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Spread #2

Marijuana's Effects on the Lungs

- o Scanner
- o Breathing with Healthy Lungs
- o Marijuana and the Lungs: What We Know
- o Marijuana and the Lungs: How We Know About Its Effects
- o Lung Disease and Marijuana: What Are the Risks? (boxed chart)
- o A Plethysmo-What? and photo
- o Bargraph of marijuana vs. tobacco
- o Diagram of respiratory system with THC travel depicted plus caption
- o Photo of normal vs. marijuana-damaged lung cells and caption

(Scanner for Spread #2)

~~Marijuana's Effects on the Lungs~~ e

Marijuana contains all the same cancer-causing chemicals and lung irritants found in tobacco smoke, more of some, plus others unique to the marijuana plant. Regular marijuana smokers increase their risk of developing lung cancer, emphysema, bronchitis, and other respiratory ailments, and decrease their ability to fight off ordinary colds and infections.

Breathing with Healthy Lungs

Did you know that your lungs, if you could spread out all their inside surface, would cover one and a half tennis courts? Their surface area is 70 times greater than the surface area of the body.

When you breathe in, your diaphragm (the large flat muscle under your lungs) and the muscles of your ribcage[#] flex to allow your lungs and chest to expand. After you have inhaled, these muscles relax and allow the lungs and chest to return to their normal "resting" position, thus causing you to exhale.

Normal breathing begins with the nose. The nose acts as an air filter, removing tiny particles of foreign matter and certain water-soluble gases that can damage the lungs. It also warms and moistens the air that is passed on to the lungs, which prevents irritation and damage to the delicate surfaces in the lungs to receive this air and use the oxygen in it.

The next step in normal breathing is for air to pass through the trachea--a tube of about the size of a dime and about five inches long. In the upper chest the trachea branches off into two similar tubes, called the bronchi, each of which leads into one of the lungs. Inside the lungs these bronchi continue to divide. The tubes found after the first four or five splits are also called bronchi; like the trachea, they are surrounded and supported by rings of cartilage. The trachea and the bronchi are lined with cells with tiny hairlike projections that beat rhythmically and propel secretions and foreign matter back toward the mouth, where they can be expelled from the airways. The remaining tubes (there are about eleven more divisions)

are called bronchioles. They are narrower than bronchi and have no supporting cartilage.

After passing through these airways, the air enters narrow ducts lined with tiny air spaces called alveoli. Alveoli are the size of the point of a pin and have walls as thin as a soap bubble. The average adult has about 300 million alveoli. They are lined with thin cells that connect them to capillaries, very small blood vessels which are connected to the pulmonary artery. It is through these cells that oxygen is passed into the bloodstream for circulation throughout the body, and carbon dioxide removed from the blood for exhalation into the air. The alveoli also contain cells known as macrophages. The term comes from two Greek words meaning "big eaters," and it describes exactly what these cells do: They digest bacteria and harmful substances introduced into the alveoli from the outside.

This is a rather simplified picture; for example, it leaves out many more kinds of cells and glands that line the airways and air spaces of the lungs. Nevertheless, it covers the basics of breathing. Information in the following section shows that marijuana smoking may affect the process of breathing at every step along the way.

Marijuana and the Lungs: What We Know

Researchers have been studying the effects of marijuana smoking on the lungs since the late 1960s. Virtually all of the studies indicate that marijuana damages the lungs.

- o Smoking anything allows gases and tiny particles of foreign matter to bypass the lungs' first line of defense, the nose. Unfiltered smoke passes through the mouth directly into the windpipe and lungs.
- o Marijuana has ~~almost~~ all the same lung-damaging substances as tobacco and more of some. It has about the same amount of hydrocyanic acid and acrolein (linked to chronic bronchitis) and oxides of nitrogen (linked to emphysema), and substantially larger amounts of acetaldehyde (also linked to chronic bronchitis) and benzanthracene and benzopyrene (linked to lung cancer).
- o All of these substances have been shown to damage the functioning of the lungs of tobacco smokers.
- o Therefore, smoking marijuana is likely to be even more dangerous than smoking tobacco.
- o Short-term effects of smoking marijuana include irritation, diminished lung function, and an increase in colds and other lung infections.
- o The effects of long-term marijuana smoking are not fully known, because it has been in widespread use in this country for less than twenty years. Furthermore, today's marijuana is stronger

than it was in the 1960s.

- o Smoking both marijuana and tobacco is worse than smoking either of them alone.

Marijuana and the Lungs: How We Know About Its Effects

There are three major ways in which researchers have learned about the effect of marijuana on the lungs: by using studies of tobacco smokers to predict what might happen to marijuana smokers, by measuring how well the lungs work on a variety of lung function tests, and by looking at lung tissue under the microscope.

Tobacco Studies

One of the major ways by which researchers confirmed the link between tobacco smoking and lung diseases was by comparing how often a disease appeared in groups of smokers with how often the same disease occurred in groups of nonsmokers. Over and over, they discovered that there were more cases of lung disease among smokers than among nonsmokers. By the 1960s researchers were certain that tobacco smokers ran a greater risk of developing lung cancer, emphysema, bronchitis, heart disease, and certain other health problems than did nonsmokers.

One thing shared in common by all ^{these} ~~these~~ diseases is that they build up slowly, often invisibly. That is one reason why it wasn't until the mid-1960s--at least twenty of thirty years after tobacco smoking had become widespread in this country--that researchers had strong evidence of its damaging effects.

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Marijuana contains all the same cancer-causing chemicals and lung irritants as tobacco smoke, more of some, plus others not found in tobacco. Regular marijuana smoking didn't begin in this country until the 1960s. It is not far-fetched, then, to assume that within the next ten years doctors will begin to see an increase in lung diseases among marijuana smokers.

Lung Function Tests

Although researchers have not yet been able to prove an increase in lung disease among marijuana smokers, they have been able to observe marijuana's harmful effects on how the lungs work. Using lung function tests, they measure how well the lungs do their work. Dr. Donald Tashkin, for example, was interested in measuring the effect of marijuana on airway resistance, or how easily the lungs can inhale and exhale. To find out, he selected a group of 74 young men who had smoked an average of one marijuana cigarette a day for five years. All of them thought that marijuana had no effect on their lungs because they had no symptoms-- no coughs or wheezes or other signs of ill effects. He then ran a test using a machine called a plethysmograph to measure how well their lungs worked.

Next, ~~He~~ selected another group of healthy young men. These men were similar to the men in the first group in age, height, weight, and tobacco-smoking habits. The only difference was that it was believed that no one in the second group smoked marijuana. Dr. Tashkin then conducted the same test on this group.

He learned that the lungs of the marijuana smokers had to work harder to breathe. He was not ^{exactly} certain what caused the problem, but he thought it was because the chemicals in marijuana irritate the windpipe and other airways in the lungs. The marijuana chemicals may cause mucous secretions, clogging, and inflammation.

Some of the men in both groups smoked tobacco. To check on whether the tobacco smoking might have been involved in the poor showing, Dr. Tashkin compared the scores of people who smoked marijuana but not tobacco to those who smoked tobacco but not marijuana. The scores for

the marijuana smokers were worse than the scores of the tobacco smokers. *This finding suggests* ~~Dr. Tashkin could conclude~~ that smoking marijuana ^{might be} ~~is~~ even more harmful to the lungs than smoking tobacco.

In another experiment, Dr. Tashkin studied 28 young men who volunteered to smoke an average of five joints a day for seven or eight weeks. When they were tested on the plethysmograph at the end of the time, they showed poorer lung function in just those few weeks.

Examining Lung Tissue

The most dramatic way of determining the effect of marijuana on the lungs is to examine actual lung tissue. For the most part, this kind of research is done on laboratory animals, because it is easier to take lung tissue from animals than from human beings.

Dr. Kaye Kilburn of the University of Southern California experimented with the effects of both marijuana and tobacco smoke on laboratory rats. He placed two groups of rats in special chambers and blew marijuana smoke into one chamber and tobacco smoke into the other in equal quantities. He later examined the lung tissue of the rats in both groups and compared it with the lung tissue of healthy ^{rats}. Tissue from the "smoker" rats showed definite abnormalities: white holes in the cells that did not appear in normal cells. ~~It was clear that~~ both marijuana and tobacco smoke damaged the lung tissue ^{in identical ways.}

One researcher, Dr. Forest Tennant, had a rare opportunity to study human lung tissue when he observed American servicemen in West Germany who smoked hashish. (Hashish is a stronger form of marijuana that contains more THC.) He found that heavy hashish smokers developed symptoms of acute bronchitis (a temporary and

usually reversible lung condition) and developed them much more quickly than heavy tobacco smokers. Tennant observed, "Even though a person can get bronchitis and emphysema from cigarette smoking, one must usually smoke cigarettes for ten to twenty years to get these complications. We became alarmed about this because we began seeing these conditions in 18-, 19-, and 20-year old men." When he studied samples of the lung tissue of the hashish smokers under a microscope, he found many abnormal cells thought to be linked to lung cancer.

* The soldiers Dr. Tennant studied smoked very heavy doses of hashish, so his findings may not be directly applicable to more moderate marijuana smokers. However, today's teenagers are smoking marijuana with increased levels of THC, levels approaching that found in hashish. Furthermore, because the lung damage Dr. Tennant observed came on so quickly and because THC builds up in the body over time, there is a very real possibility that moderate smokers who continue to smoke over a long period of time may indeed increase their risks. Also, people who smoke both tobacco and marijuana dramatically increase the likelihood of risk.

27
Readers: Note that this will be a horizontal, boxed chart in final, not a vertical list, \square .

Lung Disease and Marijuana: What are the Risks?

Lung Disease

How Marijuana May Contribute

Chronic Bronchitis:

inflammation and partial blockage of the air passages of the lungs.

Interference with the functioning of the cilia, hairlike projections on cells of the air passages that sweep foreign particles and mucus up and out of the airways. Increase in the production of mucus while slowing its removal. Narrowing or partial obstruction of the airways.

Emphysema: insidious, crippling loss of elasticity in lung tissue that makes breathing difficult.

Damage to the thin cells of the air sacs (alveoli) of the lungs where oxygen and carbon dioxide pass into and out of the bloodstream. Damaged cells do not function effectively. Increased heart rate, so the heart needs more oxygen when the lungs' ability to supply it is impaired. Possible release of enzymes from certain lung cells that damage lung tissue.

Lung Cancer: abnormal new growth of tissue in the lungs that causes increasing blockage and loss of lung function.

Affect on tissue growth and the division of cells in the lungs.

Lung Disease and Marijuana: What Are The Risks?

Lung Infection: invasion of the lungs by bacteria, viruses, or fungi that produce poisons in the body and injure tissues.

Destruction of alveolar macrophages, infection fighting cells found in the air sacs of the lungs.

Marijuana smokers increase their chances of contracting these diseases. The harmful effects of marijuana use build up over time. Many people don't even develop symptoms. So it is often hard to see the damage until it is too late.

Plethysmo-What? (to be located near photograph of plethysmograph)

A plethysmograph (pronounced ple-thiz-mo-graf) is a machine that measures airway resistance, or, in other words, the volume of air in the lungs and how easily it can be inhaled and exhaled. The higher resistance score, the harder it is to breathe in and out, because the lungs are resisting the flow of air. A high resistance score means that something is obstructing or blocking the flow of air into and out of the lungs. The plethysmograph measures the amount of obstruction or blockage.

People being tested by a plethysmograph breathe through a mouthpiece into a machine. As they pant gently for a few seconds, the pressure sensors in the machine record how much pressure it takes to breathe in and out. The score tells how easy it is for the person being tested to breathe in and out. Using this machine, scientists have discovered that marijuana makes it harder to breathe in and out, probably by inflaming and irritating the air passages.

(Bar Graph of marijuana vs. tobacco chemical ingredients)

Diagram of Respiratory System with THC Travel and Storage Depicted

(get from leader's guide)

Caption: Delta-9-tetrahydrocannabinol (THC) is deposited on the walls of the air sacs in the lungs, where tiny blood vessels absorb it. The THC then travels through the body via the blood and is stored for up to ~~30~~^{thirty} days in areas of high fat content, such as the lungs, the brain, and the reproductive organs--the areas in which scientists are discovering the most damage from marijuana.

Photo of a Normal Lung Cell

Photo of a cell damaged by marijuana smoke.

Caption: These pictures of the cells that line the lungs have been magnified 5000 times. They allow us to see the inside of a cell.

There are noticeable white holes in the cell damaged by marijuana that do not appear in the healthy cell.

Spread #3

Some Other Damaging Effects of Marijuana

- Scanner
- Marijuana and Reproduction
- But How Do We Know? (Sidebar)
- Marijuana: Menace on the Road?
- Diagram of normal vs. THC-disrupted menstrual cycles plus caption
- Photo of damaged sperm plus caption

(Scanner for Spread #3)

Researchers are investigating the effects of marijuana on many areas: the brain, the reflexes, the immune system, the reproductive system. They are worried that its effects, while cause for concern at any age, may be particularly dangerous for adolescents. They have already discovered that THC can severely reduce the release of hormones that set in motion the complex physical, social, and emotional changes of puberty. And they are also uncovering the fact that driving accidents, the number one killer of teenagers, are associated with marijuana use.

Marijuana and Reproduction

At puberty the hypothalamus, the control tower for sexual development, stimulates the release of hormones from various glands and organs, and especially from the pituitary gland. A number of studies indicate that THC affects the functioning of the hypothalamus and decreases the production of sex hormones.

- o In laboratory rodents and in rhesus monkeys (whose reproductive systems closely parallel those of humans), THC reduces the level of the hormones that stimulate ovulation, menstruation, and milk production. (All animal studies use doses of THC equivalent to one to five joints a day.)
- o The experts fear that if children or teenagers smoked marijuana for long enough, permanent infertility might result. In laboratory rats and mice, THC led to markedly lower fertility rates, especially when it was administered to the animals during puberty. In monkeys, it prevented ovulation for as long as five months after ~~one~~⁶ two-week exposure.
- o Women who reported regular marijuana use were found to have significantly lower levels of milk-producing hormones than those who did not use the drug. Scientists do not know how this hormone, called prolactin, effects other sexual and reproductive functions, but they are sure that it does affect them. Although the effects on a mature female who is not pregnant are usually reversible, the effects on a teenager who is still developing sexually might well be permanent.
- o In male laboratory animals that received doses equivalent to human use, THC decreased the level of testosterone, the male sex

hormone. This reduction decreased fertility, interfered with sexual development, reduced the size of the testicles, impaired sexual functioning, and damaged sperm.

- o Some studies have shown that frequent marijuana use reduces testosterone levels in human males, too. Although other studies produced conflictive findings, this may simply indicate the unpredictability of these effects. Further research will show whether the effects seen in laboratory animals are also found in humans.

Many drugs administered during pregnancy are passed on to the developing infant. The fetus is ^{so} much smaller than the mother, ~~however, so the same amount of a drug can have much more serious consequences for it.~~ *then the*

- o In pregnant mice, rats, and hamsters, THC appears in the fetus in much higher concentration than in the mother, and it increases the number of stillbirths and decreases the weight of the young at birth. One recent study showed that the male offspring of mouse mothers who were administered THC during their pregnancies had smaller testicles and engaged in less sexual activity than the offspring of mice who were not administered THC. There were even indications that these effects might carry over into a third generation.
- o In rhesus monkeys, THC caused severe behavioral changes in newborn monkeys.
- o The limited information available on the effects of marijuana on human pregnancy and childbirth is cause for real concern. One

study showed that mothers who used marijuana frequently were five times more likely to give birth to children with significantly lower birth weights than the children of nonusers, and with disorders similar to what is known as fetal alcohol syndrome: small body size, small head size, small openings for the eyes, small nails, troubles with joint movements, heart murmurs, and abnormal ears. Another study revealed significant levels of THC in the bloodstreams of the newborns, and the same kind of intoxicated behavior that the newborn monkeys exhibited. Significant abnormalities in the nervous systems of children born to mothers who used marijuana during their pregnancies have also been noted.

What Does It All Mean?

A scientist involved in the research on how marijuana affects reproduction has noted that her colleagues sometimes express wonder at the vulnerability of the reproductive system to the effects of drugs. "But," as she puts it, "this observation is not surprising to those who study reproductive physiology.... Few other bodily systems require the intricate interaction of so many components for proper functioning." In other words, the more steps that are involved, the more that can go wrong. The early research on humans and animals indicates that marijuana can interfere with those complex changes in a variety of disturbing ways.

But How Do We Know? (side bar)

No researcher would subject pregnant women or young teenagers to marijuana use to study its effects on human reproduction--and with good reason. A scientist who administered any suspect substance to teenagers or to pregnant women in order to learn about that substance's effects would be violating just about every legal and ethical standard of the profession.

Nevertheless, scientists have a good idea of marijuana's effects on reproduction and sexual development. This information comes from three main sources: research on such laboratory animals as mice, rats, and rabbits; research on nonhuman primates, especially rhesus monkeys; and studies of humans who have reported that they use marijuana. The laboratory animals, like all mammals, have reproductive systems that work in much the same way as the human system, with most or all of the same hormones involved. A

In fact, female rhesus monkeys reveal reproductive functions that are almost exactly comparable to those of human females, even down to the 28-day normal menstrual cycle. ¶ Scientists take all three kinds of studies very seriously. In other health studies, laboratory animals have been helpful in telling scientists what to look for in later research with humans. More often than not, some form of the effect observed in them has later been observed in the human beings. The results of the studies of people who voluntarily reported on their own marijuana use have largely borne out the findings of earlier studies of animals.

Marijuana: Menace on the Road?

Drunk drivers kill thousands of people every year. The effects of alcohol on driving ability and on highway safety are all too well known. Evidence now shows that marijuana also affects a person's ability to drive and is involved in many of the fatal accidents that are the scandal of our nation's roadways. People high on marijuana are involved in an unusually high percentage of traffic accidents and traffic fatalities.

The table lists the skills needed for safe driving and the driving situations in which they are needed. Tests conducted in mechanical and electronic driving simulators show that marijuana smoking impairs every one of these skills, even in people who do not feel high or have stopped feeling high. They have repeatedly shown that a marijuana high slows down drivers' reactions and impairs their perceptions, although the drivers feel that they are driving especially well. Simulator experiments are usually conducted under ideal conditions that reduce many of the normal distractions of driving: radios, passengers, traffic. The subjects of these experiments are aware that they are being tested, and they tend to try to do as well as they can. Even so, their performance is much worse than the performance of drivers who have not smoked marijuana.

Controlled road tests in real cars show many of the same results as simulator tests, both on roads specially closed for the test and in actual traffic. (As a result, for obvious reasons, few experiments have been conducted in actual traffic.)

An important source of information on the effects of marijuana on driving is evidence of marijuana use in the blood or urine of drivers

involved in accidents, or the admissions of such drivers that they had been smoking pot. One study in California found that at least 16 percent of drivers arrested for impaired driving showed clear evidence of recent marijuana use.

Blood tests of drivers killed in fatal accidents revealed that a large majority of the ones who showed signs of marijuana use had also been drinking. Either marijuana or alcohol alone impair a driver's ability, but their combined effects cause even more serious driving problems.

What does all this mean? Driving while high is not more dangerous than driving while drunk, but it's not any safer, either. When young people are confronted with a choice between riding with a friend who is drunk or riding with a friend who is high, the right decision should be clear to them: Walk. Call their parents. Call a cab. Call a sober friend or relative. Take the bus. Try to talk their friends into joining them. The ride isn't worth the risk.

Driving Skills That
Marijuana Impairs

Driving Situations Requiring
That Skill

Coordination:

All

Reaction time:

Changing traffic lights;
sudden appearance of a child;
abrupt slowing of car ahead.

Ability to follow
a moving object:

Lane change or movement of a
car ahead.

Perception of flashing
lights:

Flashing traffic lights:
directional or braking signal
by car ahead.

Perception of objects
near the edge of the
field of vision:

Sudden appearance of another
car from behind in an
adjoining lane; sudden
appearance of a pedestrian
crossing the street.

Ability to recover
quickly from the
perceptual changes
caused by bright
light:

Sudden appearance of an
oncoming car at the top
of a hill or at the bend
of a curve at night.

Diagram of Normal and Disrupted Menstrual Cycles in Rhesus Monkeys

(from P. 24 of Marijuana and Reproduction Monograph)

Caption: The curve in the first band of the graph shows the normal rise and fall of hormones from the pituitary gland and ovaries during one menstrual cycle in rhesus monkeys, whose menstrual cycles are nearly identical to human cycles. The second band shows what happened to the release of hormones when the monkeys received THC for the first 18 days of their cycle: they did not release normal levels of hormones (nor did they ovulate). The third band indicates that this disruption continued for varying lengths of time after the monkeys stopped receiving the THC.

In women, only one study has examined the effect of marijuana on menstrual cycles. Women who used marijuana at least three times a week for six months developed abnormal cycles and were more likely not to ovulate than a control group who did not smoke pot.

Photos of Healthy vs. Unhealthy Sperm

Caption: On the left you see a healthy sperm; on the right the sperm of a chronic hashish smoker. His sperm is missing essential protein substances. This damage occurs with hashish, a stronger form of marijuana, and in men who smoke large amounts for a long period of time. However, young people today are smoking stronger and stronger marijuana, and in greater amounts than ever before.

Spread #4

Parent Power

- Scanner
- Parents Have More Clout Than Than
May Think
- Tips for working with the schools
- Parents Ask
- Paraphernalia photo and caption
- Photo of parents talking with parents
- Photo of Keith Schuhard

Parent Power

(Scanner for Spread #4)

In hundreds of cities and towns across America, parents are forming parent support groups to combat drug abuse. Together they talk about what is going on at school, at the parties their children attend, and what role, if any, drugs seem to be playing. Often these groups set common rules for their children, including rules that make drugs and alcohol off-limits. They may also work with the schools, the police, and the legislature and provide educational services to the community.

Parents Have More Clout Than They May Think

Keith Schuhard started one of the first parent support groups in the country. Since then Dr. Schuhard has provided guidance to many others. Here she shares her experiences.

What can the parent of a nine or ten year old do to help ensure that his or her child will not become involved with drugs?

We try to help parents understand that drug use spreads like an epidemic, like chicken pox, from peer to peer. It's something that usually spreads from friends, or maybe older brothers and sisters. It won't be from some alien, scary force, like a pusher, but from someone probably pretty friendly, who thinks it's going to be fun.

Parents should get together with other parents of their child's immediate group of friends. They have to recognize that marijuana is around and that the ways children start smoking pot are the same ways that they get into other kinds of risky behaviors: they're in unsupervised situations; they go to empty houses after school; they have unchaperoned parties.

The first thing the parents must do is to set some very clear rules. They must tell their children that they don't want them to smoke anything--cigarettes or marijuana--and that this is a rule just the same way that not drinking or anything else may be a family rule. And they must educate themselves so they can explain the reasons for the rules.

Second, the parents must give the children the collective security of having shared rules, a set of shared expectations among different families, because the pressure from all the mass

merchandising and pro-drug messages in our culture is more than any one family can withstand. ^{Children} ~~The kids~~ need to feel that there is at least a mini-society, made up of their friends and their friends' families, with a common set of beliefs and values, even if--and especially if--they are different from the messages they are hearing elsewhere.

^{Children}
Kids can withstand tremendous pressure from the culture as long as a network of people--those most immediately concerned with them--define rules that are consistent and make sense, that have good reasons, and that include consequences for misbehavior.

What do you see as the major pressures on children to begin using marijuana?

^{Children}
Kids are currently exposed to all kinds of witty, attractive, and seductive messages about how much fun it is to get high. Go to a shopping mall and look at it through the eyes of an eleven year old. At the T-shirt shop, you'll see the drug-oriented, drunkenness-oriented logos and decals. Go to the record shop; look at the record covers, glorifying drugs and drinking. Go to the drugstore, where the cigarette advertising is all over or to the small shops where the marijuana rolling papers are sold alongside the bubble gum.

A whole merchandising industry has sprung up to sell toys and gadgets for smoking pot to young children. There are pipes and joint holders in the shape of footballs and Walt Disney-type characters, and space guns and special frisbees that hold the marijuana. There are even comic books promoting cocaine, called "Rip Snortin" comic books!

What are the best ways for parents of young children to approach this topic with them?

We think the best thing is to explain to them about their bodies: what's involved in growing and developing, and how fragile all the processes are. It's a wonderful, complex process, and children are fascinated by it. That's why we also think it's important to go into hormones, why boys' voices change and their shoulders broaden. For girls, why their periods are starting and how their bodies are becoming capable of making a baby one day.

And for older children who are going through adolescence, it's important for parents to remember that it can be a very vulnerable, disturbing time. The teenagers are confused by their bodies. They're not sure they are attractive. They think their feet are wrong and everybody else's are right.

As parents we need to make it very clear that we want them to grow up normal, healthy, energetic, attractive and that it's our responsibility not to let anything damage them.

When is the best time for parents to get involved?

The earlier the better, because it's so easy to misjudge the time. For example, we would have talked to our children about marijuana when they were about sixteen. We had no idea they were exposed to it in sixth and seventh grade. The parents who wait until their child is twelve, find out it was the fourth grade! Don't put it off. Keep track of your children's friends, and remember younger children are influenced by older ones, even babysitters. There are many, many stories of children in the first grade saying "My

babysitter gave me a joint." Absolute shockers when they come out.

Mainly you want to work to provide a drug-free environment for your children. You want to be part of the solution, helping older teenagers out of the drug scene, changing the situation in the schools, changing what's going on in the stores in your shopping center, writing letters to drug-oriented advertisers on television. If you don't become part of the solution, your children will be thrown into situations that, despite your best intentions, may be too much for them.

Tips for Working with Schools

Basic responsibility for teaching children about the hazards of drug use, and for setting and enforcing a no-drug-use standard starts at home and rests with parents. Nevertheless, because drug use is contagious and much of the exposure can happen at school, schools should have policies and procedures that emphasize prevention and education, and methods for assuring a drug-free environment. Parents who feel confident that their children will not use drugs have as much or more at stake in working with their school administrators as do parents who think their children might be tempted. Because experimentation with substances like marijuana can begin as early as fifth grade, parents should be especially concerned about prevention strategies in elementary schools.

Here are some ways you, as parents, can approach and work with your school system.

1. Educate yourself! People will listen to you if you arm yourself with the latest research information and can provide specific examples to support your concern.
2. Become involved--or reinvolved--in the schools through parent-school organizations. Speak up at meetings and voice support for drug abuse prevention education. Offer to head a task force to work with school administrators. Volunteer to organize a forum on drug education or to write away for educational materials.
3. Approach the administrators in the school system--school principals, school system superintendent, members of the school committee--in a nonblaming way that acknowledges parental

responsibility and indicates a desire to work cooperatively with them. Offer to help out in specific ways; for example, meeting with the director of health education, or serving as a resource for elementary school teachers.

4. Back up the school administration on issues like providing drug education to students and training to staff. Offer to attend budget hearings when funding for drug education programs is discussed. It is important for the schools to know where parents stand on these issues.
5. Anticipate the time when your children will be in junior and senior high school. Ask about the policies and procedures that the school system has developed. If there is a need, offer to work on a clear drug policy statement for the system. Ask these questions to help evaluate the effectiveness of a school system's drug policy:
 - o Is there a clear policy statement about drug and alcohol possession and use at the junior and senior high school?
 - o Are there firm and clear consequences for violation of that policy?
 - o Are the consequences uniformly and fairly applied?
 - o Is there training for teachers and students about the health hazards and symptoms of drug use?
 - o Is drug use monitored not only in the classroom, but also on the campus and at school-sponsored social and athletic events?
 - o Does the school have a counseling service or a process through which students can be referred to outside agencies

for help?

- o Are parents notified about suspected drug use and involved in the treatment process early on?

Parents Ask

I used marijuana when I was growing up, as did lots of my friends, and nothing ever happened to us. Why is it different now?

First, much of today's marijuana has ten times the concentration of THC that it did ten years ago. That makes it a different drug and a lot more harmful.

Second, people who used marijuana several years ago probably were in their late teens or early twenties, which is very different from the experience of today's youngsters who, on the average, are starting to use it when they are twelve to fourteen. This is a time when they are very vulnerable both psychologically and physiologically. The younger the child is, the greater and more likely the damage will be to the body.

If I wanted to teach my children how to use marijuana in a responsible, moderate way, wouldn't it be best to give them experience with it in the home where I can protect them and monitor their use?

No. There is no responsible use of a drug that causes so much physiological and psychological damage in adolescence. The health hazards, documented on other pages of this ^{News magazine,} publication, are very



real and very disturbing, and may well have permanent effects on a young body.

People smoke marijuana to get high, to get intoxicated, which is not a healthy activity for adolescents. The marijuana high cultivates a kind of lethargy, a disengagement from school and social activities. Teenage users find it harder to develop the skills and attitudes they will need as adults.

Children are already under enormous pressure to use drugs. Even though they may not say so, they are usually relieved to have their parents set limits for them.

Finally, remember that marijuana use, at any age, is illegal. Suggesting that there is such a thing as responsible use_x is saying that it is okay to break the law.

What's wrong with the occasional use of marijuana?

Any time a person inhales a foreign substance into the body the substance has the potential for causing harm. Marijuana is especially irritating to the lungs. It also speeds up the heart beat and decreases the blood supply to the heart. It has serious effects on reproductive processes and may impair sexual development in young people. It is intoxicating and thus interferes with learning and impairs judgment. It is also illegal.

Children look to their parents as role models. It is important

for parents to remember all these facts if they think about using marijuana themselves.

Is marijuana addictive?

Marijuana is not physically addictive in the way that nicotine (in tobacco), caffeine, certain prescribed drugs, and heroin are. However, in people who smoke marijuana regularly over time, there is usually a decrease in energy and a disengagement from activities. Research indicates that there may be a physiological basis for this effect, as the THC and other chemicals in marijuana accumulate in the user's body.

Even though marijuana may not lead to physical dependence in the strictest sense, it can cause psychological dependence. People who use it do so for its pleasureable effects, and that pleasure can be habit-forming. The more ^{the} users enjoy the pleasureable effects, the less willing they are to give it up. This psychological dependence is particularly dangerous in young people, who are at a time in their lives when they should be learning to cope with new decisions and responsibilities. Psychologically dependent users of any age may feel sure that they can stop whenever they want, but they often learn that stopping is not so easy.

Isn't marijuana used as a medicine?

No. Some chemicals derived from the cannabis plant are being tested to see whether they have beneficial effects on certain conditions. In clinical tests, THC shows some promise in reducing nausea and vomiting caused by cancer chemotherapy. Because it dilates the air passages of the lungs, THC was once seen as a possible aid to sufferers of asthmatics, but a study found that the irritation it causes in the lungs far outweighs any beneficial effect and may even cause asthmatic attacks. THC has also been tested for its ability to reduce the pressure in the eyeballs of people with glaucoma, with mixed results. No chemical from the cannabis plant has been approved by the Food and Drug Administration as a prescription drug for any purpose.

How can I tell whether my child is using marijuana?

Sometimes it is difficult to tell, because both gradual and abrupt changes in behavior are typical of adolescence. Some of the signs of use are also similar to symptoms of emotional distress or physical or mental illness. Resist jumping to conclusions or accusing a child unjustly. If you suspect use, watch for a combination of these signs:

- o Constant tiredness, apathy; sleep disturbances
- o Red eyes
- o Loss of appetite
- o Neglect of personal appearance
- o Forgetfulness, vagueness
- o Wide mood swings for no apparent reason
- o Chest pains or chronic cough
- o Drop in participation in favorite activities, sports, hobbies
- o Lack of interest in old friends
- o Drop in grades or general school performance

Also watch for evidence of marijuana use:

- o Drug paraphernalia
- o Odor of marijuana
- o Products used to cover up its use, such as incense, air deoderizers, breath fresheners, eye drops for red eyes

What should I do if I think my child is using marijuana?

- o Ask the child about drug use, and discuss it openly.



- o Gather up-to-date facts on marijuana and other drugs so you can help your child become well-informed about their effects--physical, social, and ~~psychological~~ ^{emotional}.
- o Talk about the undesirable behavioral changes and health problems that go along with the use of marijuana and other drugs, rather than making simple, judgmental statements.
- o Talk about the positive aspects of nonuse.
- o Make it clear that the drug use must stop completely. Take a firm and consistent stand.
- o Be prepared and willing to get professional help and/or treatment.

(Photo of drug paraphernalia marketed for children)

Caption: Youngsters are being introduced to marijuana through the same techniques that are used to sell tennis shoes and brand name clothes. Coupled with teenagers' ordinary insecurity about whether they are normal and attractive, advertising can have a very powerful influence.