana or cannabinoids relieve migraine headaches.
- 4. Research should be done to learn:
  - a) if cannabinoids can enhance the pain-relieving effects of opiate drugs
  - b) which cannabinoids might be useful pain medications.

## NAUSEA AND VOMITING (emesis)

Note: Many of the reported clinical experiences with cannabinoids are not based on definitive experimental methods.

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
Chang AE, Shiling DJ, Stillman RC, et al. 1979. Delta-9-tetrahydrocannabino 1 as an antiemetic in patients receiving high-dose methotrexate: A prospective, randomized evaluation. Annals of Internal Medicine 91:819—824.	THC		patients receiving methotrexate		Limited Success - THC was found to be superior to a placebo in patients receiving methotrexate, an agent that is not a strong emetic.  However this study is moderated by the following study.	Small number of patients	
Chang AE, Shiling DJ, Stillman RC, Goldberg NH, Seipp CA, Barofsky I, Rosenberg SA. 1981. A prospective evaluation of delta-9-tetrahydrocannabino I as an antiemetic in patients receiving adriamycin and cytoxan	THC		patients who were receiving a chemother- apeutic drug that is more likely to cause emesis than anthrax- cycline		Unsuccessful - the antiemetic effect was poor.	Small number of patients	

chemotherapy. <i>Cancer</i> 47:1746— 1751.						
Orr LE, McKernan JF, Bloome B. 1980. Antiemetic effect of tetrahydrocannabino l. Compared with placebo and prochlorperazine in chemotherapy-associated nausea and emesis. <i>Archives of Internal Medicine</i> 140:1431—1433.	THC		Comparison between THC and Compazine (prochlor- perazine – which in the 80's was one of the more effective anti-emetics	Very limited success - THC and prochlorperazine given orally showed similar degrees of efficacy. Even when administered in combination, THC and prochlorperazine failed to stop vomiting in two-thirds of patients.	These studies often used various chemotherapeutic agents.	
SE, Cronin CM, Zelen M, et al. 1980. Antiemetics in patients receiving chemotherapy for cancer: A randomized comparison of delta- 9- tetrahydrocannabino l and prochlorperazine. New England Journal of Medicine 302:135—138.	THC		Comparison between THC and Compazine (prochlor- perazine – which in the 80's was one of the more effective anti-emetics	Very limited success - THC and prochlorperazine given orally showed similar degrees of efficacy. Even when administered in combination, THC and prochlorperazine failed to stop vomiting in two-thirds of patients.	These studies often used various chemotherapeutic agents.	
Gralla RJ, Tyson	THC	carefully	Comparison	Unsuccessful - complete	No patient had	

LB, Borden LB, et al. 1984. Antiemetic therapy: A review of recent studies and a report of a random assignment trial comparing metoclopramide with delta-9-tetrahydrocannabino l. Cancer Treatment Reports 68:163—		controlled double- blind study	between THC and antiemetic drug metoclo- pramide	control of emesis occurred in 47% of those treated with metoclopramide and 13% of those treated with THC.  Major control (two or fewer episodes) occurred in 73% of the patients given metoclopramide compared to 27% of those given THC.	previously received chemotherapy therefore anticipatory emesis was not a factor. All patients received the same dose of cisplatin and were randomly assigned to the THC group or the metoclopramide group.	
Steele N, Gralla RJ, Braun Jr DW. 1980. Double-blind comparison of the antiemetic effects of nabilone and prochlorperazine on chemotherapyinduced emesis. Cancer Treatments Report 64:219—224.	Synthetic THC – nabilone and levonantradol		Comparison of the antiemetic effects of nabilone and prochlorperazine on chemotherapy-induced emesis.	Very limited success - efficacy was observed in several trials, but no advantage emerged for these agents. Nabilone and levonantradol reduced emesis but not as well as other available agents in moderately to highly emetogenic settings.		
Tyson LB, Gralla RJ, Clark RA, et al. 1985. Phase I trial of levonantradol in chemotherapyinduced emesis. American Journal of Clinical Oncology	Synthetic THC – levonantradol		Trial of levonantradol in chemotherapy-induced emesis.	Very limited success - efficacy was observed in several trials, but no advantage emerged for these agents. Nabilone and levonantradol reduced emesis but not as well as other available agents in		

8:528—532.			moderately to highly emetogenic settings.	
			g	

## Chemotherapy-Induced Nausea

Note: Although many marijuana users have claimed that smoked marijuana is a more effective antiemetic than oral THC, no controlled studies have yet been published that analyse this in sufficient detail to estimate the extent to which this is the case.

Study	Cannabinoid	Trial Type	Testing modality	Delivery system	Result	Study design	Side Effects
Vinciguerra V, Moore T, Brennan E. 1988. Inhalation marijuana as an antiemetic for cancer chemotherapy. New York State Journal of Medicine 88:525—527.	Smoked marijuana	Open trial on 56 cancer pat- ients who were unres- ponsive to convention al antiemet- ic agents	patients asked to rate the effectiveness of marijuana compared with results during prior chemother- apy cycles	Smoked	Moderately successful - 34% of patients rated marijuana as moderately or highly effective	The study's relative value was difficult to determine because no control group was used and the patients varied with respect to previous experiences, such as marijuana use and THC therapy. Did not report data on the time course of antiemetic control, possible advantages of self-titration with the smoked marijuana, or the degree to which patients were able to swallow the pills. Patients with severe vomiting would have been unlikely to be	Inability of nearly one- fourth of the patients to tolerate the administration of marijuana by smoking

						able to swallow or keep the pills down long enough for them to take effect	
Levitt M, Faiman C, Hawks R, et al. 1984. Randomized double-blind comparison of delta-9-THC and marijuana as chemotherapy antiemetics. Proceedings of the American Society for Clinical Oncology 3:91.	Smoked marijuana/ THC in pill form	double- blind, cross-over, placebo- controlled	study comparing smoked marijuana with THC in pill form in 20 patients who were receiving various chemother- apeutic drugs.	Smoked/THC pill	Limited success - only 25% of patients achieved complete control of emesis; 35% of the patients indicated a slight preference for the THC pills over marijuana, 20% preferred marijuana, and 45% expressed no preference	Did not report data on the time course of antiemetic control, possible advantages of self-titration with the smoked marijuana, or the degree to which patients were able to swallow the pills.  Patients with severe vomiting would have been unlikely to be able to swallow or keep the pills down long enough for them to take effect	

### SUMMARY – RELIEVING NAUSEA AND VOMITING

- 1. Neither smoked marijuana nor cannabinoids are as effective as current medicines that stop nausea and vomiting in cancer chemotherapy patients.
- 2. Cannabinoids, however, might be effective in:
  - a) those few patients who respond poorly to current antiemetic (anti-nausea) drugs
  - b) or more effective in combination with current antiemetics.

- 3. Research should be pursued for patients who do not respond completely to current antiemetics.
- 4. A safe (non-smoking) delivery system for cannabinoids should be developed.
- 5. Until then, the harmful effects of smoking marijuana for a limited period of time may be outweighed by marijuana 's antiemetic benefits for those few cancer patients for whom current antiemetics do not work.
- 6. Doctors should evaluate such patients on a case by case basis and provide marijuana to them under close medical supervision for a limited period.

### WASTING SYNDROME & APPETITE STIMULATION

### Malnutrition

Note: A major concern with marijuana smoking in HIV-infected patients is that they might be more vulnerable than other marijuana users to immunosuppressive effects of marijuana or to the exposure of infectious organisms associated marijuana plant material.

Study	Cannabinoid	Trial Type	Testing modality	Delivery system	Result	Study design	Side Effects
Beal JE, Olson RLL,	Synthetic	Short-term	modanty	pill	Moderate success -		HIV/AIDS patients are
Morales JO,	THC -	(six-week)		Pili	associated with an increase		
		,					the largest group of
Bellman P, Yangco	Dronabinol	and long-			in appetite and stable		patients who use
B, Lefkowitz L,	(Marinol)	term (one-			weight, and in a previous		dronabinol. However,
Plasse TF, Shepard		year)			short-term (five-week)		some reject it because
KV. 1995.		therapy			clinical trial in five patients,		of the intensity of
Dronabinol as a					dronabinol was shown to		neuropsychological
treatment for					increase body fat by 1%.		effects, an inability to
anorexia associated					However, megestrol acetate		titrate the oral dose
with weight loss in					(Megace) is a synthetic		easily, and the delayed
patients with AIDS.					derivative of progesterone		onset and prolonged
Journal of Pain and					that can stimulate appetite		duration of its action.
Symptom					and cause substantial weight		
Management					gain when given in high		Dizziness and lethargy
10:89—97.					doses (320—640 mg/day) to		reported
					AIDS patients. Megestrol		
Beal JE, Olson R,					acetate is more effective		
Lefkowitz L,					than dronabinol in		
Laubenstein L,					stimulating weight gain, and		
					dronabinol has no additive		
Bellman P, Yangco					effect when used in		
B, Morales JO,					combination with megestrol		
Murphy R,					~		
Powderly W, Plasse					acetate		

TF, Mosdell KW,				
Shepard KV. 1997.				
Long-term efficacy				
and safety of				
dronabinol for				
acquired				
immunodeficiency				
syndrome-associated				
anorexia. Journal of				
Pain and Symptom				
Management 14:7—				
14.				
Struwe M,				
Kaempfer SH,				
Geiger CJ, Pavia				
AT, Plasse TF,				
Shepard KV, Ries				
K, Evans TG. 1993.				
Effect of dronabinol				
on nutritional status				
in HIV infection.				
Annals of				
Pharmacotherapy				
27:827—831.				

### Malnutrition – Cancer Patients

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
			modality				
Gorter R. 1991.	Synthetic			pill	Successful - has been		Cannabinoids have
Management of	THC -				shown to improve appetite		also been shown to
anorexia-cachexia	Dronabinol				and promote weight gain		negatively affect the
associated with	(Marinol)						immune system and

cancer and HIV infection. <i>Oncology</i>				this could be contraindicated in
(Supplement) 5:13—				some cancer patients
17.				(both the
				chemotherapy and the
				cancer can be
				immunosuppressive).
				Dizziness and lethargy
				also reported

### Anorexia Nervosa

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
			modality				
Gross H, Egbert	THC				Unsuccessful		Caused severe
MH, Faden VB,							dysphoric reactions in
Godberg SC, Kaye							three of 11 patients.
WH, Caine ED,							Furthermore, such
Hawks R, Zinberg							patients might have
NE. 1983. A double-							underlying psychiatric
blind trial of delta-9-							disorders, such as
THC in primary							schizophrenia and
anorexia nervosa.							depression, in which
Journal of Clinical							cannabinoids might be
Psychopharmacolog							hazardous
y 3:165—171.							

### SUMMARY – MALNUTRITION AND WASTING SYNDROME

- 1. No published research shows marijuana or cannabinoids are effective in treating malnutrition or wasting in AIDS patients.
- 2. A standard drug is more effective than THC in stimulating appetite in AIDS patients.

- 3. Cannabinoids modulate the immune system, which could be a problem in patients whose immune system is already compromised.
- 4. A major concern is that HIV-infected patients who smoke marijuana may be more vulnerable to the immunosuppressive effects of marijuana or to infectious organisms found in the plant material.
- 5. Cannabinoids, in combination with other drugs, might help increase appetite, help reduce nausea and vomiting caused by protease inhibitors, and help reduce the pain and anxiety associated with AIDS and cancer in late stages of these diseases.
- 6. There are medications that are more effective than marijuana for treating the nausea, appetite loss, pain, and anxiety associated with wasting, but these drugs are not equally effective for all patients.
- 7. A rapid onset form of THC should be developed and tested for these patients.
- 8. Smoking marijuana is not recommended. The long-term harms from smoking make it a poor delivery system for patients with chronic diseases.
- 9. For terminally ill patients who get relief from no other drugs, the medical benefits of smoking marijuana may outweigh the harms.
- 10. THC is ineffective in treating anorexia.

## **NEUROLOGICAL DISORDERS**

# Muscle Spasticity – Multiple Sclerosis

Study	Cannabinoid	Trial Type	Testing modality	Delivery system	Result	Study design	Side Effects
Greenberg HS, Werness SA, Pugh JE, Andrus RO, Anderson DJ, Domino EF. 1994. Short-term effects of smoking marijuana on balance in patients with multiple sclerosis and normal volunteers. Clinical Pharmacology and Therapeutics 55:324—328.	Smoked marijuana	double- blind placebo- controlled	study of postural responses in 10 MS patients and 10 healthy volunteers	Smoked	Unsuccessful - marijuana smoking impaired posture and balance in both MS patients and the volunteers.	Survey data do not measure the degree of placebo effect, estimated to be as great as 30 percent in pain treatments. Furthermore, surveys do not separate the effects of marijuana or cannabinoids on mood and anxiety from the effects on spasticity.	The 10 MS patients felt that they were clinically improved. The subjective improvement, while intriguing, does not constitute unequivocal evidence that marijuana relieves spasticity
Clifford DB. 1983. Tetrahydrocannabin ol for tremor in multiple sclerosis.  Annals of Neurology 13:669—671.  Petro D, Ellenberger Jr C. 1981. Treatment of human spasticity with delta 9-	THC	3 open clinical trials testing a total of 30 patients			Successful - spasticity was less severe after the THC treatment	Based on patient report or clinical exam by the investigator	THC was not effective in all patients and frequently caused unpleasant side effects

-			T	T
tetrahydrocannabino				
1. Journal of Clinical				
Pharmacology				
21:413S—416S.				
Ungerleider JT,				
Andrysiak TA,				
Fairbanks L, Ellison				
GW, Myers LW.				
1987. Delta-9-THC				
in the treatment of				
spasticity associated				
with multiple				
sclerosis. Advances				
in Alcohol and				
Substance Abuse				
7:39—50.				
CN, Illis LS, Thom	Nabilone		Successful - spasticity was	
J. 1995. Nabilone in			also reported to be less	
the treatment of			severe	
multiple sclerosis				
[Letter]. Lancet				!
345:579.				ļ

Animal studies - There are no supporting animal data to encourage clinical research in this area, but there also are no good animal models of the spasticity of MS. However, in an MS like disease iin mice (experimental autoimmune encephalomyelitis), low doses of cannabinoids alleviate the muscle tremor seen in such animals. Cannabinoids also suppress spinal cord reflexes in animals Basic animal studies have shown that cannabinoid receptors are particularly abundant in areas of the brain that control movement and that cannabinoids affect movement and posture in animals as well as humans. The observations are consistent with the possibility that cannabinoids have antispastic effects, but they do not offer any direct evidence that cannabinoids affect spasticity, even in animals.

### SUMMARY - MUSCLE SPASTICITY

- 1. There is little research evidence to support claims that marijuana reduces muscle spasticity in Multiple Sclerosis.
- 2. Research should be conducted to determine whether cannabinoids might relieve symptoms associated with MS.

3. Marijuana should not be smoked by patients with MS, a chronic disease.

## SPINAL CORD INJURY

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
Hanigan WC,	Oral THC	double-	modality study of a		Successful - suggested that	Limitations of one	
Destree R, Truong	Ofai THC	blind study	*		oral THC was superior to	patient	
		billia study	paraplegic			patient	
XT. 1986. The effect			patient with		codeine in reducing muscle		
of delta-9-THC on			painful .		spasms		
human spasticity.			spasms in				
Clinical			both legs				
Pharmacology and							
Therapeutics							
39:198.							
Maurer M, Henn V,							
Dittrich A, Hoffman							
A. 1990. Delta-9-							
tetrahydrocannabino							
1 shows antispastic							
and analgesic effects							
in a single case							
double-blind trial.							
European Archives							
of Psychiatry and							
Clinical							
Neuroscience							
240:1—4.							

### SUMMARY – SPINAL CORD INJURY

- 1. Animals research indicates that areas of the brain that control movement contain abundant cannabinoid receptors.
- 2. Clinical trials testing the effects of cannabinoids on muscle spasticity in spinal cord injury should be considered.
- 3. If THC is proven to relieve spasticity, then a pill might be the preferred delivery route for nighttime use.
- 4. An inhaled form of THC, if found to be effective, might be appropriate to relief acute episodes of spasticity.

## MOVEMENT DISORDERS

# Dystonia

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
			modality				
Consroe P, Sandyk	Cannabidiol	preliminary			Moderate success -		
R, Snider SR. 1986.	(CBD)	open trial			suggested modest dose-		
Open label					related improvements in the		
evaluation of					five dystonic patients		
cannabidiol in					studied		
dystonic movement							
disorders.							
International							
Journal of							
Neuroscience							
30:277—282.							

# Huntington's Disease

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
			modality				
P, Laguna J,	Cannabidiol	double-			Unsuccessful - symptoms		
Allender J, Snider S,	(CBD)	blind			neither improved nor		
Stern L, Sandyk R,		crossover			worsened with CBD		
Kennedy K, Schram		study			treatment		
K. 1991. Controlled		(CBD and					
clinical trial of		placebo) of					
cannabidiol in		15					
Huntington's		Huntington'					
disease.		s disease					
Pharmacology,		patients					

Biochemistry and	who were
Behavior (New	not taking
<i>York)</i> 40:701—708.	any
	antipsychot
Sandyk R, Consroe	ic drugs
P, Stern P, Biklen D.	
1988. Preliminary	
trial of cannabidiol	
in Huntington's	
disease. Chesher G,	
Consroe P, Musty	
R., Editors,	
Marijuana: An	
International	
Research Report.	
Canberra: Australian	
Government	
Publishing Service.	
Animal studies suggest th	t cannabinoids have antichoreic activity, presumably because of stimulation of $CB_1$ receptors in the basal ganglia.

## Parkinson's Disease

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
			modality				
Frankel JP, Hughes	Smoked			Smoked	Unsuccessful - no		
A, Lees AJ, Stern	marijuana				improvement in tremor after		
GM. 1990.					the five patients smoked		
Marijuana for					marijuanawhereas all		
Parkinsonian tremor.					subjects benefited from the		
Journal of					administration of standard		
Neurology,					medications for Parkinson's		
Neurosurgery and					disease (levodopa and		
Psychiatry 53:436.					apomorphine)		

bradykinesia associated with the disease Furthermore, although cannabinoids oppose the actions of dopamine in intact rats, they augment dopamine activation of movement in an animal model of Parkinson's disease. This suggests the potential for adjunctive therapy with cannabinoid agonists.

### Tourette's Syndrome

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
Hemming M, Yellowlees PM. 1993. Effective treatment of Tourette's syndrome with marijuana. Journal of Psychopharmacolog y 7:389—391.  Sandyk R, Awerbuch G. 1988. Marijuana and Tourette's syndrome. Journal of Clinical Psychopharmacolog y 8:444—445.	marijuana	four case histories	modality		Questionable Success - indicating that marijuana use can reduce tics in Tourette's patients. In three of the four cases the investigators suggest that beneficial effects of marijuana might have been due to anxiety-reducing properties of marijuana rather than to a specific antitic effect.		

### SUMMARY – MOVEMENT DISORDERS

1. There is no research evidence that marijuana or cannabinoids are helpful in reducing symptoms that occur in movement disorders.

- 2. The anxiety-reducing aspects of marijuana and cannabinoids might be beneficial to some patients with movement disorders.
- 3. However, chronic marijuana smoking is a health risk for chronic conditions such as movement disorders.
- 4. Animal studies should be undertaken to determine if cannabinoids might play a role in movement disorders.
- 5. Clinical trials of isolated cannabinoids should be undertaken.

### **EPILEPSY**

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
			modality				
Ng SKC, Brust	marijuana	case-			Inconclusive – see Study	This was a weak study.	
JCM, Hauser WA,		controlled			Design. Ng and co-workers	It did not include	
Susser M. 1990.		study			concluded that marijuana is	measures of health	
Illicit drug use and					a protective factor for first-	status prior to hospital	
the risk of new-onset					time seizures in men but not	admissions for the	
seizures. American					women	patients' serious	
Journal of						conditions, and	
Epidemiology						differences in their	
132:47—57.						health status might	
						have influenced their	
ļ						drug use rather than	
ļ						as suggested by the	
ļ						authorsthat	
						differences in their	
						drug use influenced	
						their health.	

### SUMMARY - EPILEPSY

1. Neither marijuana nor cannabinoids are effective in treating epilepsy.

### **ALZHEIMER'S DISEASE**

Study	Cannabinoid	Trial Type	Testing	Delivery system	Result	Study design	Side Effects
			modality				
Volicer L, Stelly M,	Dronabinol	Eleven		pill	Successful - treatment		No serious side effects
Morris J,	(Marinol)	Alzheimer'			resulted in substantial		were observed
McLaughlin J,		s patients			weight gains and declines in		
Volicer BJ. 1997.		were treat-			disturbed behavior		
Effects of		ed for 12					
dronabinol on		weeks on					
anorexia and		an alt-					
disturbed behavior		ernating					
in patients with		schedule of					
Alzheimer's disease.		dronabinol					
International		and plac-					
Journal of Geriatric		ebo (six					
Psychiatry 12:913—		weeks of					
919.		each					
		treatment).					

### SUMMARY – ALZHEIMER'S DISEASE

- 1. Further clinical research should be conducted to determine if cannabinoids have a role in stimulating appetite in Alzheimer's patients with severe dementia.
- 2. Because short-term memory loss is a common side-effect of THC, the effect of cannabinoids on memory in Alzheimer's patients who are less severely disturbed must be contemplated.

### **GLAUCOMA**

Study	Cannabinoid	Trial Type	Testing modality	Delivery system	Result	Study design	Side Effects
Hepler RS, Frank	Marijuana			Eaten or in pill form	Successful - IOP was		
IM, Petrus R. 1976.					reduced by an average		
Ocular effects of					of 25%		
marijuana smoking.					01 23 70		
In: Braude MC,							
Szara S, Editors, The							
Pharmacology of							
Marijuana. New							
York: Raven Press.							
Pp. 815—824.							
Jones RT, Benowitz							
NL, Herning RI.							
1981. Clinical							
relevance of							
cannabis tolerance							
and dependence.							
Journal of Clinical							
Pharmacology							

21:143S—152S.					
Alm A, Camras CB,	Smoked		Smoked	Limited success as below -	
Watson PG. 1997.	Marijuana			IOP was reduced by an	
Phase III latanoprost	with 2% THC			average of 25% after	
studies in				smoking a marijuana	
Scandanavia, the				cigarette that contained	
United Kingdom and				approximately 2% THCa	
the United States.				reduction as good as that	
Survey of				observed with most other	
Ophthalmology				medications available today.	
41:S105—S110.					
				But the effect lasts only	
CB, Alm A, Watson				about three to four hours.	
P, Stjernschantz J.				Elevated IOP is a chronic	
1996. Latanoprost, a				condition and must be	
prostaglandin				controlled continuously.	
analog, for					
glaucoma therapy:					
Efficacy and safety					
after 1 year of					
treatment in 198					
patients. Latanoprost					
Study Groups.					
Ophthalmology					
103:1916—1924.					
Crawford WJ,					
Merritt JC. 1979.					
Effects of					
tetrahydrocannabino					
l on arterial and-					
intraocular					
hypertension.					
International					
Journal of Clinical					

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Pharmacology and				
Biopharmacy				
17:191—196.				
17.131 130.				
Hepler RS, Frank				
IM, Petrus R. 1976.				
Ocular effects of				
marijuana smoking.				
In: Braude MC,				
Szara S, Editors, The				
Pharmacology of				
Marijuana. New				
York: Raven Press.				
Pp. 815—824.				
Hepler RS, Frank				
IR. 1971. Marihuana				
smoking and				
intraocular pressure.				
Journal of the				
American Medical				
Association				
217(10):1392.				
Merritt JC,				
Crawford WJ,				
Alexander PC,				
Anduze AL, Gelbart				
SS. 1980. Effect of				
marihuana on				
intraocular and				
blood pressure in				
glaucoma.				
Ophthalmology				

87:222—228.				
Walters TR. 1996.				
Development and				
use of brimonidine				
in treating acute and				
chronic elevations of				
intraocular pressure:				
A review of safety,				
efficacy, dose				
response, and dosing				
studies. Survey of				
Ophthalmology				
41(Suppl. 1):S19—				
S26.				

#### SUMMARY - GLAUCOMA

- 1. Both cannabinoids and marijuana lower intraocular pressure (IOP).
- 2. However, both also lower blood pressure, which might reduce the flow of blood through the optic nerve and actually increase the progression of glaucoma.
- 3. Many effective medications are available to treat glaucoma at a cost of about US\$60 per month.

#### **QUESTION 5**

Drug Free Australia questions why the NSW Working Party on the Use of Cannabis for Medicinal Purposes:

is prepared to accept that smoked marijuana has useful medicinal value when every evaluation of the scientific data states that the risks of smoked marijuana far outweigh any benefits

#### **QUESTION 6**

is calling for a 'trial' of marijuana as medicine despite participants not even being required to be registered or monitored as part of regular clinical evaluations

The NSW Working Party reviewed 2 reports on the medical use of marijuana - the British House of Lords (1998) report and the United States Institute of Medicine report (1999). However five other reports were noted. These were issued by:

the Health Council of the Netherlands (1996) the American Medical Association House of Delegates (1997) the British Medical Association (1997) the US National Institute of Health (1997) the World Health Organization (1997)

A summary of relevant conclusions from these five reports were included in the Institute of Medicine Report, as is printed below. While all reports noted the benefits of clinical trials into possible medical uses for cannabinoids, only the British House of Lords report recommended loosely regulated use of smoked marijuana. The NSW Working Party has demonstrably made recommendations at odds with six out of these seven studies.

#### **Smoked Marijuana and Use Of Plants As Medicine**

#### **US Institute of Medicine**

In deciding whether marijuana should be smoked as medicine, society must weigh the reality of this crude drug-delivery system against the benefits it might bestow. Chronic smoking of marijuana increases a person's chances of developing cancer, lung damage, and problems with pregnancies, including low birth weight. Therefore, it simply is not an acceptable long-term option. Smoking should be allowed only for short-term use among patients with debilitating symptoms, or who are terminally ill and do not respond well to approved medications.

Even in these cases, marijuana use should be limited to carefully controlled settings. Patients who are prescribed marijuana should be enrolled in short-term clinical trials that are approved by an oversight strategy such as institutional

review boards, and involve only those patients most likely to benefit. They should be fully informed that they are experimental subjects and are using a harmful drug-delivery system, and their condition should be closely monitored and documented under medical supervision.

#### **Health Council of the Netherlands**

The committee believes that physicians cannot accept responsibility for a product of unknown composition that has not been subjected to quality control.

#### **AMA House of Delegates**

No specific recommendations made, but related issues are discussed in the general recommendation and drug development sections.

#### **British Medical Association**

Prescription formulations of cannabinoids or substances acting on the cannabinoid receptors should not include either cigarettes or herbal preparations with unknown concentrations of cannabinoids or other chemicals.

#### **National Institutes of Health**

Smoked marijuana should be held to standards equivalent to other

medications for efficacy and safety considerations. There might be some patient populations for whom the inhalation route might offer advantages over the currently available capsule formulation. Smoking plant material poses difficulties in standardizing testing paradigms, and components of the smoke are hazardous, especially in the immunocompromised patient. Therefore, the experts generally favored the development of alternative dosage forms, including an inhaler dosage form into which a controlled unit dose of THC could be placed and volatilized.

#### **World Health Organization**

Not discussed in the context of medical use, although many health hazards associated with chronic marijuana smoking are noted.

#### **Drug Development**

#### **Health Council of the Netherlands**

Not discussed.

#### **AMA House of Delegates**

The National Institutes of Health should use its resources to support the development of a smoke-free inhaled delivery system for marijuana or THC to reduce the health hazards associated with the combustion and inhalation of marijuana.

#### **British Medical Association**

Pharmaceutical companies should undertake basic laboratory investigations and develop novel cannabinoid analogs that may lead to new clinical uses.

#### **National Institutes of Health**

NIH should use its resources and influence to rapidly develop a smoke-free inhaled delivery system for marijuana or THC. A recommendation was made for the development of insufflation/inhalation devices or dosage forms capable of delivering purer THC or cannabinoids to the lungs free of dangerous combustion byproducts.

#### World Health Organization

Not discussed.

#### **Physiological Harms**

#### **Health Council of the Netherlands**

No recommendations made.

#### **AMA House of Delegates**

No recommendations made.

#### **British Medical Association**

Further research is needed to establish the suitability of cannabinoids for immunocompromised patients, such as those undergoing cancer chemotherapy or those with HIV/AIDS.

#### **National Institutes of Health**

Risks associated with smoked marijuana must be considered not only in terms of immediate adverse effects but also long-term effects in patients with chronic diseases. The possibility that frequent and prolonged marijuana use might lead to clinically significant impairments of immune system function is great enough that relevant studies should be part of any marijuana medication development research.

Additional studies of long-term marijuana use are needed to determine if there are or are not important adverse pulmonary, central nervous system, or immune system problems.

#### **World Health Organization**

Further studies are needed on the fertility effects in cannabis users in view of the high rate of use during the early reproductive years. Further clinical and experimental research is required on the effects of cannabis on respiratory function and respiratory diseases. More studies are needed to show whether cannabis affects the risk of lung malignancies and at what level of use that may occur. In addition, more studies are needed to clarify the rather different results of pulmonary histopathological studies in animals and man.

More clinical and experimental research is needed on the effects of cannabis on immunological function. More clarity should be sought concerning the molecular mechanisms responsible for immune effects, including both cannabinoid receptor and nonreceptor events.

The possibility that chronic cannabis use has adverse effects on the cardiovascular system should have a priority in epidemiological research.

Research on chronic and residual cannabis effects is also needed. The pharmacokinetics of chronic cannabis use in humans are poorly described, and this lack of knowledge restricts the ability of researchers to relate drug concentrations in blood or other fluids and observed effects.

#### **Question 7**

Drug Free Australia questions why the NSW Working Party on the Use of Cannabis for Medicinal Purposes:

is recommending potentially massive quantities of raw cannabis to be grown for personal use (and presumably anyone else in the neighbourhood) under medical prescription, deserting the principle of controlled and regulated prescription of therapeutic substances

The NSW Working Party on the Use of Cannabis for Medicinal Purposes is recommending that 5 marijuana plants be legalised for medical use per individual. Two of these plants can be greater than 25 cm in height.

But this creates the potential for massive, marketable yields, and Drug Free Australia questions how the police could possibly regulate the non-distribution of such plant material when they already have little success in regulating the private use of marijuana.

#### **MASSIVE, ABUSEABLE QUANTITIES**

The Victorian Police Association disclosed one cannabis plant yields five crops a year of 500 grams per crop totalling 2500 grams. — Letter, The Police Association to DJ Perrin, 26 April 1996 p 3

The Woodward Royal Commission disclosed that a three month old cannabis plant will produce at least 500 grams of harvestable leaf or a crop of 2000 grams a year.

<u>Just 25 grams of marijuana produces 86 joints with 3% of THC, so one plant can produce up to 8600 marijuana joints every year.</u> (Marijuana An Australian Crisis).

#### AND A GREEN LIGHT FOR PUBLIC MISCHIEF

 The assertion that all medical marijuana is headed for seriously ill patients is misleading. Statistics from the California Branch of the National Organization for the Reform of Marijuana Laws (NORML) shows that a survey of Californians reports the top three reported uses of medicinal marijuana:

40% Chronic Pain 22% AIDS-Related 15% Mood Disorders (23% All other categories)

Local and state law enforcement counterparts cannot distinguish between illegal
marijuana grows and grows that qualify as medical exemptions. Many self-designated
medical marijuana growers are, in fact, growing marijuana for illegal, "recreational"
use.

- Elected law enforcement officials, i.e. Sheriffs and District Attorneys in California have been targeted by the "marijuana lobby." Political action by groups such as NORML have endorsed and supported candidates favorable to medical marijuana. NORML tracks local elections and takes credit for the defeats of anti-marijuana candidates. Last year the DEA arrested a major marijuana trafficker in Humboldt County who was an undeclared candidate for sheriff.
- The DEA and its local and state counterparts routinely report that large-scale drug traffickers hide behind and invoke Proposition 215, even when there is no evidence of any medical claim. In fact, many large-scale marijuana cultivators and traffickers escape state prosecution because of bogus medical marijuana claims. Prosecutors are reluctant to charge these individuals because of the state of confusion that exists in California. Therefore, high-level traffickers posing as "care givers" are able to sell illegal drugs with impunity.
- The California NORML website lists federal defendants for the largest indoor marijuana cultivation operation in the U.S., which occurred in Northern California, as "green prisoners." While unscrupulously claiming to be "medical marijuana" defendants, in fact these two individuals were dangerous, armed fugitives believed to be responsible for drug-related murders and other violence.
- DEA's San Francisco Field Division coordinates the statewide Domestic Cannabis Eradication/Suppression Program (DCE/SP). The number of plants eradicated and assets seized represent the largest totals in California history.

Source - DEA Information Sheet

#### **APPENDICES**

Appendix A – Just who does use medical marijuana? (from the US Institute of Medicine report)

Appendix B – Information on Drug Legalisation Strategy

Appendix C – Recommendations of the NSW Working Party on the Use of Cannabis for Medicinal Purposes

#### **APPENDIX A**

#### JUST WHO DOES USE MEDICAL MARIJUANA?

There have been no comprehensive surveys of the demographics and medical conditions of medical marijuana users, but a few reports provide some indication. In each case, survey results should be understood to reflect the situation in which they were conducted and are not necessarily characteristic of medical marijuana users as a whole. Respondents to surveys reported to the IOM study team were all members of "buyers' clubs," organizations that provide their members with marijuana, although not necessarily through direct cash transactions. The atmosphere of the marijuana buyers' clubs ranges from that of the comparatively formal and closely regulated Oakland Cannabis Buyers' Cooperative to that of a "country club for the indigent," as Denis Peron described the San Francisco Cannabis Cultivators Club (SFCCC), which he directed.

John Mendelson, an internist and pharmacologist at the University of California, San Francisco (UCSF) Pain Management Center, surveyed 100 members of the SFCCC who were using marijuana at least weekly. Most of the respondents were unemployed men in their forties. Subjects were paid \$50 to participate in the survey; this might have encouraged a greater representation of unemployed subjects. All subjects were tested for drug use. About half tested positive for marijuana only; the other half tested positive for drugs in addition to marijuana (23% for cocaine and 13% for amphetamines). The predominant disorder was AIDS, followed by roughly equal numbers of members who reported chronic pain, mood disorders, and musculoskeletal disorders (Table 1.1).

The membership profile of the San Francisco club was similar to that of the Los Angeles Cannabis Resource Center (LACRC), where 83% of the 739 patients were men, 45% were 36—45 years old, and 71% were HIV positive. Table 1.2 shows a distribution of conditions somewhat different from that in SFCCC respondents, probably because of a different membership profile. For example, cancer is generally a disease that occurs late in life; 34 (4.7%) of LACRC members were over 55 years old; only 2% of survey respondents in the SFCCC study were over 55 years old.

Jeffrey Jones, executive director of the Oakland Cannabis Buyers' Cooperative, reported that its largest group of patients is HIV-positive men in their forties. The second-largest group is patients with chronic pain.

Among the 42 people who spoke at the public workshops or wrote to the study team, only six identified themselves as members of marijuana buyers' clubs. Nonetheless, they presented a similar profile: HIV/AIDS was the predominant disorder, followed by chronic pain (Tables 1.3 and 1.4). All HIV/AIDS patients reported that marijuana relieved nausea and vomiting and improved their appetite. About half the patients who reported using marijuana for chronic pain also reported that it reduced nausea and vomiting.

Note that the medical conditions referred to are only those reported to the study team or to interviewers; they cannot be assumed to represent complete or accurate diagnoses. Michael Rowbotham, a neurologist at the UCSF Pain Management

Center, noted that many pain patients referred to that center arrive with incorrect diagnoses or with pain of unknown origin. At that center the patients who report medical benefit from marijuana say that it does not reduce their pain but enables them to cope with it.

Most--not all--people who use marijuana to relieve medical conditions have previously used it recreationally. An estimated 95% of the LACRC members had used marijuana before joining the club. It is important to emphasize the absence of comprehensive information on marijuana use before its use for medical conditions. Frequency of prior use almost certainly depends on many factors, including membership in a buyers' club, membership in a population sector that uses marijuana more often than others (for example, men 20—30 years old), and the medical condition being treated with marijuana (for example, there are probably relatively fewer recreational marijuana users among cancer patients than among AIDS patients).

Patients who reported their experience with marijuana at the public workshops said that marijuana provided them with great relief from symptoms associated with disparate diseases and ailments, including AIDS wasting, spasticity from multiple sclerosis, depression, chronic pain, and nausea associated with chemotherapy. Their circumstances and symptoms were varied, and the IOM study team was not in a position to make medical evaluations or confirm diagnoses. Three representative cases presented to the IOM study team are presented in <a href="Box 1.1">Box 1.1</a>; the stories have been edited for brevity, but each case is presented in the patient's words and with the patient's permission.

The variety of stories presented left the study team with a clear view of people's beliefs about how marijuana had helped them. But this collection of anecdotal data, although useful, is limited. We heard many positive stories but no stories from people who had tried marijuana but found it ineffective. This is a fraction with an unknown denominator. For the numerator we have a sample of positive responses; for the denominator we have no idea of the total number of people who have tried marijuana for medical purposes. Hence, it is impossible to estimate the clinical value of marijuana or cannabinoids in the general population based on anecdotal reports. Marijuana clearly seems to relieve some symptoms for some people--even if only as a placebo effect. But what is the balance of harmful and beneficial effects? That is the essential medical question that can be answered only by careful analysis of data collected under controlled conditions.

**TABLE 1.1** Self-Reported Disorders Treated with Marijuana by Members of San Francisco Cannabis Cultivators Club

HIV	60
Musculoskeletal disorders and arthritis	39
Psychiatric disorders (primarily depression)	27
Neurological disorders and nonmusculoskeletal pain	9
syndromes	
Gastrointestinal disorders (most often nausea)	7
Other disorders: Glaucoma, allergies, nephrolithiasis,	7
and the skin manifestations of Reiter syndrome	
Total disorders	149
Total number of respondents	100

**TABLE 1.2** Self-Reported Disorders Treated with Marijuana by Members of Los Angeles Cannabis Resource Center (LACRC), According to Center Staff $^{a}$ 

HIV <sup>b</sup>	528	71
Cancer	40	5.4
Terminal cancer	10	1.4
Mood disorders (depression)	4	0.5
Musculoskeletal (multiple sclerosis,		
arthritis)	30	4.1
Chronic pain and back pain	33	4.5
Gastrointestinal	7	2.3
Neurological disorders (epilepsy,		
Tourette syndrome, brain trauma)	7	0.9
Seizures or migraines <sup>©</sup>	13	1.8
Glaucoma	15	2.0
Miscellaneous	42	5.7
Total number	739	100

TABLE 1.3 Summary of Reports to IOM Study Team by 43 Individuals

Symptoms	Dominant Disease	Symptoms	Dominant Disease
Anorexia,	AIDS	Pain	Migraine
nausea,	AIDS		Injury
vomiting	AIDS		Injury
E-201300	AIDS		Epilepsy and postpolio syndrome
	AIDS		Trauma and epilepsy
	AIDS		Degenerative disk disease
	AIDS		Rheumatoid arthritis
	AIDS and cancer		Nail-patella syndrome
	Cancer		Reflex sympathetic dystrophy
	Testicular cancer		Gulf War chemical exposure
	Cancer and multiple sclerosis		Multiple congenital cartilaginous exostosis
	Thyroid condition <sup>a</sup>		Histiocytosis X
	Migraine	2000	Section 1 and 1 an
	Wilson's disease	Muscle	Spasticity <sup>a</sup>
		spasticity	Multiple sclerosis
Mood	Depression	\$ 897	Multiple sclerosis
disorders	Depression		Multiple sclerosis
	Depression and anxiety		Paralysis
	Depression and anxiety		Spinal-cord injury
	Manic depression		Spasmodic torticollis
	Manic depression	Intraocular	Glaucoma
	Posttraumatic stress	pressure	
	Premenstrual syndrome	Diarrhea	Crohn's disease

#### <sup>a</sup>Not specified.

NOTE: This table lists the people who reported to the IOM study team during the public workshops, or through letters, that they use marijuana as medicine; it should not be interpreted as a representative sample of the full spectrum of people who use marijuana as medicine. Each dominant disease represents an individual report.

TABLE 1.4 Primary Symptoms of 43 Individuals Who Reported to IOM Study Team

	Symptom I	Frequency	Multiple Symptoms		
Primary Symptom	No. of Reports	% of Total Symptoms Reported	No. Who Reported (primary) Additional Symptoms	% of Those Who Reported Primary Symptoms	
Anorexia, nausea, vomiting	21	31	13	62	
Diarrhea	4	6	3	75	
Intraocular pressure	2	3	1	50	
Mood disorders	12	18	7	58	
Muscle spasticity	12	18	7	58	
Pain	16	24	13	81	
Total	67		44	66	

<sup>&</sup>lt;sup>a</sup>Forty-three persons reporting; 20 reported relief from more than one symptom.

## **Appendix B**

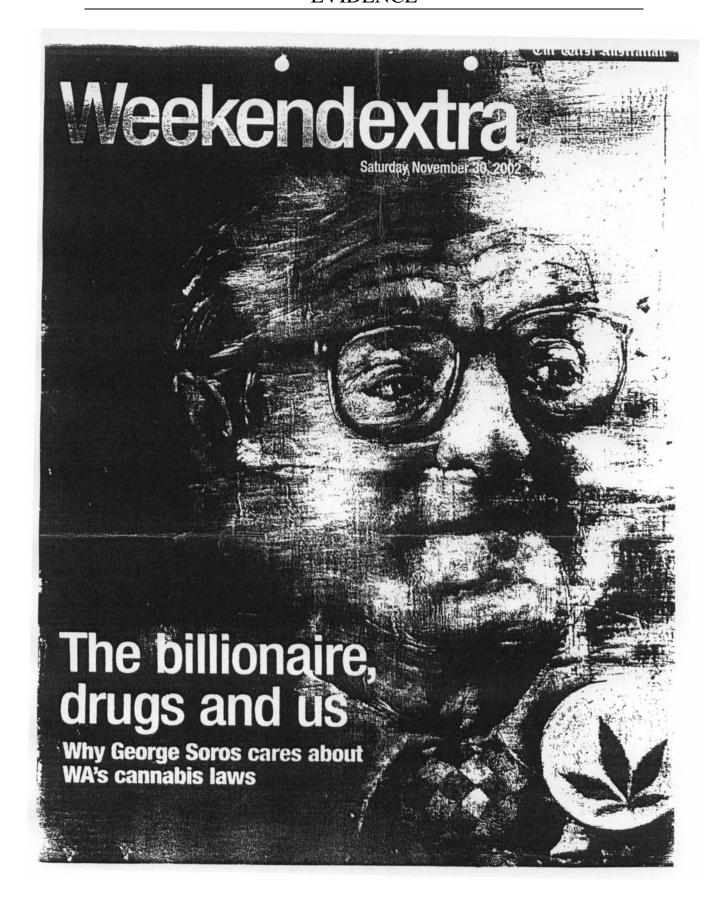
#### **Information on Drug Legalisation Strategy**

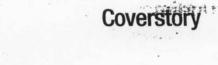
Article from the West Australian on US Funding of WA Cannabis Decriminalisation – (separate pdf file downloadable from this same site)

Article from Time Magazine on Legalisation Strategy – November 2002 (separate pdf file downloadable from this same site)

Legalisation Lobby Funding of Medical Marijuana Initiatives in the United States

Defeat of Legalisation Lobby Initiatives in the United States – December 2002





# he billionaire, drugs and us

Why is US billionaire George Soros so

interested in the reform of WA's drug

laws? Norman Aisbett finds out.

REGULAR letter writers to The West Australian in recent years have come to include a spokesman for an influential lobby group for drug law reform.

group for drug law reform.
That's not so surprising, except that
Robert Sharpe and the Drug Policy.
Alliance are-based in far-off
Washington in the US.
Mr Sharpe misses no chance to
wade into the debate on the need for
softer drug laws relating to cannabis in
WA and chides anyone with a contrary
opinion.

churned about 0 million of his earnings into the cause of wringing change out of hard-line US drug laws.

With his support, the alliance runs an international grants scheme for projects on "drug policy studies" and invites applications on its website. It also gives special awards for areas such as medical and legal work and political leadership. Several award recipients in Australia have got up to \$10,000 each.

Apart from Mr Soros, 72, the other big backers of the alliance are John Sperling, who made billions by creating the University of Phoenix college system, and Peter Lewis, retired CEO of the Cleveland-based Progressive Corporation Insurance Company.

All three reportedly admit to having smoked cannabis. Mr Soros once said:

"I have tried marijuana (cannabis) and I enjoyed it but it did not become a habit and I have not tasted it in many years."

According to a recent Time maga-

years."

According to a recent Time magazine cover story, Mr Sperling, 81, once smoked, pot to combat pain associated with the cancer he fought in the 1960s. Mr Lewis, 68, is a prominent campaigner for the legalisation of the

ing to change US drug laws, we need reform in Australia, or some other English-speaking country, to help us pressure our legislators, while also believing it's right for Australians.

"Americans are very ethno-centric. If Thailand were to end the drug war (i.e. soften its laws), Americans might never hear about it, except for a network of drug policy reform advocates.

"But if Australia were to dramatically change its drug laws, it would be all over CNN and would impact the edebate in the US so much more."

Mr Soros started the Lindesmith Center in 1994 as a project of his Open Society Institute. It was named after Alfred Lindesmith, the first promigent American to challenge conventional thinking on drug policy.

Its partner in the alliance, the Drug Policy Foundation (DPF), was founded in 1987.

The executive director of the alliance is fast-talking Harvard PhD Ethan Nadelmann, who has visited Australia twice.

He would presumably be pleased with developments here. In 1987, South Australia decriminalised the law relating to prescribed amounts of cannabis, and the cultivation of a set number of cannabis plants, and similar legislation is imminent in WA.

Under the legislation, expected to be introduced in parliament early next year, the possession of less than 15g of cannabis and up to two plants for personal use will incur a \$100 infringement notice; 15g to 30g and less than three plants will draw a \$150 fine.

Police will retain the right to lay criminal charges for small amounts if they suspect someone is dealing.

criminal charges for small amounts if they suspect someone is dealing.

I own this was achieved is an intriguing tale of more than a decade of indefatigable politicking by a network of disciplined activists, who include academics, health professionals and the Australian Parliamentary Group for Drug Law Reform.

The latter group includes 18 WA politicians. Among them are Minister for Planning and Infrastructure Alannah MacTiernan, Agriculture Minister Kim Chance and Greens MPs Christine Sharp, Giz Watson and Jim Scott.

Drug Law reformers have also used "subversives" to vin a sympathetic ear from the Australian Drug Foundation, a Victorian-basedleducation group that gets private and government funding. In 1992 in Washington he boasted, to an international bonference on drug policy reform that his organisation had "employed journalists not to churmout press releases but to get in there are "ended to a niternational bonference on drug policy reform that his organisation had "employed journalists not to churmout press releases but to get in the and the control of the property slowly, and very gently, a level of trugs aleve by credibility of those journalists" over the last eight those journalists over the last eight.

months, over 50 per cent of the mainstream printed and radio and television reporting on alcohol and drug issues has been generated by the foundation or filtered throught it."

When Weekend Extra contacted him, Mr Stronach laughed off the comments as "the worst choice of words I ever made". He had simply hired two or three journalists to deal with the media because, "journas can talk much better to lournos".

In 1997, Mr Soros said: "My sole concern is that the war on drugs is doing untold damage to the fabric of our society. (It is) a utopian dream. Some form of drug addiction or substance abuse is endemic in most societies. Insisting on total eradication of drug sues on only-lead-to-failure-and. disappointment."

With that, he echoes the reformist mantra, worldwide.

He joined the cause after founding the Open Society Institute in 1989. The institute's charter was to fund a global network of Soros foundations to "transform closed societies into open ones and to protect and expand the values of existing open societies." Its main focus was the East European states made independent by the collapse of the Soriet empire. (Mr Soros was born in Hungary. He is Jewish and as a youth had to flee nazi persecution during World War II. He migrated to the US in 1986.) He began to spend big to help turn several such States into Western-style democracies. He then decided America's own open society was eroding and turned to domestic causes such as immigrants rights, euthanasia and drug reform. In 1994, he entered the drug debate by founding the Lindesmith Center, and emerged as a strong proponent of "harm reduction" and decriminalisation of drugs, and not only cannabis.

But the first and most achievable policy goal of the alliance and other reformers was the recognition by health authorities of "harm reduction". This involves an acceptance thas one people will-use fund the little trug use is a health issue, not a criminal matter.

Mr Soros started the International half-length and most achievable policy goal of the alliance



gangs win from "prohibition" by being able to charge high prices; that cannabis is less dangerous than both tobacco or alcohol, and more.

The Drug Policy Alliance, formed in 2001 by the merging of two major US drug legalisation groups, the Lindesmith Center and the Drug Policy Foundation, is backed by some

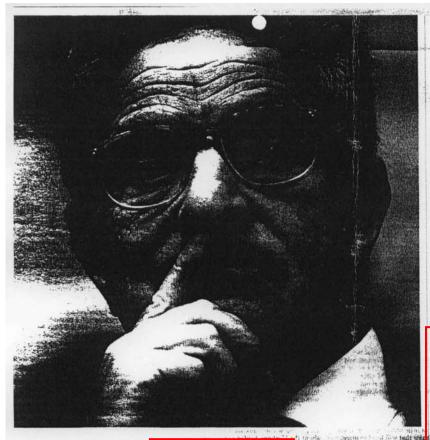
Lindesmith Center and the Drug Policy Foundation, is backed by some very powerful figures. George Soros, for one. He is the billionaire US currency speculator and philanthropist who reportedly once caused the British pound to plummet and in 1997 had Malaysia's Prime Minister, Mahathir Mohamad, blaming him for the South-East Asian economic collapse.

In the past eight years he has

medical use of marijuana. Two years ago he was charged with importing 146 grams of cannabis into New Zealand. He was released without con-viction on the basis of donating \$53,000 to a drug rehabilitation pro-

But why are these men, through the vigilant Mr Sharpe, so keen to encourage cannabis law reform in WA?
Mr Sharpe was happy to explain when Weekend Extra inquired by phone. He said the tough anti-drugs policies of successive US government were the most "Neanderthal" in the world and threatened to make.
America the last nation to get liberalized laws.

"From a selfish perspective of want-



This does not mean legalisation, only that a prosecuted drug user does not incur a damaging criminal record. This should become the case in WA

not incur a damaging criminal record. This should become the case in WA next year.

Opponents of harm reduction policies and decriminalisation include parents of addicts. They argue it sends mixed messages and only helps to sustain a user's addiction, and can even result in their death.

They say abstinence is vital and urge a "tough love" approach with mandatory treatment in an environment that removes addicts from access to any drugs. They see drug courts, plus family and community support, as vital. Drug courts allow the option of mandatory treatment to fines or jail.

Geraldine Mullins, co-founder of the Australian Parent Movement, speaks for them all when she expresses concern about Mr Soros:

"He is powerful and he provides a lot of money for an international battle in which Australia is integral and is seen as being one of the most winnable reform targets.

"Without doubt, the drug-reform movement in Australia is closely allied to the Soros-supported movement in the US, so our efforts are dwarfed by comparison.

"To make things worse, those responsible for public health in Australia have been cleverly drawn into promoting strategies dressed up as compassion but are really about creating chaos in the fustern and opening the way for cannables to eventually be sold like alcohol and tobacco."

We all know the terrible social costs of alcohol and tobacco."

Wendy Herbert, spokeswoman for the WA Coalition Against Drugs, agrees health officials have done too little to highlight the risk of addiction and mental illness in cannabis use.

She says the proposed laws will be a "green light" to normalising the practice.

"We believe most children can be taught to say 'no' if given information and family support, and not merely information to supposed help them use drugs safely. No drugs are safe.

"We need a 'say no' approach backed by the law and by education and intervention for young people through mandatory counselling that

backed by the law and by education and intervention for young people through mandatory counselling that involves families.

"People with an entrenched drug problem should be subjected to mandatory rehabilitation orders, perhaps via the Drug Court, to return them to a drug free state, which most

will welcome when achieved. For all this to happen, the illegality must stay. Very, very few people get criminal records for simple drug use anyway."

N his 1995 autobiography, George tic" on the big question of legali-

tic" on the big question of legalitation.

But later in the book, he says he could imagine the legalisation of "less harmful and less addictive" drugs might help society by reducing criminality "by around 80 per cent.

He says cannabis is non-addictive but that is wrong. Studies have proved up to 10 per cent of regular users can develop dependency.

". I would have a strictly controlled distribution network for such drugs and keep prices low enough to destroy the drug trade," he says in the book.

"Once that was attained, I would keep raising the prices, very much like the excise duty on cigarettes, but I would make an exception for registered addicts in order to discourage crime."

Part of the tax income would go one and reastment work; and he

Part of the tax income would go on prevention and treatment work, and he would foster "social opprobrium" of drug use. 'Without doubt, the drug-reform movement in Australia is closely allied to the Soros-supported movement in the US, so our efforts are dwarfed by comparison.' - Geraldine Mullins, co-founder of the Australian Parent Movement.

But Mr Soros also had an eye to public opinion and had gauged it not ready for legalisation. He said attempts to go against the "prevailing consensus" would be only counter-

Mrs Muliins says the controlled s

Mrs Mulins says the controlled sale of drugs, with tax receipts used to treat health problems, is putting the cart before the horse.

"It's what we do with the Quit campaign," she said. "Why introduce a new drug and repeat the syndrome? The scary part is that his logic appeals."

The scary part is that his logic appeals."

Dr Alex Wodak, director of Alcohol and Drug Services at St Vincent's Hospital and a leading Australian drug law reformer, says cannabis is a "relatively harmless drug that should be isold on a taxed and regulated basis, and likesalcohol and tobacco."

Currently, only criminals and corrupt police were benefiting. They would be eliminated from the equation if the sale of cannabis were taxed and regulated.

But he would not say the "L" word.

The status of a drug decay says.

The status of a dring noise as the "I" word.

"The status of a dring noise as and tell you how it's controlled, he said.

"Cocaine is an illegal drug that, can be used legally in medicine and sleohol is "a legal drug that can be used illegally.

So I am choosing my words, carefully.

No doubt, with polls showing 60 per cent of Australians opposed to the legalisation of cannabis.

"At the Drug Policy Alliance's US office, Ethan Nadelmann frankly says it's all about tactics."

At the Drug Policy Alliance's Use office, Ethan Nadelmann frankly says it's all about tactics.

'Our policy is to tax and regulate by the sale of marijuana. The reason we don't like to say legalisation is that, to the public, it sounds like you are considering. If you ask people if they want to legalise cannabis, 20 per cent will say yes. But when you ask if they would support a policy to tax, control and regulate it like alcohol, 40 per cent will say yes.

\*\*So (people) are responding to the two policy and regulate it like alcohol, 40 per cent will say yes.

\*\*So (people) are responding to the two policy and regulate it like alcohol, 40 per cent will say yes.

\*\*So (people) are responding to the two policy and the substance of the policy are the policy are

Securable as a medical paliantee.

Lapparently because hequinient is a single side in the part of the

But an Arizona bile ended remarkably in 1996.

\*\*A Bill became law until legislators realised it was written to include not just cannabis but 116 other Schedule

One drugs, including LSD and heroin.

\*\*Another Bill was quickly passed to street out of the strap the whole idea.

\*\*The affair had Republican member, Mike Gardner, wondering aloud:

"Why should a New York millionaire (Soros) be writing the laws in Arizona?"

Arizona?"

\*\*In or stall live in one place but I consider myself a citizen of the world. Hasve foundations in 30 countries and I believe certain universal principles apply. indication of the control of the con

#### What cannabis does

AT THE basic level, cannabis can cause feelings of mild euphoria, relaxation, time distortion and intensification of ordinary sensory experiences. People can also become quiet and reflective, or sleepy. These effects are due to the proactive agent in cannabis, known as THC (Detta 9-tetrahydrocannabinol). But there can be many other effects, including serious risks, especially where regular to heavy use is involved. They fall into two categories, of acute and chronic effects.

Acute effects are those that occur after a small dose or a small number of times of use.

They include heightened appetite (the "munchies"); reddening of the whites of the eyes; feelings of arcidety, panic and paranois; impairment of short-term memory and concentration span, such that it becomes dangerous to drive a motor vehicle or operate machinery; and possible psychotic symptoms, such as hallucinations.

as hallucinations.
Chronic effects are those which can occur after a period of regular use (daily use over a period of years or decades).
These include possible cannabis addiction; probable

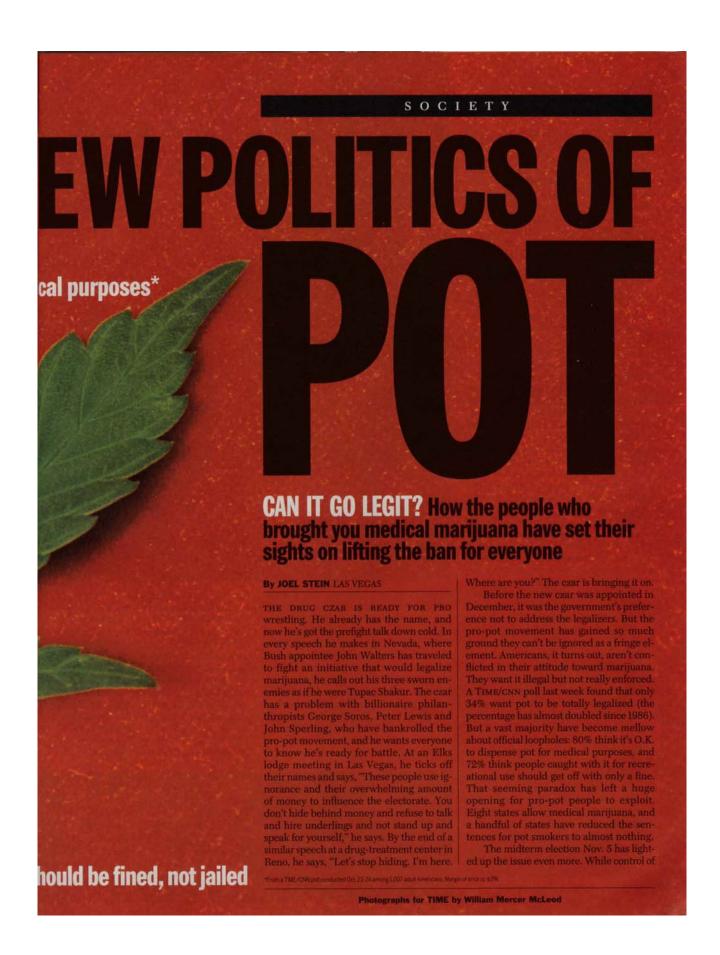
respiratory diseases; memory damage and decline in other intellectual skills which can particularly affect school performance and occupational performance in adults; risk of giving birth to low-weight bables; toxic psychosis; and increased risk of developing schizophrenia.

There can also be a loss of energy and motivation, known as amothvational syndrome; depression; reduced liblido; and irregular menstrual cycles.

THCs do have anti-nausea properties which reportedly make the drug useful in some clinical settings. But it can be fatal when combined with alcohol because it suppresses the vomitting reflex in teenagers who smoke a joint or two and drink heavily. Because of its ability to boost appetite, cannabis has been used as an anti-anorexic agent for patients with AIDS wasting syndrome.

Used as an entry and syndrome.

But because of potentially serious side effects, the prescription drug in question, Marinol, comes with an information sheet warning that it can cause several of the acute effects mentioned above, including "full blown psychosis".





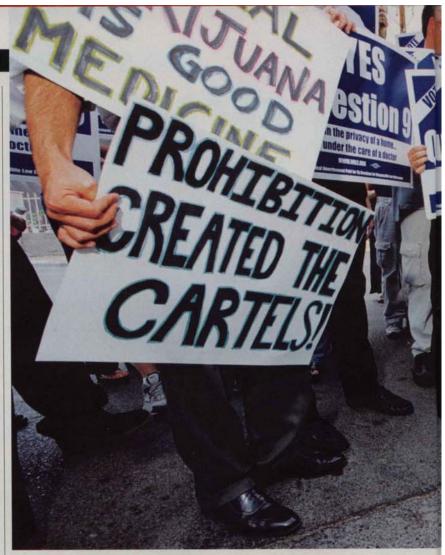
#### SOCIET

the House hangs in the balance and the race for the Senate is a dead heat, the political trend for marijuana is clear: it's gaining. The most interesting battles on the November ballot are over pot initiatives: to allow the city of San Francisco to grow and distribute medical marijuana, to replace jail with rehab in Ohio and decriminalize marijuana use in Arizona. Many of these proposals are relatively modest, but the propot forces are also raising the stakes. In spite of the electorate's contentment with the paradox of loose enforcement, some particularly powerful people on both sides have taken extreme viewpoints in an effort to end the political stalemate and force Americans to choose. Either pot is not so bad and should be legal, or people should be arrested for smoking it. The battlefield for the showdown is Nevada, where Question 9 would allow adults to possess up to 85 g of pot for personal use. In fact, the state government would set up a legal market for buying and selling pot. To almost everyone's surprise, the race is too close to call.

While the pro-pot forces have pushed their agenda at the polls, opponents have tried to use legal muscle to fight back. After a Supreme Court decision last year reiterating that federal drug laws trumped state ones, the Drug Enforcement Administration sent federal agents to California to bust medical-marijuana growers, a move that tended to outrage California voters who had approved this use. In fact, as the Administration pushes harder against the pro-pot forces, pot supporters seem to gain ground.

Among the biggest pro-pot players, medical marijuana was actually kind of a ruse. Sure, there are sick people who really feel they need marijuana to numb pain, relieve the eye pressure of glaucoma, calm muscle spasms or get the munchies to help with AIDS wasting. But they are not the people who put the debate into high gear. A few years ago, the Drug Policy Alliancean organization founded by billionaire philanthropist Soros, who wants to legalize marijuana and reform drug laws by replacing jail time with rehab-decided it would fund only those initiatives that could be won. So the group ran a bunch of polls to find out how America feels about the drug wars, and the reformers came up way short on everything but three policies: people preferred treatment over incarceration in some cases, people hated property forfeiture, and an overwhelming majority felt that medical marijuana should be legal.

So Soros & Co. set out to pass medicalmarijuana legislation. The fight has done quite well, especially when the Federal



Government, to their surprise, took the bait and started arresting paraplegics and little old ladies in front of TV news cameras. In fact, they've done well enough that some pro-pot people feel it is time to drop the ruse and fight for full legalization.

A gust of inspiration is coming from Britain, which is experimenting with a seize and warn" policy instead of arresting pot smokers, and from Canada, which is talking about similar moves. In opening Parliament on Sept. 30, Ottawa announced

it would consider "the possibility" of pot decriminalization-meaning that the government would replace criminal convictions, stiff fines and even jail terms with the equivalent of a traffic ticket for people caught with 30 grams of less of pot. Cagily, though, the government didn't say when. But the change would bring some reality to the current situation, in which cops and prosecutors rarely pursue simple possession cases, and when they do, judges usually register conditional or absolute discharges.

#### DRUG CZAR

The director of the White House Office of **National Drug Control** Policy, Walters worked for William Bennett under Reagan in the

believes the drug war is working



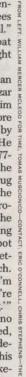
#### PRO-POT MONE

A billionaire from financial speculation, Soros funds tons of charities, notably promoting democracy in post-Soviet bloc



countries but also including programs on dying with dignity and the Drug Policy Alliance

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Still, the decriminalization talk has furrowed a few brows among feds in Washington, who are warning that the northern border could be tightened if Canada goes ahead with its promise. The progress of the U.S. pro-pot movement, on the other hand, has probably relaxed a furrowed brow or two in Canada, which is a major exporter of marijuana. British Columbia alone produces some \$4 billion worth of very highquality pot yearly, sending as much as 95% of it to the States.

With so many winds blowing the right way, the blunt-friendly pot crusaders in the U.S. feel it's time to take off the camouflage and fight. And where else would you try that but in Nevada? That's why the czar is in Vegas, sitting in a room at the Venetian Hotel guarded by U.S. marshals. The czar, a smart, likable, earnest man who believes he can help Americans by fighting the drug war, is derided by the opposition as "Bill Bennett's Mini-Me." Indeed, he worked for Bennett under Reagan in the Department of Education and then as Bennett's deputy drug czar in the first Bush Administration. When George W. appointed him, the President told the czar to watch

the movie Traffic as a way to understand the problem. The czar, who told TIME he has never smoked pot, believes marijuana to be not only a gateway drug but also incredibly detrimental in its own rightcausing driving accidents, domestic violence, health risks and crippling addiction. He thinks the legalization argument is absurd, especially when proposed by libertarian Republicans who are so doctrinaire he finds them to be outside his party. It doesn't take long for him to get back to the three billionaires: "It's unprecedented, the amount of money put in by such a small amount of people over one issue.'

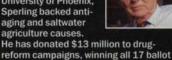
The marijuana legalizers, including the billionaires Walters vilifies, don't have much kinder things to say about him. In fact, for old rich men, they can sound a lot like Tupac. One of them, Sperling, 81, is founder of the highly profitable nationwide chain the University of Phoenix. He has spent \$13 million on drug-reform campaigns and lots of other money on other pet projects, including cloning his cat. "Mr. Walters is a pathetic drug-war soul who is defending a whole catalog of horrors he's indifferent to," Sperling says from his office in Phoe-nix, Arizona. "He's driven by a Fundamentalist Christian sense of morality that sees any of these illegal substances used as evil." Sperling says he smoked pot to combat pain associated with the cancer he fought in the 1960s.

Lewis, 68, former CEO of Progressive, an insurance company, doesn't despise the czar quite as much, but he has been battling him even harder. The reasons for Lewis are more straightforward. He has been referred to by colleagues as a "functional pothead." He spends half the year on a \$16.5 million, 77m yacht, where he smokes pot regularly; he even got arrested in New Zealand on drug charges a few years ago. He is one of the main backers of the radical Nevada proposal, having given heaps of money to the Marijuana Policy Project, which is running Question 9 there. "I learned about pot from my kids and realized it was a lot better than Scotch, and I loved the Scotch. Then I went to my doctor, and he said, 'I'm thrilled. You're drinking too much. You're much better off doing pot than drinking."

Soros (who has smoked pot but no longer does) declined to be interviewed, and like the rest of the troika, he won't debate Walters. They are probably refusing his offer for two reasons: one, they would likely lose, since none of them are politicians; and two, if you were going around the world on a 77-m yacht, would you list "Drug Czar" as one of your ports of call?

After making billions creating the University of Phoenix, Sperling backed antiaging and saltwater agriculture causes

initiatives he has backed



Retired CEO of the insurance company Progressive and a scotch drinker turned regular pot user, billionaire Lewis gives



money to the Marijuana Policy Project, which is spearheading the fight to legalize the drug in the State of Nevada



#### SOCIETY

So instead they fight federal policy with initiative after initiative, concentrating on California. Their side got a major media boost in September, when federal agents busted Santa Cruz's Wo/Men's Alliance for Medical Marijuana in an early-morning raid, dragging paraplegics and cancer patients who were legally growing pot, according to California statutes, to jail in a federal building in San Jose for breaking federal law. "I opened my eyes to see five federal agents pointing assault rifles at my head. 'Get your hands over your head. Get up. Get up.' I took the respirator off my face, and I explained to them that I'm paralyzed," said Suzanne Pheil, 44, a paraplegic disabled by childhood polio. The pro-pot people had basically been waiting for her to get arrested, punching every phone number on their media list minutes after she was taken away. Pot people, surprisingly, can move pretty fast when they

The bust couldn't have gone better for the pot folks. California attorney general Bill Lockyer fired off an angry letter to DEA chief Asa Hutchinson, who wrote back saying that the law treats marijuana the same as heroin. "During the Clinton years they didn't do this," says Lockyer. "It disappointed me that they would be using precious resources to act like a bunch of bullies." San Jose police chief William Lansdowne was so annoyed by the raid that he withdrew his officers from the local DEA task force, ending 15 years of close work. Even Governor Gray Davis, who has been quiet on the marijuana issue, spoke out against the feds' bust. A week after the raid, Santa Cruz officials gathered at city hall to supervise public distribution of marijuana to members of the Wo/Men's Alliance for Medical Marijuana in front of TV crews, a way to give Washington the finger.

But to many Republicans, this looks like bad politics for Bush. In Nevada, popular Republican Governor Kenny Guinn refuses to take a stand on Question 9, the pot-legalization amendment to the state constitution, saying he'll go with whatever the people vote for. And he won't really have to worry about it for a while, since the constitutional amendment will go into effect only if Nevadans vote yes on Nov. 5 and again in 2004. So Guinn may be smart to stay out of the debate, because the rhetoric from both sides has gone out of control.

The drug czar's latest commercial, which was actually focus-grouped with teens and their parents, shows two teens getting stoned in their father's study, talking apathetically about a bunch of stuff. One



## STIRRING THE POT

States that allow the use of medical marijuana

States with largely symbolic medical marijuana laws (provisions that are dormant or cannot be implemented)

Sources: Marijuana Policy Project, Drug Policy Alliance

dical

States that introduced legislation in the past session that either stalled in committee or did not pass

November ballot initiatives

on medical marijuana

Note: Washington, D.C. and Ohio have ballot initiatives calling for drug treatment instead of jail

pulls out a gun from his dad's drawer, the other asks lazily if it's loaded, and the guntoting teen shrugs and shoots the other kid. The suggestion is not to say too many children are being shot in their dens who are marijuana users," Walters said. "It's meant to show that marijuana alters your ability to use judgment." In the other camp, many of the workers lied to voters in the course of gathering signatures to get Question 9 on the ballot, saying it was a medical-marijuana proposition, according to several pro-pot Nevadans. The two camps even fight regularly about how many joints can be made from 85 g of pot, the proposed legal maximum. The pro-pot people claim 80, while the anti-pot people carry around bags of 250 joints to illustrate their case. Yes, moms across the state are spending large parts of their nights rolling parsley and oregano.

The Marijuana Policy Project in Nevada has a chance partly because it is far better organized than its scattered opposition. The project made a smart move in hiring Billy Rogers, a Democratic political consultant from Texas, to run the Nevada campaign. Rogers' office is situated in a Vegas strip mall, just above an Asian massage par-

lor, which is right next to a children's tutoring center, which is all you need to know to understand why the project is staging this fight in Nevada. The office looks more like a sorority fund drive than a '60s dorm room. Posters drawn by children depict images like a teddy bear with a heart labeled VOTE YES ON 9. Rogers is still at work at 1 a.m., editing a commercial. "In college we'd sit around and talk about this-that when we grew up, we were going to change these laws. And now we're doing it," he says. Rogers, who says he hasn't smoked pot in 15 years, doesn't have a personal connection to the fight, but it's pretty easy to get him into a James Carville mood. When he talks about Walters' oft repeated claim (an assertion shared by the National Institute on Drug Abuse) that marijuana has much higher levels of tetrahydrocannabinol (THC) than it used to, that, in Walters' words, "it's not vour father's marijuana," Rogers goes ballistic. "It's a plant. What-it's not your father's broccoli? Its genetic structure hasn't changed in 30 years," he says, eating steak for a late-night meal. "These guys will say anything. If I had a billion-dollar budget, I'd say anything to stay in business.'

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FIERY ISSUE: Members of a collective get medical marijuana in Santa Cruz, Calif.; a lawman burns an illegal crop in Kentucky

That's one of the major conspiracy theories of the pro-legalization movement-a rant right out of the Eisenhower era, that the government is keeping pot illegal so it can maintain its giant drug-war bureaucracy. Its advocates also believe—as put forth directly in the pro-medical marijuana commercials of billionaire independent New York gubernatorial candidate Tom Golisano-that politicians are in the pocket of the pharmaceutical companies, who fear marijuana is such good medicine that their own products will suffer. The pro-legalization forces also believe, more convincingly, that the right wing of the Republican Party connects drug use with sin and radicalism and the failure of the family. "I've known John Walters for about 10 years, and I don't think this is about drugs for him," says Ethan Nadelmann, head of the Drug Policy Alliance. "John is a reactionary ideologue. It's the broader battle about what we tell kids about life. It's a vehicle for promoting a tougher, meaner approach to life and government.'

Even some Republicans are ready to legalize medical marijuana. Texas Congressman Ron Paul, a doctor and onetime Libertarian Party presidential candidate and a former doctor, has been fighting for medical marijuana. "From a humanitarian standpoint, people should never be denied this kind of help," says Paul. Hutchinson stands behind the decision to prosecute. "Why would they want to authorize behavior under state law that is still a violation of federal law?" says Hutchinson. "It endangers a population, to me. It gives the green light on

the one hand and a go-to-jail ticket on the other."

Among cops and other law enforcers, there are sharp divisions too. Some conservatives, like Joseph D. McNamara, a former San Jose police chief and now a Hoover Institution fellow, call for an end to the criminalization of marijuana. "Most of the police officers I hired during the 15 years I was police chief had tried it," says McNamara. Like many pot legalizers, he believes the system, which he says arrests more people for marijuana than for any other drug, is racist. "Ninety million Americans have tried marijuana. When you look at who's going to jail, it is overwhelmingly disproportionate-it's Latinos and blacks." Even so, the topic is radioactive in the police profession. Andy Anderson, who was head of his state's largest cop organization, the Nevada Conference of Police and Sheriffs, said his board members voted 9-0 to endorse the pro-pot initiative so they could focus on more serious crimes. A few days later, Anderson was forced to resign. The voice for Nevada cops then became Gary Booker, the chief

deputy district attorney in charge of the vehicular-crimes unit, until he told members of the press he thinks Soros is prolegalization because he bankrolls drug cartels. When talking to TIME at the Elks lodge where he introduced the drug czar, Booker said, awkwardly trying to explain away his statement: "The word cartel was used, not drug. A cartel is a group of businessmen who control price, and that's what we've got here. Three or four guys are controlling the thing." He too stepped aside from the role of Nevada police spokesman.

The pro-pot people feel that victoryeven if it comes not this year and not in Nevada-is inevitable: each year there are fewer members of the pre-boomer generation, who tend not to distinguish between heroin and pot. In 1983, only 31% of Americans surveyed had tried pot, while the new TIME/CNN poll puts the figure at 47%. And though pot use among teens is down from its '70s highs, the number of parents who sneak joints when their kids are asleep is a fresh phenomenon. But from polls, the pro-pot forces also know that Americans still cling to pot's forbidden status, which is why their people are working so hard. "You would think you would get a change, but you're not going to," says Charles Whitebread, a law professor at the University of Southern California who has written extensively on marijuana law. "Even though it did nothing to them, the fear that it will somehow pollute their children has made some of the people who used marijuana extremely freely now say, 'Oh, gee, I wouldn't be in favor of the change in the legal status of marijuana." It may be that the major dividing line between the pro- and anti-legalizers is not party affiliation but parental status. And even among parents, moms seem more against pot than dads.

So, barring another wave of '60s-like radicalism or a lot more poorly thought-out paraplegic busts by the feds, Americans' complicated feelings about pot aren't going to be reconciled overnight. And recent studies showing that marijuana can have addictive properties, though in a small percentage of cases, is going to make some parents more nervous about their kids turning into potheads. While alcohol and cigarettes may be more dangerous, a lot of parents would rather smell beer on their kid's breath than have a 29-year-old living at home, eating Cheetos and watching SpongeBob. With reporting by Matt Baron/Chicago, Laura A. Locke/San Francisco, Viveca Novak/Washington and Sean Scully/Los Angeles

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#### **CONTRIBUTORS**

# MEDICAL MARIJUANA BALLOTS CALIFORNIA AND ARIZONA

Arizona Residents contributed a total of \$432,457 to Arizonans for Drug Policy Reform, the group that sponsored Proposition 200. Most of that money came from a single donor, John Sperling, who contributed \$430,000. Interested parties outside the state contributed \$1,085,240 during the same period. The New York office of the Drug Policy Foundation gave \$200,000 to the campaign. Financier George Soros of New York contributed \$430,000. (Soros recently gave the Drug Policy Foundation more than \$10 million.) Peter Lewis of Ohio contributed \$330,000. Total funds raised for the campaign are \$1,517,697.

Californians for Medical Rights, which sponsored Proposition 215, raised \$1,842,902. Proposition 215 will remove criminal penalties and sanctions for the possession or cultivation of unspecified amounts of marijuana for any medical problem "for which marijuana provides relief" if the person has a verbal recommendation from a doctor to use the drug. Of the total amount raised in California during this reporting period, \$311,545 came from California residents, including \$194,750 from the Life AIDS Lobby in Sacramento. Out-of-state residents contributed \$1,442,900. Large contributions came from George Soros of New York (\$550,000), Peter Lewis of Ohio (\$500,000), John Sperling of Arizona (\$200,000), and the Dennis Trading Group of Illinois (\$100,000). Laurance Rockefeller, with no address listed, contributed \$50,000.

The following table summarizes campaign contributions to both state efforts:

Contributor	Arizona	California
In-State Residents	\$ 2,457	\$ 9,795
John Sperling	\$430,000	\$0
Life AIDS Lobby(Sacramento)	\$0	\$194,750
George Zimmer	\$ 0	\$50,000
Marsha Rosenbaum	\$0	\$25,000
Alameda Medical Marijuana	\$ 0	\$19,500
PAC		
Gail Zappa	\$0	\$5,000
Tara Foundation	\$0	\$5,000
Ellen Rosenbaum	\$0	\$2,500
Total In-State	\$432,457	\$311,545
Out-of-State Residents	\$240	\$1,900
Drug Policy Foundation, D.C.	\$200,000	\$0
George Soros, New York	\$430,000	\$550,000
Peter Lewis, Ohio	\$330,000	\$500,000
John Sperling, Arizona	\$ 0	\$200,000
Social Policy Forum, D.C.	\$100,000	\$0
Dennis Trading Group, Illinois	\$0	\$100,000
Laurance Rockefeller	\$ 0	\$50,000
James Edward Zimmer, Texas	\$0	\$25,000
Richland Hills Company, Florida	\$ 0	\$10,000
Ποπα		

## Drug Free Australia

## **EVIDENCE**

Richard Wolf, Florida	\$25,000	\$5,000
Robert W. Hail, Nevada	\$0	\$1,000
Total Out-of-State	\$1,085,240	\$1,442,900
Contributions Less Than \$100	\$0	\$12,962
Loans, In-Kind Contributions	\$0	\$75,495
Total Contributions	\$1,517,697	\$1,842,902

## Defeat of Legalisation Lobby Initiatives in the United States December 2002

**They Just Said No** 

By Jim McDonough

Source: Washington Times <a href="http://www.washtimes.com/">http://www.washtimes.com/</a>

Among the seismic shifts of Nov. 5 was the quashing of a phalanx of pro-drug electoral ruses. A well-financed, meticulously organized nationwide effort by advocates of drug decriminalization went down to stinging defeat in a number of state contests.

- \* Nevada voters rejected (61 percent) an effort to legalize the sale and use of three ounces or less of Marijuana.
- \* Ohio voters rejected (67 percent) a so-called right-to-drug-treatment initiative that would have been a decriminalization of drug use.
- \* Arizona voters rejected (57 percent) a proposal advancing so-called "medical" marijuana smoking.
- \* South Dakotans rejected (63 percent) a proposal to legalize, process, and market hemp.

The debacle for the legalization movement was even more disastrous than election day implied. Earlier in the year, the "reform" movement withdrew in disarray from Florida after a year of heavy spending, having failed to obtain more than 20 percent of the signatures necessary to put a mislabeled "right to treatment" amendment on the ballot. Interestingly, the entire treatment community in Florida rejected this thinly camouflaged

decriminalization overture, and Florida's governor had already increased funding for genuine treatment by 60 percent over the prior three years.

Meanwhile, in Michigan, where the decriminalization cabal had purchased the requisite signatures to advance another right to treatment initiative, the Michigan Supreme Court correctly spotted technical errors in the proposal's wording and barred it from the ballot. Despite a massive and organized effort, a high-financed campaign (outspending the opposition 12-1 in Nevada, 4-1 in Ohio, etc.) could not effect one state law that would have weakened existing anti-drug laws.

The legalizers were reduced to city fighting (i.e., Washington - where the initiative remains unfunded; San Francisco, etc.). The net result was a broad-based rejection of the drug normalization campaign begun in the mid-1990s.

### Drug Free Australia

#### **EVIDENCE**

Beginning in 1996 in the nation's West, drug decriminalization advocates found the opening that they had long sought to wage a "war on the war on drugs." Perceiving a political opening created by a supposed sense of exhaustion on the part of an uninformed public, a trio of wealthy social gadflies (financier George Soros, businessman John Sperling and insurance maven Peter Lewis) teamed well-heeled brain trusts with street soldiers readily available from the old pro-drug movement to establish a beachhead in the nation's political and legal system by over-running dispirited and under-funded, and over-worked "outposts" of law enforcement, social health organizations, and public officials.

Advancing boldly into America's heartland in 2001 with their marijuana and right to treatment initiatives, the drug legalizers now find their new offensive smashed, perhaps irretrievably. How did this happen? They ran into a broad resistance movement by an emerging national coalition of grass-roots prevention, education and treatment specialists allied with concerned parents, neighborhood leaders and public officials dedicated to halting the spread of illicit drug use.

Although the anti-drug coalitions were outspent everywhere by the pro-drug crowd, fundamental truths combined with passion and conviction to trump a large campaign chest.

The tactics of the National Organization for the Reform of Marijuana Laws - use opinion polling to craft "acceptable" initiatives, convince the mass of voters that they are wrong to oppose legalization, approach drug legalization incrementally, line up a string of victories, invoke "medical" sympathy, exaggerate numbers of "peaceful" pot smokers behind bars, and so on - failed. They failed because legalizers based their campaign on the flawed premise that a gullible electorate could be misled by smoke and mirrors.

In the end, the mirrors cracked and the smoke cleared: No medicine is smoked; only a handful of "peaceful" marijuana users end up with a prison sentence (e.g., 0.14 percent of the Florida prison system, or 107 out of 74,000 - and each of them a plea bargain); the overwhelming harm is done by the drugs, not the laws to protect against them. The barrage of lies and half-truths backfired, and the voters voted accordingly.

No wonder Rob Kampia, the head of the Marijuana Policy Project, admitted the morning after the election that he could not try "to dress up a pig" (in his words). They had tried that for too long - and it no longer worked. They vow to come back next time. But if camouflage, incrementalism and exaggeration continue to fail, they will find it hard to overcome the innate good sense of the American voter.

Jim McDonough is the director of the Florida Office of Drug Control. He previously served as director of strategic planning at the Office of National Drug Control Policy.

Source: Washington Times (DC)

Author: Jim McDonough Published: November 26, 2002

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Website: <a href="http://www.washtimes.com/">http://www.washtimes.com/>

Contact: letters@washingtontimes.com <mailto:letters@washingtontimes.com>

#### APPENDIX C

## Recommendations of the NSW Working Party on the Use of Cannabis for Medicinal Purposes

#### Recommendation 1

While recognising the limitations of currently available pharmaceutical preparations of cannabinoids, the Working Party recommends that they should be subject to further clinical trials of safety and efficacy as described below.

#### Recommendation 2

The Working Party recommends that the New South Wales Government through the Australian Health Ministers' Forum explore avenues for greater flexibility in new medication registration by the TGA based on the clinical needs of special populations.

#### Recommendation 3

The Working Party recommends that the Government consider funding or otherwise facilitating surveys of current medical users of cannabis and their carers to obtain an indication of how many persons are at risk of criminal prosecution for medical use of cannabis.

#### **Recommendation 4**

The Working Party recommends that the Government consider funding or otherwise facilitating surveys of potential medical users of cannabis and cannabinoids to obtain an indication of how many persons would wish to use cannabinoids for medical purposes under a more favourable regulatory regime.

#### Recommendation 5

The Working Party recommends that randomised controlled clinical trials, and controlled studies in individual patients, be conducted on the therapeutic efficacy of cannabis and cannabinoids.

#### Recommendation 6

It urges the NSW government to consider funding or otherwise facilitating research for this purpose.

#### Recommendation 7

The Working Party recommends that the NSW Drugs Misuse and Trafficking Act 1985 be amended to ensure that there are no legal obstacles to the conduct of such trials.

#### **Recommendation 8**

That additional research be conducted into the basic chemistry and pharmacology of cannabinoids with the aim of developing cannabinoids that have therapeutic effects and that may be delivered more safely and effectively than by smoking cannabis.

Such research could be undertaken through the following avenues:

- either investigator-initiated or proposal requests from the National Health and Medical
- Research Council peer-reviewed system;
- funding from the Ministerial Council on Drug Strategy/ Intergovernmental Committee on Drugs;
- small grants provided by the State government for researchers to develop more detailed
- proposals to be funded through mechanisms for peer-reviewed research.

## Drug Free Australia

#### **EVIDENCE**

#### Recommendation 9

The Working Party is in sympathy with the motivation and spirit of the recommendations in the Institute of Medicine and House of Lords reports. Accordingly, it recommends the introduction in NSW of a compassionate regime to assist those suffering from the range of illnesses identified above to gain the benefits associated with the use of cannabis without facing criminal sanctions, pending the development of safer and more efficient methods to deliver cannabinoids.

#### **Recommendation 10**

That the Government consider licensing the supply, including the importation, of cannabis, but only for the purposes of the clinical trials proposed in Recommendation 5.

#### Recommendation 11

That a person should not be prosecuted if they have the prior medical certification from an accredited medical practitioner that they suffer from a medical condition that may benefit from cannabis use.

#### **Recommendation 12**

That the onus be placed on the medical user of cannabis plant material to establish evidence of medical certification before use.

#### **Recommendation 13**

That the conditions included under this certification should be:

- HIV-related wasting and cancer-related wasting;
- pain unrelieved by conventional treatments;
- neurological disorders including (but not limited to) multiple sclerosis, Tourette's syndrome,
- and motor neurone disease;
- nausea and vomiting in cancer patients undergoing chemotherapy which does not respond to conventional treatments.

That, as this list may need to be amended in the light of further medical research, it should be specified by regulation rather than by primary legislation.

#### **Recommendation 14**

That certification be extended to the possession and use of small amounts of cannabis for medical use by patients.

#### **Recommendation 15**

That the "small" amount of cannabis for the possession and use exemption should correspond to the small amount in the NSW Drugs Misuse and Trafficking Act 1985. At present this is 30 grams of cannabis leaf, 5 grams of cannabis resin, and 2 grams of cannabis oil.

#### **Recommendation 16**

That certification be extended to the growing of small amounts of cannabis for medical use by patients in their own homes.

#### **Recommendation 17**

That, although the "small" amount of cannabis, as defined under the Drugs Misuse and Trafficking Act is five plants, consideration be given to lowering this limit for medical certification by allowing cultivation of up to five plants under 25 cm but only two above that height.

#### **Recommendation 18**

That no consideration should be given to altering the law to allow "compassion clubs" to operate legally.

#### **Recommendation 19**

That the possession, supply, administration and cultivation of cannabis for personal medical use by patients with one of the specified conditions only be considered lawful if the patient possesses a

certificate to this effect from an accredited medical practitioner; and that this certificate should be renewed every six months.

#### **Recommendation 20**

That "accredited medical practitioners" be trained in the following.

- 1. Certification of patients with:
  - HIV- or cancer-related wasting;
  - nausea secondary to chemotherapy that is unresponsive to conventional treatments;
  - neurological disorders such as multiple sclerosis;
  - pain that is unresponsive to conventional treatment.
- Counselling patients about the health risks of cannabis smoking.

#### **Recommendation 21**

That legislative safeguards be established to ensure that no civil or criminal liability is incurred by any person authorised to medically certify cannabis, or assist in the proper medical certification of cannabis for recognised therapeutic purposes, if the certifier had reasonable grounds to believe that the patients had given informed consent.

#### **Recommendation 22**

That certification which renders lawful the possession, supply, administration and cultivation of cannabis be extended to carers of patients who are too ill or debilitated to obtain cannabis or to cultivate cannabis plants for their own use, as long as stringent criteria for extending this certification are met.

#### **Recommendation 23**

That, if the recommendations in this report are adopted, the NSW Government conduct educational campaigns to inform the following people:

- patients who may qualify for certification;
- medical practitioners;
- the public in general.

of the benefits and possible risks of cannabis use for medical purposes, and of the implications of any legislative changes which may have to be introduced.

#### **Recommendation 24**

That the Government consult with patients, carers, prescribers and other affected parties on the proposed changes and conduct a formal evaluation of the operation of the legislation after a trial period of two years.