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IDENTIFYING THE MARIHUANA USER

by

Forest S. Tennant, Jr., M.D., Dr. P.H.

Veract, Inc.

Dedicated To The
California Highway Patrol
Who Have Been The
Inspiration For This Handbook

1ST EDITION OF THIS MANUAL – JUNE, 1986

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NOTE FROM THE AUTHOR

This is one of a series of manuals on specific drugs which are abused and/or may cause dependence. Much of it is based on observations made on my patients who have drug problems and from personal research studies. Since research on drug abuse is a relatively new field of endeavor, one can expect future changes in some of the information presented here. I have attempted to give the reader the most current information. As new information becomes available these manuals will be updated.

ABOUT THE AUTHOR

- Executive Director
  Community Health Projects, Inc.

- Associate Professor
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- Drug Abuse Consultant
  Los Angeles Dodgers
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- Training Consultant
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  California Narcotic Addict
  Evaluation Authority
  California Highway Patrol

- Drug Abuse Advisory Committee
  U.S. Food and Drug Administration

- Author of over 150 articles and books
  on drug dependence

INDEX

INDEX (Continued)

INDEX (Continued)

SECTION I
BACKGROUND ON MARIHUANA USE

PURPOSE AND INTRODUCTION

- This manual is for law enforcement, medical, correctional, legal, and mental health professionals, as well as employers, teachers, and parents who must competently and accurately identify a drug user in his/her various stages of use.

- Much of the information given here comes from observations and studies conducted with drug users who have been treated in the author's facilities.

- This is the first edition of this manual. It will be updated when enough new information warrants it.

- The format of this manual is intended to help the reader to rapidly review the material, and to be used as a quick reference guide.

- Some material is presented in detailed tables to provide answers to specific questions.

- This manual was written in collaboration with many experienced drug abuse clinicians in order to provide as much scientific accuracy as possible.

- A list of scientific references is provided because there is considerable research that gives the scientific grounding for the identification procedures described here.

THREE CATEGORIES OF IDENTIFICATION

1. ***Acute Marihuana Influence***
   This category is of the most interest to law enforcement and medical personnel who must determine which drug someone has recently taken. For example, identification of the acute user is especially applicable when a person is publicly intoxicated, obviously sedated, driving poorly, or has had an accident or injury.

2 ***Chronic and Covert Marihuana Use***
This category is of great interest to employers, teachers and parents, who must recognize the covert or non-obvious user. For example, this situation is applicable to a person who is performing poorly in work or in school, behaving abnormally, or who has certain specific medical symptoms.

3 ***Marihuana Addiction or Dependence***
This category is of most interest to medical, penal, and mental health personnel who must determine if addiction or dependence is present and must be medically treated. For example, this situation is applicable to a person who is admitted to a penal or medical institution, and a decision must be made whether medical withdrawal treatment is necessary.

WHAT IS MARIHUANA?

- Marihuana is the plant, Cannabis sativa.
- Hashish is the resin from Cannabis sativa. It is becoming more popular in the United States.
- The active ingredient in marihuana is delta-9-tetrahydrocannabinol (THC).
- THC is used medicinally to help relieve nausea and vomiting produced by anti-cancer drugs. THC is taken as a capsule or tablet when used for medical purposes.

HOW IS MARIHUANA USED?

- It is usually smoked as a cigarette or joint
- Hashish is smoked in a pipe.

POTENCY AND HAZARDS OF TODAY'S MARIHUANA

- Beginning in about 1983, the potency of the marijuana sold in the United States dramatically increased from 1-2% THC to 5-15% THC content. Some areas report a 27% THC level in marihuana.
- The increase in potency has made today's marihuana much more hazardous relative to causing impairment, addiction, and medical complications.
- Many persons in the United States have had personal experiences or have observed other persons during the 1960's and 1970's who smoked marihuana joints containing 1-2% THC. These persons are still under the impression that marihuana is quite harmless due to these experiences, and are not aware of the differences in marihuana today.
- Although the potency difference between 1 and 10% marihuana is a mathematical difference of only 9%, the human brain recognizes this as a 900% difference.
- In the late 1960's and early 1970's, the author observed that U.S. Army soldiers in Europe and Vietnam who smoked potent marihuana and hashish developed many medical complications. The same medical problems are now being observed in the United States in persons using marihuana.
- The high potency marihuana now being smoked is responsible for many accidents, injuries, addiction, and health complications. This new development is the primary reason this handbook has been developed.

HOW DOES MARIHUANA WORK IN THE BODY?

- The THC that is smoked partially changes into two other compounds after it enters the human blood stream. These two compounds are chemically known as 11-hydroxy-$\triangle$9-tetrahydrocannabinol (OH-THC) and 11-Nor$\triangle$9-tetrahydrocannabinol-9-carboxylic acid (C-THC).
- THC is detectable in the human blood stream (plasma) for only about two hours. It produces euphoria and may cause visual, mental, and muscle (motor) impairment during this time period. OH-THC stays in the plasma 4 to 6 hours and may cause a small amount of euphoria. Depending on the amount smoked, C-THC may remain in the plasma for as long as 3 to 6 days. It causes no euphoria but may produce visual, mental and motor impairment. Consequently, users have no perception that they may be impaired.
- C-THC stays in human plasma for so long because it is lipophillic or fat-soluble. It goes into fatty tissue and "sticks" until it is released back into the plasma. Because of the fat-solubility of C-THC, it can be found in the urine for many days after one has stopped smoking marihuana. C-THC has been found in urine for up to about 45 days in chronic or addicted marihuana users.

SUMMARY OF MARIHUANA METABOLITES

Metabolite	Approximate Length of Time in Plasma	Causes Euphoria	Causes Visual, Mental, and Motor Impairment
THC	2-3 hours	Yes	Yes
OH-THC	4-6 hours	Mild, if any	Yes
C-THC	3-6 days	No	Yes

EVIDENCE OF IMPAIRMENT

- A study at Stanford University in California was done with 10 licensed, commercial pilots who smoked a marihuana joint and then were tested on a flight simulator 24 hours later. Pilots made landing errors and one even missed the runway!
- The author has detected strabismus of the eye (non-convergence) and non-or slow-reacting pupils up to one week after chronic marihuana smoking was stopped. These findings were present as long as C-THC was detected in the plasma.
- Due to new research, it is clear that one may remain legally and medically under the influence of marihuana for up to a few days after smoking it.

EFFECT OF MARIHUANA ON NEUROTRANSMITTERS AND THE IMMUNE SYSTEM

- Many controlled research studies have shown that marihuana has both stimulant and sedative effects on the body. Until recently, the cause of this has not been understood. Marihuana has been shown to reduce levels of the body's internal stimulant, norepinephrine, and the body's internal opioid, endorphin.
- These findings help explain why marihuana smoking causes an increase in pulse rate and blood pressure while at the same time may produce muscle relaxation, slow speech and sedation. In simple terms, marihuana has many of the simultaneous, combined effects of cocaine and heroin.
- The sex hormones, follicle stimulating hormone and luteinizing hormone, may be suppressed by chronic marihuana use.
- It is marihuana's effects on neurotransmitters, neurohormones, and the immune system that provide many of the physical signs and behaviors that allow for the medical and legal identification of acute and chronic marihuana use.

WHO ABUSES MARIHUANA?

- Marihuana was once known as a drug for the college student. Its use is now widespread in all age groups and socioeconomic classes. Today most users start using marihuana in their early teenage years, but use below age 10 years is not uncommon.
- Recent surveys of high school seniors in the United States reveal that as many as 60-70% have reportedly tried marihuana at least one time and about 5 to 7% report daily use.

- Drug addicts of various types frequently use marihuana as a second drug. This is particularly common in cocaine, amphetamine, and phencyclidine (PCP) addicts.
- Persons with the underlying psychiatric disorders of depression and schizophrenia often find marihuana particularly desirable.
- Most marihuana users are also cigarette smokers.

GENERAL PATTERNS OF MARIHUANA USE

Classification	Usual Frequency of Use	Chief Characteristic
Intermittent or occasional	1 to 4 times per month	Sometimes called social, casual, or "recreational" users. Also used to control stress.
Binge	Every few hours for a short period.	A great amount used in a short time period (weekend or evening)
Addiction or dependence	Type 1—6 to 12 times per day	Probably dependent upon THC or OH-THC. Withdrawal symptoms begin the day of cessation (when THC or OH-THC leaves the blood stream).
	Type 2—Daily or every other day	Probably dependent upon C-THC Withdrawal symptoms occur about three days after cessation (when C-THC leaves the blood stream)

SECTION II

IDENTIFICATION OF ACUTE MARIHUANA INFLUENCE

ACUTE EFFECTS OF MARIHUANA

- Marihuana has four basic effects, although all four may not exist in one person at the same time.

Stimulation
- Increase in Pulse Rate
- Increase in Temperature
- Increase in Blood Pressure
- Decreased Attention Span
- Sweating
- Craving for Sweets
- Mood Elevation
- Poor Concentration

Sedation / Muscle Relaxation
- Droopy Eyelid
- Strabismus (non-convergence)
- Slow or Non-reactive Pupil
- Inability to Maintain Pupil Constriction
- Giggly or Giddy
- Visual-Perception Disturbance
- Poor Muscle Coordination
- Mouth-Breather (dry lips/mouth)
- Slow Gait
- Poor Balance
- Sleepy Appearance
- Slow Speech

Anesthesia/Analgesia
- Pain Relief
- Increased Hearing Threshold
- Memory Loss
- Time Distortion

Hallucinogenic
(Usually only with high doses or combined with other drugs)
- Hallucinations
- Paranoia
- Delusion

- Marihuana is commonly used with alcohol (a sedative), cocaine (a stimulant), PCP, or other drug which may potentiate some of its effects and reactions.

- Most of these effects last about 2 to 5 hours after smoking marihuana. Some effects, particularly vision, motor and mental may last for more than 24 hours, depending on the dosage taken.

GENERAL PHYSICAL AND BEHAVIORAL SIGNS OF ACUTE DRUG INFLUENCE

- All psychoactive drugs, when consumed in a high enough dose, will produce abnormal physical and behavioral signs in an individual who is not tolerant to the drug. Many of these signs are generic in that they are similar regardless of which drug, including marihuana, is taken. For example, a common misconception is that stimulants and sedatives cause very different acute physical and behavioral signs. Although there are some specific differences in the acute drug effects of stimulants and sedatives, both classes of drugs produce many identical symptoms. More importantly, low and high dosages of the same drug may produce different signs and symptoms. The degree of tolerance that a user may have will also influence symptoms. Further, persons in withdrawal from a stimulant, e.g., cocaine, may exhibit symptoms associated with the acute use of a sedative, e.g. heroin and vice versa.

- A problem in the physical examination and evaluation of the drug user is that the evaluator may not know the terminology to apply to what he/she observes. Listed here are a number of terms which may be used to describe the various generic symptoms and behaviors that are commonly observed with most types of acute drug influence, including acute marihuana influence.

- It is not essential that the evaluator or examiner memorize or even be able to recognize all of the signs and symptoms listed here to make a proper medical and legal diagnosis. The presence of only some of the following, when combined with laboratory confirmation of body fluid, (i.e. blood or urine) is sufficient to make a medical and legal diagnosis of acute drug influence.

TABLE OF GENERAL SIGNS AND SYMPTOMS FOUND IN ACUTE DRUG INFLUENCE

Accommodating
Agitated
Aggressive
Alert
Angry
Anesthetized
Anorexic
Anxious
Antagonistic
Antisocial
Argumentative
Befuddled
Belligerent
Bizarre
Boisterous
Bubbling
Cautious
Cocky
Combative
Confused
Contentious
Contradictive
Dazed
Deliberate
Denies
Depressed
Disheveled
Disjointed Speech
Disoriented
Distracted
Drowsy
Eager
Erratic
Euphoric
Evasive
Excited
Expressionless
Flat
Forgetful
Giddy
Giggly
Happy
Hesitant
Hostile
Hyperactive
Hysterical
Impatient
Inappropriate
Inattentive
Incoherent
Inconsistent
Indecisive
Indifferent
Irrational
Irritable
Insolent
Intoxicated
Jittery
Jovial
Jumbled Speech
Laughing
Lethargic
Loud
Mellow
Monotone
Moody
Mute
Nervous
Non-responsive
Non-communicative
Obstreperous
Over-confident
Paranoid
Passive
Persnickety
Pesky
Rambling
Redundant
Relaxed
Remorseful
Repetitive
Resistive
Restless
Rigid
Ruffled
Sedated
Silly
Sleepy
Sluggish
Somnolent
Stumbling
Stuperous
Subdued
Submissive
Talkative
Tense
Uncertain
Uncooperative
Uneasy
Uncaring
Unconcerned
Unkempt
Unresponsive
Unsteady
Violent
Withdrawn

NOTE. Some of these terms mean the same thing and there may be other terms that are acceptable.

PHYSICAL EVALUATION/EXAMINATION OF A PERSON SUSPECTED OF ACUTE MARIHUANA INFLUENCE

- Below is a list of physical evaluation procedures to be used when a person is suspected of acute marihuana influence. It is not necessary to do every procedure to make a correct medical and legal identification. Most of these procedures can be done by a non-medical person:
  1. Listen for speech rate.
  2. Observe gait and balance.
  3. Look for sleepy apparance, droopy eyelids, mouth breathing, dry lips, and green tongue.
  4. Smell for odor of alcohol and marihuana.
  5. Assess responses for attention span, concentration, and giddiness.
  6. Assess depth perception by asking person to estimate a distance.
  7. Examine eyes for droopy eyelid, pupil reaction, strabismus (non-convergence), and redness.
  8. Determine muscle coordination and balance by finger-to finger, finger-to-nose, step test, and/or one leg balance-count test (divided attention)
  9. Take pulse, blood pressure, and respiratory rate.
  10. Feel skin for sweating and tremor.
  11. Note if hallucinations, delusions, or paranoia is present.
  12. Instruct to give correct time, date, and place.
  13. Observe for general physical and behavorial signs of acute drug influence (see previous table)

LEGAL DIAGNOSIS OF DRUG INFLUENCE

- The elements required to make a ***legal*** diagnosis of acute drug influence are well established in case law. Furthermore, the elements are identical to the ***medical*** diagnosis of acute drug influence. Put simply, the elements required for a proper diagnosis of acute drug influence are the same in a medical clinic, emergency room, work place, police department, or on a highway. There are three basic elements required to make a medical and legal diagnosis.
  1. Reason to investigate further
  2. Physical evidence
  3. Laboratory confirmation

Professionals may differ in the terms that they use to describe the three elements. Some of the terms are listed here.

- **ELEMENT NO. 1 — Reason to Investigate Further**

Some Common Descriptive Terms	Some Common Reasons
Probable Cause (Law Enforcement) Just or "For" Cause (Industry) Reasonable Suspicion (Industry) Index of Suspicion (Medicine)	accident, injury, illegal activity, improper driving, abnormal behavior, psychosis, absenteeism, walk or talk

- **ELEMENT NO. 2 — Physical Evidence**

Some Common Descriptive Terms	Some Common Evidence
Supporting Evidence (Legal) Specific Objective Facts (Legal) Abnormal Physical Finding (Medicine)	abnormal walk, speech, balance, visual perception, blood pressure, pulse, mental state, eye signs, mental response.

- **ELEMENT NO. 3 — Laboratory Confirmation**

Sometimes called "essential evidence," this element requires that the drug be found in a body fluid which can be blood, urine, breath, saliva, eye fluid (vitreous), hair, or feces. Urine is the most common fluid that is analyzed with blood ranking second. Alcohol is usually measured in breath.

LABORATORY FINDINGS AND CORRELATIONS WITH DEGREE OF ACUTE INFLUENCE

Only in the case of alcohol does the body fluid concentration reflect any predictable degree of impairment of acute influence. Most states use a blood alcohol concentration of 100mg/100 ml, or .10 mg% as the legal criteria for acute alcohol influence because this level is known to cause significant physical impairment in persons who are not tolerant to alcohol. At this time, it is not scientifically possible to determine the degree of acute influence or impairment by the concentration of other drugs of abuse present in blood or urine. Therefore, qualitiative, not

quantitative urine and blood tests are the most appropriate to confirm a diagnosis of acute influence of marihuana, cocaine, heroin, amphetamines, and phencyclidine. It is also emphasized that the presence of abnormal physical signs, symptoms, and behaviors are the primary determinants of acute influence — not the laboratory test, which is only capable of confirmation.

LEGAL DIAGNOSIS OF ACUTE MARIHUANA INFLUENCE

- Recommended criteria are listed here for the medical and legal diagnosis of acute marihuana influence. Note that all three elements as described above are included.

- **ELEMENT NO. 1 — Reason to Investigate Further**
  One of the Following Must be Present

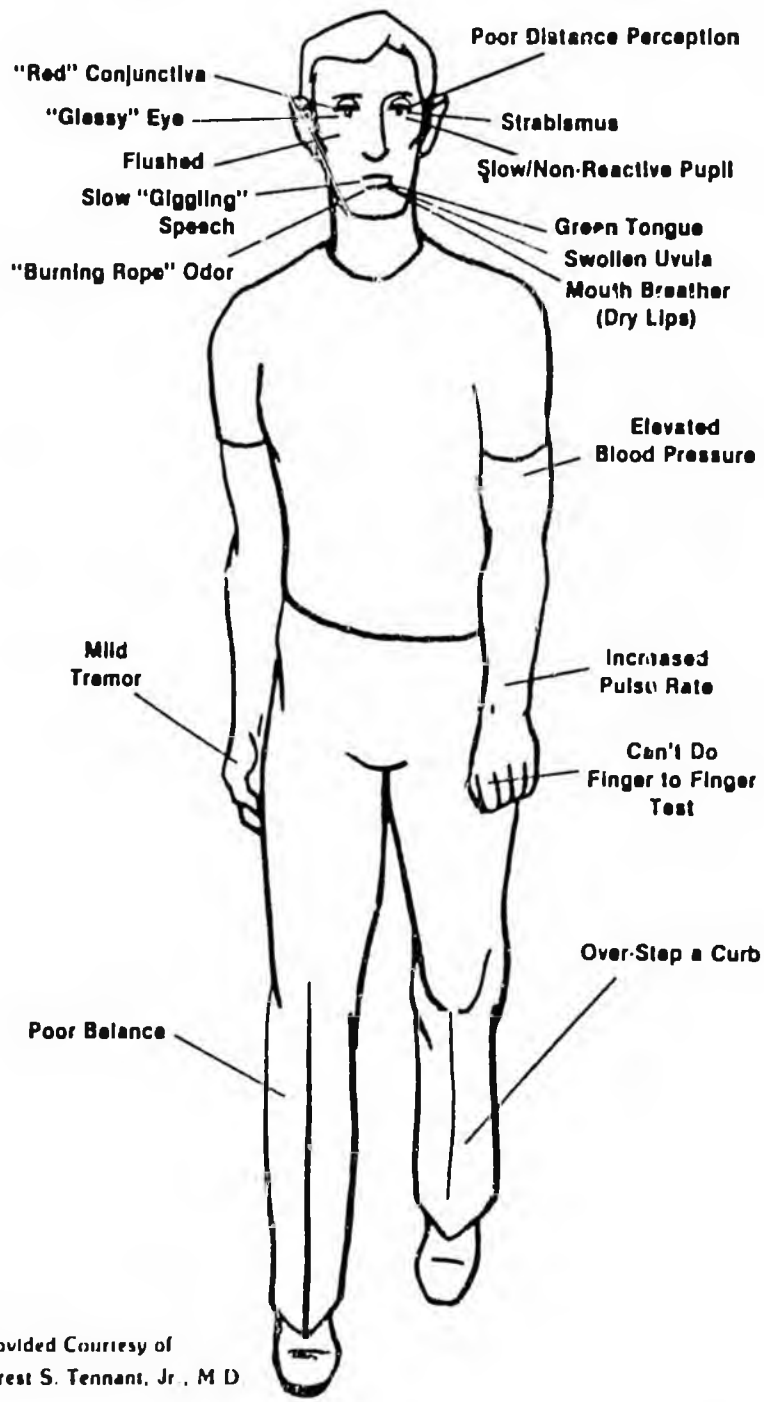
Accident
Injury
Illegal Activity
Recurrent Infections/Illness
Progressive Change in Mood, Mental Ability, or Memory
Deterioration of Work or School Performance
Psychiatric Symptoms
Abnormal Gait or Speech
Improper Driving
Sudden Disappearance from Work/Home
Other Unusual Behavior
Smell of Marihuana Smoke

ELEMENT NO. 2 — Physical Evidence — Supporting Evidence
Two or More of the Following Must Be Present

Slow or Non-Reacting Pupil
Pupil Cannot Hold Constriction in Direct Light
(Rebound Dilation)
Strabismus (Non-Convergence)
Abnormal Walk or Stumbling
Green Tongue
Elevated Pulse
Slow or Slurred Speech
Abnormal Finger-to-Finger Test
Unattentive or Unresponsive to Questions
Does Not Know Current Time, Date, or Place
Inappropriate Laughter or Giggling
Other Acute General Influence Signs (See Table on page 8)
Red Eye (Sclera)
Dilated Pupil
Droopy Eyelid
Mouth Breathing and Dry Lips
Abnormal Distance Perception
Elevated Blood Pressure
Abnormal Divided-Attention Test
(One Leg-Count Test)
Poor Balance/Coordination
Excess Sweating
Tremor
Abnormal Step Test

ELEMENT NO. 3 —
Laboratory Confirmation — Essential Evidence
Presence of marihuana metabolite in urine, blood, or saliva.

Physical Signs of a Non-Tolerant Person Under Marihuana Influence



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Psychiatric Symptoms
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Smell of Marihuana Smoke

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Excess Sweating
Tremor
Abnormal Step Test

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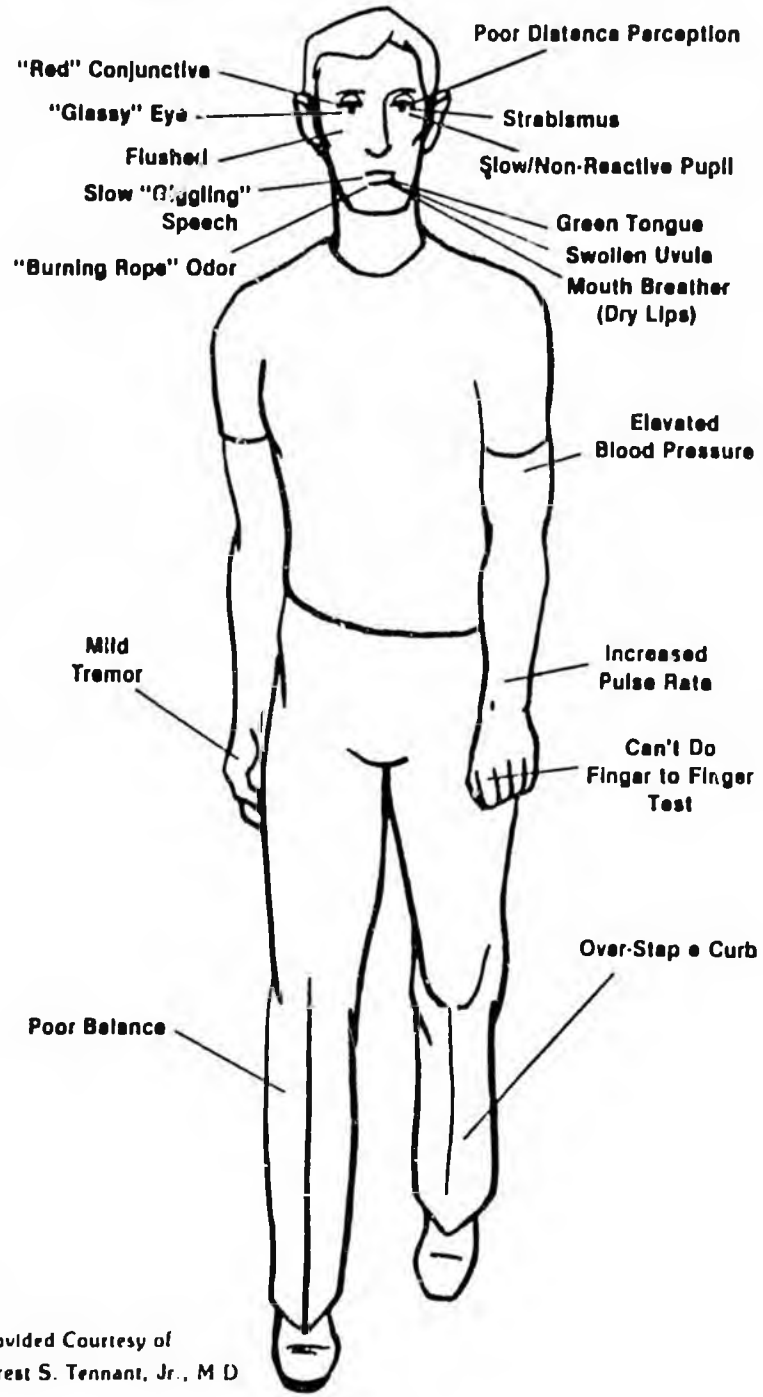
Presence of marihuana metabolite in urine, blood, or saliva.

Physical Signs of a Non-Tolerant Person Under Marihuana Influence



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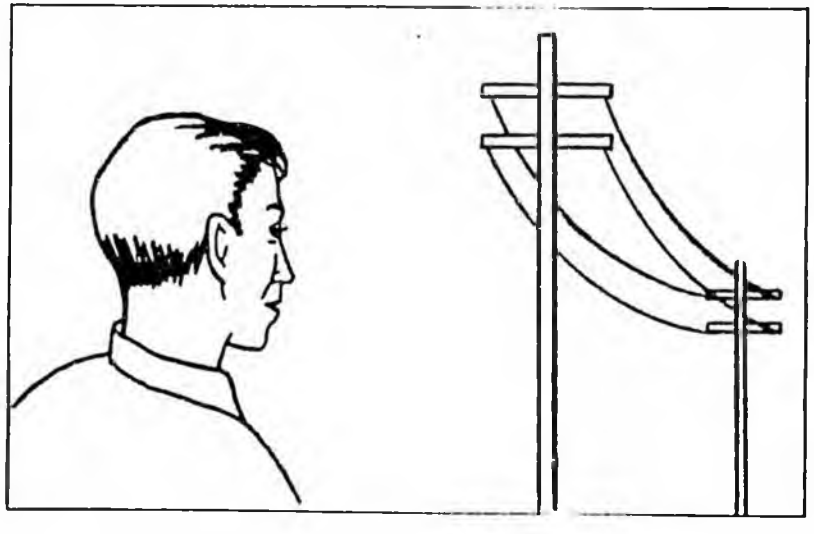
SPECIFIC PHYSICAL TESTS FOR ACUTE MARIHUANA INFLUENCE

Physical tests can be conducted which demonstrate evidence of acute marihuana influence. These tests access one or more of the basic physical determinants of drug influence, i.e., perception, balance, coordination, and attention span. Not all of these tests need to be positive to establish the diagnosis of acute influence. Seldom are all the tests abnormal at the same time. Not all of these tests need to be done to establish a diagnosis of acute marihuana influence. In addition, there may be other tests or variants of these which can be utilized since the object of the physical tests is to document that marihuana is present in the body and that it is producing some physical effect.

Test #1 — Distance Perception Test

Procedure: Ask how far away an object is, such as a wall, telephone pole, etc.



Normal
Can estimate distance

Abnormal
Estimate is off 20% or more

Test #2 — Step Test

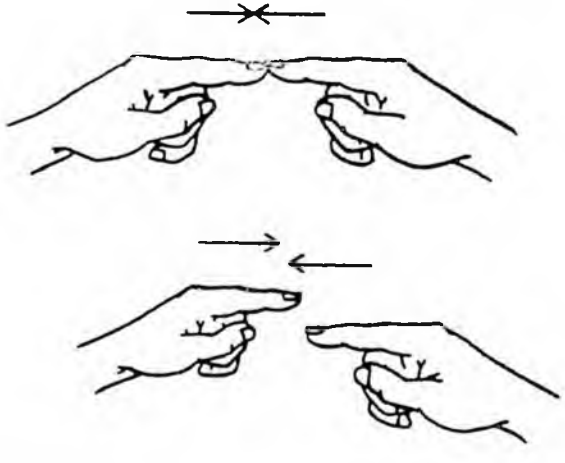
Procedure: Have subject attempt to step up a curb or stairs.

Normal
Can step up accurately

Abnormal
Over-steps or under-reaches

Test #3 — Finger-to-Finger Test

Procedure: With eyes open and arms extended, have the subject touch his index fingers. Then have subject shut his eyes and again try to touch his index fingers.



Normal
Less than 2" off and usually in a vertical plane

Abnormal
More than 2" off and usually in a horizontal plane

Test #4 — One Leg-Count-Balance Test (Divided Attention)

Procedure: Have subject stand on one leg, close eyes, and count to 10.

Normal	Abnormal
Can accomplish	Cannot stand on one leg and complete the count

Test #5 — Strabismus or Non-Convergence Test

Procedure: Ask subject to focus eyes on a finger or object at the end of the subject's nose.

Normal	Abnormal
Can "cross eyes" and gaze at object	One or both eyes will be unable to converge and will drift outward

Test #6 — Time Test

Procedure: Ask subject what time it is.

Normal	Abnormal
Will know correct time	Will be off at least 15 to 30 minutes

Test #7 — Pupillary Reaction

Procedure (A): Shine a light on the pupil and quickly remove it. Observe reaction. Then shine the light on the pupil to see if the pupil can maintain its constriction.

Normal	Abnormal
Pupil rapidly reacts. With constant light it will maintain constriction for at least 5 to 10 seconds.	Pupil reacts slowly or not at all. With constant light, the pupil will not hold its constriction and will dilate to its original size or slightly bigger (rebound dilation)

Procedure (B): Measure pupil size in room light and then put individual in darkness for five minutes.

Normal	Abnormal
Pupil will dilate	Pupil will not dilate

CHANGES IN VITAL SIGNS WITH ACUTE MARIHUANA INFLUENCE

Marihuana has stimulant properties due to its effects on norepinephrine. Consequently, vital signs may show stimulatory effects.

PUPIL SIZE —	Over 5.0 mm in diameter
PULSE —	Over 100 beats per minute (Normal - 72/minute)
BLOOD PRESSURE —	Systolic over 140 mm Hg (Normal - 120 mm Hg) Diastolic over 100 mm Hg (Normal - 90 mm Hg)
RESPIRATORY RATE —	Over 25 respirations per minute (Normal - 20/minute)
TEMPERATURE —	Over 100°F (Normal 98.6°F)
SPECIAL NOTE:	If two of the above are present and there is marihuana derivative in plasma, urine, or saliva, acute marihuana influence should be considered to be present

VISION EFFECTS WITH MARIHUANA

There is growing evidence that some eye abnormalities and possibly other neuro-muscular effects are present as long as marihuana's long-acting metabolite, C-THC, remains in the blood stream (plasma). Basically this means that marihuana may produce impairment and meet the criteria for acute influence for possbily as long as three to six days after the last dose of marihuana. For example, a study was conducted at Stanford University in which ten licensed pilots were given a marihuana joint containing 19 mg of THC. Twenty four hours later they were tested on a flight simulator, and all made landing errors, including one pilot who missed the runway. Other examples of vision effects of marihuana include numerous drivers driving erratically who are routinely arrested by the California Highway Patrol. Upon examination they show eye findings of strabismus and slow or non-reactive pupil but claim to have not smoked marihuana for three to four days. However, they show marihuana metabolite in their urine but no evidence of alcohol or other drug use.

The author has now studied some chronic marihuana users to correlate eye and other physical abnormalities with the presence of C-THC in plasma. Although strabismus (non-convergence) and slow, or non-reactive pupils were not present in every user, they were found in some marihuana users 3 to 6 days after they claimed to have ceased

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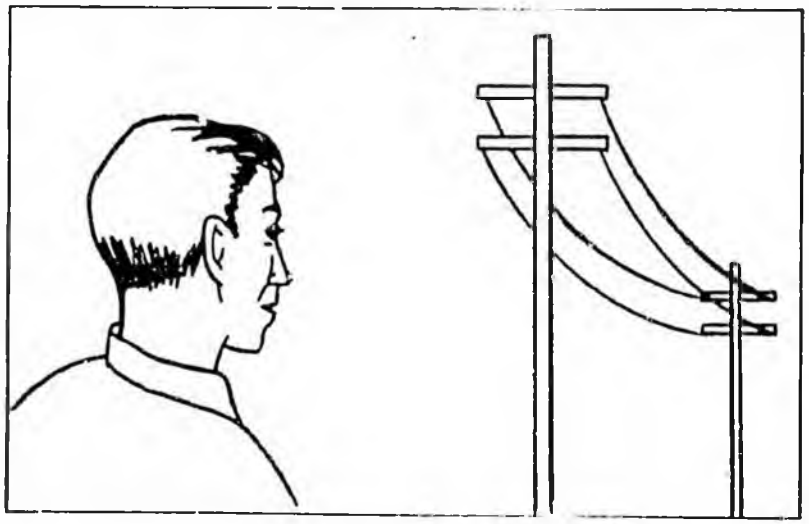
Test #1 – Distance Perception Test

Procedure: Ask how far away an object is, such as a wall, telephone pole, etc.



Normal
Can estimate distance

Abnormal
Estimate is off 20% or more

Test #2 – Step Test

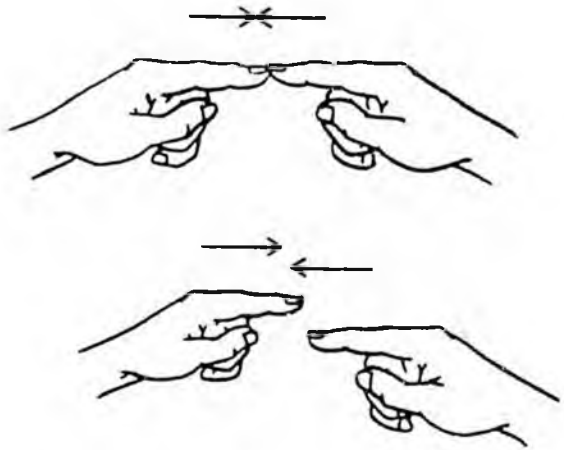
Procedure: Have subject attempt to step up a curb or stairs.

Normal
Can step up accurately

Abnormal
Over-steps or under-reaches

Test #3 – Finger-to-Finger Test

Procedure: With eyes open and arms extended, have the subject touch his index fingers. Then have subject shut his eyes and again try to touch his index fingers.



Normal
Less than 2" off and usually in a vertical plane

Abnormal
More than 2" off and usually in a horizontal plane

Test #4 — One Leg-Count-Balance Test (Divided Attention)

Procedure: Have subject stand on one leg, close eyes, and count to 10.

Normal	Abnormal
Can accomplish	Cannot stand on one leg and complete the count

Test #5 — Strabismus or Non-Convergence Test

Procedure: Ask subject to focus eyes on a finger or object at the end of the subject's nose.

Normal	Abnormal
Can "cross eyes" and gaze at object	One or both eyes will be unable to converge and will drift outward

Test #6 — Time Test

Procedure: Ask subject what time it is.

Normal	Abnormal
Will know correct time	Will be off at least 15 to 30 minutes

Test #7 — Pupillary Reaction

Procedure (A): Shine a light on the pupil and quickly remove it. Observe reaction. Then shine the light on the pupil to see if the pupil can maintain its constriction.

Normal	Abnormal
Pupil rapidly reacts. With constant light it will maintain constriction for at least 5 to 10 seconds.	Pupil reacts slowly or not at all. With constant light, the pupil will not hold its constriction and will dilate to its original size or slightly bigger (rebound dilation).

Procedure (B): Measure pupil size in room light and then put individual in darkness for five minutes.

Normal	Abnormal
Pupil will dilate	Pupil will not dilate

CHANGES IN VITAL SIGNS WITH ACUTE MARIHUANA INFLUENCE

Marihuana has stimulant properties due to its effects on norepinephrine. Consequently, vital signs may show stimulatory effects.

PUPIL SIZE —	Over 5.0 mm in diameter
PULSE —	Over 100 beats per minute (Normal - 72/minute)
BLOOD PRESSURE —	Systolic over 140 mm Hg (Normal - 120 mm Hg) Diastolic over 100 mm Hg (Normal - 90 mm Hg)
RESPIRATORY RATE —	Over 25 respirations per minute (Normal - 20/ minute)
TEMPERATURE —	Over 100°F (Normal 98.6°F)
SPECIAL NOTE:	If two of the above are present and there is marihuana derivative in plasma, urine, or saliva, acute marihuana influence should be considered to be present

VISION EFFECTS WITH MARIHUANA

There is growing evidence that some eye abnormalities and possibly other neuro muscular effects are present as long as marihuana's long-acting metabolite, C-THC, remains in the blood stream (plasma). Basically this means that marihuana may produce impairment and meet the criteria for acute influence for possbily as long as three to six days after the last dose of marihuana. For example, a study was conducted at Stanford University in which ten licensed pilots were given a marihuana joint containing 19 mg of THC. Twenty four hours later they were tested on a flight simulator, and all made landing errors, including one pilot who missed the runway. Other examples of vision effects of marihuana include numerous drivers driving erratically who are routinely arrested by the California Highway Patrol. Upon examination they show eye findings of strabismus and slow or non-reactive pupil but claim to have not smoked marihuana for three to four days. However, they show marihuana metabolite in their urine but no evidence of alcohol or other drug use.

The author has now studied some chronic marihuana users to correlate eye and other physical abnormalities with the presence of C-THC in plasma. Although strabismus (non-convergence) and slow, or non-reactive pupils were not present in every user, they were found in some marihuana users 3 to 6 days after they claimed to have ceased

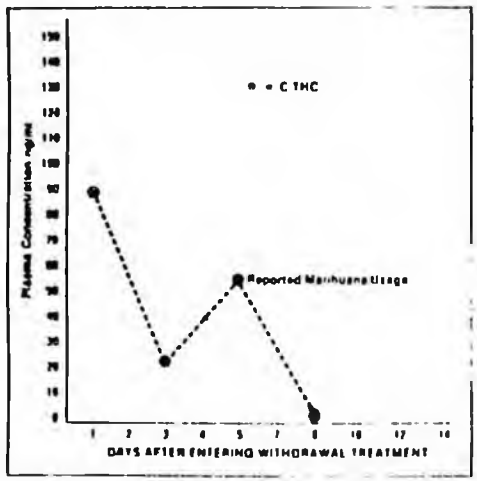
use. Figures in Example 1 show the plasma levels of C-THC in two chronic marihuana users who were treated by the author. In both cases one-sided strabismus and non-reactive pupil were present until C-THC was undetectable in plasma. The importance of this finding is that drug influence and impairment may remain for several days after marihuana was last used even though the user has no feeling of euphoria or perception of impairment. The presence of strabismus and a non-reactive pupil can impair visual tracking ability which may produce accidents and injuries.

CASE EXAMPLES OF PLASMA CONCENTRATIONS AND EYE ABNORMALITIES

To document whether eye abnormalities exist after cessation of marihuana use, the author has studied chronic users by determining the presence of C-THC in plasma while, at the same time, determining the presence of strabismus and non or slow-reactive pupils. Shown are two examples. In both cases C-THC remained in plasma for three days following the user's last reported use. In addition, strabismus and a non-reactive pupil were present during this time. Additionally, these persons experienced mild withdrawal symptoms when the plasma no longer showed C-THC.

EXAMPLE NO. 1

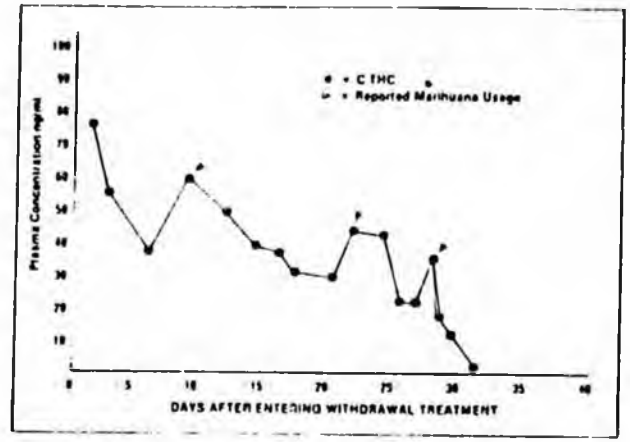
PLASMA CONCENTRATIONS OF C-THC DURING WITHDRAWAL IN A 3 TO 5 TIMES PER DAY MARIHUANA USER.



Strabismus and non-reactive pupil were present during the eight days that C-THC was detected in the plasma

EXAMPLE NO. 2

PLASMA CONCENTRATIONS OF C-THC DURING WITHDRAWAL IN A ONE TIME PER DAY MARIHUANA USER



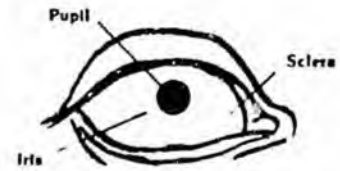
Strabismus and a non-reactive pupil were present during the 32 days that C-THC was detected in plasma

DETERMINATION OF PRESENCE OF PUPILLARY DILATION OR CONSTRICTION

In normal room light, the pupil of an adult is usually between 2.9 and 6.5 mm in diameter. About 1 to 3% of the adult population may have a congenital dilation or constriction.

A rapid way to determine if dilation or constriction is present is to measure the pupil diameter against one side of the iris.

Normal Size Pupil



Pupil diameter about same width as one side of iris

Constricted Pupil

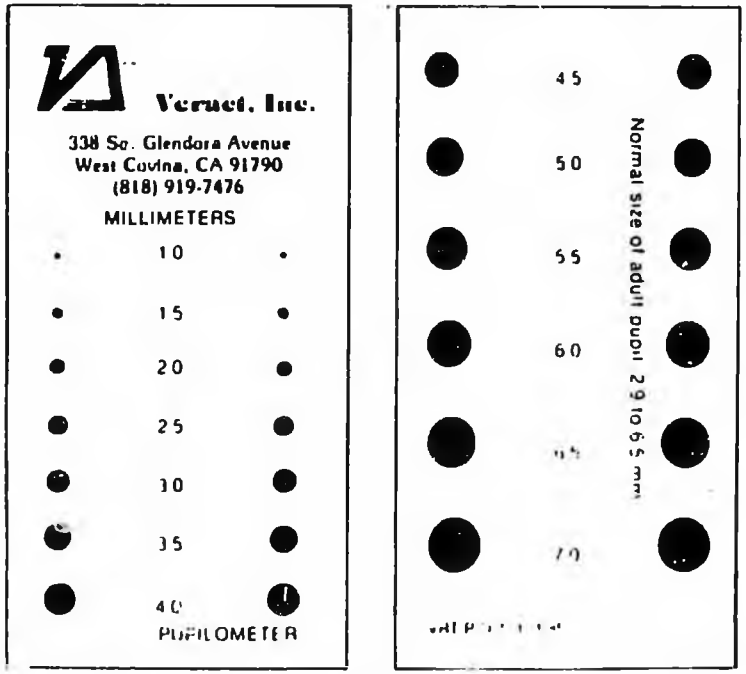
Diameter much smaller than width of one side of iris

Dilated Pupil

Diameter much larger than width of one side of iris

MEASUREMENT OF PUPIL SIZE AND REACTION

Use a standard pupilometer for measuring of pupil size. Pictured here is an actual-size example which can be copied for use.



Dilated pupil of type observed with acute cocaine-amphetamine influence. Sometimes observed with acute marihuana influence.

Reddish sclera (dilated veins) of acute marihuana smoker.

Constricted pupil and reddish eye in person under acute influence of marihuana and heroin.

Droopy eye lid, constricted pupil and reddish sclera of person under the acute influence of phencyclidine (PCP) and marihuana.

PUPIL MEASUREMENT GUIDELINES

1 During the day, test subject away from bright sun. At night, test the subject in light. Plain room lighting is best.

2 Measure pupil size by holding a flashlight at a 45° angle from the subject's lateral side. Never shine the light directly into the eye from the front, or the pupil will constrict and destroy the measurement.

3 Compare subject's pupil size to a pupilometer. Note sizes in millimeters.

4 Keep flashlight about one foot away.

5 Note the reaction or absence of reaction in subject's pupils by "flicking" the light beam on and off the pupil.

6 Repeat above procedures on at least one non-drug-using person in the same light and note results for comparison.

7. A few persons with a very dark iris surrounding the pupil cannot be adequately measured.

PHOTOGRAPHIC DOCUMENTATION OF PUPIL SIZE AND REACTION

There are some specific legal occasions when photographic evidence of pupil size and/or reaction may be advantageous. The following are key points when using this procedure.

1 A standard camera with a flash is sufficient since it reacts faster than the pupil can.

2. Take photograph with pupilometer next to the eye for comparison.

3. Room light is satisfactory. Avoid bright light or darkness.

4. To document non-reactivity by photograph, take a picture in room light. Then place the subject in a very dark room for 5 minutes and repeat the same photograph. A non reactive pupil will not dilate in darkness. It is advisable to take photographs of a control subject at the same time and in the same light to demonstrate the difference.

SUMMARY OF EYE EFFECTS WITH MARIHUANA

Finding	How Often Present	Usual Approximate* Time May last After Smoking
Redness	Frequent	4 to 6 hours
Dilated Pupil	Sometimes	2 to 4 hours
Non- or Slow-Reacting Pupil	Usual	1 to 3 days
Failure to Hold Constriction (Rebound Dilation)	Sometimes	4 to 6 hours
Strabismus (non-convergence)	Frequent	1 to 3 days
Droopy Eyelid	Frequent	2 to 4 hours
Failure to Estimate Distance	Frequent	4 to 6 hours

**Approximate means that the time may be shorter or longer*

LEGAL CASE EXAMPLES OF ACUTE MARIHUANA INFLUENCE

There are many legal challenges currently in process with employees who have been disciplined for marihuana use and/or detection in urine. In most of these caes, there was a claim of acute marihuana influence by the employer, but one of the three key elements was missing, i.e., cause for suspicion, physical evidence, or laboratory confirmation. Courts in California have now had considerable experience with drivers who are under the acute influence of marihuana and case law is now well established. The California Highway Patrol has developed the methodology to accurately identify the driver under marihuana influence and some of the information in this handbook is based on their experience. Following are two typical case examples.

CASE EXAMPLE #1 – California High Patrol

Element #1	Finding(s)
Cause to investigate	Weaving on road

Green coated tongue of marihuana-hashish smoker.

Glazed eye and droopy eye-lid of acute marihuana influence.

Reddish, glazed eye of acute marihuana influence. Normal size pupil and mild drooping of eye-lid.

Element #2
Physical Examination

Reddish eye
Strabismus (one-side)
Poor distance perception
Non reactive pupil
Animated
Anxious
Evasive
Giddy
Indifferent

Element #3
Laboratory Confirmation

Negative Alcohol Breath Test
Marihuana metabolite in urine

CASE EXAMPLE #2 – Industrial Accident

Element #1	**Findings**
Cause to investigate	Accident involving machinery
Element #2	
Physical Examination	Glassy Eye
	Flushed
	Sleepy
	Non-responsive
	Inconsistent
	Unsteady
	Inappropriate
	Stumbling
Element #3	
Laboratory Confirmation	Marihuana metabolite in urine

In the latter case, two lay persons made the physical observations and carefully recorded this in writing

Section III

IDENTIFICATION OF CHRONIC OR COVERT MARIHUANA USE

HOW TO MAKE A DIAGNOSIS OF CHRONIC MARIHUANA USE

- There are two major criteria used in order to make a diagnosis of covert or chronic marihuana use when a person doesn't admit use.
  1 Presence of suggestive behaviors and signs
  2 Marihuana derivative in blood or urine
- The major problem of chronic marihuana use is to know when to suspect someone.
- When someone is suspected of chronic marihuana use, they can be confronted by telling them the signs and behaviors that make you suspicious. Once confronted, it may be appropriate for a physician, employer, parent, teacher, coach, etc., to ask for a urine test for definitive proof.

WHY MAKE A DIAGNOSIS OF CHRONIC OR COVERT MARIHUANA USE?

Chronic marihuana use has so many debilitating and negative consequences that it needs to be identified as early as possible in order to prevent it's numerous medical complications and social problems.

In contrast to most other drug or alcohol abusers, marihuana users, in the author's experience, have a higher success rate in stopping and maintaining abstinence. Early identification and intervention usually produces good results. Consequently, the best way to help a chronic or covert marihuana user is to identify him, her as soon as possible.

WHEN TO SUSPECT CHRONIC OR COVERT MARIHUANA USE

Only a blood or urine test will definitely diagnose marihuana use. However, you should suspect chronic marihuana use if you observe a combination of some of marihuana's chronic effects. Some of marihuana's long-term effects can be scientifically attributed to its ability to adversely affect the brain's norepinephrine, or endorphin systems. In addition, chronic marihuana smoking causes irritation of the respiratory system, instability of glucose metabolism, and occasionally, abnormalities of sex hormones. These hormone and respiratory changes can provide clues to chronic covert marihuana use if one knows the basic signs and behaviors associated with them.

BASIC SIGNS AND BEHAVIORS ASSOCIATED WITH CHRONIC AND COVERT MARIHUANA USE

- Frequent absences from school or work
- Time distortion, including tardiness, unusual meal times
- Frequent missed appointments
- Constant use of eye drops (usually Visine®)
- Wears marihuana-leaf jewelry, insignia, or have clips to hold cigarettes
- Wear sunglasses indoors
- Abnormal sleep pattern such as staying up after midnight or daytime sleeping
- Repetitive forgetfulness or broken promises
- Frequent accidents, injuries, and/or traffic violations
- Loss of interest or motivation in job/school/relationships
- Deterioration of work or school performance
- Careless in hygiene and grooming habits. Females stop polishing their nails or wearing lipstick and make-up. Males skip shaving. Fail to brush teeth
- Recurrent respiratory infections
- Poor pain and stress tolerance
- Acne worsens
- Sudden personality changes. Becomes dull, bland, humorless
- Binge eating of sweets and snacks between meals

TIME DISTORTION WITH MARIHUANA

Chronic use of marihuana and many other stimulant drugs alters the brain chemistry so that normal time patterns are not maintained. To illustrate, the normal person tends to know when three meals per day should be eaten, when to go to sleep at night, take a 15-minute coffee break, or when to leave for school or work to arrive on time. A person whose internal time clock has been disturbed by chronic drug use will have distorted behaviors, including inability to keep appointments and meet time deadlines. They will also tend to stay up late at night or sleep during the day.

MOTIVATION DISTURBANCES

Marihuana may disrupt the brain chemicals that allow one to be motivated to carry out normal day to day activities. Lack of motivation exhibits itself in a number of rather typical ways. Particularly affected are such common motivations, such as eating a proper diet, maintaining

normal hygiene, and treating one's fellow man in a civil and decent manner. A chronic or covert marihuana user may be unable to maintain a sufficient level of motivation to carry out these routine daily functions.

ABNORMAL SELF-PERCEPTION OF JOB OR SCHOOL PERFORMANCE

Cocaine, marihuana, and PCF may markedly impair a person's job or school performance. For unknown reasons, however, the drug user may have little or no accurate perception of this. They may insist that they are "doing fine" and that they do not deserve criticism in spite of failing grades or poor athletic or job performance. Unfortunately, the loss of accurate perception of self-performance may persist after drug use is stopped.

PERSONS MOST LIKELY TO SUSPECT

Cigarette smoking is the single, biggest indicator that a person may be using illegal drugs. Approximately one-third of the adult population over age 18 years smoke cigarettes, and of these, about 25% abuse drugs and/or alcohol. These figures may be higher for youth. The percentage of youth who are between 13 and 19 years of age, who smoke cigarettes and frequently use marihuana is probably over 50%. One reason youth who smoke cigarettes are likely candidates to use illegal drugs is because they are already knowledgeable about inhaling and are tolerant to the heat irritation produced by ordinary cigarettes. Physically and psychologicaly, it is a short step from cigarette smoking to marihuana or cocaine inhalation. Over 99% of heroin users smoke cigarettes. In the author's experience well over 90% of PCP and amphetamine users smoke cigarettes.

CRAVING FOR SWEETS

Constant ingestion of sweets is a behavior that many chronic marihuana users exhibit. Marihuana releases norepinephrine from neurons which can reduce blood sugar and cause craving for sweets. Extremely poor dental hygiene is often observed in chronic marihuana users and this may be related to the constant ingestion of sweets

ANESTHETIC AND ANALGESIC EFFECTS OF MARIHUANA

Marihuana has some pain relieving effects It was even used for this purpose in ancient medical practice It is probably anesthesia of the auditory (hearing) mechanism that enables drug users to listen to

Swollen uvula and poor dentition in a chronic marihuana-hashish user.

Blackened gums of chronic marihuana-cocaine smoker.

excessively loud music that irritates most normal people. The author has observed that many industrial accidents occur because either the victim or propagator was a marihuana user and apparently did not hear machinery, a vehicle, or even a verbal warning.

WORK PROBLEMS OF THE HIGHLY-TRAINED WORKER

Numerous research studies document that marihuana, particularly the high potency forms now sold in the United States can impair tasks that require superior mental and physical skills. Also, impairments can be demonstrated many hours after the euphoria or "high" has subsided. Specifically, marihuana may impair immediate recall, glare recovery, peripheral vision, and time sense. Visual illusions and inappropriate or incorrect memory may intrude into consciousness, leading to an interruption of correct mental sequencing of events in time called, "temporal disorganization." While simple, repetitive and well known tasks can usually be performed properly, work requiring a high level of cognitive integration may be adversely affected. An example is a chronic marihuana user who operates a machine competently until it malfunctions at which time the person may not be able to recall or remember the appropriate safety measures. Put another way, when a person is under the influence of drugs, routine tasks usually get accomplished, but dealing appropriately with the unexpected or the unusual is quite another matter. Other adverse effects of chronic marihuana influence on the job include diminution of visual tracking, complex reaction time, hand steadiness, complicated signal interpretation, and attention span. Deficiencies in perception, memory and cognition make learning difficult which handicaps all but workers doing the simplest tasks.

The author has observed many middle-management personnel, who began smoking marihuana many years ago when it was only a 1-2% grade of potency. They now find they cannot achieve the level of skill called for in their jobs due to the impairment produced by the more potent marihuana.

SOME SIGNS OF DETERIORATING WORK PERFORMANCE

Work Patterns

- Inconsistency in quality of work
- High/low periods of productivity
- Poor judgment/more mistakes than usual and general carelessness
- Lapses in concentration
- Difficulty in recalling instructions
- Difficulty in remembering own mistakes
- Using more time to complete work, missing deadlines
- Increased difficulty in handling complex situations

Absenteeism

- Acceleration of absenteeism and tardiness, especially Mondays, Fridays, before and after holidays
- Frequent unreported absences, later explained as "emergencies"
- Unusually high incidence of colds, flu, upset stomach, headaches
- Frequent use of unscheduled vacation time
- Leaving work area more than necessary (e.g., frequent trips to water fountain and bathroom)
- Unexplained disappearance from the job with difficulty in locating employee
- Requesting to leave work early for various reasons

Accidents

- Taking of needless risks
- Disregard for safety of others
- Higher than average accident rate on the job

Mood/Actions

- Appears to be depressed or anxious
- Irritable
- Suspicious
- Complains about others
- Emotional unsteadiness / mood changes
- Withdrawn or improperly talkative
- Spends excessive amount of time on the telephone
- Argumentative
- Exaggerated sense of self-importance
- Violent
- Avoids talking with supervisor regarding work issues

Relationship to Others On the Job

- Overreaction to real or imagined criticism
- Avoiding and withdrawing from peers/supervisors
- Complaints from co-workers
- Borrowing money from fellow employees
- Complaints of problems at home such as separation, divorce and child discipline problems
- Persistent job transfer requests

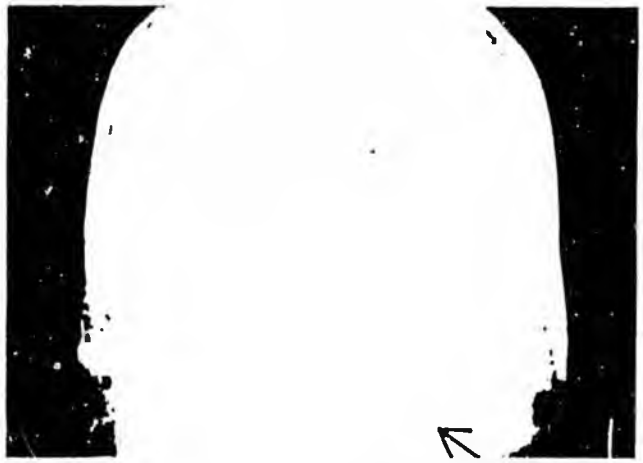
Physical Signs or Condition

- Weariness, exhaustion
- Untidiness
- Yawning excessively
- Blank stare
- Slurred speech
- Sleepiness (nodding)
- Unsteady walk
- Sunglasses worn at inappropriate times
- Changes in appearance after lunch or break

MEDICAL PATIENTS WHO SHOULD ESPECIALLY BE SCREENED FOR COVERT MARIHUANA USE

- Psychiatric patients under age 25
- Teenagers Young Adults with Chronic Respiratory Infections and Allergies/Urticaria
- Pregnant Women under age 25
- Males with gynecomastia (enlarged breasts)
- Weight loss (indicating poor nutrition)

Allergic rash due to marihuana smoking.



Sinusitis in a marihuana-hashish smoker.

WORKERS WHO SHOULD ESPECIALLY BE SCREENED FOR COVERT MARIHUANA USE

- Chronically Absent
- Job Deterioration
- Frequently Tardy
- Accident or Injury Prone
- Memory Lapses
- Repeatedly Miss Deadlines
- Excessively Sick
- Poor Hearing
- Sleeping on Job

TEST TO DETERMINE IF SOMEONE YOU KNOW IS LIKELY TAKING MARIHUANA AND/OR OTHER DRUGS

Following is a self-test to determine if a person might be covertly taking marihuana and/or other drugs. If you complete this test and it suggests drug use, you may want to confirm or deny your suspicion with a urine test.

1. Does the person eat three meals per day at the normal eating times? YES NO
2. Does the person make it to school work on time practically every day? YES NO
3. Does the peson voluntarily go to bed on weekdays by 11:00 p.m.? YES NO
4. Can you easily awaken the person in the morning? YES NO
5. Does the person meet curfews/or deadlines the vast majority of time? YES NO
6. Is the person's weight holding steady or slightly increasing? YES NO
7. Does the person comb his or her hair every morning? YES NO
8. Does the person brush his or her teeth at least morning and evening? YES NO
9. Does the person attend Church or Sunday School at least once a month? YES NO
10. Does the person invite friends to the house whose behavior is open and normal? YES NO
11. Does the person smoke cigarettes? YES NO
12. Does the person have a good attention span? YES NO
13. Does the person take responsibility for household chores? YES NO
14. Does the person take care to appear neat and clean? YES NO
15. Does the person frequently play loud rock music after midnight? YES NO

16. Does the person play "heavy metal" music or engage in other cult-like activities? YES NO
17. Has the person's acne worsened in the past 90 days? YES NO
18. Has the person lost interest in a school/work activity he/she used to enjoy? YES NO
19. Is the person having trouble getting along with teachers, coaches, friends, fellow workers, or spouse? YES NO
20. Is the person having trouble getting along with you? YES NO
21. Has the person lost interest in the clothes that he/she wears or changed the type of clothing worn (for example, "dressing down")? YES NO
22. Has the person suddenly had a drop in grades or work performance? YES NO
23. Has the person had over three colds, sinus infections, or other respiratory ailments in the past one year? YES NO
24. Does the person sniff a great deal or have a chronic reddened appearance under the nose? YES NO
25. Does the person smoke a brown type cigarette? YES NO
26. Has the person failed to come home at night on more than one occasion during the past 90 days? YES NO
27. Does the person complain that a lot of people don't see things his or her way? YES NO
28. Does the person constantly complain that people including the family don't understand him/her? YES NO
29. Has the person had more than two motor vehicle accidents or other traffic violations in the past one year? YES NO

INTERPRETATION OF TEST TO SUSPECT COVERT DRUG USE

Questions 1 through 14:

A Answer "No" to three or less: Drug use doubtful
B Answer "No" to four to six: Drug abuse very likely
C Answer "No" to seven or more: Drug abuse almost certain

Questions 15 through 29:

A Answer "Yes" to three or less: Drug abuse doubtful
B Answer "Yes" to four to six: Drug abuse likely
C Answer "Yes" to seven or more: Drug abuse almost certain

THE WORST THING TO DO IF YOU SUSPECT MARIHUANA USE

The worst thing to do is to do nothing because a person may have little time left in which to continue drug use without risking permanent neurochemical changes. If you suspect drug use, it is important to take action that will either confirm or discount your suspicions.

INFORMING THE SUSPECTED USER

Step one is to find a quiet, uninterrupted time to inform the suspected user of your suspicion. There is one common downfall when most persons do this. That is to fail to tell the drug user the precise reasons drug use is suspected. In other words, don't simply say, "I think you are using drugs." Say, "Here is a list of specific reasons that make me think you are using drugs." Then read the list. Be specific and include all the behavior and physical symptoms that make you suspicious. Refer to the above table, to make your list.

WHAT IF MARIHUANA USE IS DENIED?

1. Tell the individual all the behaviors you want changed so that you will not longer be suspicious.

2. If the individual is an employee and your personnel policies allow for a medical evaluation and/or urine test for drugs, obtain these for confirmation.

LEGAL RIGHT TO TERMINATE AN EMPLOYEE FOR COVERT MARIHUANA USE

Many private companies and public organizations are now identifying marihuana users by a urine test. In some cases, the test is done for a cause such as previously listed or it is done as part of routine testing at an annual physical examination or other periodic testing time. At the present time, there are numerous law suits and arbitrations going on throughout the United States over the issue of whether an employer may legally terminate an employee for covert marihuana use. Most of the litigation has been brought about because the mere presence of marihuana metabolite in blood or urine, regardless of amount, does not prove there was any job impairment or hazard. In addition, the precise time of marihuana ingestion cannot be pinpointed by a urine test, and

marihuana can even enter urine in small amounts through passive (being near others smoking) inhalation. The author has now reviewed, been consulted, or appeared in arbitration hearings for several dozen cases of marihuana detection by employers. Although future court judgments and/or legislation could modify current trends, the author passes on the following observations to serve as legal guidelines for employers regarding marihuana use by employees.

- Companies should not urine test anyone unless there are written policies regarding procedures and penalties. Unionized organizations must have prior joint labor-management agreements.
- Pre-employment urine screening and disallowing employment for marihuana in the urine is now routinely done in many companies, and it is rarely challenged.
- Termination is rarely challenged if the three elements of acute marihuana influence, as described in this handbook are present and carefully recorded in writing, i.e., reasons to investigate further, physical evidence, and laboratory confirmation.
- Employees who may endanger others by virtue of their marihuana use, such as transportation personnel, machinery operators, or physicians, may often be successfully terminated or lose their license by virtue of marihuana detection, even though all of the criteria for acute influence is not present.
- Suspension or temporary termination for the purpose of treatment or documenting clearance of marihuana from blood and/or urine is essentially never challenged on legal grounds.
- Repeated positive urine tests, even without meeting criteria for acute influence is rarely challenged.

RECOMMENDED GUIDELINES FOR EMPLOYERS WHO DETECT MARIHUANA USE

Unless there are purely business or other non-drug related reasons, the author generally recommends that employers not terminate marihuana users. Why? My experience clearly shows that marihuana users can be withdrawn and remain abstinent much easier than the vast majority of alcoholics and other drug (cocaine, heroin, etc.) users, provided they are periodically urine tested. Since marihuana may be detected in urine for many days after a single usage, periodic urine testing can insure abstinence. In contrast, cocaine and alcohol cannot be detected in urine for more than about 24 to 36 hours post use which makes relapse difficult to detect until it is full-blown.

For reasons not clearly understood by the author, he seldom sees marihuana users relapse if they remain abstinent for four consecutive months (120 days). In addition, the withdrawal symptoms of marihuana addiction are relatively mild and don't require hospitalization.

SPECIFIC STEPS TO RETAIN A MARIHUANA-DETECTED EMPLOYEE

1. Suspend or temporarily terminate the employee for purposes of clearing the urine of marihuana.

2. Don't hospitalize unless the employee requests it.

3. Have attending physician take a marihuana urine test weekly until clear.

   If you need precise documentation that marihuana is leaving the body in a timely, sequential fashion, plasma testing or quantitative urine testing can be done.

4. Return employee to regular duty when the attending physician certifies that the employee is fit for duty based on the following:

   a. No marihuana or other drug in urine
   b. No presence of strabismus and the pupil is reactive
   c. Has normal physical and mental abilities

5. Upon return to work, give employee in writing:

   a. List of all prior job deficiencies which were likely drug related
   b. Treatment and monitoring plan
   c. Penalty if there is future drug use

6. Urine test weekly for 90 to 120 days

7. Optional:

   a. Eye examination and alcohol breath test by trained person at time of each urine collection
   b. Drug education classes
   c. Counseling
   d. Self-help group
   e. Additional urine tests for one year

SECTION IV
IDENTIFICATION OF MARIHUANA DEPENDENCE OR ADDICTION

WHAT IS ADDICTION OR DEPENDENCE

- A modern definition of an addict or dependent person is someone who desires to keep a minimal quantity of drug in the blood stream at all times.

- When the drug quantity in the blood stream drops below a critical level, the addict will automatically take another dose to raise the blood level. The most common example is the person addicted or dependent on nicotine who will almost be unconscious of reaching for another cigarette in order to raise his or her blood level of nicotine. The minimal level in a marihuana addict is about 5-10 ng/ml of C-THC.

- It is necessary for the blood stream to maintain a minimal level of drug in order to saturate target areas of the brain. If a saturated area suddenly becomes unsaturated, withdrawal sets in. In the case of opioids and benzodiazepines, the target areas are known as "receptor sites."

- The concepts of physical and psychological dependence are archaic in light of new research on blood concentrations, receptor sites, brain chemistry, and withdrawal syndromes. All mind altering drugs, including nicotine, marihuana, and cocaine, can produce addiction or dependence, develop tolerance, and induce a withdrawal syndrome after cessation of chronic use. The author recommends the term "biologic" addiction or dependence rather than the terms "physical" or "psychologic" since both of these factors are always present to at least a limited degree.

- Addiction or dependence can be essentially diagnosed by simply knowing how long a specific drug stays in the blood stream and finding out from the user how often he/she uses it.

BACKGROUND EVIDENCE FOR MARIHUANA ADDICTION

Marihauna addiction was described in the United States over 40 years ago. In 1944, 35 "confirmed marihuana addicts" were admitted to a military hospital and developed withdrawal symptoms. Since this time, marihuana addiction has been reported in other countries. In addition, animals have demonstrated addiction to marihuana and there has been

one carefully controlled trial where humans were given known quantities of THC, and they developed withdrawal symptoms when marihuana was abruptly discontinued. Animals that are addicted to marihuana have demonstrated withdrawal symptoms when given naloxone, and the author has recently demonstrated this in a human marihuana addict. When naloxone precipitates withdrawal symptoms, it means that the addicting drug has opioid (i.e., heroin, morphine, etc.) activity. To complement these findings, another recent study in animals has demonstrated that THC will deplete endorphins in the nervous system. Furthermore, marihuana may also adversely affect the neurotransmitters, norepinephrine and serotonin. Current evidence suggests that marihuana addiction exists, at least in part, as a result of depleted endorphin, norepinephrine, and possibly other neurotransmitters.

COMMONLY OBSERVED MARIHUANA WITHDRAWAL SYMPTOMS

The following symptoms have been reported in animal and human studies

Insomnia	*Anorexia*
Nausea	*Photophobia*
Myalgia	*Cannabis craving*
Anxiety	*Depression*
Restlessness	*Mental confusion*
Irritability	*Yawning*
Chills	*Anergy*

TWO TYPES OF CLINICAL MARIHUANA DEPENDENCE

Two types of marihuana dependence are seen today. Type One is an individual who will self-administer marihuana several times per day, usually at an interval of about two to four hours unless asleep. This individual may voluntarily present to the clinician with the complaint that their daily dosage has escalated and that they are unable to cease use without medical assistance. The patient may or may not relate mental impairment primarily related to memory, motivation, time-keeping, abnormal thoughts, and work or school performance. In addition, they may relate a number of withdrawal symptoms that occur when they attempt abrupt cessation. The precise relapse rate following withdrawal is unknown, but it occurs.

CASE EXAMPLE: Voluntary Treatment

MV was a 25-year old male who presented with the complaint that he could not "stop marihuana by myself." He was a 12-year user having begun marihuana smoking at 13 years of age. He had used marihuana daily for about five years and was using two to three joints per day at the time of admission to outpatient treatment. The patient was married and held a regular job as a warehouse superintendent. He claimed he was having considerable conflicts with his wife and employer. In addition, he had noticed in the two months just prior to admission that he occasionally heard voices that were not real, did not always have total "control over his mind," and had some thoughts of suicide. He denied use of any other drug or excessive alcohol intake. His treatment admission breath alcohol was negative, and his urine contained marihuana metabolite, but no other abusable drug. The patient was administered desipramine, 25 mg. three times per day and was given weekly phsychotherapy for approximately six months. During the first ten days of treatment, he reported insomnia, abdominal cramps, diaphoresis, tachycardia, and anxiety. These symptoms subsided, and he submitted a urine void of marihuana approximately 30 days after admission. Most of the thought disturbances noted above disappeared after about two to six weeks of treatment. He denied any marihuana use during the six months after entering treatment, and he submitted monthly urine tests that showed no marihuana.

Type Two form of marihuana dependence is primarily being identified as a result of mandatory urine screening and treatment referral in the workplace. Seldom does a Type Two voluntarily present for treatment, although it may occur. In this form, the patient is usually self-administering marihuana every 24 to 36 hours and may give a history of carrying on this habit for several years. As in Type One, reported impairment relative to memory, motivation, time keeping, and job performance is variable. In contrast to Type One, however, the patient may report few if any symptoms of withdrawal upon abrupt cessation. Relapse, however, is common.

CASE EXAMPLE: Identification On Job and Mandatory Treatment

HS was a 37-year-old male salesperson. He was reported to the management of his company to be a marihuana user who also sold it to other employees while on company premises. A mandatory urine test revealed the presence of marihuana metabolite, and in order to retain employment he was required to undergo withdrawal and enter a periodic urine-testing program. Upon interview, he stated that he had used marihuana every evening for approximately 22 years. He believed this habit had not been injurious to himself until approximately three months prior to treatment when he began to notice some defects in his short term memory. Physical examination was normal. Plasma analysis showed 80 ng/ml of C-THC. He was administered desipramine, 25 mg. three times per day and tyrosine. During the first three weeks following cessation of marihuana, he reported mild insomnia, depression, anergy, and craving. Urine analysis showed no marihuana metabolite after about 50 days. After six weeks of abstinence, he reported improvement of short term memory and improved job performance.

METABOLIC BASIS FOR TWO FORMS OF DEPENDENCE

New data on the metabolism and pharmacokinetics of marihuana provide a sound rationale as to why two basic clinical forms of dependence appear to exist. When a marihuana cigarette is smoked, THC is converted to two major metabolites, OH-THC and C-THC. THC and OH-THC both have psychoactive effects, and they remain in the plasma at concentrations above about 5 ng/ml to 10 ng/ml for only about two to six hours. During this period they appear to produce a short term characteristic "high" or euphoria. This time period correlates well with the self-administration frequency of Type One marihuana dependence. The C-THC metabolite remains in plasma at concentrations above 5 ng/ml to 10 ng/ml for at least 48 to 72 hours or even longer. Although this metabolite may produce little or no euphoria, it is likely the compound that sustains Type Two dependence. A similar phenomenon also exists with some benzodiazepines, such as diazepam which also has long-lasting metabolites. For example, some withdrawal symptoms and even seizures may not appear for several days following cessation of diazepam dependence. The author has recently observed that withdrawal symptoms following abrupt cessation of marihuana dependence may not appear for several days.

SUMMARY TABLE: TWO FORMS OF MARIHUANA DEPENDENCE

	Frequency of Self-Administration	Likely Dependence metabolite(s)	Usual Referral Route	Patient's Perceived Dependence	Usual Severity of Withdrawal Symptoms	Relapse Rate
Type One	Multiple times each day	THC OH-THC	Voluntary self-referred	Significant	Moderate	High
Type Two	Every 24 to 48 hours	C-THC	Involuntary: Detected by mandatory screening	Minor to moderate	Mild	High

CLINICAL PRESENTATION OF THE MARIHUANA ADDICT

Until about 1982, the author seldom observed marihuana addiction/dependence in Los Angeles. Since that time, however, clinical demand for medical withdrawal treatment has steadily grown. Regardless of whether the patient sought treatment voluntarily or was identified by mandatory urine screening, all patients have essentially the same complaint, "Doctor, I've got a marihuana problem and I can't quit. I need your help."

As with other addictions, the marihuana addict doesn't normally seek medical withdrawal assistance from a physician until he/she has attempted to stop on his/her own, consulted a counselor, minister, friend, or family member, attended self-help groups, or even entered a hospital rehabilitation program and still continued to use marihuana. Unfortunately, there is no specific medical withdrawal treatment for marihuana addiction at this time. However, research is in progress to develop a specific withdrawal treatment.

HOW TO MAKE A PRESUMPTIVE DIAGNOSIS OF MARIHUANA ADDICTION OR DEPENDENCE

Addiction or dependence is assumed to be present if the following are evident:

- Person states that they have used marihuana one or more times per day for thirty or more consecutive days, just prior to evaluation.
- Person states that they cannot stop without medical assistance.
- Person states that they experience withdrawal symptoms, craving, or sickness when they stop use.
- Marihuana metabolite is present in urine or plasma

SECTION V

LABORATORY IDENTIFICATION OF MARIHUANA USE

BACKGROUND FOR LABORATORY IDENTIFICATION

- Modern research has identified, at least to a great extent, how the human body accepts, deactivates, and eliminates drugs. This process is usually called "metabolism" or "pharmacokinetics."
- Laboratory identification for drugs of abuse primarily attempts to assay for the suspected drug in urine or plasma (clear part of blood).
- Urine testing is primarily qualitative and determines what someone used rather than how much was used. Urine tests have some capability of determining approximately when a drug was used.
- Plasma testing can tell the quantitative presence of a drug and give a reasonable estimate as to ***when*** a drug was used. Plasma testing can also give an estimte as to whether ***enough*** drug was taken to ***produce acute*** effects or toxic levels. If the person is tolerant to the drug, a plasma level may have little meaning.
- Quantitative urine testing for marihuana is used primarily to help rule out passive inhalation and determine if marihuana cessation is truly occurring in someone who claims to have ceased use.

BACKGROUND AND HISTORY OF MARIHUANA TESTING

Although urine testing capability for some illegal drugs of abuse occurred in the late 1960's and early 1970's, urine testing for marihuana was not technologically possible until about 1980. Blood (plasma) testing for marihuana is currently changing from research to general status. Due to the newness of the tests, there has been controversy over their interpretation. A large number of recent research studies, however, have clarified interpretation so that urine and plasma testing can now be used with great confidence.

URINE TESTING METHODS AVAILABLE

Five different technological methods are now available for marihuana urine testing. They are summarized below.

TEST	APPROXIMATE SENSITIVITY	GENERAL COST
Enzyme Multiplied Immuno Assay (EMIT)	20 ng/ml	Very Low
Thin Layer Chromatography (TLC)	10-20 ng/ml	Low
Radioimmunassay (RIA)	10-20 ng/ml	Low
Gas Chromatography — Mass Spectrometry (GC/MS)	5-10 ng/ml	High
High Performance (HPLC) Gas Liquid Chromatography	5-10 ng/ml	High

TOXICOLOGY UNITS OF MEASUREMENT

The usual measurement for marihuana metabolites (THC, OH-THC and C-THC) are in nanograms per millimeter. This is usually abbreviated ng/ml.

1 g	=	gram (There are 28 grams in one ounce)	1.0
1 mg	=	milligram (One thousandth of a gram)	0.001
1 ug	=	microgram (One millionth of a gram)	0.000,001
1 ng	=	nanogram (One billionth of a gram)	0.000,000,001
1 pg	=	picogram (One trillionth of a gram)	0.000,000,000,001
1 L	=	liter (approximately one quart)	
ml	=	milliliter (One thousandth of a liter)	

PLASMA TESTING

At this time, plasma testing is very expensive and is done by GC/MS or HPLC. It is quantitative, requires great technological skill and, consequently, is costly. Some commercial laboratories are beginning to offer plasma testing. However, there is little practical advantage of plasma over urine testing for screening asymptomatic persons. The amount of OH-THC and C-THC may not tell either precisely when

someone has used marihuana or how impaired they may be. It should be especially noted that plasma levels over 10 ng/ml, that are not accompanied by acute signs or influence, likely indicate the presence of tolerance and possibly dependence. The best use of plasma testing is to determine if a chronic user is eliminating C-THC from the plasma during withdrawal.

ACCEPTED STANDARDS TO AVOID FALSE POSITIVE URINE TESTS

Unfortunately, some laboratories new to urine testing are not aware of the long-established (at least 15 years!) standard "rule of two." This stan ard calls for testing any positive urine specimen, i.e., urine containing a drug with a second technological method. Only when the drug is detected by a second technologic method, is the urine deemed a true positive.

The one notable exemption to the "rule of two" is when the tested individual admits to recent marihuana use. This situation is frequent in medical and clinical settings. When this is the case, a single method is satisfactory. Other than self-admission, the author recommends the rule of two be followed in the following situations.

1. Pre-employment testing
2. Post-employment testing
3. Screening for covert use
4. Potential litigation

INTENTIONAL FALSIFICATION METHODS

Drug users have numerous techniques to submit a false negative test. Many adulterants may cause urine screening to show falsely negative.

Common Falsification Methods	Adulterants which may cause False Negatives
• Submit toilet or tap water	Salt
• Switch urines	Bleach
• Bring concealed urine in bag, mouth, or in body cavity to testing location	Lemon juice
	Liquid soap
	Blood

URINE TESTING FOR COERCION PURPOSES

There are many instances when the presence of marihuana in urine

may result in a coercise action.

Loss of job
Suspension from job/school
Incarceration

In the early 1980's, the general standard to use a marihuana positive urine test for coercise purposes was to have it confirmed by GC/MS or HPLC after initial detection by EMIT, TLC, or RIA. This standard was primarily established because the less expensive methods, EMIT, TLC and RIA methods were not yet refined. Currently EMIT, TLC and RIA methods are extremely sensitive and specific. This has, for most purposes, eliminated the need for use of GC/MS or HPLC for confirmations. Many experts now believe that when two of these three methods (EMIT, RIA, TLC) are positive, there is actually as much or more assurance that marihauana is in the urine than when detected by GC/MS or HPLC. The reasons for this are that GC/MS and HPLC take extraordinary technical skill that is subject to human error and that the sensitivity is too low (i.e. less than 10 ng/ml).

Despite varying opinions among qualified experts, a given legal or other situation may mandate use of GC/MS or HPLC confirmation. To possibly avoid cost and litigation the author usually recommends that marihuana first be found on two of these three methods (EMIT, TLC, RIA) and that the urine specimen found to be positive be frozen in the event that some legal or other situation demands confirmaton by GC MS or HPLC. Urine specimens can be frozen almost indefinitely without degradation of its marihuana content.

PASSIVE INHALATION

Studies have shown that someone who is extremely close to other persons who smoke marihuana may passively inhale it. Although someone may passively inhale enough to show 10 to 20 ng/ml in the urine for one or two days post-exposure, the author knows of no documented cases which show that passive inhalation can cause as much as 50 ng/ml of marihuana metabolite in urine, unless the subject is exposed to very dense marihuana smoke for many hours.

LENGTH OF TIME MARIHUANA STAYS IN PLASMA AND URINE

A great deal of publicity has been generated as to how long marihuana metabolites may remain in urine It remains detectable in plasma and urine for many days due to the fact that it is fat-soluble. When smoked, marihuana metabolites enter the fat, lodge there, and then leak out over a period of time It is important to point out that it is

only the regular, chronic user or addict that keeps marihuana in urine for more than a few days. The length of time that marihuana metabolites can be detected in plasma is much shorter than in urine because the kidney concentrates drug in the urine 100 to 1000 times that found in plasma. In other words, marihuana can be detected in urine much longer than plasma due to the kidney's ability to concentrate drugs.

APPROXIMATE URINE RETENTION

Approximate Frequency of Use	Approximate Length of Time In Urine*
Once per week	2 to 20 days
Twice per week	5 to 30 days
Daily	15 to 45 days

**Varies as to whether user is a chronic or occasional user and amount used.*

APPROXIMATE PLASMA RETENTION AFTER SMOKING MARIHUANA

Metabolite	Approximate Time In Plasma*
THC	2 - 3 hours
OH-THC	4 - 6 hours
C-THC	3 - 6 days

**Varies as to whether user is a chronic or an occasional user and amount used.*

HAIR AND SALIVA ANALYSIS

Saliva analysis is possible because the smoker leaves THC residues in the mouth while smoking. If found in saliva, it usually means that marihuna has been smoked within the previous one to three hours. However, this test cannot be relied upon for confirmatory diagnosis of marihuana use because the smoker can easily spit or wash the residue out of the oral cavity.

Hair analysis can be done if there is a medical or legal reason to know if someone used a drug approximately 30 days prior to hair sampling. Analysis of hair will not reliably reveal drug use occurring within the past one to two weeks prior to sampling. The major use of hair sampling is in forensic cases, and not appropriate for the usual drug use screening situations.

RELATIONSHIP OF URINE AND PLASMA CONCENTRATIONS WITH IMPAIRMENT OR INFLUENCE

There is no more misunderstood aspect of marihuana identification than the fact that there is no reliable way to correlate plasma or urine concentrations with impairment or influence. Undoubtedly, this confusion stems from the criteria used for determining impairment from alcohol. There is general agreement that a blood (reflected by breath or urine) alcohol concentration of 100 mg/deciliter or .10 mg% indicates some impairment or influence. No such correlation can be made with marihuana since it is fat soluble and released very slowly from the body compared to alcohol. For example, a very low urine concentration may be found in persons severely intoxicated and vice-versa.

The non-correlation of urine and plasma concentrations of abusable drugs with the degree of impairment and influence has recently prompted the National Institute on Drug Abuse to make this statement in the Journal of the American Medical Association: "Testing of drugs or drug metabolites in urine is only of qualitative value in indicating some prior exposure to specified drugs. Inferences regarding the presence or systemic concentration (quantity) of the drug at the time of driving or impairment from drug use are generally unwarranted. The presence of an illicit substance in unne that may indicate prior illegal action can, however, add a dimension to probable cause of observed driving performance."

Despite the lack of correlation between plasma and urine concentration and impairment, the finding of marihuana metabolites in urine or plasma means that marihuana is in body tissues including the brain, eye, nerves and muscles. Although a chronic user or addict may be tolerant and not have physical signs of acute influence, an employer, coach, teacher, or parent must assume that some subtle impairment exists. The author therefore, highly recommends that any individual with marihuana in urine, and particularly plasma, not be allowed to drive, work, play sports, or participate in any activity that could produce harm to the marihuana user or innocent bystanders. Risk type acitivities should not be resumed until repetitive urine tests show no traces of marihuana.

GUIDELINES TO SELECTING A LABORATORY

1. Use only a laboratory that specializes in urine and/or plasma testing.
2. Follow the standard, "Rule of Two."
3. Has procedures to insure integrity and security of samples.
4. Reports results within 72 hours
5. Can freeze specimens for future analysis
6. Communicates well.

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August 7, 1987

Dear Alaskan:

A LINE ON POT

We know a lot more than we used to about what pot does to the lungs. It's becoming common knowledge that smoking pot can do a number on your "windbags."

Part of the job of the scientists is to use the information they have and then put two plus two together. A very important piece of information concerns the smoke made when pot is burned. It contains over 150 different chemicals. One type of chemical, hydrocarbons, are proven to cause cancer. Pot smoke has a lot more hydrocarbons than tobacco smoke.

So add it up. Cigarettes are the leading cause of lung cancer. A key reason for this is the hydrocarbons formed when cigarettes are burned. If marijuana smoke has more of these hydrocarbons than tobacco, do you really need to wait 25 years to be "sure" smoking marijuana can cause lung cancer? Statistics are how we know cigarettes cause cancer. Proof that marijuana causes cancer is only a matter of time.

Even if pot smoke does have more cancer-causing agents than tobacco smoke, is that such a big deal? After all, many cigarette smokers puff through two or three dozen cancer-sticks daily. Not even a heavy burner goes through that much pot. Indeed, hardly anyone smokes a "pack" of joints each day, but think about these ideas:

1. How many cigarette smokers hold the smoke in for ten or twenty seconds after they inhale? Deep and long toking of marijuana allows more time for harmful particles and gases to act on the lung cells.

2. Most post smokers use paper in rolling doobies than you find in cigarettes. Burning paper makes chemicals that irritate the lungs.

3. More marijuana chemicals end up in lung tissues than in many other body parts. They're strongly attracted to lungs, because they flow toward the fat of the lungs like moths to a light bulb.

The lungs have special cells to destroy disease-producing bacteria. For at least six hours after smoking one joint, they don't do their job as well. Swiss researchers exposed over 5,000 samples of lung tissue (from mice, hamsters, and HUMANS) to tobacco and marijuana smoke. Three days a week, a certain number of tissue samples got a "toke." After only 35 weeks, cancerous changes clearly occurred, and the damage was worst in the lung tissues exposed to marijuana. Remember, these are only test cells in a dish, but it's an important clue.

Some studies have not found evidence that smoking pot is especially harmful to the lungs. Most these, however, did not use the kind of detailed tests many doctors feel are needed to detect early marijuana-related lung damage. X-rays have been commonly used to check for lung damage due to marijuana; however, x-rays aren't very reliable for this purpose. Early detection of damage requires more detailed testing.

You know, some people have a really amazing attitude about smoking pot. They don't think it's "real smoking," like smoking cigarettes. Scientists today say--your lungs know no difference!

Taken from MARIJUANA, TIME FOR A CLOSER LOOK, by Curtis L. Janeczek Sandy Spargo

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A LINE ON POT

Dear

Dr. Carlton Turner is often called, "The man who knows more about marijuana than anyone else in the world." He is the Director of the White House Drug Policy Office. He has been the Director of a government-sponsored marijuana reserach project at the University of Mississippi. The following is information from that research project.

Dr. Turner is "up" on the growing of different varieties of cannabis from all corners of the world. He has read over 6,500 scientific papers published on cannabis--and what's more, he and his three staff members summarized each of them. He and his research team published about 100 scientific papers on cannabis. These are the reasons why he has been called, "The man who knows more about marijuana than anyone else in the world."

Dr. Turner and his team identified 421 different chemicals in marijuana, from 18 different chemical classes. For example, there are 50 different types of waxy hydrocarbons--which help make the tar in pot smoke. There are 103 different terpines, most of which, like the tars, are very irritating to the lungs. Twelve fatty acids. Eleven steroids. Twenty nitrogen compounds. There are toxic agents, including carbon monoxide, ammonia, acetone, and benzene. There are also cancer-causing chemicals, including benzathracene and benzoprene. And they are found in pot smoke in amounts which are 50 to 100 percent greater than are found in tobacco smoke.

And when marijuana is smoked, the 421 chemicals turn into over 2,000 chemicals--from one single joint. Furthermore, when these 2,000 chemicals are metabolized--broken down so that the body can get rid of them--many hundreds more chemcials are produced!

There is one chemical in cocaine and one chemical in alcohol.

Pot is very far from being a simple natural weed. Included among the other chemicals are a class of chemicals which exist only in the cannabis plant, and those are the cannabinoids. Dr. Turner and his staff discovered 61 of them. The most famous is Delta 9-THC. Tetrahydrocannabinol, or THC, for short. This one produces the "high."

Only a small percent of the THC in a single joint get through the blood-brain barrier to create the "high," which gives some indication of what a powerful chemical THC is. The blood-brain barrier is the protective system made of capillary walls and cell membranes. It acts as a sieve to prevent certain toxic chemicals in the bloodstream from entering the brain."

A small amount is acting on the brain, and the rest of the THC is acting on the lungs, on sex and reproductive organs, and every cell in the body.

Another thing that few people realize about THC is that it's very jumpy. If you buy a pack of tobacco cigarettes, you can be sure that the next pack of that same brand will be the same. Same flavor and same strength. That can never happen with joints--cannabis cigarettes. This is because the cannabinoids keep changing. They not only change while they're growing in the plant, but there are different THC strengths in different parts of the same plant. What's more, the strengths vary according to the age of the plant and the sex of the plant. There are male and female plants. And, in this case, the males are the weaker of the species--so far as THC goes. Even after a joint is made, TCH strength varies according to the length of time it's stored, the place it's stored in, and the temperature it's stored at.

If pot is so changeable, how did Dr. Turner supply a standard brand for the scientists? The researchers gave their THC a lot of tender loving care. They used a great deal of time, manpower, and special machinery in order to provide researchers with marijuana that has a known amount of THC. Or scientists were given individual cannabinoids. When they got their pot, researchers had to store it in the freezer. Since THC is such a temperamental drug, researchers were asked to submit their samples every few months for re-analysis.

Those 61 chemicals found only in the cannabis plant are fat lovers. They don't dissolve in water, or blood, or urine. Therefore, they're not easily washed out of the body. They seek the fatty organs of the body and settle there. There's one other substance which has as much staying power in the body cells. DDT. It's a useful chemical, but because it clings on in body cells, it was banned.

When the high is gone, the pot is not.

Source: POT SAFARI by Peggy Mann, 1985.

Sandy Spargo
965 Goldbelt
Juneau, AK 99801 586-2392

September 21, 1987

Dear

A LINE ON POT

"The Alaska Peace Officers' Association (APOA) supports recriminalizing marijuana." This position is taken from the Position Statements of the Alaska Peace Officers' Association Concerning Legislative Proposals before the Fifteenth Alaska Legislature, March, 1987.

"Alaska is the only state to have, in effect, legalized small amounts of marijuana--up to four ounces--for personal use. No other state has adopted a similar law. Using small amounts of marijuana legally stimulates trafficking of the drug, which is illegal. The existing statute, in effect, promotes illegal activity.

Possession of any quantity of marijuana is against federal law, while state law permits possession of small amounts. This creates confusion in the minds of the public. This dichotomy of federal law v.s. state law tends to breed disrespect for the law. As the Baltimore Sun editorialized in early 1984, 'Only in Alaska can you sit at home and smoke marijuana, secure in the knowledge that you are breaking federal law with the blessing of the State Supreme Court.'

Alaska's tolerance of marijuana has also inhibited the efforts of the U.S. to obtain agreements by foreign countries to crack down upon illicit drugs in their country. According to the Undersecretary for International Narcotics Affairs, Department of State, in a recent address in Anchorage, several foreign countries have questioned the sincerity of the U.S. regarding suppression of illicit drugs by calling attention to Alaska's legalization of small amounts of marijuana. This is significant, since the U.S. is a signatory nation to two international conventions concerning control of narcotics--the Single Convention on Narcotic Drugs of 1961 and the Psychotropic Substances Act of 1971, which include outlawing marijuana.

APOA considers the contradiction of federal and state law regarding marijuana, the increasingly effective health campaigns against smoking, and the public's proclaimed respect for the law, with state law permitting use, to be sending mixed signals to our youth. Either society condones drug use and smoking or it does not. Our collective position should be clear to our young people.

The Ravin decision leading to legalizing marijuana was based, in part, upon the finding that the state could show no clear and convincing public need to ban marijuana. Since then, more and more information from around the country shows increasing concern about the health aspects of smoking in general and marijuana in particular. The APOA believes that a clear and convincing health issue can now be made to support a ban upon marijuana use.

The APOA knows of no police department that would undertake an intensive enforcement effort against persons possessing small amounts of marijuana, if possession would be recriminalized. Frankly, there are more urgent needs to be addressed. Therefore, we would support a citation, mail-in-bail approach, as is now used for most traffic infractions.

The APOA is more interested in consistency of our laws, clear and concise positions about marijuana for our youth, and other advantages of recriminalization than in a tough and unyielding enforcement program."

The Alaska State Legislature will be looking at House Bill 55 and Senate Bill 32 to recriminalize marijuana next January. The intent of the bills is to make possession of less than 1/2 pound of marijuana a misconduct in the sixth degree. This is a Class B Misdemeanor and is punishable from 0 to 90 days in jail and a maximum fine of $1,000.

Sincerely,

Sandy Spargo
Safe Homes/Juneau
965 Goldbelt
Juneau, Alaska 99801

October 9, 1987

A LINE ON POT

Dear

Dr. D Harvey Powelson (formerly Chief of Psychiatry at Univ. of California Berkeley's Cowell Memorial Hospital reported the following in LISTEN: Journal of Better Living.

"I think marijuana is the most dangerous drug we have to contend with, for a number of reasons.

First, unlike any other drug except DDT, marijuana stays in the body for a very long period of time. It stays in the brain, and it keeps operating long after people are high. This time element is anywhere from six weeks to six months. Biochemically, using tracers has proved that only half of the marijuana leaves your body in a week.

Marijuana just stays there. When marijuana users get high - it usually takes them two or three times, because they have to build up a certain amount in their brain. Once they get high, they take another joint and get a little higher, then the high drops off and they think they are sober again. BUT the marijuana is still active. Then three days later they take another joint and they get high once again. But they are suffering the effects of marijuana ALL THAT TIME.

It could be called a cumulative effect, but what I'm really talking about is the fact that marijuana stays active in the brain long after the user feels high.

(Consequently) many people in this country -- literally millions -- are using marijuana and are stoned. And they may be people you and I are depending on the fly an airplace or drive a bus or perform our surgery, or drive on the highway.

I would say that there is NO EVIDENCE whatsoever that marijuana in any way is good for you. There's very strong evidence, which you can see for yourselves if you look around, that it damages the brain, that it damages your ability to think, it damages your chromosomes, it damages your immunity system -- all of this at a rate of something in the neighborhood of 20 times as rapidly as alcohol. "

Sincerely,

Bobi Trani
Safe Homes/ Parents Against Drugs

November 23, 1987

"A LINE ON POT"

Dear

Juneau was selected as the only city in Alaska to participate in a "Just Say No" Pledge Drive campaign. One student and a parent from Juneau will accompany 50 other participants in Grand Marshall capacity for the National "Just Say No" Walk in May. In conjunction with the "Just Say No" Pledge drive, many other exciting activities and training took place during the week. Bobby Heard, 19 year old teen trainer for "Just Say No" visited Juneau to work with our middle and high school age students to begin to establish "Just Say No" clubs in Alaska. At the conclusion of his visit to Juneau and to Ketchikan, he wrote this letter to our paper and to other members of the Blue Ribbon Commision on Youth. He was very concerned about the attitude our youth have about "their right" to use marijuana. This, once again, is an indicator of what a mixed message our marijuana law is for our youth.

I have submitted Bobby Heard's letter to the Juneau Empire, to you for your information. I was impressed with his insight and his forthright approach in identifying a large problem our youth deal with, and his willingness to do something to address the problem.

Please consider this letter as you begin to establish priorities for the upcoming session. Our youth need your help in sending a clear message that Alaska does not tolerate the use of illicit drugs including marijuana.

Sincerely,

Bobi Trani
Alaskans for Drug Free Youth

State's marijuana law 'just says yes'

Dear Editor:

How very exciting it was to be part of your city's "Just Say No Day." Everyone who participated and was involved should be commended.

Events like yours are very important because they help to focus attention on the massive problem of drug and alcohol abuse. Even though public awareness of drug and alcohol issues is at an all-time high, we must not relax our determination to speak out about substance abuse. The problem of dealing with drug and alcohol abuse must be kept at the forefront of America's agenda.

Even though I left Alaska impressed by your interest in getting involved in preventing drug abuse, I also left concerned. Concerned for the many young people I met who were understandably confused about the stand adults want them to take on the drug issue.

For many years young people have grown up in a "do your own thing," "freedom of choice" environment. According to some experts, it may be this permissive attitude on the part of parents, as perceived by their children, that is responsible for much of drug use among adolescents. It is imperative that parents and communities project a non-use message to their young people; substance abuse will not be accepted.

The most confusing message Alaska is sending its young people is your law which makes possession of marijuana legal for those over 19 years of age. Sure many adults may argue "it's my choice," but what about the young people who also believe it's their choice because they see mom and dad doing it?

In every other state in our country, marijuana is considered a harmful substance and is illegal. How can Alaska ask its young people to "Just Say No" when it's legal for adults to "Just Say Yes"?

Sincerely,
Bobby Heard
Round Rock, Texas

Dear

A LINE ON POT

"He was always an honor student until that time. It took three years for me and my husband to recognize he was using pot. A friend turned him on. All his group of peers used pot. He changed from being loving and open to being withdrawn and self-centered. He was careless and left marijuana papers around, so we found out.... He had real trouble wit[illegible]is memory. He couldn't tell jokes, because he couldn't remember them."

"He got into other drugs: uppers, downers, PCP, Quaaludes. He would steal, at first from his sisters, and he dealt. He got arrested for stealing. He and some friends went to another town and stole tires and brought them home in my car and left them in the driveway. It was as if he couldn't make the connection between stealing and hiding the evidence. The judge ordered him to go to jail for two years or to treatment. He went to a treatment center."--Viola (mother of an ex-user), The Marijuana Question by Helen C. Jones and Paul W. Lovinger.

A 1985 study done by the Justice Department reports, "A higher percentage of today's criminals were under the influence of drugs at the time of their offense than were criminals in the late 1970's. Three-fourths of a representative sample of jail inmates in 1983 admitted using drugs at some time in their lives, and one in four said they were under the influence of one of more drugs at the time of their current offense. Half of the offenders were using marijuana."

Sandy Spargo
Safe Homes/Juneau
965 Goldbelt
Juneau, AK 99801
586-2392 (w)
586-6122 (h)

Dear

A LINE ON POT

Malcolm E. Smith became alarmed when his children were using marijuana. His warnings were answered with the usual, "marijuana is no worse than tobacco or alcohol." He could not give them the facts necessary to convince them otherwise. He was determined to assemble those facts. The Marijuana Danger is the result of endless amounts of time and effort spent in reading, researching, and assembling what he believes is overwhelming evidence that marijuana is not only more dangerous than cigarettes and alcohol, but that it can cause brain damage and adversely affect almost every part of the human body.

— 758 sources as attached

Alcohol damages chromosomes. Marijuana damages chromosomes.

Alcohol damages the immune response system. Marijuana damages the immune reponse system.

Alcohol damages the brain. Marijuana damages the brain.

It takes decades for irreversible brain changes to appear in the heavy drinker. Irreversible brain changes are apparent after 3 years of daily marijuana use.

One person in six who uses alcohol is likely to become addicted. Three in six people are likely to become addicted to marijuana.

One ounce of alcohol completely metabolizes to carbon dioxide and water within 12 hours. One joint takes 30 days to be eliminated from the human body.

Alcohol damages the ability to think. Marijuana damages a person's ability to think 20 times more than alcohol.

The chronic disabling effect becomes apparent after 10 to 20 years or more years of excessive alcohol use. The chronic disabling effect becomes apparent within two or three years of marijuana use.

Hallucinations occur in alcoholics in a far advanced disease stage. The psychotropic effect of marijuana may cause hallucinations in small doses.

It can be predicted with certainty what one ounce of alcohol will do someone. You cannot predict what one joint of marijuana will do to to someone.

Alcohol develops a psychogenic dependency. Young people develop a psychogenic dependency on marijuana more quickly than with alcohol.

" The practice of combining the use of marijuana and alcoholic beverages is becoming more common, and, as such, posses a hazard of more widespread and severe acute reactions resulting from their combined effects," reported the American Medical Assoc. Council on Scientific Affairs, December 6, 1977.

Sandy Spargo
Safe Homes of Juneau
965 Goldbelt, Juneau, AK, 99801/586-2392 (w)

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Dear

A LINE ON POT

The Journal of Respiratory Diseases. November, 1987, has now stated that there is "striking evidence of short- and long-term consequences" of marijuana smoking.

"**Why might marijuana be more harmful than tobacco?** Daily smoking of only a few marijuana joints appears to be comparable with smoking over 20 tobacco cigarettes a day .... One explanation may be that the components of marijuana are more irritating to the lungs than those of tobacco smoke. Comparison of the smoke contents of one joint of marijuana with those of one unfiltered tobacco cigarette of the same weight reveals many similarities, both qualitative and quantitative, as well as a number of differences. While nicotine is present in tobacco but not in marijuana Δ^9-tetrahydrocannabinol (THC)--itself a respiratory irritant--and more than 60 additional cannabinoid compounds are present in marijuana but not in tobacco. In addition, marijuana smoke contains greater than 50% more of the carcinogenic polynuclear aromatic hydrocarbons benzanthracene and benzpyrene than is found in tobacco smoke, indicating the potential for malignant changes in the airways of frequent users.

Another possibility is that more particulates and irritating gases per cigarette are deposited and retained in the lungs of marijuana smokers than in the lungs of tobacco smokers, possibly because of the manner in which each type of cigarette is smoked. To investigatge the latter possibility, we assessed smoking dynamics--the amount of smoke particulates delivered to the respiratory tract and the change in the amount of end-expired carbon monoxide while a single marijuana or tobacco cigarette was smoked.

The results indicate that marijuana smokers took nearly twofold larger puffs, inhaled the smoke into their lungs 40% to 50% more deeply, and retained the smoke in their lungs three to five times longer than did tobacco smokers. Moreover, these differences were associated with a more than three times greater increase in end-expired carbon monoxide and a three to four times greater delivery and respiratory deposition of smoke particulates from a single cigarette of marijuana compared with that of tobacco."

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57 Conant Street, Room 113 • Danvers, MA 01923 • (617) 774-2641 Connie and Otto Moulton

January 1987

THE EMPEROR SMOKES "POT"

Like the subjects, in Andersen's fable, who lined the streets "oohing" and "ahhing" their naked "Emperor's New Clothes," the American public has incredibly insisted upon disregarding marijuana's presence in every aspect of adolescent and young adult pathology. Unlike those subjects who heeded the observation of the "clear-eyed" child, our child-like citizens have chosen to ignore the warnings of the research scientists and parents who have been shouting that this "harmless" hero of the illicit drugs has been "stark naked" for over 16 years.

The simplest of epidemiologic studies reveal marijuana's central role.

In exact proportion to the unheralded and pandemic increase in marijuana use we have insisted upon ignoring its relationship to:

- the largest proportion of maladjusted veterans ever to return from but 24 months of service (limited to 12 months in Viet Nam) - still in fatigues and "treatment" 20 years after discharge from a war whose 11-year casualty figures approach those of the single Battle of Gettysburg, but for whom we have had to invent a new and wholly improbable psychiatric illness called "post traumatic neurosis" rather than recognize their chronic drug problems.

- a precipitous rise in every category of juvenile and young adult crime (both violent and non-violent).

- a precipitous and progressive increase in truancy and school drop-out.

- a progressive increase in teenage runaways, vagrancy, prostitution, pregnancy, abortion, and venereal disease.

- a progressive and precipitous increase in teenage depression and suicide.

- a progressive and precipitous rise in the psychiatric referral of adolescents and young adults for all known psychiatric diagnoses, as well as the previously unfamiliar consequences of multiple drug abuse.

- A PROGRESSIVE AND PRECIPITOUS FALL IN EVERY MEASURE OF ADOLESCENT AND YOUNG ADULT INTELLECTUAL COMPETENCE, NOT REFLECTED IN ELEMENTARY SCHOOL TEST SCORES.

- A PROGRESSIVE INCREASE IN A HITHERTO UNSEEN AND UNKNOWN "TEEN-AGE" "CHRONIC ORGANIC BRAIN SYNDROME" CALLED "BURN-OUT," WHICH NOW OUTNUMBERS ALL OTHER EXTANT PEDIATRIC, ADOLESCENT, AND YOUNG ADULT DISEASES COMBINED.

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COMMITTEES OF CORRESPONDENCE INC.

Drug Abuse Newsletter

August 1987

57 Conant Street, Room 113 • Danvers, MA 01923 • (617) 774-2641 Connie and Otto Moulton

ADDICTION AS A PRIMARY DISEASE

Since the recognition of addiction as a primary disease, a variety of opinions have emerged on the subject. This paper will clarify the primary disease of addiction from the perspective of the parents' movement, and it will hopefully clear the air on the subject. Unfortunately, some prefer for whatever reason to look at addiction as some type of moral issue or character deficit, which it is not.

A disease is a disorder which results in the disruption of normal body function (in this case psychological or physiological function). Most diseases have identifiable signs and symptoms as well as one or more known causes. Many, however, have no known cause.

Heart disease (atherosclerotic coronary artery disease) for example is a prototype disease. It is known that genetics, the environment, personality, and noxious stimuli are factors which may cause heart disease. A person who has a family history but makes an effort at controlling other elements such as diet and smoking may not develop heart disease. On the other hand, a person with no family history but who has a bad diet, smokes, and is under heavy stress may develop the disease. Conscious control of lifestyle early in life can help arrest the disease whether or not there is a genetic predisposition.

Addiction is very similar. It is a chronic, progressive, yet treatable disease with a variety of signs and symptoms. Family history of addiction produces a genetic risk which may increase the risk of subsequent relatives becoming addicted if the right conditions exist.

Even though heavy emphasis is placed on genetic predisposition toward addiction, we should not forget that children at risk were generally raised in impaired families in which addiction existed. The learning of interpersonal skills may become disrupted in such an atmosphere (environmental stress). Other examples of the environment include schools, peer groups and the entertainment media. Any may have positive or negative influences.

Personality has some effect as well. Some individuals are extremely resilient to genetic, environmental, or other risks. Others may fall prey to addiction easily. Evidence exists that fostering early refusal skills while bolstering self image helps to buttress an individual's ability to resist problems.

Last, but certainly not least is the exposure to noxious stimuli (drugs and alcohol). By exposure to mood altering substances alone, addiction may be precipitated. Most addicts intended to originally use recreationally or to self medicate. They all originally believed that they could somehow control their use.

This is the great danger of recreational drug use. Any drug of abuse from cocaine at one end of the spectrum to caffeine at the other is addictive if it is used enough. Furthermore, the evidence is clear that the earlier the exposure to mood altering drugs, the greater the risk of subsequent problems. Thus, no mood altering substance should be used in adolescence.

The symptoms of addiction have been well described elsewhere. In general, a compulsion for mood alteration is the hallmark. As the disease progresses, mood changes, interest in school or work slides, and in general performance suffers. As interpersonal relationships fail, families and friends will bear a great burden. It is generally easy to recognize late addiction, but early addiction may be far more subtle. Early addiction may be manifested as repetitive intoxication despite admonishments to the contrary. Recognizing resistance to maintaining sobriety is the key to early recognition. Excuses and promises of the addict always cloud the issue.

Many attempts have been made to characterize the stages of addiction. I have found the Johnson Institute model very helpful. Although these stages are represented in different ways, the most helpful that I have found are 1) learning the high, 2) seeking the high, 3) early dependency, and 4) late dependency or burnout. So many people only think of addiction as late stage 3

or 4. Actually the behaviors of stage 1 and 2 set up the individual for true dependency. In stage 1 the individual has just become exposed to the experience of getting high (or intoxicated). There may be rapid progression to stage 2 in which the individual actively, knowingly seeks intoxication. In this stage the ability to give up the drug at will may still exist, but it is lost in stage 3. Once true dependency has begun, generally drug rehabilitation and treatment is the only successful approach to treatment. This is definitely the case in stage 4, where the user requires much more vigorous treatment.

Addictionology is the practice of the treatment of drug and alcohol addiction. A wide range of attitudes exists within this field as to whether "responsible drug use" is a real entity. I maintain that those who support the notion of responsible use are short-sighted and do not fully understand the disease of addiction. Some physicians in this field also support the more typical psychiatric orientation that drug use is always secondary to other problems. This is not the case. Certainly drug use may either be the cause of psychiatric problems or be caused by them. Overall however, drug abuse and addiction is a primary disease. If psychiatric problems coexist, the addiction must be treated before there is any hope of controlling the psychiatric elements.

Unfortunately, the disease concept has been abused by many people for a variety of reasons. Some individuals wrongly believe that no matter what stage of addiction the individual is in, he can "get well" if he exerts enough willpower. This attitude has been used as a weapon against the addict to ostracize him. It has been used to label the addict as someone morally weak or unworthy. These attitudes are only counterproductive, and are particularly destructive to an individual who is trying to recover from addiction.

The converse of this is that the addict may hide behind the disease by contending that he cannot be held responsible for his actions "because he is sick." The addict does however have the responsibility for working on and maintaining a recovery program no matter how rocky the road is. A person with heart disease may have even caused his own disease by his lifestyle, but he may be able to control his disease if he controls his lifestyle in a healthy manner.

One of the most destructive misapplications of the disease model has been

to try to justify "responsible drug use." Proponents of responsible use contend that "careful use" in people who have no genetic predisposition toward addiction is relatively safe. The problem is that what may be careful use to one person is abuse to another. Alcohol may be a problem for some people; cocaine or marijuana for others. There is no effective way to predict who will become impaired or addicted. Drug use is like Russian roulette, and the earlier that an individual is exposed to mood altering chemicals, the greater risk of addiction. I have yet to meet an addict who intended to become addicted when he started using drugs or alcohol.

The disease of addiction is most effectively handled through a combined approach of prevention, intervention, and rehabilitation. This is the goal of the parents' movement. We must give our children a set of values and good self esteem; we must teach them how to "say no" and be certain that they do.

We must try to make waters safe by enhancing prevention efforts, decreasing the supply of drugs, and working to rehabilitate individuals so as to not lose them to this disease.

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PANDAA

PARENTS' ASSOCIATION TO NEUTRALIZE DRUG & ALCOHOL ABUSE

ADOLESCENT CHEMICAL USE

This is a special edition of the PANDAA newsletter. It is a guide for parents and professionals to identify adolescent chemical abuse problems. It is for sale in bulk or on a single copy basis. To purchase, use the form on page 11. This guide has been written by parents who have learned about the subject through experience, extensive research, and from their own recovering children and their friends.

WHY DO KIDS DO DRUGS?

Parents must realize that whatever type of home they have, the kids also live in another world - different than what our adolescent world was like. At present, the only way to keep your child from being exposed to the drug culture is to lock him up, without exposure to newspaper, TV, radio, movies, and magazines. Outside influences begin to affect our children at a very young age. TV and movies depict alcohol use as an ingredient for a good time. Drug usage is also portrayed as "cool" and expected behavior. Our kids' role models - TV, movie, and rock stars are open about their drug use, and receive no legal consequences. Rock music lyrics often promote alcohol and drug use. Many professional athletes have been suspended for drug use. The children see widespread alcohol and drug abuse at concerts, outdoor sports events, in school, and in shopping centers. Not only is it socially acceptable in these public places, but there seems to be no consequences from law enforcement personnel. By the time a child is 10 years old he is very saturated with "drink alcohol and do drugs" messages, and the philosophy, "if it feels good do it." It is very easy for a child to rationalize going against values that "old fashioned parents" may have taught.

Alcohol and drugs are easily available to our young people. Many homes have well stocked liquor supplies. Some young adults make extra money by stationing themselves at convenience stores to buy alcohol for underage kids. Some restaurants buy mailing lists of student groups, and mail notices of a special happy hour for students from a specific group or college campus. The breweries have sales representatives on college campuses. On at least the first few encounters, the marijuana is usually given to them free. Marijuana is easier for our kids to buy than it was for our generation to buy cigarettes. They can buy any drug they want at school, shopping centers, convenience store parking lots, etc.

When asked why they started doing alcohol and/or drugs the most frequent answer of the kids was peer pressure. They had ususally refused participation several times before they gave in to peer pressure. Curiosity, love of thrills and danger, desire for acceptance by a group, were other influencing factors. Experimentation continued because it was fun.

> "I started getting high off pot when I was 11, with my best friend. He was 2 years older and I really wanted to be like him. My friend's 16 year old brother did drugs and we would steal his drugs and get high. I did it at first to keep from being called "chicken" or being left out. For almost two years my parents were not fully aware I used drugs. I was sneaky and a good "con" which kept me from getting caught."

Alcohol and drugs were not used to alleviate parental conflicts, low self esteem, etc. until usage was well established. None of them intended to become dependent on alcohol or drugs. If they read literature on drugs they carefully chose reading that favored drug use, and when they observed their drug using friends and role models there were no apparent bad effects from the alcohol or drugs. Indeed, it seemed like these were the people who really knew how to live and had their act together! Some reported that drug education delayed their first encounters and they were very cautious in the beginning. As time went on the horror stories did not materialize or they did not recognize what was happening to themselves.

WHAT DOES "DO DRUGS" MEAN?

When we speak of kids "doing drugs" we are speaking mainly of alcohol and marijuana. As usage continues and tolerance is built up, alcohol and pot often become boring, and they may progress to using uppers, downers, and hallucinogens. Heroin is rarely part of the adolescent scene. Another frequently used term is "partying" or "to party", which means to drink and/or do drugs. For many kids their weekend social life is "partying". Keg parties are held at homes where the parents may or may not be present. Sometimes the parents buy the kegs, with the excuse that at least they aren't doing drugs, or at least they aren't out on the street. Drugs are usually available at these parties. Keg parties are often advertised at school with flyers - even, occasionally, at intermediate level schools.

As usage progresses kids will do drugs under almost any circumstances, and will try anything they can find. Girls have told of raiding medicine cabinets for any labeled or unlabeled pills while babysitting, and of getting the children they sit for high. Many kids admit to getting their pets high. Some tell of getting high with their teachers, school counselors, therapists, policemen, probation officers, at school and on their jobs. Kids will try anything to get a "high", from drinking vanilla or lemon extract to eating nutmeg.

A PERSONAL STORY

Professionally I am associate professor of Chinese at the George Washington University. I have three children. I would like to relate to you our family's experience with drug abuse.

While my son, age 15, and daughter, age 13, were doing drugs, I was unaware for a long time that this was their major problem, even though I myself had smoked quite a bit of marijuana about ten years ago in the early 70's. Indeed, that was part of the problem. I assumed "pot" to be a relatively safe drug, even though, if I could have looked honestly at my own life back then, I would have seen - as I now do - the extent to which my decreasing energy and motivation at the time could be laid at the doorstep of this drug. Luckily, I had weaned myself away from it, and, again, assumed a kid could do the same. I was wrong on this count as well. So even with my own experience, I failed to recognize for a long time what was happening.

What I did see was my son becoming increasingly hostile, volatile in his outbursts of anger - punching big holes right through the wall - and then darkly withdrawn into his cave-like room, which was designed as a shrine to heavy-metal rock groups and the death-like imagery they projected. He was also clearly in great pain and loneliness, although this was covered over for me by the outward behavior.

As for me, I was frightened both for him and of him; and beyond that, furious with him, practically hating him at times. And I was unbearably guilty; I was sure he was doing drugs because I was his adoptive father and he sensed that I rejected him. I was so confused

CONTINUED ON PAGE 11

SIGNS AND SYMPTOMS OF CHEMICAL USE

WARNING SIGNS

When children begin to use alcohol and other drugs few signs are initially noted by parents since many changes are expected during adolescence. Parents rarely find their child intoxicated, "high", or otherwise impaired. Likewise, hard evidence of usage such as finding the actual drugs or alcohol is often a matter of occasional accidental discovery. Parents must rely most often on the subtle signs and symptoms and the inference of drug use which can be drawn from various signs.

Parents may have cause for concern if their child has rebellious attitudes towards parents and other authority figures, changes friends, is very eager for acceptance by friends, uses bad language, is irresponsible toward work and school, strives to develop a "cool" image, or frequents rock concerts. Some changes may start before alcohol or drug use begins as the child becomes attracted to the drug culture.

THE DUAL LIFE

The alcohol or drug-involved child is apt to lead a dual life in the early stages of usage. A clean image is maintained in front of parents, teachers, and straight friends and a totally different image is projected among drug-using friends. Although their drug use may be well hidden, they put an emotional distance between themselves and their parents and other adults. Many are able to maintain a good appearance, good grades, athletic, and other extra-curricular activities for a surprisingly long period of time (years). The ability to lead a dual life also deceives the user into believing he has control of usage.

BEHAVIORAL SIGNS

As he is drawn more to the drug culture attitudes change, and what was once unacceptable (gross, crude, or illegal) behavior is now "cool" and acceptable. Sports, extracurricular activities, and hobbies, may be discarded. Carelessness, laziness, depression, cheating, stealing, lying, conning, vandalism, bad language, rapid emotional ups and downs, poor concentration and memory, falling grades, curfew violations, school and work absences, disrespect for authority, paranoia, interest in witchcraft, and sexual promiscuity point to possible drug use.

As family relationship deteriorates, family activities are shunned, meals are eaten quickly with the child retiring to his room and listening to loud rock music for long periods of time. Eye contact with parents and other authority figures is avoided. Everyone is "on his case." All of his failures are blamed on others.

> "I began to worry about my 14 year old when he became hostile, not just toward me, but to his sister. She had, up to now, been his best friend. I was bewildered by his urge to hurt those who loved him most. This puzzled me and I felt alone and wounded. When he ridiculed his best friend and abused other "friends" verbally I worried even more. Then other strange behavior began. He became insanely jealous of his sister and anyone he thought might get a crumb more of any treat he felt he deserved. He blew up at a moment's notice if he was asked to help around the house. He rarely talked, but when he did he revealed an alarming absence of reality in his thinking, planning a future career as an artist with no thought of education or marketability of his work.
>
> At home he was either arguing, complaining or locked alone in a bedroom, bathroom or basement. His moods swung from apathy to hatred. Hardly ever was there any peaceful ground between."

For some, threats to run away become an effective method to get their way. Many do run away and stay at friends' homes or in the woods. Parents of his friends may be told by the runaway that his parents are abusing him.

The "druggie look" is expressed in a child's flat facial expression, ragged, worn clothes, "bop" walk (walk with a bounce), slouched stance and generally depressed appearance. Girls often use heavy makeup, wear long bangs over the eyes, sexy clothes and jewelry. Both girls and boys strive to appear older. Personality changes can evolve slowly, over the years or occur very rapidly in a matter of months.

PHYSICAL SIGNS

Most physical signs do not occur until alcohol and/or drug use are well under way. Marijuana irritates the whites of the eyes, and the use of Visine or similiar products alleviates irritation and redness. A persistent cough is very common. Other suspicious conditions are a runny nose, nasal sores, a facial puffiness, dilated or constricted pupils, glassy eyes, a skin rash similar to measles, poor muscle coordination, and stains and burns on lips, inside the mouth, finger tips or fingernails. There may be a craving for sweets, excessive or depressed appetite, excessive thrist, bad breath, or a weight gain or loss. Frequent illnesses are common.

Children who "do drugs" are frequently tired because many of the drugs depress the central nervous system. Also, many teenagers are tired because a druggie lifestyle frequently involves sneaking out of the house at night (often through a window) in order to join friends, and returning in the morning before the family awakens. The child catches up on lost sleep in class or at home in the afternoon.

It is important to note that alcohol use alone can manifest many of the above behavioral and physical signs and should be considered just as serious as other drug use.

PARAPHERNALIA

Many drugs require paraphernalia to prepare them for consumption. Some drugs such as PCP and even the insecticide, RAID, are sprayed on substances such as dried parsley leaves and sold in tiny foil packets or baggies. Marijuana is stored and distributed in plastic bags, small jars, or film canisters. Marijuana seeds, about the size of large bird seed, may be found in baggies, pockets, or small containers. The handrolled marijuana joint requires rolling papers and quantities of matches to keep it lighted. The marijuana ash is smaller, more fragile and whiter than tobacco ash.

Marijuana joints (reefers) and other types of drug-treated cigarettes which are smoked down to the butt (roach) are often held by roach clips to avoid burning fingers. These clips resemble the alligator clips found in hardware stores. Fancier ones such as feathered and highly decorated clips can be purchased in many stores and gas stations.

Marijuana, hashish, and other drugs can be smoked in various types of pipes ranging from ordinary tobacco pipes to elaborate smaller ones that can easily fit into a pocket. Small probing tools are used to clean the sticky brown tar residue left from the smoking process. Some drugs can be smoked without pipes by burning them like incense in a partially covered container and inhaling the smoke.

Bongs are especially favored for marijuana smoking and are often shared by a group. A bong is an apparatus that cools, filters, and concentrates the smoke giving the user a better high. It consists of a cylinder 6 to 12 inches high which holds water. A tube leading into the side holds the "bowl" in which the drug is burned. By sucking air at the top of the cylinder, smoke is drawn from the bowl through the water and inhaled. It can also be used to smoke hashish, PCP, quaaludes, and other drugs. Bongs come in many styles and materials, and are often homemade.

Many kids will grow marijuana plants from the seeds they clean from their marijuana.

> "My daughter convinced me that the potted plants growing on her window sill were a school project. Feeling very proud of her new interest in science I helped her keep them watered. Much later I found out I was watering marijuana plants."

"Snorting" is another method of drug use popular among cocaine users. Any powdered or pulverized drug can be snorted. The drug is usually deposited on a mirror and aligned with a razor blade. The "line" is sniffed through a short straw, rolled dollar bill, or tiny spoon.

Items which may indicate intravenous drug use are syringes, eye droppers, spoons for heating and dissolving powders, and cords or belts used for tourniquets. Balloons or paper bags are used for inhalants.

OTHER SIGNS

Much of the alcohol used at first comes from parents' homes. Water is often added to liquor bottles to fool parents. It is well to do a taste test when checking supplies. Soft drink glasses and cans easily disguise alcohol. Girls often hide small bottles of alcohol in their purses.

Medications purchased by the child as innocuous as cough syrup or any over the counter drugs may indicate problems other than coughs or sore throats. These preparations may be used to alter moods when consumed in sufficient quantities. Often they contain alcohol.

Breath sprays mask alcohol use and smoking. Incense, candles, or room deodorizors remove smoking odors from a room.

Popular hiding places for drugs are stereo speakers, trophies, lamp bases, books, albums, stuffed animals, air conditioner vents, parents' and child's out of season clothing, parents' rooms, car trunks, attics, garages, tool sheds and bushes.

Faked or forged ID cards are easily obtained and used to buy alcohol. Bikes, clothes, stereos, etc. may appear or disappear if they are being used for trade in drugs. School yearbook inscriptions often reflect changed values, as do posters, drug culture clothing, jewlery, record albums, and magazines.

Frequent short telephone calls, hanging up when parents answer, prank and late calls are cause for suspicion.

Favorite hang outs include shopping centers, especially stairways, hallways and game rooms; convenience stores and pizza parlors; school smoking lounges; parks and secluded sites.

PUTTING THE CLUES TOGETHER

It is very helpful to write down all the behaviors, events, and physical evidence which have caused concern with either parent. Recall dates as well as you can and continue to keep the list. Such record keeping reduces exaggeration and minimizing, and helps both parents see their child's behavior more realisticly. Bad attitudes, disrespect for authority, and a decline in the family relationship are some of the most tell-tale indicators of substance abuse, and warrant room checks, monitoring of phone calls, spot checks of school attendance, and relating concerns and observations to the parents of the child's friends. Impromptu urine testing for marijuana is of limited value since many factors affect the results of the test. The kids know tricks to bring about negative tests. Determination of which drugs the child is using is unnecessary. The fact that any drug use is causing problems in his life indicates that help is needed. A parent's best guide is probably his or her own "gut feeling" about the child. That "gut feeling" can be confirmed by an evaluation at a drug rehabilitation facility.

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CHEMICAL DEPENDENCY IS A DISEASE

The disease of chemical dependency is established when the user needs mood altering chemicals on a periodic or continuous basis to feel good. The user is unable to control or stop usage, and a psychological and/or physical dependence is developed. Tolerance to the drug also develops, which means that larger doses are needed to produce the original results.

Physical dependency is present when the drug becomes a part of the person's normal body chemistry and unpleasant physical symptoms, such as vomiting, tremors, sweating, muscle cramps, or even convulsions occur when the chemical is abruptly withdrawn. Physical withdrawal symptoms last for 3 to 10 days depending on the drug. Drugs that cause a physical dependence include nicotine, alcohol, narcotics, hypnotic sedatives, and some tranquilizers.

Psychological dependency on any mood altering chemical is much more difficult to overcome than the physical dependence because it lasts for the rest of the user's life. In other words, he is never cured, but is always in either a recovering or active state of the disease. To stay well he can never again use any mood altering chemical.

The cause of this disease is unknown. It is a primary, progressive, and chronic disease which becomes a family disease as it progresses. It progresses faster in women and adolescents. If allowed to progress it can result in death. It is not a symptom of a disease, it is the disease. The undesirable behaviors associated with chemical use are caused by the chemical use rather than the chemical use being caused by other underlying factors such as inadequate parenting, learning disabilities, low self-esteem, etc. No one intends to become chemically dependent when they begin using alcohol or drugs. Most studies show there is no preaddictive or prealcoholic personality. But, once the disease has begun, behavior patterns become very similar in all abusers. Fortunately, these personality changes are reversible if treatment intervenes to arrest progression of this illness. Vernon Johnson, founder of the Johnson Institute, believes all abusers are guilt-ridden people having a very high set of values and morals which appear to be nonexistent because of their destructive and anti-social behavior resulting from their chemical abuse.

The illness is often divided into four stages. The stages are very similar for adults and adolescents but the following description will focus on the adolescent disease in today's drug culture. Chemical dependency can develop in six months in some adolescents, while it usually takes many years for an adult. Adolescents do not often become physically addicted to alcohol but they become psychologically dependent on it. If drugs are involved the progression of the disease tends to be more rapid than when only alcohol is used. Many adolescents begin tobacco use before or along with alcohol and/or marijuana use.

STAGE ONE

The first stage may be referred to as "learning the mood swing." The user learns that the chemical makes him feel good. If only alcohol is involved, this is still classified as social drinking. If other drugs are involved it could be classified as "experimentation". Few unpleasant effects occur. The chemicals involved are probably tobacco, beer, wine, pot, and/or inhalants. They are probably given to and not bought by the user. The child usually refused participation several times, and often did not get intoxicated on the first alcohol encounter or high the first several times he tried pot, because he had not learned how to inhale it. For peer acceptance, he may have faked being high. When he did learn how to use it effectively, very small amounts got him high because no tolerance had been built up. In stage one he drinks and does drugs only when it's convenient and available, mainly on weekend social events. For most there are no observable behavior changes yet, although some kids begin to adopt "druggie" attitudes and behaviors before usage begins. The parents are unaware of any usage unless they accidentally discover evidence or occasionally recognize the child is high or intoxicated. Ususally such a discovery is considered a "normal phase" by the parent.

STAGE TWO

As he enters stage two, he begins to "seek the mood swing." He plans his use of chemicals, buys them, and may use them alone. He begins to feel unpleasant symptoms as his high ends and tolerance increases. New chemicals may be introduced such as hashish, hash oil, "uppers" and "downers". Usage increaes from weekends ("weekend warrior"), to week nights, to week days. The child begins the dual life, gradually progressing to a more obvious druggie dress and life style. Druggie friends are often met away from home.

Unexplainable mood changes begin, including withdrawal, anger, and aggression. Verbal abuse towards parents, profanity, and rebellious attitudes become a constant friction point between parent and child. The child prefers to isolate himself from his family, and spends many hours in his room often with loud musical accompaniment. As drug use and tolerance increase, stealing from parents and siblings begins to pay for drugs. The first signs of the amotivational syndrome appear. That is, there is loss of motivation and drive. Everything is a "hassle." Hobbies and extracurricular activites may be dropped. All of the child's problems are blamed on other people.

As school grades drop, parents may react with strong disciplinary action. The child will bring up his grades, often by cheating or changing grades on his report card. The improvement "cons" the parents into believing the problem is improved or solved.

The child begins to violate his normal moral values. Vandalism, theft, shoplifting, lying, and/or sexual promiscuity is common. As he experiences shame and guilt for these acts, he gets high or is able to wipe out their memory by "blackouts" or selective amnesia.

Drug use increasingly becomes a necessity to feel good rather than a choice. The youngster can no longer control his drug use. Unfortunately, to most parents, school personnel, and counselors the problems are still not distinguishable from normal adolescent growth problems. Chances are slim that the parents can handle the problem alone. The child is already in need of outside help, but it is unlikely that he will receive the right kind of help.

STAGE THREE

The third stage is the dependency stage. Now his life centers on getting high. He may advance to hallucinogins, cocaine, or opium smoking. He is high most of the time. Tolerance increases and attempts to reduce dosage or stop usage fail. Solitary use is frequent. Suicidal thoughts occur. Overdoses and flashbacks begin to occur. Behavior continues to deteriorate, police incidents occur, jobs are lost, and the child may drop out of school. Chronic cough begins. He feels distress when not high. Rationalization of chemical use becomes an art and guilt feelings run high. He cannot see what is happening to himself.

Family life deteriorates. There may be skipping school, sneaking out of bedroom windows during the night, and running away. The child is guilt ridden and self esteem is very low. He thinks he is "different" from his druggie friends. Drugs are no longer fun. It appears to him everyone else is having fun. He becomes careless and maybe obvious with his use and paraphernalia (may be a plea for the help he is unable to ask for). Parents often believe the child is only using drugs occasionally. The family uses rationalizations to deny the problems.

STAGE FOUR

In stage four, chemicals must be used to feel normal. Use is no longer fun. It is compulsive, uncontrollable, and is regular throughout the day. He may be shooting up. Drugs must be used just to function. Physical health deteriorates. Delusions and paranoia can be severe. Euphoria is rarely even experienced from the drugs. Suicidal thoughts are frequent. Overdose, blackouts, and amnesia occur. He is usually well known by the police. The user is often referred to as a burnout or a zombie. If intervention does not occur, death will result from suicide, overdose, an accident, physical illness, or other untoward behavior.

REFERENCES: See page 11, Nos. 1-6

THE FAMILY

As the alcohol or drug using person's behavior deteriorates, each family member experiences anger, shame, guilt, fear, hurt, and loneliness. To relieve the pain of these feelings and to make attempts to cure the abuser, various defensive behaviors develop. These responses may begin before anyone in the family is aware that the problem is actually one of chemical abuse. In the case of the adolescent, usually the parents take on the role of the primary enabler. There are many forms of enabling. The enabler may protect the user by rationalizing his behavior; bailing him out of trouble at school, the job, the law, or even trouble with the other parent; making special allowances that would never be given to the other children; or keeping the problem secret. One enabling parent may become a controller by taking on responsibilities that actually belong to the user such as getting him up on time, taking him to school, blaming others for his problems, or by striking up bargains with the user. The other parent often enables by withdrawing from unpleasant situations, working late at the office, getting deeply involved in community affairs, being a peacemaker between the child and other parent, or blaming the spouse. As each parent takes on different forms of enabling, frequent conflicts arise and often they begin to believe that their declining marriage relationship is the cause of their problems. The user can become very skillful in exploiting this situation to his advantage. The enabling behaviors become just as compulsive as the user's chemical use. The enabler can become just as disturbed as the user.

As one parent comes out of denial and recognizes that the problems are caused by alcohol and/or drugs the other parent may still be in denial. The parent who comes out of denial first is usually the one who spends the most time with the child and handles most of the crises. The second parent may come partially out of denial, but still deny the seriousness of the abuse. Nothing constructive can happen until the second parent comes completely out of denial and the parents are united in their approach. Sometimes denial is broken when that parent is left alone to experience the embarrassment, hurt, or anxiety of each crisis his child creates with the school principal, the police, or in the emergency room. Much help can be gained in this area by attending self help support group meetings such as Al-Anon, Families Anonymous, or Tough Love.

As the conflict between the abuser and his parents continues, the other children in the family adopt various survival behaviors. Some become too good to be true, or "heroes." They overachieve, are very responsible, give the family a good name, but can be bossy, obnoxious, and achieve for attention rather than for healthy motives. Later in life these children are often "workaholics" and enablers to their spouses and their own children.

Another child may become a "scapegoat" and be rebellious, irresponsible, act out, and disrupt class. The reward is negative attention, which takes the spotlight off the user. This child could easily be mistaken for an abuser, and often abuse is in his future.

The apathetic child is often referred to as the "lost child." This child withdraws, shows little emotion, avoids conflict, and develops few social skills. He is sometimes overweight. On the surface the child appears calm and serene, when in reality there is pain, confusion, and denial of the family's problem.

The family clown gets attention by being funny and distracting. (He is often the youngest in the family.) The child is unable to express feelings and despite the humorous behavior there is much pain.

Each family member's defensive behavior becomes compulsive and habitual. As the lifestyle becomes too painful to bear, the person looks for a way out. Hopefully, this will be through a self-help group such as Al-Anon or Ala-Teen or by the family becoming involved in a rehabilitation program. Other forms of escape the person may use are leaving the family or, worst of all, by suicide.

If appropriate help is not enlisted the siblings in the chemically dependent family are more likely to become chemically dependent themselves. They have chemicals available to them, they have not developed good coping mechanisms, and the whole family is involved in unhealthy compulsive behavior patterns. With the proper help the chemically dependent family can become a nurturing family again, but without help, the family situation can only deteriorate.

REFERENCE: See page 11, Nos. 1 - 6.

DOES MY CHILD NEED HELP?

By the time both parents recognize that the problems they have been experiencing are caused by chemical use rather than by other factors, the child has usually been abusing for at least one to three years, and is already chemically dependent, even though his use may be restricted only to alcohol and marijuana. If the parent finds that strict rule enforcement, close surveillance, spending more time with the child, professional counseling, etc. do not solve the problem, it gradually becomes obvious that the parents cannot "fix" their child alone. Outside help is needed from those experienced in the field of chemical dependency.

A child's drug use is not the parents' fault. The main cause is peer pressure. The child made his choice to do drugs. That choice progressed into the disease of chemical dependency. He needs treatment just as a diabetic child needs treatment. Few parents of diabetic children would withhold treatment because their child did not want injections. Untreated diabetes and untreated chemical dependency are fatal. A characteristic of chemically dependent persons is denial of their disease, and so they rarely seek help. In the case of an adolescent, it is the family's responsibility to intervene so recovery can be initiated.

Recovery from chemical dependency is very difficult and takes a long time, just like breaking a nicotine habit. Group therapy seems to be more effective than individual counseling. A good first step for parents is attendance at one of the free self-help groups such as Al-Anon, Families Anonymous, or Tough Love. There the parents will learn how to recognize their own unhealthy reactions to their child's behavior, how to make the child responsible for his actions, and how to use crises created by the child constructively. Often times when the child is no longer able to manipulate his parents he becomes ready to accept treatment. A child who asks for help and is highly motivated may do very well by attending AA every night or enrolling in an outpatient program. These children's programs will be more successful if their parents attend their own self-help group meetings. The less motivated children will probably require very intensive, long term programs. There are many types of treatment programs. It is advisable to meet and talk with parents and kids who have been through the programs that are available.

FREE DIRECTORIES REHAB PROGRAMS

Directory of Community Substance Abuse Programs in Virginia: Secretary for Community Substance Abuse Services, Div. Of Substance Abuse, Dept. of Mental Health and Retardation, PO Box 1797, Richmond, VA. 22214; Call 804-786-1524.

National Directory of Drug Abuse and Alcoholism Treatment Programs. #(ADM) 83-321. NCDAI, PO Box 1908, Rockville, MD. 20850.

CRITERIA TO LOOK FOR IN A PROGRAM

1. It treats drug and alcohol abuse as a disease rather than as a symptom of a disease. It believes the unacceptable behavior is caused by the chemical use rather than by an underlying cause. It makes the user responsible for his own actions.

2. It promotes an alcohol-and-drug-free life style with drug free counselors. Recreational alcohol or drug use is not allowed. Mood altering prescription drugs are not part of the therapy. Out-patient programs often use urine screening to monitor marijuana use, and Antabuse to monitor alcohol use. Antabuse is a medication that makes one very ill when alcohol is ingested. Parents have the right to know results of urine tests, and the side effects of Antabuse.

3. It uses the twelve steps of Alcoholics Anonymous or includes AA meetings as a part of its program. These tools for self-change have a long successful history.

4. It provides daily support in the form of group counseling and/or AA meetings for at least 6 months. Aftercare continues on a less frequent basis, often in the form of AA meetings or self-help meetings.

5. At least some of the counselors should be recovered abusers who can relate by personal experience and read through the "cons" of their clients.

6. It provides counseling and education for the total family including siblings. This may be in the form of Al-Anon and Ala-Teen meetings. The family learns to recognize and to change its undesirable behavior responses it has developed in response to the abuser's unacceptable behavior. It strives to re-establish good family relationships.

7. The client must learn to live free of alcohol and drugs in a drug oriented society. After adequate progress in a structured, controlled, drug free environment the client begins a gradual re-entry into society, learning to remain alcohol and drug free at home, school, job, and during leisure time. Therapy continues during re-entry.

REFERENCES: See page 11, Nos. 1-3.

MARIJUANA

Marijuana (Cannabis sativa) is a plant which contains over 420 chemicals. The effects of most are unknown. In 1964 its principal psychoactive component (intoxicating chemical), delta-9-tetrahydrocannabinol (THC), was identified. The THC content of marijuana has increased dramatically in recent years due to improved plant genetics and cultivation techniques. Seizures made by the U.S. government in 1965 averaged a THC content of 0.1-0.2%, by 1970 the average THC content climbed to 1.0%, and by 1983 the average THC content had climbed to 2-5%. The most potent strain, sinsemilla, averages a THC content of 11-14%, and is grown illegally extensively throughout the U.S. The potency of marijuana has increased from 50 to 100 times since 1960.

Two marijuana derivatives are also widely used. Hashish or "hash" is the pure resin extracted from the flowering top of the marijuana plant dried and compressed into brown or black cakes or balls. The THC content averages 10-20%. Hash oil is a concentrated viscous liquid that varies in color from clear to black. Its average THC content is 30-40%. Pure THC is never sold on the street because it is very unstable and too costly to manufacture. What is sold as THC is actually PCP or some other drug.

Some slang terms for marijuana are grass, Mary Jane, pot, sens, reefer, weed, hemp, and roach. Marijuana looks like dried parsley mixed with stems and seeds. It is usually bought in small plastic baggies, called nickle or dime bags. One ounce of marijuana will make about 40 joints (cigarettes). A joint sells for about a dollar. Joints are hand rolled, smaller than tobacco cigarettes, and twisted on the ends. The end of a joint, a roach, is often held with a "roach clip" and smoked. Marijuana is also smoked in pipes and bongs (described under paraphernalia). Thai sticks are marijuana buds bound onto short sections of bamboo. Hashish is smoked in pipes or bongs. Hash oil is dropped on a cigarette or joint, or smoked in a special opium pipe. Dried marijuana can be eaten but is only one third as potent.

THC is fat soluble and is stored in the fatty tissues of the brain, reproductive organs, liver, kidney, and lungs. "It takes 30 days to eliminate a single dose of THC. ."[14] In comparison, alcohol is water soluble and excreted from the body in six hours. "Carefully conducted studies with known doses of marijuana or THC leave little question that tolerance develops with prolonged use."[15] Marijuana is psychologically addictive. There is evidence that it is also physically addictive, although there are no major physical withdrawal symptoms because of its slow metabolism and excretion.

IMMEDIATE EFFECTS

A single marijuana cigarette induces a "high" within minutes which lasts from 2 to 5 hours and usually does not result in a hangover. It gives an increased sense of well-being, and a dreamy, carefree state of relaxation. The user may experience sensations of floating and a more vivid sense of touch, sight, smell, taste, and sound. There is often a craving for sweets and dryness in the mouth and throat. The eyes may be irritated and red, and have a glassy look. The state of intoxication may not be noticeable to an observer, even an experienced drug user. Marijuana suppresses the nausea resulting from a large alcohol intake so that users are able to consume large (even fatal) quantities of alcohol.

EFFECTS ON DRIVING SKILLS

In a study done in 1974 by Dr. Harry Klonoff, 38 drivers covered a 16 mile route from a university campus to the traffic-heavy downtown area, and back again. They were rated by the system used to examine drivers for licensing. Final figures for the road test showed that those on the low dose (one joint with 1.2% THC) had a 42% decline in driving skills, while the high-dosage drivers (two joints with 1.2% THC) had a 63% decline. Unusual driving behavior included missing traffic lights or stop signs, poor handling of the vehicle in traffic, and unawarenss of pedestrians and stationary vehicles. A 1972 study of driving behavior in a safety-controlled area showed a "marked" decline in driving abilities was still present 5 to 6 hours after smoking, a "definite" effect 8 to 10 hours after smoking, and a lingering effect as long as 24 hours later.

EFFECTS ON THE LUNGS

Marijuana burns at a higher temperature, and its smoke is inhaled deeper and held in the lungs longer than tobacco. Marijuana has 50% more cancer causing materials than tobacco. Benzopyrene, a known cancer causing agent, is 70% more abundant in marijuana smoke than in tobacco smoke. Smoking less than one marijuana joint a day decreases vital lung capacity as much as smoking 16 tobacco cigarettes a day. Marijuana has an irritant effect on the airways, resulting in inflammation and airflow obstruction of the airways. Heavy pot smoking can cause sore throats, bronchitis, sinusitis, pharyngitis, emphysema and other respiratory difficulties in a year or less. Marijuana smoke weakens the defenses of the lung against infection and disease.

EFFECTS ON THE HEART

During the "high", which can last from 2-5 hours, the heart rate increases from the normal 70-80 beats per minute to as much as 130-150 beats per minute. The blood pressure also increases. As a result, the heart muscle requires more oxygen. The marijuana smoke increases the amount of carbon monoxide in the blood, thereby reducing the amount of oxygen delivered to the wanting heart muscle, and weakening its pumping action. Only 10 puffs of a joint reduces the amount of time one can exercise before chest pain occurs by 50%.

EFFECTS ON REPRODUCTIVE SYSTEM

Possible effects on the male include lowered sperm count, enlarged breasts, damaged sperm, and decreased testosterone (male hormone) levels. These effects seem to stop when usage is discontinued. The female may experience irregularities in the menstrual cycle, failure to ovulate, and lower female hormone levels. THC crosses the placental barrier and enters the fetal bloodstream. It also passes into breast milk.

EFFECTS ON THE BRAIN

In a study done on monkeys by Dr. Robert Heath of Tulane University, a heavy smoking group smoked 3 "monkey sized" joints with 2.5 to 3% THC per day, five days a week. A moderate smoking group, smoked one "monkey sized" joint twice a week. A light smoking group received one tenth the dose of the heavy smokers. A fourth group was given an equal dose of THC intravenously to control the variables of smoking effects. A control group was given inactive marijuana to smoke. The heavy, moderate, and intravenous groups showed lasting changes on their brain recordings after only 3 months of usage. The marijuana use was continued for an additional 3 months, and the abnormal changes persisted. The marijuana was discontinued for an 8 month period. Studies were then done on their brains with electron microscopy. The heavy, moderate, and intravenous groups had changes in brain function and in brain structure. Cellular changes were greatest in the areas which control emotion and memory. The findings correlate with the behavioral changes seen in marijuana users.

BEHAVIORAL EFFECTS

Two Philadelphia psychiatrists, Drs. Harold Kolansky and William T. Moore, conducted one of the earliest well-documented studies of the effects of cannabis on the psyche between 1965 and 1970. Only patients who displayed no psychological problems or predisposition to mental illness before marijuana usage began were used. The only drug used by patients was marijuana and/or hashish. They smoked two or more times weekly, usually two or more joints each time. Common symptoms displayed included mental confusion, inability to concentrate, diminished attention span, loss of memory, loss of motivation, lack of goals, and declining academic performance. Irritability and outbursts of aggression were common, especially if the patient was questioned about his personality change, new philosophy, drug use, or if his drug supply was threatened. Control of impulses and judgment was impaired. Most felt a growing sense of isolation from others, a desire to shun social activities, and deep-seated feelings of anxiety and depression. An altered sense of reality, and symptoms of paranoia were observed in many. All of these symptoms began with marijuana use and were reduced or disappeared within 3 to 24 months after marijuana use was stopped.

Dr. Jason Baron states, "Once marijuana no longer relieves the anxieties and conflicts, then a drug with stronger effects is often tried. Of the 6,000 patients treated by our program over the years, at least 90% started their drug usage with marijuana. Do not let marijuana smoking continue in your child, or it may become the first of many drugs he uses during life."[19]

REFERENCES: See page 11, Nos. 1 & 13-20.

MARIJUANA AND EFFECTS ON YOUNG ADULTS

by Harold Voth M.D.

In my experience there is only one certain way to be cured from marijuana smoking. The user must be totally isolated from the drug for a minimum of three months. Only after a period of sustained abstinence will the user become aware of the profound effects the drug has had on him and, at the same time, become free of its addictive effects.

The inability of the user to perceive himself or gain insight into what has happened to him over time is one of the truly pernicious and remarkable aspects of the effects of the drug. Talking rarely works; forthright decisive action by someone willing and able to take responsibility for the fate of the user is necessary. The chronic and heavy, and probably even moderate user, cannot take responsibility for himself.

CONTINUED ON PAGE 6

FROM PAGE 5 - DR. VOTH

How the person or persons exercise their responsibility to the user depends on the age of the user, his life circumstances, the severity of the retrogressive changes and deterioration of the user, and so on. I recommend sparing no effort whatsoever in achieving this objective. Searches are in order, use of police to back up parental authority if necessary, hiring a companion for the user, confinement to the home and hospitalization are all methods that I have recommended and have seen used.

Someone who cares must intervene, totally, consistently and with unrelenting perseverance. Efforts short of an all-out effort generally fail.

In summary, I believe chronic marijuana use affects judgment, motivation, perception, cognition, and will. In addition, the drug causes an overall deterioration of personality; it leads to an estrangement from the mainstream of life; it lowers performance in all areas; and it leads to a social phenomenon in which users bond together into both loose and tightly bound subsocial groups. The effects on the user's family life is frequently devastating.

In my opinion, the influx of marijuana into the United States constitutes a national crisis and should be combatted by the use of any and all methods until the flow of the substance has been completely stopped. It is remarkable that our federal government does not utilize our armed forces to supplement the coast guard and the county and state police to search out and destroy the ships and planes along with the cargo of drugs they carry...such an all-out effort seems entirely justified to me, in light of the incredible harm which is being done to millions of Americans...most of them our youth.

REFERENCE: See pg. 11, No. 7.

ALCOHOL

About 75% of Americans drink alcohol because they believe it helps them relax and is associated with social gatherings and "good times". While most new drinkers do not particularly enjoy the taste of beer, wine, and liquors, they persist until a taste for them is developed over time. Later many people begin to seek the relaxing effects of this drug to "forget" their troubles and to ease the stress of living.

IMMEDIATE EFFECTS

Alcohol is directly absorbed into the bloodstream from the stomach and small intestine, which if full, absorbs it more slowly than if empty. The blood carries alcohol to the brain, where it affects every level of the nervous system. Alcohol is a depressant, although as blood level rises or in small doses it causes a drinker to feel stimulated and confident. The rate of alcohol absorption is affected by a drinker's body weight (women, smaller, and younger people are affected faster than large men), presence of food in the stomach, and dilution of the drink. People who have just learned to use alcohol are more quickly and profoundly affected than "seasoned" drinkers, whose bodies have built up a tolerance to the drug. When the amount of alcohol in an individual's blood is somewhat high he tends to talk loudly and less distinctly, becomes socially uninhibited, or more courageous, and less attentive. An intoxicated person will have difficulty keeping his balance, will have a thwarted memory, and suffer from fluctuating moods. A very high blood alcohol level can cause muscle tremors, stupor, and eventual unconsciousness. A protective response by the body to an overdose of alcohol is vomiting. Death can occur from an alcohol overdose, particularly if tolerance is low, if other drugs or medications have been used, or if any other absorption factors mentioned above are present.

Contrary to popular belief, neither coffee, long walks, nor cold showers will speed the excretion of alcohol from the system. Only time will help a person become sober. Another myth is that beer and wine contain less alcohol than hard liquor. The alcohol content in a 12 oz. can of beer is the same as that of one 5 oz. glass of wine, or 1 1/2 oz. of 80 proof liquor (an average mixed drink).

INTERACTION WITH OTHER DRUGS

Of the 100 most frequently prescribed drugs, more than half contain at least one ingredient known to react adversely with alcohol. The interaction of other drugs with alcohol may be classified as antagonistic, additive, or supra-additive. The effectiveness of both drugs will be diminshed when the interaction is antagonistic. Alcohol inhibits the action of anti-convulsants and some anti-biotics. If the effect is additive, effects that are similar in the two drugs will be intensified. Antihistamines combined with alcohol will produce more sedation than if either drug were taken alone. Alcohol combined with marijuana results in poorer performance driving tests than when either substance is used alone. A supra-additive interaction produces effects more than double - in other words two plus two will not equal four but maybe five or even ten. A blood alcohol level as low as 0.10% combined with barbiturates has caused death. To prevent undesirable interactions, read labels and check with your doctor or pharmacist.

EFFECTS ON ADOLESCENTS

Since the average beginning age of alcohol use is 12.5 yrs. more research is needed on its effects on adolescents. Scientists think it is highly possible that alcohol can cause certain degenerative changes in the brain, especially in the pituitary gland, which governs growth, and the hypothalamus, which is closely associated with emotions and stress. "The younger the age at which an individual starts to ingest alcohol, the greater the chances that he will develop into a chronic alcoholic. For the action of the alcohol is channeled directly toward the adolescent's imbalanced hypothalamus and autonomic nervous system, thereby obstructing his emotional maturation on both psychological and physiological levels. The regular or frequent ingestion of alcohol during adolescence may produce a permanent imbalance of the hypothalamus and a concomitant irreversible malfunctioning of the autonomic nervous system, thereby leading to the development of chronic alcoholism. In brief, the direct action of the alcohol on the hypothalamus produces chronic alcoholism."[11]

EFFECTS ON DRIVING

Alcohol is known to reduce a person's ability to judge distances, speed and angles, as well as one's ability to handle machinery. Because of its uninhibiting effects, alcohol causes a tendency in drivers to take risks and feel overconfident in spite of adverse conditions. It also causes impaired reflexes, forgetfulness and sleepiness. Over 60 deaths every day in this country are due to drunk driving.

CHRONIC EFFECTS ON BODY ORGANS

Continued use of alcohol damages and eventually destroys brain cells, since its action is six times as great on nerve cells as on other cells in the body. From 50% to 70% of alcoholics entering treatment have some central nervous system impairment. Long term alcoholics may develop the Wernicke-Korsakoff syndrome, (the alcohol amnesia syndrome).

Alcohol is directly toxic to the liver and can cause fatty liver, hepatitis and cirrhosis (degeneration). Alcoholism can be associated with pancreatitis, stomach ulcers, and cancers of the mouth, throat, larynx, stomach, intestines, liver, and pancreas. Many authorities feel alcohol abuse is the most common cause of vitamin and mineral deficiencies in adult Americans.

Alcohol has a toxic effect on the heart muscle, causing heart palpatations and difficult breathing. It can lead to heart failure. High blood pressure is common among alcoholics.

Many hormonal imbalances are also caused by alcohol, especially in the reproductive system. It is closely associated with male impotence, infertility, and menstrual disturbances in women. It causes increased insulin secretion, causing diabetic-like symptoms in some people.

In pregnant women, even small amounts of alcohol can pass through the placenta and affect the fetus. Fetal Alcohol Syndrome identifies a characteristic combination of birth defects in infants born to alcoholic mothers. It is the third leading cause of mental retardation in newborns. Alcohol passes into breast milk to the nursing infant.

PHYSICAL DEPENDENCE AND WITHDRAWAL

Physical dependence can develop after 3 to 5 years of very heavy drinking, but more often it requires 10 to 20 years of heavy drinking. Early stages of the withdrawal syndrome may be characterized by nausea, vomiting, irritability, tremors, sweating, and insomnia 6 to 8 hours after heavy drinking has stopped. A more advanced syndrome, delirium tremens (DTs), can include increased blood pressure, heart rate, and temperature; visual, auditory, and tactile hallucinations; severe confusion; heavy tremors; and possible convulsions 2 to 4 days after abrupt withdrawal. Even with proper medical care DTs can be fatal.

CROSS TOLERANCE

A by-product of increased tolerance in heavy drinkers is a cross-tolerance for certain drugs. It occurs only when the person is sober. He may either be less sensitive or more sensitive to the other drug. Alcoholics require higher doses of ether to be anesthetized. Barbiturates or sedatives will have less effect, consequently the sober heavy drinker may take larger doses. Other drugs may require lower doses for the desired effect. Some chemicals may also be more toxic for the alcoholic. Carbon tetrachloride will damage the liver of an alcoholic more than that of a non-alcoholic.

REFERENCES: See page 11, Nos. 1 & 8 - 12.

STIMULANTS

Chemical agents which stimulate the central nervous system are called stimulants. Two of the most prevalent legal stimulants are nicotine, found in tobacco, and caffeine found in coffee, tea, chocolate, and some bottled beverages such as Coca-Cola and Pepsi-Cola. These stimulants relieve fatigue and increase alertness. More potent stimulants which have a high potential for dependency and tolerance are under regulatory control of the Controlled Substance Act. They include cocaine and the amphetamines.

The effects of amphetamines and cocaine are very similar, although the amphetamines are slower and longer acting. Possible effects of stimulants are increased alertness, euphoria, increased energy, a feeling of being powerful and able to master any task, followed by irritability, anxiety, and apprehension. Physical effects include dilated pupils, increased pulse rate, elevated blood pressure, insomnia, loss of appetite, dry mouth, and bad breath. Very high doses can produce tremors of the hands, arms, and legs, hallucinations, paranoia, disorientation, and seizures. If taken by intravenous injection, a sudden "flash" or "rush" usually occurs, followed by a very depressing "crash," which the abuser often counteracts with another dose.

Chronic stimulant users are usually polydrug users. They rely on alcohol and/or other depressant drugs to relieve their tenseness, depression, and insomnia caused by their stimulant use. Chronic users can develop a measles-like rash, weight loss, and probably because of poor nutrition, have trouble with their teeth, gums, nails, and hair. They may begin grinding their teeth, have muscle twitches, exhibit memory loss and paranoia with hallucinations, and have decreased sex drive. Brain damage can occur. When used intravenously over a period of time the user is subject to the complications of unsterile and adulterated injections such as blood infections, AIDS, hepatitis, lung abscesses and endocarditis.

Overdoses may be indicated by dizziness, tremors, an agitated state, headache, flushed skin, chest pains, sweating, vomiting and cramps, high fever, and possible convulsions. Fatalities have been reported among athletes who have been under extreme exertion after using moderate doses of stimulants.

Immediate withdrawal symptoms may last for several days with profound depression, apathy, fatigue, and disturbed sleep for up to 20 hours a day. Anxiety, tenseness, impaired perception and thought processes, and suicidal tendencies may persist for weeks or months.

COCAINE

"An incredible 22 million Americans - one out of every 10 - report that they have used cocaine at least once. And every day, some 5,000 teenagers and adults try it for the first time".[22] It is the fastest growing drug of abuse. In a recent study, the average daily cocaine user spent a weekly average of $637 for cocaine, with a range of $100 to $3,200.[22] It is often called the "Great Addictor".

Cocaine is distributed as a white crystalline powder. In professional medicine it is used as a local anesthetic. Illegally it is used for its euphoric effects. It is usually sniffed or "snorted" through a straw, rolled up dollar bill, or tiny "coke spoon". Because it constricts the blood vessels in the nose, it often results in a stuffy, running nose and nasal irritation, relieved by nasal decongestant sprays. Chronic snorting can lead to erosion and even perforation of the nasal septum. For immediate, more intense, but shorter results it can be injected intravenously or smoked in a free-base form. Using special kits available in paraphernalia stores, the user removes the hydrochloride salt and inert adulterants from the cocaine converting it to free-base, which is suitable for smoking. The conversion process is very dangerous because it uses ether, a highly flammable and explosive substance, which is usually evaporated over a flame. "Freebasing" and IV injection also entail the risk of respiratory failure and death. Depending on the avenue of administration, effects can last several hours but the euphoric high lasts only 15 to 40 minutes followed by a let-down and desire for more of the drug. Chronic cocaine users are sometimes afflicted with tactile hallucinations such as imaginary insects crawling under their skin, often referred to as "coke bugs."

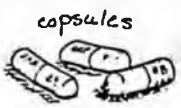
Some slang terms for cocaine are big C, coke, nose candy, snow, white, and snowbirds. Synthetic cocaine composed of a "caine" drug such as lidocaine and glucose is being sold legally as an incense in head shops and through the mail under such names as Toot, Florida Snow, Supercaine, Ultracaine, Base-O-Caine, and Superior Caine. Deaths have been reported from these preparations which are not controlled by the Drug Enforcement Administration.

AMPHETAMINES

Amphetamines are used medically for narcolepsy (uncontrollable desire for sleep), hyperactive behavior in children, and for weight reduction. Vast quantities are produced illegally for the illicit market, especially methamphetamine ("crystal methedrine"), the most potent amphetamine. They are ususally taken orally but can be injected intravenously. Some brand names are Benzedrine, Biphetamine, Desoxyn, and Dexedrine. Look-a-like pills are often sold as amphetamines. Slang terms include speed, uppers, ups, beans, bennies, black beauties, bumblebees, hearts, pep pills, co-pilots, and footballs.

Other stimulants which may be abused are Ritalin and Cylert used medically for hyperactive children, and the appetite suppressants such as Preludin, Didrex, Pre-State, Voranil, Tenuate, Tepanil, Pondimin, Sanorex, Plegine, and Ionamin.

REFERENCES: Page 11, Nos. 1, 21, 22,& 29.



DEPRESSANTS

Substances classified as depressants under the Controlled Substance Act have a high potential for physical and psychological dependency with tolerance developing rapidly. In street language they are "downers" or "downs." Sedatives or sleeping pills and tranquilzers make up this classification. Most of these drugs are taken orally. Therapeutic low doses produce mild sedation and relief of anxiety, irritability, and tension. Higher doses, used by abusers, may relieve anxiety, produce temporary euphoria or the other extreme of mood depression and apathy. They are often used to sooth "jangled nerves" brought on by stimulants, to soften "flashbacks", or to ease a withdrawal from heroin. Intoxicating doses can result in impaired judgement, slurred speech, distorted vision, and often unrealized loss of motor control, making driving dangerous. The user may be quarrelsome and appear intoxicated with no odor of alcohol. Large doses could also induce sleep, stupor, respiratory depression, coma and even death. When mixed with alcohol or other drugs the effects can be very dangerous, sometimes causing death. A moderate overdose resembles alcohol intoxication. A severe overdose causes dilated pupils, cold clammy skin, weak and rapid pulse, either slow or rapid breathing and possible coma. Withdrawal symptoms of depressant addiction are more severe and dangerous than of heroin addiction. Withdrawal should only be attempted in a controlled hospital environment.

SEDATIVES

The following include the more common street drug depressants. Among the barbiturates are Nembutal, Seconal, Amytal, and Tuinal. Some slang terms, often indicating the color of the pills, are barbs, bluebirds, blue devils, red birds, red devils, yellow jackets, and yellows.

Commonly abused non-barbiturate sedatives are Placidyl, Chloral Hydrate, Doriden, Noludar, and Methaqualone (Quaalude). In 1980 Quaaludes followed marijuana as the drug of choice of teenagers. In 1984 this drug was virtually eliminated from the streets when the only legal manufacturer of Quaaludes in the U.S. discontinued their production, and the DEA declared war on illegal importation of the drug.

TRANQUILIZERS

Tranquilizers are the least toxic of the depressants but are highly addictive. Because they are fat soluble, they are eliminated from the body slowly, and withdrawal symptoms do not occur until 7 - 10 days after the drug is discontinued. They are used therapeutically to relieve muscle spasms and anxiety. Since both alcohol and tranquilizers are found in many homes, they are easily abused together by young people. The most common tranquilizers are Valium, Librium, Equanil, Miltown, Serax, Tranxene, and the more potent ones, Thorazine, Mellaril and Halcion. Valium is the most frequently prescribed drug and the most frequently abused drug in drug related emergency room admittances in this country.

REFERENCE: See page 11, No. 29.

LISTEN TO WGTS 91.9 FM

STRAIGHT TALK

RADIO SHOW

TUESDAY EVENINGS - 6:30 TO 7:30

Bill Burns interviews a guest who is experienced in a specific aspect of substance abuse. Call in with your questions about symptoms of drug and alcohol use, rehabilitation programs, parent awareness groups, etc. The program is produced by the Panel on Drug Awareness (PDA), a non-profit media production company.

HALLUCINOGINS

Hallucinogens, often called psychedelics, affect perception, sensation, thinking, and emotions. The user may have difficulty distinguishing between fact and fantasy and may refer to seeing sounds or hearing colors. Other possible effects may include dilated pupils, incoherent speech, lack of coordination, cold, sweaty hands and feet, vomiting, laughing, crying, shivering, goose pimples, irregular breathing, a strong body odor, and suicidal or homocidal tendencies. Chronic use can cause brain damage. The effects may be different in each person with each administration. Persons in hallucinogenic states should be upset as little as possible to keep them from harming themselves or others.

PCP

Phencyclidine or PCP is the most commonly used hallucinogen. Many authorities consider it to be the most dangerous of all drugs including heroin. Because it is so easily and inexpensively produced in bootleg laboratories, it is often sold as another drug, especially LSD. It is sold as a liquid, a white powder (angel dust), crystals, or in pills called "hogs" or PeaCe Pills. PCP can be taken orally or injected but smoking it after being sprayed on cigarettes, parsley or marijuana is the preferred route. The liquid is sometimes dropped in the eye for faster absorption. This can damage the eye. PCP has the odor of ether. One ounce of PCP yields 30-40 dime ($10) bags or foil packets. When sprayed on marijuana it costs about $15 for one fourth of a teaspoon. Some slang terms for PCP include KW, killer weed, green, tac, DOA (dead on arrival) rocket fuel, supergrass, and elephant tranquilizer. PCP sprayed on marijuana is called lovely or loveboat.

Diagnosis of PCP use is frequently missed because the user often looks normal, yet PCP can cause very violent and bizzare behavior, injuring the user or those around him. There are several reasons for this. Physical strength can be greatly increased under the influence of PCP. Police report incidences of users breaking handcuffs and becoming very violent. The drug is an anesthetic and numbs the user so he does not feel physical harm he may do to himself. The drug is also an amnesic so the user may not remember what he did under the influence of the drug. More deaths are caused by the resultant behavior than from the physical effects of the drug. Psychotic behavior may continue for as long as 2 weeks after a single dose. Some adolescents are smoking PCP on a daily basis. When combined with marijuana on a daily basis the user can barely function.

LSD

Lysergic acid or LSD is once again a poplular street drug. It is a difficult and dangerous drug to manufacture. For this reason PCP is often sold as LSD. It is odorless, colorless, and tasteless. Doses of LSD are miniscule - an aspirin sized tablet makes 2 million hits and is worth $600,000. LSD requires very careful handling since it is absorbed through the skin when touched. It is sold in the form of tablets, thin squares of gelatin ("window panes"), and impregnated paper ("blotter acid"). The window panes can be put in the eye under the eyelid for quick absorption or for quick removal of evidence of possession. The blotter acid often looks like stamps which have pictures or Disney type characters (especially attractive to children) on them. It is put on the tongue or licked. Drops of LSD can be frozen in ice cubes or dropped into someone's drink unknown to the recipient. Some slang terms for LSD are acid, green or red dragon, paper acid, white lightening, blue heaven, purple haze, sugar cubes, and blotter acid.

LSD is stored in the fatty tissue of the brain and slowly released back into the bloodstream. This can cause the user to experience "flashbacks", which are the recall of unpleasant effects of the drug weeks or months after the last dose.

MESCALINE

Mescaline is the active ingredient of the peyote cactus and is used as part of the religious rites of some American Indian tribes. It is sold as Peyote buttons which are sliced off the plant and dried to form a hard brown disc. The buttons are chewed and swallowed and have a very foul taste. It is very irritating to the eyes requiring the protection of sunglasses for a week after usage. Synthetic mescaline is rarely found on the streets because of its very high cost. A drug sold as mescaline is usually PCP.

MUSHROOMS

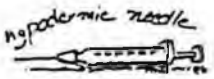
Psilocybin and Psilocyn are derived from certain mushrooms which are brewed in a tea. The taste is very unpleasant. They are chemically related to LSD. Kits are available for growing them through drug culture magazines. Substances sold as mushrooms usually are PCP.

REFERENCES: See page 11, Nos. 1 & 29.

CALL THE ABC

Suspected violations of alcohol control laws may be reported to the Virginia Department of Alcohol Beverage Control (ABC) by calling a toll-free number in service 24 hours a day, 7 days a week. The Department urges citizens to call. Know the name, address, and town where the violation occured.

CALL 1-800-522-3200



NARCOTICS

The term narcotics refers to opium, its derivatives, and synthetic substitutes. Narcotics are physically and psychologically addictive drugs. In professional medicine, they are the most effective pain relievers known. Drug abusers use them for their euphoric effects. Other effects may include drowsiness, stupor, poor coordination, confusion, watery eyes, pinpoint pupils, loss of appetite, slowed breathing and pluse rate, nausea, constipation, and excessive itching. Indications of overdose are deep sleep, stupor, slow shallow breathing, cold clammy skin, limp body, and a relaxed jaw. Coma and/or convulsions can occur. Death may result from respiratory depression. Chronic addiction can lead to malnutrition, neglect of general health, infections from contaminated syringes at sites of injections, blood infection, hepatitis, AIDS, or endocarditis. Physical withdrawal symptoms may include muscle cramps, chills and sweating, and nausea which may last 4 to 10 days after the drug is stopped.

The most commonly abused narcotics are the most addictive ones with tolerance developing rapidly. The intravenous route, "mainlining," is preferred by users. Heroin gives the most intense "high". It is a powder which may range in color from white to dark brown. It may also be snorted, smoked, or injected under the skin, "skin popping." Some slang terms for heroin are big H, boy, brown sugar, snow, stuff, junk, smack, scag, and horse.

Morpnine, Demerol, Methadone, Dilaudid, and Percocan are other narcotics frequently abused. They may be taken orally but injection is preferred by abusers.

Opium may be smoked through a long stemmed pipe. It is also used in antidiarrheal preparations such as paregoric.

Codeine is less addictive and produces less euphoria than the above drugs. It is usually taken orally in preparations combined with Emperin Compound, Aspirin, or Tylenol. Codeine also acts as a cough suppressant and is found in some cough medicines such as Robitussin AC, Cheracol, and Elixir of Terpin Hydrate with Codeine. While Codeine is generally not preferred by narcotics addicts, it should be noted that it is a drug often present in many homes of adolescents who are experimenting with drugs. It should be kept in a locked container.

Darvon and Talwin are pain relievers, not classed as narcotics, but their misuse has caused them to be regulated by the Controlled Substance Act.

Fortunately, narcotics are not frequently abused by adolescents, but as young adults become bored with the other drugs they have been using and their tolerances build up they "graduate" to this classification.

REFERENCES: See page 11, No. 29.

* * * * * COMING IN APRIL * * * * *

PANDAA MOCKTAIL PARTY

DANCE TO THE STARLIGHT ORCHESTRA'S BIG BAND MUSIC OF THE PAST 40 YEARS

AN ALCOHOL FREE DANCE

PARENTS OF TEENS

OFFERS YOU

CONFIDENTIALITY

ANONYMITY

CARE

CALL 237-8121

Parents who have had a child recover from an alcohol and/or drug problem give their volunteer time to help you understand what is happening in your family. They will listen to you. They can relate their own personal experience to you. They understand the hurt, anger, fear, and disruption caused by drug and alcohol problems in the family. They will help and support you.

A parent is on call Monday thru Friday, from 9 a.m. to 5 p.m. to answer your questions, give you support, and mail information to you. Resource lists for those conducting drug awareness meetings are also available. The area code for callers outside the Washington DC area is 703.

DRUG INFORMATION SERVICE

A state-wide toll-free telephone information service provides telephone access to recorded information tapes, 2-3 minutes long, on drug and alcohol related topics. Trained operators are available to supplement the taped messages in the event of emergencies. It is a 24 hour service for push button phones, and a 9 a.m. to 3 p.m., Mon. thru Fri. service for rotary dial phones. Tapes and their No. Virginia code nos. include:

Marijuana
125 - a brief overview
121 - effects - females
126 - effects - males
120 - damage to lungs
127 - increased potency
119 - physical tolerance
128 - emotional impact
124 - body accumulation
117 - Amphetamines
129 - Tranquilizer
130 - Barbiturates
134 - Drug use by youth
135 - Alcohol
118 - Cocaine
133 - Codeine
132 - Heroin
131 - LSD
115 - Opium
114 - Morphine
113 - Methadone
116 - PCP
112 - Smoking

CALL 1-800-552-3784

DID YOU KNOW?

* Virginia law allows a judge to suspend the drivers license for up to one year of any underage person convicted of purchase or possession of alcoholic beverages. This is in addition to a fine for the offense. From Va. Code *4-62, & 4-112(c).

* You can be fined up to $500 and receive up to 6 mos. in jail for drinking or possession of any alcohol on school grounds during school hours or any school activity. From Va. Code *4-78.1.

* You can be fined up to $1,000. and/or be put in jail for up to 1 year if you purchase alcoholic beverages for anyone under 19 years of age. From Va. Code *4-112.1(a).

* If your minor child is abusing driving responsibilities, you can have his license suspended and ask that no duplicate be issued.

INHALANTS

It was once thought that "sniffing" was just a "passing thing" that kids "grow out of." Recent studies show that these youngsters often become our heaviest drug users. As nitrous oxide and butyl nitrite become more and more popular with college students, inhalant use is no longer just "kid stuff."

Inhalants are volatile substances inhaled intentionally for their intoxicating effects. Their effect is immediate because the substance passes directly into the blood stream. Effects usually last for a few minutes, but sometimes can last longer. Because the high is so short, users often inhale repeatedly during each sniffing episode. Inhalants can be classed into three main categories: 1. commercial solvents and aerosol sprays mostly used as cleaning or beauty agents, glues, or as fuels; 2. anesthetics; and 3. the volatile nitrites.

SOLVENTS AND AEROSOL SPRAYS

Some commonly abused items in this group are spray paints, hair sprays, vegetable oil sprays, cold weather car starters, air sanitizers, window cleaners, furniture polishes, insecticides, disinfectants, spray medications, deodorants, gasoline, transmission fluid, glues, paint thinners, nail polish and removers, magic markers, typing correction fluid, and shoe polish. Low doses may produce slight stimualtion, moderate doses cause one to become uninhibited, and high doses can cause loss of consciousness and sometimes death. Especially dangerous is inhaling from a bag. Other effects may be drowsiness, headaches, nausea, vision disturbances, watering of eyes, excess nasal secretions, coughing and salivation, chemical smell on the breath, sores on the nose and mouth, pallor, flushing, and poor muscular control. Long term use can cause damage to the central nervous system, liver, kidneys, blood, and bone marrow.

ANESTHETICS

Nitrous oxide (laughing gas) is used as a general anesthetic, especially in dental offices, and among other uses, as a propellant for whipped cream. For making whipped cream it is either in an aerolized spray can and considered a legitimate food additive, or in a small 8 gram metal cylinder used with a dispensing machine. These cylinders are called "Whippets" and are now sold in head shops and some record stores. Paraphernalia is sold to use with the cylinder, such as a balloon from which the gas is inhaled and a pipe ("Buzz Bomb") which combines with the cylinder. The production of Whippets has tripled in the last few years.

Adverse reactions can include shortness of breath, nausea, variations in heartbeat, and hearing loss. Long term use can cause nerve damage. Death can occur if the gas is inhaled without sufficient oxygen.

VOLATILE NITRITES

The most common nitrites in use are amyl nitrite and butyl nitrite. They are used as a euphoriant and as a sexual stimulant. The high produced lasts only a few seconds to a minute. Consequently users tend to inhale repeatedly during each sniffing episode. The nitrites temporarily dilate the blood vessels, causing the heart to beat harder and faster and fill the blood vessels with blood. Other effects include rapid pulse, headaches, dizziness, flushed face, lowered blood pressure, nausea and vomiting, fainting, and involuntary passing of urine and feces. Increased intraocular pressure with headaches can be a symptom of nitrite use rather than glaucoma. Long term use can cause an impetigo-like rash around the nose and mouth. It is felt that prolonged use may be linked to hepatitis and brain hemorrhage.

Amyl nitrite is a clear yellowish liquid with an ethereal, fruity odor. It was formerly used for treatment of the heart disease, angina pectoris, but has been replaced by other drugs. It is supplied in 0.3 ml. glass containers, enclosed in a gauze jacket of woven absorbent covering which is easily broken and inhaled. The popping sound when broken gives it the street name, "poppers" or "snappers."

Butly nitrite is a liquid which smells like dirty socks or a locker room. A fragrance is added to it and it is legally sold as a "room odorizer" in adult book stores, head shops, and by street vendors. FDA has no control over it. From 4 to 10 million vials of it are sold each year, mainly to older teenagers and young adults. Trade names include Rush, Bolt, Locker Room, Bullet, Jac Aroma, Climax, Loc-A-Roma, Shotgun, Satan's Scent, and many others.

REFERENCES: See page 11, Nos. 22 - 27.

LOOK-ALIKES

A popular addition to the drug scene are the look-alike drugs. Originally they were manufactured to resemble, or look like, prescription stimulants and depressants, with numbers, letters, or markings similar to the drugs they were copying. Because of the passage of "look-alike" laws and certain judgements by the FDA, the manufacturers are also selling pills that no longer look like controlled substances. They are sold in bottles of 100 or 1,000 in stores and through flyers in the mail, often referred to as "legal stimulants", allowing a young seller a very high profit margin. When sold as uppers these pills usually contain caffeine alone or in combination with ephedrine. When sold as downers they usually contain antihistamines.

CAFFEINE: At normal doses, caffeine is a mild stimulant that reduces fatigue and suppresses appetite. In larger amounts, or when there is a sensitivity to caffeine, it may cause restlessness, anxiety and insomnia. The amount of caffeine in look-alikes varies anywhere from 37.1 mg. to 323.8 mg. An average cup of coffee contains 100 mg. of caffeine. Serious side effects have been reported from using more than 600 mg. of caffeine a day.

EPHEDRINE: Medically, ephedrine is often used as a broncho dilator in asthmatic preparations and as a decongestant in prescription and over-the-counter preparations. It is similar to adrenalin. The effects of ephedrine are stimulation of the central nervous system, constriction of the arterioles which causes shrinkage of the mucous membranes and relief of nasal congestion, increased blood pressure and heart rate, dilation of the pupils, dilation of the bronchials, nausea, headache and anxiety.

ANTIHISTAMINES: Antinistamines are used to relieve symptoms of colds and nasal allergies, and to relieve itching caused by allergic reactions. Side effects include drowsiness, dizziness, dryness of the mouth and throat, and disturbed coordination. However insomnia, nervousness, and even convulsions can occur.

Each of the ingredients in look-alikes is dangerous when taken in sufficient quantities. To get a high, kids quickly learn they must ingest several of these pills, or even a handful. By October of 1983 12 deaths had been associated with these drugs due to caffeine intoxication. There is also a danger that a child accustomed to the weak "copy-cat" drug will unknowingly buy the authentic drug, take several pills, and overdose.

REFERENCE: See page 11, No. 30.

* * * * * * * HOTLINES * * * * * * *

PANDAA Parents of Teens (Wash DC Area)
703-237-8121, Mon. - Fri., 9 am to 5 pm
National Federation of Parents
local, 649-7100, or 800-554-KIDS
Pride Drug Information - 1-800-241-9746
National Institute on Drug Abuse
local-443-6500, or 800-638-2045
National Cocaine Hotline - 1-800-COCAINE
Fairfax-Woodburn Center - 573-5679
Family & drug abuse emergencies
Families Anonymous-Richmond-804-771-9109

RESOURCE LIST

NATIONAL FEDERATION OF PARENTS FOR DRUG FREE YOUTH (NFP) Assists in the formation and networking of local parent groups in every state. Member groups less than 15 mos. old are eligible to use NFP's tax exempt status upon completion of proper forms. Membership includes newsletter. NFP offers pamphlets on marijuana, alcohol, and cocaine, at $8.00/100; A Parent Group/Community Task Force Starter Kit & Education Kit/Public Speaking Manual, $5.00 each; Press/Media Guidelines, and Anti-Paraphernalia Kit, $4.00 each; Membership - individual - $10.00, group - $20.00. 1820 Franwall Ave., Suite 15, Silver Spring, Md. 20902, tel. local 649-7100 or 800-544-KIDS (toll free hotline).

VIRGINIA FEDERATION OF PARENTS (VFP) - Assists in formation of groups in Virginia, publishes a newsletter, and co-ordinates legislative goals for Virginia. Membership - individual - $5.00, group - $10.00. P.O. Box 279, Chesterfield, VA 23832, Ph - 804-320-8778.

VIRGINIA COALITION OF PARENTS (VCP) - A statewide parent group oriented toward legislative aspects of substance abuse. P.O. Box 4155, McLean, Va. 22103, tel. 703-455-2230

COMMITTEES OF CORRESPONDENCE, INC. - Newsletter and news flashes sent on urgent issues which need action. A must for group leaders. Excellent resource list available. Membership is $10.00. P.O. Box 232, Topsfield, MA 01983, tel. 617-774-2641.

PRIDE - Newsletter, many publications, and audio-visual aids. Conducts an annual conference and sponsors 1 day conferences for other groups. Drug use survey available. Maintains list of youth groups in U.S. Membership - $8.00. Woodruff Bldg., Volunteer Service Center, Suite 1216, 100 Edgewood Avenue. NE, Atlanta GA 30303, tel. 1-800-241-9746.

FAMILIES IN ACTION - Maintains a drug information center. Publishes Drug Abuse Update Newsletter - $5.00/4 issues, with 16 pages of abstracts of articles on all aspects of drug abuse. Full texts of articles available. 3845 N. Druid Hills Rd., Suite 300, Decatur, Ga. 30033, tel. 404-325-5799.

NATIONAL CLEARINGHOUSE FOR DRUG ABUSE INFORMATION (NIDA) List of free publications available. Parents, Peers, and Pot II, a 100 page book, is excellent for awareness programs. Up to 50 free copies can be ordered. Allow 2-4 weeks for delivery. A must for awareness programs. 5600 Fishers Lane, Parklawn, Md. 20852, tel. 301-443-6500.

NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM (NIAAA) CLEARINGHOUSE - List of free publications available. Will do search on any aspect of alcohol use you request. P.O. Box 2345, Rockville, Md. 20852, tel. 301-468-2600.

AMERICAN COUNCIL ON DRUG EDUCATION - Excellent publications for sale. 6193 Executive Blvd., Rockville, Md. 20852, tel. 301-984-5700.

FREE CATALOGUES - Offer many good self help, AA, and educational publications. Comp Care Publications, 800-328-3330 and Hazelden Educational Services, 800-328-9285.

MARIJUANA UPDATE - Booklet of 4 Reader's Digest articles, $1.25, reasonable quantity discounts. Permission has been granted for anyone to reprint these articles on their own. Reader's Digest Reprint Editor, Pleasantville, N.Y. 10570, 800-431-1726.

ADOLESCENT DRUG & ALCOHOL ABUSE - by Donald I. MacDonald, M.D. A 200 page book written by a pediatrician. Includes: The Epidemic of Adolescent Drug Abuse, Progressive Stages of Drug Involvement, Chemical Dependency, The Drugs, The "Do-Drug Environment, The Susceptible Child, The Parent Revolution, Diagnosis and Intervention, Treatment and Follow-up, Prevention Through Laws and Education, The Role of the Physician. Cost, $15.95. Call 800-621-9262.

GONE WAY DOWN - TEENAGE DRUG ABUSE IS A DISEASE - by Miller Newton, Ph.D. A 72 page book which describes the progression of adolescent chemical dependency. Cost $4.00 includes postage. Send to Joyce Tobias, 4111 Watkins Trail, Annandale, Va. 22003.

COMMUNICATIONS NETWORK HANDBOOK - Free 62 pg. resource on all types of media work for parent groups. Good newsletter information. DHHS Publication #(ADM) 81-981. Office of Communications & Public Affairs, 5600 Fishers Lane, Rockville, Md. 20852.

COURTWATCH MANUAL - 111 page manual explains the court system, criminal justice process, courtwatch activites, and what you can do before and after a criminal is sentenced. Send $2.00 to Washington Legal Foundation, 1612 K St. NW, Wash. DC 20006.

COMMUNITY SERVICES

AL-ANON & ALA-TEEN - 241-2011 (VA) 882-1334 (MD&DC) - Free self-help groups for the parents, spouses, children, and siblings of alcohol abusers who may also be drug abusers.

ALCOHOLICS ANONYMOUS - 241-8195 (VA) 966-9115 (MD&DC) - Free self-help groups for alcohol abusers who may also be drug abusers. Young peoples groups meet every night.

ALCOHOL REHABILITATION, INC. (ARI) - 841-0660 (Arlington) - Private, non-profit, residential treatment facility for chemical dependency for all ages. Ninety day program.

ALEXANDRIA DIVISION OF SUBSTANCE ABUSE SERVICES - 750-5704

ARLINGTON COUNTY ALCOHOL AND DRUG PROGRAM - 528-0884

ARLINGTON HOSPITAL ALCOHOLISM UNIT - 558-6536 - 28 day, inpatient, alcoholism adolescent (13-18) program and an adult program. Includes assessment of alcohol and drug use, use of AA principals, 4 nights a week family program, and 15 weeks aftercare.

CHEMICALLY DEPENDENT ANONYMOUS - 474-0443 (MD) - Self-help group similiar to AA.

DISTRICT OF COLUMBIA SUBSTANCE ABUSE ADMIN. - 727-0443

FAIRFAX COUNTY/FALLS CHURCH COMMUNITY SERVICES BOARD - 281-6420 - County agency whose fees are based on a sliding scale. No service is ever refused for inability to pay. Offers many mental health services. Some are:
Crossroads - 691-2468 - Out patient and small residential drug rehab program for all ages.
Local Alcoholic Services (LAS) - 533-0180 - Outpatient program for alcohol problems.
The New Beginning - 968-7330 - In-house 28 day program for alcoholics.

FAMILIES ANONYMOUS - 620-9353 (Herndon), 460-5839 (Bethesda), 262-4473 (Bowie) Free self-help group for parents of abusers.

HEGIRA HOUSE - 703-343-6332 (Roanoke) - Long term residential program for adolescents and adults. Sliding fee scale. Drug free and uses AA principles. Director recovered addict.

MONTGOMERY COUNTY HEALTH DEPT. DRUG COUNSELING PROGRAM - 565-7729

NARCOTICS ANONYMOUS - 338-7989 (Va.), 459-9355 (Md.), 338-7989 (DC) - A self-help group patterned after the steps of AA.

PRINCE GEORGE'S COUNTY HEALTH DEPT. DIRECTORATE OF ADDICTIONS - 345-2000

RAP, INC. - 462-7500 - (DC) Non-profit, long term, residential program for all ages.

SALVATION ARMY - 642-9270 (VA) - A residential 90 day adult alcohol and drug rehabilitation program based on the steps of AA. Includes AA meetings several times a week. There is no fee, since the clients work 40 hrs. per week at the Salvation Army building.

SECOND GENESIS - 683-4610 (VA) 656-1545 (MD) Non-pofit, long term, residential drug rehab program for all ages. Evaluation and screening, individual, group and family therapy, and vocational services are included. Most individuals are eligible for funding.

STEP ONE SERVICES - 671-6322 (VA) - Private out-patient program. Three counseling sessions per week plus three AA meetings per week. Average length of program is 6 months. Alcohol and drug free status is monitored by use of antabuse and urine screening. Antabuse is a medication which makes one very ill when alcohol is consumed.

STRAIGHT, INC. - 642-1980 (VA) - A not for profit family oriented drug and alcohol rehabilitation program for youth 12-21. The program utilizes the principles of AA and rational therapy combined in a unique group format. Programs are provided for parents and siblings. To attend an open meeting on on Monday or Friday call 48 hours in advance. Assessments done. Out of town clients accepted.

TOUGHLOVE - 569-8915 (Springfield), 522-9038 (Arlington), 361-7633 (Manassas), 670-9075 (Woodbridge), 530-6718 (Beth.), 577-1038 (Lanham), 635-2169 (DC) - A free self-help group for parents experiencing any kind of behavior problems with their child.

NFP SAYS:
COME ON AMERICA! STICK YOUR NECK OUT FOR KIDS AND HELP STOP ADOLESCENT DRUG AND ALCOHOL USE!

FROM PAGE 1 - A PARENT'S STORY

about my own feelings that I did not know at this point whether I did reject him or not. Psychiatrists, family therapists, and drug counselors reinforced my guilt by attributing his drug use to problems in my marriage, problems which were being exacerbated or actually caused by his drug use! This self-doubt, leading to self-hatred for being such a terrible father, was for me the worst aspect of the ordeal. Meanwhile, I was getting about three or more phone calls a week in my office from teachers, counselors, and the principle telling me he had come to school drunk, had been taking pills at school, was missing from class, etc. As I now know, he was in fact using his school as a place to obtain drugs and make contact with "druggie" friends.

Meanwhile, my daughter, in the sixth grade at the time, was following in his footsteps, getting more and more hostile, carving names of rock groups into her hand with razors, wearing tons of make-up, and basically spitting in the face of our family. My marriage was going down the drain along with my kids' lives. Everyone in the home was in tremendous pain. My third kid was withdrawing into himself, and also starting to experiment with drugs to gain the acceptance of his druggie siblings and friends.

Fortunately for us, we found a very rigorous drug rehabilitation program which worked for our family. Our kids have undergone what appears to be a transformation, but is really just the result of good, loving therapy leading to self-awareness. I personally feel better now than ever before in my life - happier with myself, more loving, and stronger than ever before. More has happened than just getting rid of drugs, much more. Each of us has grown with the support, love and help of this program, and I will be grateful from the depths of my heart to it forever.

COURTWATCH

What happens to drug dealers? Join the PANDAA COURTWATCH and find out. We attend trials and sentencings of drug related cases and compile our observations. With our data we are effecting changes in the judicial system and the laws. If you can help once a week or once a month call:

CALL 237-8121

VIRGINIA TEACHER IMMUNITY LAW

*8.01-47. Immunity of school personnel investigating or reporting alcohol or drug use: In addition to any other immunity he may have, any teacher, instructor, principal, school administrator, school coordinator, guidance counselor or any other professional or administrative staff member of any elementary or secondary school, or institution of higher learning who, in good faith with reasonable cause and without malice, acts to report, investigate or cause any investigation to be made into the activities of any student or students or any other person or persons as they relate to alcohol or drug use or abuse in or related to the shcool or institution or in connection with any school or institution activity, shall be immune from all civil liability that might otherwise be incurred or imposed as the result of the making of such a report, investigation or disclosure. Virginia Code 1950, *8:631.1; 1972, c.762; 1977, c.617; 1981.

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Phone - 703-237-8121 - Mon-Fri, 9 am to 5 pm

Editor - Joyce Tobias

PANDAA (Parents Association to Neutralize Drug and Alcohol Abuse, Inc.) was founded at Jefferson High School in Fairfax County, VA in April, 1980 by a group of parents concerned about teenage alcohol and drug abuse. The goals of the group are to combat substance abuse in the home, school, and community and to educate the public about all aspects of substance abuse. PANDAA is incorporated and has tax exempt status. There are no salaried personnel. All donations are tax deductible. Membership is open to any individual upon payment of $5.00 annual dues which includes a subscription to the newsletter. PANDAA is supported solely by dues and donations.

PANDAA publishes an educational 8 page newsletter 5 times a year. Its circulation is 5,000 copies. It is mailed to PANDAA members, federal, state, and local legislators, law enforcement personnel, civic leaders, civic clubs, youth leaders, churches, school counselors and principals, pediatricians, and treatment programs, and it is distributed at awareness meetings, workshops, and conferences.

PANDAA also publishes a 12 page GUIDE TO CHEMICAL USE for parents and professionals which includes why kids do drugs, signs of use, stages of use, effects on the family, treatment, and the drugs of abuse including alcohol. An order form for the GUIDE on page 7.

PANDAA works closely with the County School System strengthening school policies and educating school personnel.

The PARENTS OF TEENS program offers a confidental listening ear telephone service (237-8121) Mon. thru Fri. from 9-5 for parents in need of help and support in identifying an alcohol or drug problem. Materials on drug information, treatment programs, and resource lists for awareness programs may be received by calling this number.

The COURTWATCH committee observes drug cases weekly and is effecting changes in the judicial system. PANDAA also lobbies for legislation regarding substance abuse.

PANDAA does many speaking engegements and assists in the formation of new groups. It is a member of the National Federation of Parents and the Virginia Federation of Parents.

PANDAA PHILOSOPHIES

Our children have the right to grow up in a drug free environment. Parents have the responsibility to be informed about substance abuse, to communicate to their children a clear and firm "no use" position about alcohol and drug use, to set an example to their children, and to use consistent discipline combined with love and care. A parent's right takes precedence over a child's right to privacy whenever a situation is threatening to the child's health and safety.

PANDAA believes the use and abuse of both legal and illegal drugs has reached epidemic proportions. It has extended into every segment of our communities bringing with it corruption, violence, property loss, family disintegration and disregard for the law. It has become the number one health problem for the 15 to 24 yr. age group, the only age group with a rising death rate.

PANDAA opposes the use of illegal drugs or illegal use of mood altering prescription drugs. PANDAA considers any alcohol use under the legal drinking age abuse. We consider alcohol to be a DRUG which affects emotional and physical development in adolescents, and is capable of producing dangerous changes in behavior and well-being.

The initiation of adolescent alcohol and/or drug use is caused by pro-alcohol and drug media messages, drug using role models, peer pressure, curiosity, availability, acceptance by society, inadequate laws and enforcement of laws. Usage continues because it gives short term pleasure, it becomes a temporary problem solving tool, and society imposes few consequences for abuse. As usage continues it can develop into the disease of chemical dependency which affects the entire family and usually requires treatment. Adolescents can become chemically dependent in 6 months to 1 year while in the adult, dependency usually occurs after 5 to 20 years of usage.

The use of drugs is a clear choice and the user is responsible for any actions committed while under the influence of any drug. Juveniles and adults involved in alcohol and drug related crimes should be evaluated for chemical dependency and where appropriate treatment should be mandated, along with other appropriate consequences. We consider drug trafficking a violent crime which demands serious consequences.

The treatment of chemical dependency has a low success rate. Development of more successful treatment modes is needed. Treatment programs must be free of legal and illegal mood altering drugs including alcohol. They should be accessible, affordable, and acceptable to health insurance plans.

Schools have an obligation to the community and the families they serve to provide an alcohol and drug free learning environment for students. Schools should provide drug education, strictly enforced consequences for violations, substance abuse recognition training for school personnel, help families recognize chemical dependency, and require treatment for readmittance to school when chemical dependency has been diagnosed.

Elected and appointed officials have a responsibility to be informed, enforce the laws as written, and support improved and necessary new laws.

PANDAA GOALS

PANDAA's goal is to eliminate alcohol and drug abuse in our community by:

Offering support and educating families, professionals, and the community about the dangers and legal responsibilities of illegal drug and alcohol use, and prevention and intervention techniques.

Working with school officials, parents, and students for a drug free envitonment at school.

Working within the community to de-emphasize the "do drug" messages, opposing the aggressive commercial promotion of alcohol, and encouraging public and social support for those who choose not to use alcohol or drugs.

Supporting the efforts of law enforcement officials by courtwatching, lobbying, and other civic action activities.

Assisting in the formation and development of groups similar to PANDAA.

LEGISLATIVE GOALS

All persons convicted of a drug felony should have their bonds revoked when found guilty and experience incarceration until sentencing.

All juveniles and adults involved in an alcohol or drug related crime should be evaluated for chemical dependency and mandated to treatment when appropriate as a part of his sentence.

Any juvenile convicted of an alcohol or drug related crime should have his driver's license revoked until his 18th birthday.

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Drug Awareness Information Newsletter

January 1988

57 Conant Street, Room 113 • Danvers, MA 01923 • (617) 774-2641 Connie & Otto Moulton

STORAGE OF MARIJUANA IN THE BODY

George Blernson
322 Holden Wood Road
Concord, Massachusetts 01742

The Lipophilic Property of THC

During World-War II, a wonder insecticide was developed: DDT. It killed the insects, and was completely harmless to man and other vertebrates --- or so we thought. We eventually banned DDT when we realized it was destroying our environment.

The problem is that DDT is strongly fat soluable, and so is absorbed in fat tissue, where it is stored for months. DDT is called "lipophilic", meaning "fat-loving".

Today we have another popular lipophilic chemical: THC, or tetra-hydro-cannabinol. This wonder substance is the psychoactive ingredient in marijuana. Like DDT, THC is also stored in the body for months. It has been found in the milk of mothers who quit smoking marijuana three months before their babies were born.

THC is a very potent drug, but appears to be mild because its high fat soluability makes it act slowly. With this slow action, serious physical trauma from marijuana overdose is rare. On the other hand, being lipophilic makes marijuana very dangerous and insidious when used regularly. This article explains the processes of THC storage in the body resulting from its lipophilic property.

The THC Model

Probably the best data on the storage of THC in the body are provided by pharmaco-kinetic experiments performed on the dog by Garrett and Hunt (Ref. [1]). The concentration of THC in the blood was repeatedly measured over an extended period, following an injection of THC. To achieve high accuracy, radioactive labeled THC was used. Since the level of radiation was quite high, comparable tests cannot be performed on humans. However, this experiment involves basic physiological processes, and so its results should apply approximately to man.

The lipophilic THC molecules are very sticky. Consequently, THC is very difficult to measure quantitatively, because it sticks to the sides of test tubes and other equipment.

Figure 1 shows a model of THC storage in the body, which I derived from the Garrett and Hunt data. The model is implied in their results, but a significant amount of theoretical and computer analysis (Ref. [2]) was required to calculate the model parameters. As a parent, I wanted precise drug information, and so I applied my engineering training to the problem.

As shown in Fig. 1, THC leaves the blood in five different ways: it is metabolized into other chemicals (called "metabolites") as it passes through the liver; and it is stored in four different kinds of "compartments", which act like time-release capsules, feeding the THC back into the blood at different rates. These four storage compartments are different physiological processes, which provide fast, medium, slow, and very-slow storage of THC.

The very-slow storage is due to absorption of THC into the fat tissues of the body, but the three other storage processes have not been identified. Since THC molecules are very sticky, one of the storage processes may be due to sticking of THC molecules to the sides of blood vessels.

The metabolized THC is eventually excreted from the body, but unmetabolized THC is not. A complex array of different metabolites of THC is formed in the body, and there may be several parallel paths, involving different chemical reactions, between THC metabolization and excretion.

The rate of conversion of THC in the blood to metabolites corresponds to a half life of 6.7 minutes. Hence if THC remained in the blood, the THC in the body would drop to half every 6.7 minutes. However, THC is metabolized much more slowly than this, because it is removed from the blood and sequestered in the four compartments.

The numbers in Fig. 1 give the relative rates of THC transfer into, and out of, the storage compartments. These are normalized in terms of the rate at which THC is converted to metabolites (shown as 1.0 in the figure). For example, the arrow leading from the blood to the medium storage compartment (2) has a rate parameter of 2.1. This means that the THC molecules flow into this compartment 2.1 times faster than they are metabolized by the liver.

The rate of THC flow into a compartment is proportional to the amount of THC in the blood. The rate of THC flow from a compartment back into the blood is proportional to the amount of THC in the compartment. For the medium storage compartment (2), the rate parameter 2.1 for flow into the compartment is 10 times the rate parameter 0.21 for flow back into the blood. Therefore, the THC in this compartment eventually reaches a steady level that is 10 times the THC in the blood. At that time, THC flows back into the blood at the same rate that it flows into the compartment.

Figure 2 shows how the THC in the blood varies during the first three hours after an injection. Curve (1) is the response (to 30 minutes) relative to the minute scale, and curve (2) is the response (to 3 hours) relative to the hour scale.

As shown by curve (1), initially THC in the blood decreases very

rapidly. It drops to 50% in one minute, and to 10% in 5 minutes. During this initial transient, 15% of the THC leaving the blood is metabolized, and the other 85% is sequestered in the four storage compartments. The compartments soon begin to feed appreciable amounts of THC back into the blood, and so the rate of THC decay decreases. THC in the blood drops to 5% in 12 minutes, but takes nearly 2 hours to reach 1%.

After 1 day, the process enters the "terminal phase", in which the fast, medium, and slow compartments are nearly at steady-state conditions, and THC in the blood is controlled by the slow return of THC from the very-slow storage compartment (4), which is the body fat. The flow rate from the fat is equal to the THC stored in the fat multiplied by the rate parameter 0.0009. In the terminal phase, this flow rate is equal to the rate at which THC is metabolized, plus the rate at which THC flows back into the fat. Hence, it is equal to (1.0 + 0.55) times the amount of THC in the blood. This indicates that the ratio of THC stored in the fat, to THC in the blood, is equal to

Ratio = (1.00 + 0.55)/0.0009 = 1700

Thus, during the terminal phase, there is 1700 times as much THC in the fat as is carried in the blood.

Since the fat-to-blood rate parameter is 0.0009, the half life corresponding to the release of THC from fat to blood is

Fat-to-Blood Half-Life = (6.7 min)/0.0009 = 5.17 days

Remember that the metabolization half life is 6.7 minutes, which corresponds to a rate parameter of unity. As THC is released from fat to blood, 0.55 nanogram is reabsorbed back into the fat for every 1.0 nanogram that is metabolized. Hence the half life for elimination of THC is 1.55 times greater than this fat-to-blood half life, and so is

Elimination Half-Life = 1.55(5.17 days) = 8.0 days

This shows that it takes 8 days for the THC in the fat to decay to 1/2, 16 days to decay to 1/4, 24 days to 1/8, etc.

Related to the "half-life", there is another useful parameter called the "time constant", defined as 1.44 times the half life. The time constant for elimination of THC from the fat is

Time Constant = 1.44(8.0 days) = 11.5 days

When a person smokes marijuana regularly, the THC contributions from successive marijuana joints accumulate in the fat. The THC stored in the fat reaches a steady level equivalent to the number of marijuana joints smoked during an 11.5-day time constant. For example, a person smoking one joint of marijuana per day carries in his fat a steady THC level equivalent to 11.5 joints of marijuana.

The fraction of the THC entering the body that is absorbed into the fat is approximately equal to

0.55/(1.00 + 0.55) = 0.35

The quantity 0.55 is the rate parameter for flow into the fat, and 1.00 is the rate parameter for metabolization. Thus, 35% of the THC that enters the body is absorbed into the fat.

In the terminal phase, there is 1700 times as much THC in the fat as in the blood, and so the fraction of the THC from one marijuana joint carried in the blood is

$$0.35/1700 = 0.000206 = 0.0206\%$$

If a person smokes one joint per day, the THC accumulated in his fat is equivalent to 11.5 joints. Hence, the steady level of THC in his blood, due to release of THC from the fat, is 11.5 times 0.0206%, which is

$$\text{Steady THC Blood Level} = 11.5(0.0206\%) = 0.24\%$$

This indicates that a person who regularly smokes one marijuana joint per day carries a continual THC level in his blood equal to 0.24% (or about 1/4 of 1%) of the THC absorbed from a single joint. This might seem quite small. However, as we will see, it is enough to produce appreciable sedation --- sedation that occurs continually.

The Blood-Brain Barrier

The brain is isolated from the main blood supply by the blood-brain barrier. This is a protective sieve, made of capillary walls and cell membranes, which helps to protect the brain from toxic substances. The lipophilic THC molecules tend to stick to the blood-brain barrier. Hence this sieve greatly reduces the amount of THC that enters the brain by slowing the flow of THC molecules.

Figure 3 gives data from tests made by Lemburger, et. al. (Ref. [3]), following an injection of THC. The lower plot shows the heart rate, and the upper two plots show results from psychological tests. Each point is the mean value obtained from six subjects.

The heart rate changes very quickly after the THC injection, but the upper plots indicate a lag of about 15 minutes before full psychological symptoms are experienced. This delay is caused by the blood-brain barrier, which slows the flow of sticky THC molecules to the brain. Figure 2 shows that at 15 minutes (point A) the THC in the blood is 4.2% of the injected dose.

The psychological responses in Fig. 3 stay close to maximum until 45 minutes after the injection. At 45 minutes, Fig. 2 shows (point B) a THC blood level of 1.9%. At 2 hours, the psychological measures of "high" and "symptom score" in Fig. 3 are about 50% of the maximum values. At that time, Fig. 2 shows (point C) a THC blood level somewhat less than 1%.

Since the blood-brain barrier slows the transfer of THC to the brain, the THC concentration in the brain blood is much less than in the heart blood during the early part of the transient. However, as time passes, the rate of change of THC in the blood decreases, and so the effect of the blood-brain barrier diminishes. Eventually, equilibrium should exist across the barrier, and the THC concentration in the brain blood should be approximately equal to that in the heart blood.

In the terminal phase, the blood-brain barrier should have essentially no effect on the THC blood concentration in the brain. How much effect this barrier has at 2 hours is not clear. However, let us assume conservatively that the blood-brain barrier is also in equilibrium at that time, so that THC concentration in the brain blood is the same as in the heart blood.

With this assumption, we conclude that a brain-blood THC level of 1% produces 50% of maximum "high". This is only 4 times greater than the steady THC blood level, 1/4 of 1%, in the brain of an individual who smokes one marijuana joint per day. Therefore, this steady THC level should be sufficient to produce appreciable sedation, keeping the daily marijuana smoker in a continually numbed state.

Storage of THC in the Brain

The brain weighs about 3 lbs, and 1/3 of this is fat tissue. Hence, a significant amount of the THC sequestered in the fat is stored directly in the brain. Since the blood-brain barrier strongly limits the flow of THC into the brain, the THC concentration in brain fat is lower than in general body fat. But how much lower?

The slow storage compartment (3) releases THC so slowly it should pass essentially unimpeded through the blood-brain barrier. In Figure 1, the rate parameter for release of THC from compartment (3) is 0.017. This corresponds to a half life of (6.7 min)/0.017, which is 6.6 hours. For this half life, the THC level drops only 10% per hour.

It can be shown that the peak THC level in compartment (3) is 39% of the injected THC. When this THC is released into the blood, 35% of it is stored in the fat. Hence, the THC in the fat that comes from compartment (3) is

$$0.39(35\%) = 14\%$$

The total THC in the fat is 35% of the injected dose. The ratio 14%/35% is equal to 0.40. Hence, 40% of the THC stored in the fat comes from the slow storage compartment, released so slowly it passes unimpeded through the blood-brain barrier.

As THC is released from the fat to the blood, 35% of it is recycled back into the fat. Consequently, 35% of the steady THC level in the fat of a regular marijuana smoker is recycled THC, which enters the fat so slowly it is unimpeded by the blood-brain barrier. Of the remaining 65%, which enters the fat directly, 40% comes from compartment (3), and only 60% arrives at a fast rate. Hence, the fraction of the steady THC level in the fat that enters at a fast rate is

$$0.60(65\%) = 39\%$$

The rest of the steady THC level (61%) enters the fat so slowly it passes unimpeded through the blood-brain barrier.

This analysis shows that the steady THC concentration in brain fat tissue should be at least 61% of that in the general body fat. Therefore, an appreciable amount of THC is stored in the brain of a regular