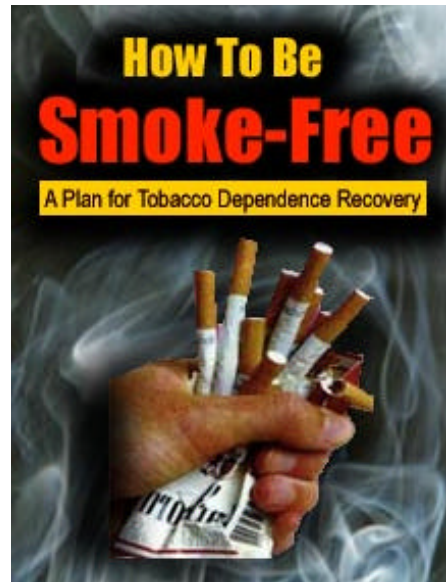


How to Be, Smoke-Free

We have compiled this collection of stop smoking information and resources to help those who would like to stop smoking. Please read through the information below carefully. Remember that the information below is simply designed to share with you options for smoking cessation. All the information in this publication comes directly from the US National Institute of Health. However, before following any stop smoking program (even those mentioned in this publication), you should first visit your doctor and discuss what program may or may not be right for you. **Please consult your physician before following any of the information we have compiled in this publication.** Only you and your doctor can work out a program that is right for you.



Clearing the Air: How to Quit Smoking...and Quit for Keeps

Introduction

This book guides you from thinking about stopping smoking through actually doing it—from the day you quit to quitting for keeps. It gives tips on fighting temptation—and what to do if you give in—and on avoiding weight gain (a handy Snack Calorie Chart is included). By telling you what to expect it can help you through the day-by-day process of becoming a nonsmoker.

In this booklet, you'll find a variety of tips and helpful hints on kicking your smoking habit. Take a few moments to look at each suggestion carefully. Pick those you feel comfortable with, and decide today that you're going to use them to quit. It may take a while to find the combination that's right for you, but you *can* quit for good, even if you've tried to quit before.

Many smokers have successfully given up cigarettes by replacing them with new habits, without quitting "cold turkey," planning a special program, or seeking professional help.

The following approaches include many of those most popular with ex-smokers. Remember that successful methods are as different as the people who use them. What may seem silly to others may be just what you need to quit—so don't be embarrassed to try something new. These methods can make your own personal efforts a little easier.

Pick the ideas that make sense to you. And then follow through—you'll have a much better chance of success.

Preparing Yourself for Quitting

- Decide positively that you want to quit. Try to avoid negative thoughts about how difficult it might be.
- List all reasons you want to quit. Every night before going to bed, repeat one of those reasons 10 times.
- Develop strong personal reasons in addition to your health and obligations to others. For example, think of all the time you waste taking cigarette breaks, rushing out to buy a pack, hunting for a light, etc.
- Begin to condition yourself physically: Start a modest exercise program; drink more fluids; get plenty of rest; and avoid fatigue.
- Set a target date for quitting—perhaps a special day such as your birthday, your anniversary, or the Great American Smokeout. If you smoke heavily at work, quit during your vacation so that you're already committed to quitting when you return. Make the date sacred, and don't let anything change it. This will make it easy for you to keep track of the day you became a nonsmoker and to celebrate that date every year.

Knowing What to Expect

- Have realistic expectations—quitting isn't easy, but it's not impossible either. More than 3 million Americans quit every year.
- Understand that withdrawal symptoms are *temporary*. They usually last only 1-2 weeks.
- Know that most relapses occur in the first week after quitting, when withdrawal symptoms are strongest and your body is still dependent on nicotine. Be aware that this will be your hardest time, and use all your personal resources—willpower, family, friends, and the tips in this booklet—to get you through this critical period successfully.
- Know that most other relapses occur in the first week after quitting, when situational triggers, such as a particularly stressful event, occur unexpectedly. These are the times when people reach for cigarettes automatically, because they associate smoking with relaxing. This is the kind of situation that's hard to prepare yourself for until it happens, so it's

especially important to recognize it if it *does* happen. Remember that smoking is a habit, but a habit you can break.

- Realize that most successful ex-smokers quit for good only after several attempts. You may be one of those who can quit on your first try. But if you're not, *don't give up*. Try again.

Involving Someone Else

- Bet a friend you can quit on your target date. Put your cigarette money aside for every day, and forfeit it if you smoke. (But if you do smoke, *don't give up*. Simply strengthen your resolve and try again.)
- Ask your friend or spouse to quit with you.
- Tell your family and friends that you're quitting and when. They can be an important source of support both before and after you quit.

Ways of Quitting:

Switch Brands

- Switch to a brand you find distasteful.
- Change to a brand that is low in tar and nicotine a couple of weeks before your target date. This will help change your smoking behavior. However, *do not* smoke more cigarettes, inhale them more often or more deeply, or place your fingertips over the holes in the filters. All of these will increase your nicotine intake, and the idea is to get your body use to functioning without nicotine.

Cut Down the Number of Cigarettes You Smoke

- Smoke only half of each cigarette.
- Each day, postpone the lighting of your first cigarette 1 hour.
- Decide you'll only smoke during odd or even hours of the day.
- Decide beforehand how many cigarettes you'll smoke during the day. For each additional cigarette, give a dollar to your favorite charity.
- Change your eating habits to help you cut down. For example, drink milk, which many people consider incompatible with smoking. End meals or snacks with something that won't lead to a cigarette.

- Reach for a glass of juice instead of a cigarette for a "pick-me-up."
- Remember: Cutting down can help you quit, but it's not a substitute for quitting. If you're down to about 7 cigarettes a day, it's time to set your target quit date and get ready to stick to it.

Don't Smoke "Automatically"

- Smoke only those cigarettes you *really* want. Catch yourself before you light up a cigarette out of pure habit.
- Don't empty your ashtrays. This will remind you of how many cigarettes you've smoked each day, and the sight and the smell of stale cigarette butts will be very unpleasant.
- Make yourself aware of each cigarette by using the opposite hand or putting cigarettes in an unfamiliar location or a different pocket to break the automatic reach.
- If you light up many times during the day without even thinking about it, try to look in a mirror each time you put a match to your cigarette—you may decide you don't need it.

Make Smoking Inconvenient

- Stop buying cigarettes by the carton. Wait until one pack is empty before you buy another.
- Stop carrying cigarettes with you at home or at work. Make them difficult to get to.

Make Smoking Unpleasant

- Smoke only under circumstances that aren't especially pleasurable for you. If you like to smoke with others, smoke alone. Turn your chair to an empty corner and focus only on the cigarette you are smoking and all its many negative effects.
- Collect all your cigarette butts in one large glass container as a visual reminder of the filth made by smoking.

Just Before Quitting

- Practice going without cigarettes.
- Don't think of *never* smoking again. Think of quitting in terms of *1 day at a time*.

- Tell yourself you won't smoke today, and then don't.
- Clean your clothes to rid them of the cigarette smell, which can linger a long time.

On the Day You Quit

- Throw away all your cigarettes and matches. Hide your lighters and ash trays.
- Visit the dentist and have your teeth cleaned to get rid of tobacco stains. Notice how nice they look and resolve to keep them that way.
- Make a list of things you'd like to buy for yourself or someone else. Estimate the cost in terms of packs of cigarettes, and put the money aside to buy these presents.
- Keep very busy on the big day. Go to the movies, exercise, take long walks, go bike riding.
- Remind your family and friends that this is your quit date, and ask them to help you over the rough spots of the first couple of days and weeks.
- Buy yourself a treat or do something special to celebrate.

Immediately After Quitting

- Develop a clean, fresh, nonsmoking environment around yourself –at work and at home. Buy yourself flowers—you may be surprised how much you can enjoy their scent now.
- The first few days after you quit, spend as much free time as possible in places where smoking isn't allowed, such as libraries, museums, theaters, department stores, and churches.
- Drink large quantities of water and fruit juice (but avoid sodas that contain caffeine).
- Try to avoid alcohol, coffee, and other beverages that you associate with



cigarette smoking.

- Strike up conversation instead of a match for a cigarette.
- If you miss the sensation of having a cigarette in your hand, play with something else—a pencil, a paper clip, a marble.
- If you miss having something in your mouth, try toothpicks or a fake cigarette.

Avoid Temptation

- Instead of smoking after meals, get up from the table and brush your teeth or go for a walk.
- If you always smoke while driving, listen to a particularly interesting radio program or your favorite music, or take public transportation for a while, if you can.
- For the first 1-3 weeks, avoid situations you strongly associate with the pleasurable aspects of smoking, such as watching your favorite TV program, sitting in your favorite chair, or having a cocktail before dinner.
- Until you are confident of your ability to stay off cigarettes, limit your socializing to healthful, outdoor activities or situations where smoking is not allowed.
- If you must be in a situation where you'll be tempted to smoke (such as a cocktail or dinner party), try to associate with the nonsmokers there.
- Try to analyze cigarette ads to understand how they attempt to "sell"



you on individual brands.

When You Get the Crazyies

- Keep oral substitutes handy—try carrots, pickles, sunflower seeds, apples, celery, raisins, or sugarless gum instead of a cigarette.
- Take 10 deep breaths and hold the last one while lighting a match. Exhale slowly and blow out the match. Pretend it's a cigarette and crush it out in an ashtray.
- Take a shower or bath if possible.
- Learn to relax quickly and deeply. Make yourself limp, visualize a soothing, pleasing situation, and get away from it all for a moment. Concentrate on that peaceful image and nothing else.
- Light incense or a candle instead of a cigarette.
- Never allow yourself to think that "one won't hurt"—it will.

Find New Habits

- Change your habits to make smoking difficult, impossible or unnecessary. For example, it's hard to smoke while you're swimming, jogging, or playing tennis or handball. When your desire for a cigarette is intense, wash your hands or the dishes, or try new recipes.
- Do things that require you to use your hands. Try crossword puzzles, needlework, gardening, or household chores. Go bike riding or take the dog for a walk; give yourself a manicure; write letters.
- Enjoy having a clean mouth taste and maintain it by brushing your teeth frequently and using a mouthwash.
- Stretch a lot.
- Get plenty of rest.
- Pay attention to your appearance. Look and feel sharp.
- Try to find time for the activities that are the most meaningful, satisfying, and important to you.

About Gaining Weight

Many people who are considering quitting are very concerned about gaining weight. If you are concerned about weight gain, keep these points in mind:

- Quitting doesn't mean you'll automatically gain weight. When people gain it's because they often eat more once they quit.
- The benefits of giving up cigarettes far outweigh the drawbacks of adding a few pounds. You'd have to gain a very large amount of weight to offset the many substantial health benefits that a normal smoker gains by quitting. Watch what you eat, and if you are concerned about gaining weight, consider the tips that follow.

Tips to Help You Avoid Weight Gain

- Make sure you have a well balanced diet, with the proper amounts of protein, carbohydrates and fat.
- Don't set a target date for a holiday, when the temptation of high calorie food and drinks may be too hard to resist.
- Drink a glass of water before your meals.
- Weigh yourself weekly.
- Chew sugarless gum when you want sweet foods.
- Plan menus carefully, and count calories. Don't try to lose weight—just try to maintain your pre-quitting weight.
- Have low calorie foods on hand for nibbling. Use the Snack Calorie Chart to choose foods that are both nutritious and low in calories. Some good choices are fresh fruits and vegetables, fruit and vegetable juices, low-fat cottage cheese, and air-popped popcorn without butter.
- Take time for daily exercise, or join an organized exercise group.

Snack Calorie Chart

BEVERAGES

Carbonated (per 8-ounce glass)

Cola-type.....	95 calories
Fruit flavors (10-13% sugar).....	115 calories
Ginger Ale.....	75 calories

Fruit drinks (per 1/2 cup)

Apricot nectar.....	70 calories
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Cranberry juice.....80 calories
Grape drink.....70 calories
Lemonade (frozen).....55 calories

Fruit juices (per 1/2 cup)

Apple juice, canned.....60 calories
Grape juice, bottled.....80 calories
Grapefruit juice, canned, unsweetened...50 calories
Orange juice, canned, unsweetened.....55 calories
Pineapple juice, canned, unsweetened....70 calories
Prune juice, canned.....100 calories

Vegetable juices (per 1/2 cup)

Tomato juice.....25 calories
Vegetable juice cocktail.....20 calories

Coffee and tea

Coffee, black.....3-5 calories
with 1 tsp. sugar.....18-20 calories
with 1 tsp. cream.....13-15 calories
Tea, plain.....0-1 calories
with 1 tsp. sugar.....15-16 calories

CANDY, CHIPS, AND PRETZELS

Candy (per ounce)

Hard candy.....110 calories
Jelly beans.....105 calories
Marshmallows.....90 calories
Gumdrops.....100 calories

Chips (per cup)

Corn chips.....230 calories
Potato chips.....115 calories

Popcorn

(air-popped, without butter).....25 calories

Pretzels

Dutch, 1 twisted.....60 calories
Stick, 5 regular.....10 calories

CHEESE (per ounce)

American, processed.....105 calories
Cottage, creamed.....30 calories
Cottage, low-fat (2%).....25 calories
Swiss, natural.....105 calories

CRACKERS

Butter, 2-inch diameter.....	15 calories
Graham, 2 1/2 inches square, 2.....	55 calories
Matzoh, 6-inch diameter.....	80 calories
Rye.....	45 calories
Saltine.....	50 calories

FRUITS (raw)

Apple, 1 medium.....	80 calories
Apricots, fresh, 3 medium.....	50 calories
Apricots, dried, 5 halves.....	40 calories
Banana, 1 medium.....	105 calories
Blackberries, 1/2 cup.....	35 calories
Blueberries, 1/2 cup.....	40 calories
Cantaloupe, 1/4 melon.....	50 calories
Cherries, 10.....	50 calories
Dates, dried, 3.....	70 calories
Fig, dried, 1 medium.....	50 calories
Grapefruit, 1/2.....	40 calories
Grapes, 20.....	30 calories
Orange, 1 medium.....	60 calories
Peach, 1 medium.....	35 calories
Pear, 1 medium.....	100 calories
Pineapple, 1/2 cup.....	40 calories
Prunes, dried, 3.....	60 calories
Raisins, 1/4 cup.....	110 calories
Strawberries, 1 cup.....	45 calories
Watermelon, 1 cup.....	50 calories

NUTS (per 2 tablespoons)

Almonds.....	105 calories
Brazil nuts.....	115 calories
Cashews.....	100 calories
Peanuts.....	105 calories
Pecans, halves.....	95 calories

VEGETABLES (raw)

Carrots, 1/2 cup grated.....	35 calories
Celery, 5-inch stalks, 3.....	10 calories
Pickle, 1.....	15-20 calories

What Happens After You Quit Smoking:

Immediate Rewards

Within 12 hours after you have your last cigarette, your body will begin to heal itself. The levels of carbon monoxide and nicotine in your system will decline

rapidly, and your heart and lungs will begin to repair the damage caused by cigarette smoke.

Within a few days you will probably begin to notice some remarkable changes in your body. Your sense of smell and taste may improve. You will breathe easier, and your smoker's hack will begin to disappear, although you may notice that you will continue to cough for a while. And you will be free from the mess, smell, inconvenience, expense, and dependence of cigarette smoking.

Immediate Effects

As your body begins to repair itself, instead of feeling better right away, you may feel worse for a while. It's important to understand that healing is a process—it begins immediately, but it continues over time. These "withdrawal pangs" are really symptoms of the recovery process (see [Withdrawal Symptoms and Activities That Might Help](#)).

Immediately after quitting, many ex-smokers experience "symptoms of recovery" such as temporary weight gain caused by fluid retention, irregularity, and dry, sore gums or tongue. You may feel edgy, hungry, more tired, and more short-tempered than usual and have trouble sleeping and notice that you are coughing a lot. These symptoms are the result of your body clearing itself of nicotine, a powerful addictive chemical. Most nicotine is gone from the body in 2-3 days.

Long-range Benefits

It is important to understand that the long range after-effects of quitting are only temporary and signal the beginning of a healthier life. Now that you've quit, you've added a number of healthy productive days to each year of your life. Most important, you've greatly improved your chances for a longer life. You have significantly reduced your risk of death from heart disease, stroke, chronic bronchitis, emphysema, and several kinds of cancer—not just lung cancer. (Cigarette smoking is responsible every year for approximately 130,000 deaths from cancer, 170,000 deaths from heart disease, and 50,000 deaths from lung disease.)

Withdrawal Symptoms and Activities That Might Help*

SYMPTOM	ACTIVITY
Dry mouth; sore throat, gums, or tongue	Sip ice-cold water or fruit juice, or chew gum.
Headaches	Take a warm bath or shower. Try relaxation or meditation techniques.
Trouble sleeping	Don't drink coffee, tea or soda with caffeine after 6:00 p.m. Again, try relaxation or meditation techniques.

Irregularity	Add roughage to your diet, such as raw fruit, vegetables, and whole grain cereals. Drink 6-8 glasses of water a day.
Fatigue	Take a nap. Try not to push yourself during this time; don't expect too much of your body until it's had a chance to begin to heal itself over a couple of weeks.
Hunger	Drink water or low-calorie liquids. Eat low-fat, low-calorie snacks. See Snack Calorie Chart .
Tenseness, irritability	Take a walk, soak in a hot bath, try relaxation or meditation techniques.
Coughing	Sip warm herbal tea. Suck on cough drops or sugarless hard candy.

* Adapted from *Quitting Times: A Magazine for Women Who Smoke*, funded by the Pennsylvania Department of Health; prepared by Fox Chase Cancer Center, Philadelphia.

Quitting for Keeps:

Congratulations!

Now you are ready to develop a new habit—not smoking. Like any other habit, it takes time to become a part of you; unlike most other habits, though, not smoking will take some conscious effort and practice. This section of the booklet can be a big help. You will find many techniques to use for developing the nonsmoking habit and holding on to it.

By reading this section of the booklet carefully and reviewing it often, you'll become more aware of the places and situations that prompt the desire for a cigarette. You will also learn about many nonsmoking ways to deal with the urge to smoke. These are called coping skills. Finally, you will learn what to do in case you do slip and give in to the smoking urge.

Keep Your Guard Up

The key to living as a nonsmoker is to avoid letting your urges or cravings for a cigarette lead you to smoke. Don't kid yourself—even though you have made a commitment not to smoke, you *will* sometimes be tempted. But instead of giving in to the urge, you can use it as a learning experience.

First, remind yourself that you have *quit* and you are a *nonsmoker*. Then look closely at your urge to smoke and ask yourself:

- Where was I when I got the urge?
- What was I doing at the time?

- Whom was I with?
- What was I thinking?

The urge to smoke after you've quit often hits at predictable times. The trick is to anticipate those times and find ways to cope with them—without smoking. Naturally, it won't be easy at first. In fact, you may continue to want a cigarette at times. But remember, even if you slip, it doesn't mean an end to the nonsmoking you. It does mean that you should try to identify what triggered your slip, strengthen your commitment to quitting, and try again.

Look at the following list of typical triggers. Does any of them ring a bell with you? Check off those that might trigger and urge to smoke, and add any others you can think of:

- Working under pressure
- Feeling blue
- Talking on the telephone
- Having a drink
- Watching television
- Driving your car
- Finishing a meal
- Playing cards
- Drinking coffee
- Watching someone else smoke

If you are like many new nonsmokers, the most difficult place to resist the urge to smoke is the most familiar: home. The activities most closely associated with smoking urges are eating, partying, and drinking. And, not surprisingly, most urges occur when a smoker is present.

How to Dampen That Urge

There are seven major coping skills to help you fight that urge to smoke. These tips are designed for you, the new nonsmoker, to help you nurture the nonsmoking habit.

1. Think about why you quit

Go back to your list of reasons for quitting. Look at this list several times a day—especially when you are hit with the urge to smoke. The best reasons you could have for quitting are very personally yours, and these are also the best reasons to stay a nonsmoker.

2. Know when you are rationalizing

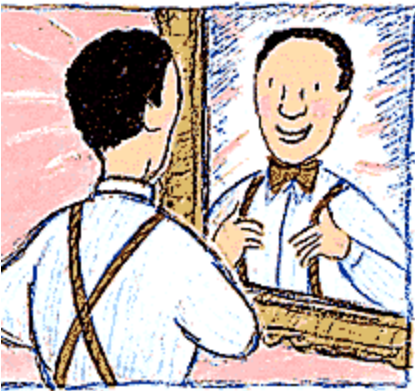
It is easy to rationalize yourself back into smoking (see [Common Rationalizations](#)). Don't talk yourself into smoking again. A new nonsmoker in a tense situation may think, "I'll just have one cigarette to calm myself down." If thoughts like this pop into your head, stop and think again! You know better ways to relax—nonsmokers ways, such as taking a walk or doing breathing exercises.

Concern about gaining weight may also lead to rationalizations. Learn to counter thoughts such as, "I'd rather be thin, even if it means smoking." Remember that a slight weight gain is not likely to endanger your health as much as smoking would. (Cigarette smokers have about a 70-percent higher rate of premature death than nonsmokers.) And review the list of healthy, low-calorie snacks that you used when quitting.

3. Anticipate Triggers and Prepare to Avoid Them

By now you know which situations, people, and feelings are likely to tempt you to smoke. Be prepared to meet these triggers head on and counteract them. Keep using the skills that helped you cope in cutting down and quitting:

- Keep your hands busy—doodle, knit, type a letter.
- Avoid people who smoke; spend more time with nonsmoking friends.
- Find activities that make smoking difficult (gardening, washing the car, taking a shower). Exercise to help knock out that urge; it will help you to feel and look good as well.
- Put something other than a cigarette in your mouth. Chew sugarless gum or nibble on a carrot or celery stick.
- Avoid places where smoking is permitted. Sit in the nonsmoking section of restaurants, trains, and planes.
- Reduce your consumption of alcohol, which often stimulates the desire to smoke. Try to have no more than one or two drinks at a party. Better yet, have a glass of juice, soda, or mineral water.



4. Reward yourself for not smoking

Congratulations are in order each time you get through a day without smoking. After a week, give yourself a pat on the back and a reward of some kind. Buy a new record or treat yourself to a movie or concert. No matter how you do it, make sure you reward yourself in some way. It helps to remind yourself that what you are doing is important.

5. Use positive thoughts

If self-defeating thoughts start to creep in, remind yourself again that you are a nonsmoker, that you do not want to smoke, and that you have good reasons for it. Putting yourself down and trying to hold out using willpower alone are not effective coping techniques. Mobilize the power of positive thinking!

6. Use relaxation techniques

Breathing exercises help to reduce tension. Instead of having a cigarette, take a long deep breath, count to 10, and release it. Repeat this 5 times. See how much more relaxed you feel?

7. Get social support

The commitment to remain a nonsmoker can be made easier by talking about it with friends and relatives. They can congratulate you as you check off another day, week, and month as a nonsmoker. Tell the people close to you that you might be tense for a while, so they know what to expect. They'll be sympathetic when you have an urge to smoke and can be counted on to help you resist it. Remember to call on your friends when you are lonely or you feel an urge to smoke. A buddy system is a great technique

Non Smoking Is Habit Forming

Good for you! You have made a commitment not to smoke, and by using this booklet, you know what to do if you are tempted to forget that commitment. It is difficult to stay a nonsmoker once you have had a cigarette, so do everything possible to avoid it.

If you follow the advice in this booklet and use at least one coping skill whenever you have an urge to smoke, you will have quit for keeps!

Relapse: If You Do Smoke Again

If you slip and smoke, don't be discouraged. Many former smokers tried to stop several times before they finally succeeded. Here's what you should do:

- Recognize that you have had a slip. A slip means that you have had a *small* setback and smoked a cigarette or two. But your first cigarette did not make you a smoker to start with, and a small setback does not make you a smoker again.

- Don't be too hard on yourself. One slip doesn't mean you're a failure or that you can't be a nonsmoker, but it is important to get yourself back on the nonsmoking track *immediately*.
- Identify the trigger: Exactly what was it that prompted you to smoke? Be aware of the trigger and decide now how you will cope with it when it comes up again.
- Know and use the coping skills described above. People who know at least one coping skill are more likely to remain nonsmokers than those who do not know any.
- Sign a contract with yourself to remain a nonsmoker.
- If you think you need professional help, see your doctor. He or she can provide extra motivation for you to stop smoking. Your doctor may also prescribe nicotine gum or a nicotine patch as an alternative source of nicotine while you break the habit of smoking.

Marking Progress

- Each month, on the anniversary of your quit date, plan a special celebration.
- Periodically, write down new reasons you are glad you quit, and post these reasons where you will be sure to see them.
- Make up a calendar for the first 90 days. Cross off each day and indicate the money you saved by not smoking.
- Set other, intermediate target dates, and do something special with the money you have saved.

Common Rationalizations*

Rationalization: I'm under a lot of stress, and smoking relaxes me.

Response: Your body is used to nicotine, so you naturally feel more relaxed when you give your body a substance upon which it has grown dependent. But nicotine really is a stimulant; it raises your heart rate, blood pressure, and adrenaline level. Most ex-smokers feel much less nervous just a few weeks after quitting.

Rationalization: Smoking makes me more effective in my work.

Response: Trouble concentrating can be a short-term symptom of quitting, but smoking actually deprives your brain of oxygen.

Rationalization: *I've already cut down to a safe level.*

Response: Cutting down is a good first step, but there's a big difference in the benefits to you between smoking a little and not smoking at all. Besides, smokers who cut back often inhale more often and more deeply, negating many of the benefits of cutting back. After you've cut back to about seven cigarettes a day, it's time to set a quit date.

Rationalization: *I smoke only safe, low-tar/low-nicotine cigarettes.*

Response: These cigarettes still contain harmful substances, and many smokers who use them inhale more often and more deeply to maintain their nicotine intake. Also, carbon monoxide intake often increases with a switch to low-tar cigarettes.

Rationalization: *It's too hard to quit. I don't have the willpower.*

Response: Quitting and staying away from cigarettes is hard, but it's not impossible. More than 3 million Americans quit every year. It's important for you to remember that many people have had to try more than once, and try more than one method, before they became ex-smokers, but they have done it, and so can you.

Rationalization: *I'm worried about gaining weight.*

Response: Most smokers who gain more than 5-10 pounds are eating more. Gaining weight isn't inevitable. There are certain things you can do to help keep your weight stable. (See [Tips To Help You Avoid Weight Gain](#).)

Rationalization: *I don't know what to do with my hands.*

Response: That's a common complaint among ex-smokers. You can keep your hands busy in other ways; it's just a matter of getting used to the change of not holding a cigarette. Try holding something else, such as a pencil, paper clip, or marble. Practice simply keeping your hands clasped together. If you're at home, think of all the things you wish you had time to do, make a list, and consult the list for alternatives to smoking whenever your hands feel restless.

Rationalization: *Sometimes I have an almost irresistible urge to have a cigarette.*

Response: This is a common feeling, especially within the first 1-3 weeks. The longer you're off cigarettes, the more your urges probably will come at times when you smoked before, such as when you're drinking coffee or alcohol or are at a cocktail party where other people are smoking. These are high-risk

situations, and you can help yourself by avoiding them whenever possible. If you can't avoid them, you can try to visualize in advance how you'll handle the desire for a cigarette if it arises in those situations.

Rationalization: I blew it. I smoked a cigarette.

Response: Smoking one or a few cigarettes doesn't mean you've "blown it." It does mean that you have to strengthen your determination to quit and try again—harder. Don't forget that you got through several days, perhaps even weeks or months, without a cigarette. This shows that you don't need cigarettes and that you can be a successful quitter.

*Adapted from Clinical Opportunities for Smoking Intervention—A Guide for the Busy Physician. National Heart, Lung, and Blood Institute. NIH Pub. No. 86-2178. August 1986.

Facts About Smoking

Hurting Yourself

- Smoking is an addiction. Tobacco smoke contains nicotine, a drug that is addictive and can make it very hard, but not impossible, to quit.
- More than 400,000 deaths in the U.S. each year are from smoking-related illnesses. Smoking greatly increases your risks for lung cancer and many other cancers.

Hurting Others

- Smoking harms not just the smoker, but also family members, coworkers and others who breathe the smoker's cigarette smoke, called secondhand smoke.
- Among infants to 18 months of age, secondhand smoke is associated with as many as 300,000 cases of bronchitis and pneumonia each year.
- Secondhand smoke from a parent's cigarette increases a child's chances for middle ear problems, causes coughing and wheezing, and worsens asthma conditions.

- If both parents smoke, a teenager is more than twice as likely to smoke than a young person whose parents are both non-smokers. In households where only one parent smokes, young people are also more likely to start smoking.
- Pregnant women who smoke are more likely to deliver babies whose weights are too low for the babies' good health. If all women quit smoking during pregnancy, about 4,000 new babies would not die each year.

Why Quit?

- Quitting smoking makes a difference right away - you can taste and smell food better. Your breath smells better. Your cough goes away. This happens for men and women of all ages, even those who are older. It happens for healthy people as well as those who already have a disease or condition caused by smoking.
- Quitting smoking cuts the risk of lung cancer, many other cancers, heart disease, stroke, other lung diseases, and other respiratory illnesses.
- Ex-smokers have better health than current smokers. Ex-smokers have fewer days of illness, fewer health complaints, and less bronchitis and pneumonia than current smokers.
- Quitting smoking saves money. A pack-a-day smoker, who pays \$2 per pack can, expect to save more than \$700 per year. It appears that the price of cigarettes will continue to rise in coming years, as will the financial rewards of quitting.

Getting Ready to Quit

- Set a date for quitting. If possible, have a friend quit smoking with you.
- Notice when and why you smoke. Try to find the things in your daily life that you often do while smoking (such as drinking your morning cup of coffee or driving a car).
- Change your smoking routines: Keep your cigarettes in a different place. Smoke with your other hand. Don't do anything else when smoking. Think about how you feel when you smoke.

- Smoke only in certain places, such as outdoors.
- When you want a cigarette, wait a few minutes. Try to think of something to do instead of smoking; you might chew gum or drink a glass of water.
- Buy one pack of cigarettes at a time. Switch to a brand of cigarettes you don't like.



On the Day You Quit

- Get rid of all your cigarettes. Put away your ashtrays.
- Change your morning routine. When you eat breakfast, don't sit in the same place at the kitchen table. Stay busy.
- When you get the urge to smoke, do something else instead. Carry other things to put in your mouth, such as gum, hard candy, or a toothpick.
- Reward yourself at the end of the day for not smoking. See a movie or go out and enjoy your favorite meal.

Staying Quit

- Don't worry if you are sleepier or more short-tempered than usual; these feelings will pass.
- Try to exercise; take walks or ride a bike.
- Consider the positive things about quitting, such as how much you like yourself as a non-smoker, health benefits for you and your family, and the example you set for others

around you. A positive attitude will help you through the tough times.

- When you feel tense, try to keep busy, think about ways to solve the problem, tell yourself that smoking won't make it any better, and go do something else.
- Eat regular meals. Feeling hungry is sometimes mistaken for the desire to smoke.
- Start a money jar with the money you save by not buying cigarettes.
- Let others know that you have quit smoking; most people will support you. Many of your smoking friends may want to know how you quit. It's good to talk to others about your quitting.
- If you slip and smoke, don't be discouraged. Many former smokers tried to stop several times before they finally succeeded. Quit again.

If you need more help, see your doctor.

He or she may prescribe nicotine gum or a nicotine patch to help you break your addiction to cigarettes.

For more information about quitting

1-800-4-CANCER, the National Cancer Institute's toll-free Cancer Information Service, or 1-800-ACS-2345, the American Cancer Society's Cancer Response System, or look in your local phone directory for smoking cessation resources that may be available in your area, such as local chapters of the [American Cancer Society](#), [American Lung Association](#), [American Heart Association](#), or state and local health departments.

Why do you Smoke?

Answer the questions in this site to find out. Understanding the reasons you smoke can show you the best ways to quit.

Smokers use tobacco to fill many different needs. Studies show that most people smoke for one or more of the following reasons:

Smoking gives me more energy.

Quiz: Do you smoke for this reason?

If you answer "often" or "sometimes" to the following questions, this is one reason you smoke.

- I smoke to keep from slowing down.
- I reach for a cigarette when I need a lift.
- When I'm tired, smoking perks me up.

Many people use tobacco like they use coffee: to help them wake up, get moving, keep going when they feel worn out. The nicotine in tobacco, like the caffeine in coffee, is a stimulant. But you can find other ways to get more energy. These tips can help.

Tips To Help You Quit

- Get enough rest. With a good night's sleep you're more likely to feel fresh and alert.
- Exercise regularly. Regular exercise raises your overall energy level, so you may feel less need for a boost.
- Take a brisk walk instead of smoking if you start feeling sluggish. Moving around is a drug-free stimulant.
- Eat regular, nutritious meals. Healthful foods are a great natural source of energy.
- Drink lots of cold water. It will refresh you as it helps clear your body of nicotine.
- Avoid getting bored, which can make you feel tired. Keep your mind active, perhaps by calling a friend, reading a new magazine, or playing a game.

I like to touch and handle cigarettes.

Quiz: Do you smoke for this reason?

If you answer "often" or "sometimes" to the following questions, this is one reason you smoke.

- I feel more comfortable with a cigarette in my hand.
- I enjoy getting a cigarette out of the pack and lighting up.
- I like to watch the smoke when I exhale.

This type of smoker gets physical pleasure from handling cigarettes and the rituals of smoking. It just "feels right" to have a cigarette in his hand or mouth. In fact, many smokers say they've gone back to smoking because, "I had nothing to do with my hands."

Getting over this obstacle can make it easier to quit smoking and stay smoke-free. The tips below suggest other ways to satisfy the handling urge.

Tips To Help You Quit

- Pick up a pen or pencil when you want to reach for a cigarette. Doodle p; or make a list of your reasons for quitting.
- Play with a coin, twist your ring, or handle whatever harmless object is nearby.
- Put a plastic cigarette in your hand or mouth. Some have a minty taste to help you focus on how fresh your breath is without tobacco.
- Hold a real cigarette if the touch is all you miss. But if handling a cigarette makes you want to light up, stick with the substitutes.
- Eat regular meals to avoid being hungry. Don't confuse need-ing to eat with the desire to put a cigarette in your mouth.
- Take up a hobby that keeps your hands busy. Try knitting, carpentry, painting, or making bread.
- Have a low-fat, low-sugar snack like carrot sticks, apple slices, or a bread stick. Suck on a sugar-free hard candy or mint.

Smoking is a pleasure.

Quiz: Do you smoke for this reason?

If you answer "often" or "sometimes" to the following questions, this is one reason you smoke.

- Smoking cigarettes is pleasant and enjoyable.
- Smoking makes good times better.
- I want a cigarette most when I am comfortable and relaxed.

Almost two out of three smokers say they just plain enjoy smoking. When you associate smoking with "the good times," it can strengthen your smoking habit. But it can be easier to quit when you focus on enjoying yourself without tobacco. The tips below offer some ideas to help you miss cigarettes less.

Tips To Help You Quit

- Enjoy the pleasures of being tobacco-free. Savor:
 - How good foods now taste.
 - How fresh you look and feel in social situations without smoking.
 - How much easier it is to walk, run, and climb stairs now that your lungs are smoke-free.
 - How good it feels to be in control of the urge to smoke.
- Spend the money you save on cigarettes on another kind of pleasure: a shopping spree, a night out, a party to celebrate your success.
- Remind yourself of the health benefits of quitting. Giving up cigarettes can help you enjoy life's other pleasures for many years to come.

Smoking helps me relax when I'm tense or upset.

Quiz: Do you smoke for this reason?

If you answer "often" or "sometimes" to the following questions, this is one reason you smoke.

- I light up a cigarette when something makes me angry.
- Smoking relaxes me in a stressful situation.
- When I'm depressed I reach for a cigarette to feel better.

Lots of smokers use cigarettes to help them through bad times. If you've used cigarettes as a crutch, finding another way to cope with stress can help you stay quit. Otherwise, you may want to smoke again whenever problems arise.

The tips below include ideas that have helped former smokers handle tense times without tobacco.

Tips to Help You Quit

- Use relaxation techniques to calm down when you are angry or upset. Deep breathing exercises, muscle relaxation, and imagining yourself in a peaceful setting can make you feel less stressed.
- Exercise regularly. Studies show that exercise relieves tension and improves your mood.
- Remember that smoking never solves the problem; figure out what will, and act.
- Avoid or get out of stressful situations that might tempt you to smoke.
- Get enough rest. Take time each day to relax, no matter how busy you are.
- Enjoy relaxation. Take a long hot bath. Have a massage. Lie in a garden hammock. Listen to soothing music.

**I crave cigarettes;
I am addicted to smoking.**

Quiz: Do you smoke for this reason?
If you answer "often" or "sometimes" to the following questions, this is one reason you smoke.

- When I run out of cigarettes, it's almost unbearable until I get more.

- I am very aware of not smoking when I don't have a cigarette in my hand.
- When I haven't smoked for a while I get a gnawing hunger for a cigarette..

Many smokers are addicted or "hooked" on the nicotine in tobacco. When addicted smokers quit, many go through a withdrawal period. They may have both physical symptoms (feeling tired and irritable; headaches; nervousness) and an emotional need for a cigarette. One ex-smoker compared his continued craving for cigarettes to the longing you feel for a lost love.

It isn't easy to get over an addiction to tobacco, but many people have succeeded; often on a second or third try. But once you're back in control, you won't have to beat smoking again. For many ex-smokers, that's a powerful motivation to stay tobacco-free. The tips below include ideas to help addicted smokers make it through withdrawal and stay away from cigarettes for good.

Tips To Help You Quit

- Ask your doctor about using a nicotine patch or nicotine gum to help you avoid withdrawal symptoms.
- Smoke more than you want to for a day or two before you quit. This "overkill" may spoil your taste for cigarettes.
- Go "cold turkey." Tapering off probably won't work for you, because the moment you put out one cigarette you begin to crave the next.
- Tell family and friends you've quit smoking. Ask for help if you need it. Keep away from cigarettes completely. Get rid of ashtrays. Destroy any cigarettes you have. Try to avoid people who smoke and smoke-filled places like bars if you're having withdrawal symptoms or cigarette cravings.
- Think of yourself as a non-smoker. Hang up "No Smoking" signs. Don't relive your days as a smoker.
- Remember that physical withdrawal symptoms last about two weeks. Hang on!

Smoking is a habit.

Quiz: Do you smoke for this reason?

If you answer "often" or "sometimes" to the following questions, this is one reason you smoke.

- I smoke cigarettes automatically without being aware of it.
- I light up a cigarette without realizing I have one burning in an ashtray.
- I find a cigarette in my mouth and don't remember putting it there.

If you are this kind of smoker, you are no longer getting much satisfaction from your cigarettes. Unlike people who smoke for pleasure, you might not miss it very much if you stopped. The key is breaking your smoking patterns. The tips below can help.

Tips To Help You Quit

- Cut down gradually. Smoke fewer cigarettes each day or only smoke them halfway down. Inhale less often and less deeply. After several months it should be easier to stop completely.
- Change your smoking routines. Keep your cigarettes in a different place. Smoke with your opposite hand. Don't do anything else while smoking. Limit smoking to certain places, such as outside or in one room at home.
- When you want a cigarette, wait one minute. Try to think of something else to do instead of smoking.
- Be aware of every cigarette you smoke. Ask yourself: Do I really want this cigarette? You may be surprised at how many you can easily pass up.
- Set a date for giving up smoking altogether and stick to it.

For More Quit-Smoking Tips and Advice

Whatever your reasons for smoking cigarettes, you can quit. For more information:

- Ask your doctor or clinic.

- Call 1-800-4-CANCER. The phone counselor can give you proven stop-smoking ideas and send you additional materials.
- Call your local office of the [American Cancer Society](#), [American Lung Association](#), or the [American Heart Association](#).

Cigarettes and Other Nicotine Products

Nicotine is one of the most heavily used addictive drugs in the United States. Cigarette smoking has been the most popular method of taking nicotine since the beginning of the 20th century. In 1998, 60 million Americans were current cigarette smokers (28 percent of all Americans aged 12 and older), and 4.1 million were between the ages of 12 and 17 (18 percent of youth in this age bracket).

In 1989, the U.S. Surgeon General issued a report that concluded that cigarettes and other forms of tobacco, such as cigars, pipe tobacco, and chewing tobacco, are addictive and that nicotine is the drug in tobacco that causes addiction. In addition, the report determined that smoking was a major cause of stroke and the third leading cause of death in the United States.

Health Hazards

Nicotine is highly addictive. It is both a stimulant and a sedative to the central nervous system. The ingestion of nicotine results in an almost immediate "kick" because it causes a discharge of epinephrine from the adrenal cortex. This stimulates the central nervous system, and other endocrine glands, which causes a sudden release of glucose. Stimulation is then followed by depression and fatigue, leading the abuser to seek more nicotine. Nicotine is absorbed readily from tobacco smoke in the lungs, and it does not matter whether the tobacco smoke is from cigarettes, cigars, or pipes.

Nicotine also is absorbed readily when tobacco is chewed. With regular use of tobacco, levels of nicotine accumulate in the body during the day and persist overnight. Thus, daily smokers or chewers are exposed to the effects of nicotine for 24 hours each day. Nicotine taken in by cigarette or cigar smoking takes only seconds to reach the brain but has a direct effect on the body for up to 30 minutes.

Research has shown that stress and anxiety affect nicotine tolerance and dependence. The stress hormone corticosterone reduces the effects of nicotine; therefore, more nicotine must be consumed to achieve the same effect. This increases tolerance to nicotine and leads to increased dependence. Studies in

animals have also shown that stress can directly cause relapse to nicotine self-administration after a period of abstinence.

Other studies have shown that animals cannot discriminate between the effects of nicotine and the effects of cocaine. Studies have also shown that nicotine self-administration sensitizes animals to self-administer cocaine more readily. Addiction to nicotine results in withdrawal symptoms when a person tries to stop smoking. For example, a study found that when chronic smokers were deprived of cigarettes for 24 hours, they had increased anger, hostility, and aggression, and loss of social cooperation. Persons suffering from withdrawal also take longer to regain emotional equilibrium following stress. During periods of abstinence and/or craving, smokers have shown impairment across a wide range of psychomotor and cognitive functions, such as language comprehension.

Women who smoke generally have earlier menopause. If women smoke cigarettes and also take oral contraceptives, they are more prone to cardiovascular and cerebrovascular diseases than are other smokers; this is especially true for women older than 30.

Pregnant women who smoke cigarettes run an increased risk of having stillborn or premature infants or infants with low birthweight. Children of women who smoked while pregnant have an increased risk for developing conduct disorders. National studies of mothers and daughters have also found that maternal smoking during pregnancy increased the probability that female children would smoke and would persist in smoking.

Adolescent smokeless tobacco users are more likely than nonusers to become cigarette smokers. Behavioral research is beginning to explain how social influences, such as observing adults or other peers smoking, affect whether adolescents begin to smoke cigarettes. Research has shown that teens are generally resistant to many kinds of anti-smoking messages.

In addition to nicotine, cigarette smoke is primarily composed of a dozen gases (mainly carbon monoxide) and tar. The tar in a cigarette, which varies from about 15 mg for a regular cigarette to 7 mg in a low-tar cigarette, exposes the user to a high expectancy rate of lung cancer, emphysema, and bronchial disorders. The carbon monoxide in the smoke increases the chance of cardiovascular diseases.

The Environmental Protection Agency has concluded that secondhand smoke causes lung cancer in adults and greatly increases the risk of respiratory illnesses in children and sudden infant death.

Promising Research

Research has shown that nicotine, like cocaine, heroin, and marijuana, increases the level of the neurotransmitter dopamine, which affects the brain pathways that control reward and pleasure. Scientists now have pinpointed a particular molecule (the beta 2 subunit of the nicotine cholinergic receptor) as a critical component in nicotine addiction. Mice that lack this molecule fail to self-

administer nicotine, implying that without the b2 molecule, the mice do not experience the positive reinforcing properties of nicotine. This new finding identifies a potential site for targeting the development of anti-nicotine addiction medications.

Other new research found that individuals have greater resistance to nicotine addiction if they have a genetic variant that decreases the function of the enzyme CYP2A6. The decrease in CYP2A6 slows the breakdown of nicotine and protects individuals against nicotine addiction. Understanding the role of this enzyme in nicotine addiction gives a new target for developing more effective medications to help people stop smoking. Medications might be developed that can inhibit the function of CYP2A6, thus providing a new approach to preventing and treating nicotine addiction.

Another study found dramatic changes in the brain's pleasure circuits during withdrawal from chronic nicotine use. These changes are comparable in magnitude and duration to similar changes observed during the withdrawal from other abused drugs such as cocaine, opiates, amphetamines, and alcohol. Scientists found significant decreases in the sensitivity of the brains of laboratory rats to pleasurable stimulation after nicotine administration was abruptly stopped. These changes lasted several days and may correspond to the anxiety and depression experienced by humans for several days after quitting smoking "cold turkey." The results of this research may help in the development of better treatments for the withdrawal symptoms that may interfere with individual's attempts to quit smoking.

Treatment

Research suggests that smoking cessation should be a gradual process because withdrawal symptoms are less severe in those who quit gradually than in those who quit all at once. Rates of relapse are highest in the first few weeks and months and diminish considerably after 3 months.

Studies have shown that pharmacological treatment combined with psychological treatment, including psychological support and skills training to overcome high-risk situations, results in some of the highest long-term abstinence rates.

Behavioral economic studies find that alternative rewards and reinforcers can reduce cigarette use. One study found that the greatest reductions in cigarette use were achieved when smoking cost was increased in combination with the presence of alternative recreational activities.

Nicotine chewing gum is one medication approved by the Food and Drug Administration (FDA) for the treatment of nicotine dependence. Nicotine in this form acts as a nicotine replacement to help smokers quit the smoking habit.

The success rates for smoking cessation treatment with nicotine chewing gum vary considerably across studies, but evidence suggests that it is a safe means

of facilitating smoking cessation if chewed according to instructions and restricted to patients who are under medical supervision.

Another approach to smoking cessation is the nicotine transdermal patch, a skin patch that delivers a relatively constant amount of nicotine to the person wearing it. A research team at NIDA's Division of Intramural Research studied the safety, mechanism of action, and abuse liability of the patch that was consequently approved by FDA. Both nicotine gum and the nicotine patch, as well as other nicotine replacements such as sprays and inhalers, are used to help people fully quit smoking by reducing withdrawal symptoms and preventing relapse while undergoing behavioral treatment.

Another tool in treating nicotine addiction is a medication that goes by the trademark Zyban. This is not a nicotine replacement, as are the gum and patch. Rather, this works on other areas of the brain, and its effectiveness is in helping to make controllable nicotine craving or thoughts about cigarette use in people trying to quit.

In the future, a nicotine vaccine may be an effective method for preventing and treating tobacco addiction. The vaccine would prevent nicotine from reaching the brain so as to reduce its effects and help keep people from becoming addicted.

Scientists recently developed an experimental nicotine vaccine consisting of a nicotine derivative attached to a large protein. The scientists injected a single dose of nicotine into vaccinated rats and found that the amount of nicotine reaching the brain was reduced by 64%. Further, the researchers found that administering doses of nicotine antibodies similar to those that are ordinarily produced by the vaccine greatly reduced the rise in blood pressure produced by a nicotine injection. The antibodies also completely prevented the increased movements ordinarily seen when rats are injected with nicotine.

The next steps will be to conduct additional safety studies, followed by clinical trials with the vaccine in human volunteers. These clinical trials are currently scheduled to begin in early 2002.

Extent of Use

Monitoring the Future Study (MTF)*

Prevalence rates for smoking among young people remain high, in spite of the demonstrated health risk associated with smoking. Since 1975, cigarettes have consistently been the substance the greatest number of high school students use daily.

Between 1998 and 1999, however, past month smoking decreased significantly among 8th graders, from 19.1 percent to 17.5 percent, and rates of use were stable or slightly decreased for 10th graders (25.7 percent) and seniors (34.6 percent). Lifetime and daily use also leveled off in 1999 among all grades, as did use of smokeless tobacco.

**Cigarette Use by Students, 1999
Monitoring the Future Study**

	8th-Graders	10th-Graders	12th-Graders
Ever Used#	44.1%	57.6%	64.6%
Used in Past Month#	17.5	25.7	34.6
Pack + per Day#	3.3	7.6	13.2

National Household Survey on Drug Abuse (NHSDA)**

Each year, the NHSDA reports on the nature and extent of drug use among the American household population aged 12 and older. In 1998, an estimated 60 million Americans, or 28 percent of all Americans aged 12 and older, were current smokers. Approximately 18 percent (4.1 million) of youths 12 to 17 years old were current smokers in 1998.

The 1998 survey shows that current smokers are more likely to drink heavily and use illicit drugs than non-smokers.

"Lifetime" refers to use at least once during a respondent's lifetime. "Past year" refers to an individual's drug use at least once during the year preceding their response to the survey. "Past month" refers to an individual's drug use at least once during the month preceding their response to the survey.

** The MTF survey is conducted by the University of Michigan's Institute for Social Research and is funded by National Institute on Drug Abuse, National Institutes of Health; it has tracked 12th graders' illicit drug use and related attitudes since 1975. In 1991, 8th and 10th graders were added to the study. For the 1999 study, 45,000 students were surveyed from a representative sample of 433 public and private schools nationwide. The latest survey data are available at NIDA's website, <http://www.drugabuse.gov>, and at the University of Michigan website, <http://www.MonitoringTheFuture.org>.*

*** NHSDA is an annual survey conducted by the Substance Abuse and Mental Health Services administration. Copies of the latest survey are available from the National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686*

**Smoking and pregnancy:
What are the risks?**

In pregnant women, carbon monoxide (a lethal gas) and the high doses of nicotine obtained when they inhale tobacco smoke interferes with oxygen supply

to the fetus. Nicotine readily crosses the placenta, and nicotine concentrations in the fetus can be as much as 15 percent higher than maternal levels. It appears that nicotine is concentrated in fetal blood, amniotic fluid, and breast milk. Another ingredient of tobacco smoke, carbon monoxide, has been shown to inhibit the release of oxygen into fetal tissues. These factors, combined, likely account for the developmental delays commonly seen in the fetuses and infants of smoking mothers.

Women who smoke during pregnancy are at greater risk than nonsmokers for premature delivery, and there is a risk of lower birth weight for infants carried to term. In the United States it is estimated that 20 percent or more of pregnant women smoke throughout their pregnancies. The adverse effects of smoking may occur in every trimester of pregnancy; they range from spontaneous abortions in the first trimester to increased premature delivery rates and decreased birth weights in the final trimester. The decreased birth weights seen in infants of mothers who smoke reflects a dose-dependent relationship: the more the woman smokes during pregnancy, the greater the reduction of infant birth weight. Conversely, women who give up smoking early in pregnancy have infants of similar weight to those of nonsmokers.

Are there effective treatments for nicotine addiction?

Yes, extensive research has shown that behavioral and pharmacological treatments for nicotine addiction do work. For those individuals motivated to quit smoking, a combination of behavioral and pharmacological treatments can increase the success rate approximately twofold over placebo treatments. Furthermore, smoking cessation can have an immediate positive impact on an individual's health; for example, a 35-year-old man who quits smoking will, on the average, increase his life expectancy by 5.1 years.

Nicotine Replacement Treatments

Nicotine was the first pharmacological agent approved by the Food and Drug Administration (FDA) for use in smoking cessation therapy. Nicotine replacement therapies, such as nicotine gum, the transdermal patch, nasal spray, and inhaler, have been approved for use in the United States. They are used to relieve withdrawal symptoms, because they produce less severe physiological alterations than tobacco-based systems, and generally provide users with lower overall nicotine levels than they receive with tobacco. An added benefit is that these forms of nicotine have little abuse potential since they do not produce the pleasurable effects of tobacco products. Nor do they contain the carcinogens and gases associated with tobacco smoke.

The FDA's approval of nicotine gum in 1984 marked the availability (by prescription) of the first nicotine replacement therapy on the U.S. market. In

1996, the FDA approved gum (Nicorette®) for over-the-counter sales. Whereas nicotine gum provides some smokers with the desired control over dose and ability to relieve cravings, others are unable to tolerate the taste and chewing demands. In 1991-1992, FDA approved four transdermal nicotine patches, two of which became over-the-counter products in 1996, thus meeting the needs of many additional tobacco users.

Since the introduction of nicotine gum and the transdermal patch, estimates based on FDA and pharmaceutical industry data indicate that more than 1 million individuals have been successfully treated for nicotine addiction. In 1996 a nicotine nasal spray, and in 1998 a nicotine inhaler, became available by prescription. All the nicotine replacement products- gum, patch, spray and inhaler- appear to be equally effective. In fact, the over-the-counter availability of many of these medications, combined with increased messages to quit smoking in the media, has produced about a 20 percent increase in successful quitting each year.



Non-Nicotine Therapies

Although the major focus of pharmacological treatments of nicotine addiction has been nicotine replacement, other treatments are being developed for relief of nicotine withdrawal symptoms. For example, the first non-nicotine prescription drug, bupropion, an antidepressant marketed as Zyban®, has been approved for use as a pharmacological treatment for nicotine addiction. In December 1996, a Federal advisory committee recommended that the FDA approve bupropion to become the first drug to help people quit smoking that could be taken in pill form, and the first to contain no nicotine.

Behavioral Treatments

Behavioral interventions can play an integral role in nicotine addiction treatment. Over the past decade, this approach has spread from primarily clinic-based, formal smoking-cessation programs to application in numerous community and public health settings, and now to telephone and written formats as well. In general, behavioral methods are employed to (a) discover high-risk relapse situations, (b) create an aversion to smoking, (c) develop self-monitoring of smoking behavior, and (d) establish competing coping responses.

Other key factors in successful treatment include avoiding smokers and smoking environments and receiving support from family and friends. The single most important factor, however, may be the learning and use of coping skills for both short- and long-term prevention of relapse. Smokers must not only learn behavioral and cognitive tools for relapse prevention but must also be ready to apply those skills in a crisis.

Although behavioral and pharmacological treatments can be extremely successful when employed alone, science has taught us that integrating both types of treatments will ultimately be the most effective approach. More than 90 percent of the people who try to quit smoking relapse or return to smoking within 1 year, with the majority relapsing within a week. There are, however, an estimated 2.5 to 5 percent who do in fact succeed on their own. It has been shown that pharmacological treatments can double the odds of their success. However, a combination of pharmacological and behavioral treatments further improves their chances. For example, when use of the nicotine patch is combined with a behavioral approach, such as group therapy or social support networks, the efficacy of treatment is significantly enhanced.

Are there gender differences in tobacco smoking?

Several avenues of research now indicate that men and women differ in their smoking behavior and that differences in nicotine sensitivity may be the root cause. Studies of smoking behavior seem to indicate that women smoke fewer cigarettes per day, tend to use cigarettes with lower nicotine content, and do not inhale as deeply as men. Whether this is because of differences in sensitivity to nicotine is an important research question. Some researchers are finding that women may be more affected by factors other than nicotine, such as the sensory aspects of the smoke or social factors, than they are by nicotine itself.

The number of smokers in the United States declined in the 1970s and 1980s, but has been relatively stable throughout the 1990s. Because this decline of smoking was greater among men than women, the prevalence of smoking is only slightly higher for men today than it is for women. Several factors appear to be contributing to this trend, including increased initiation of smoking among female teens and, more critically, women being less likely than men to quit smoking.

Large-scale smoking-cessation trials show that women are less likely to initiate quitting and may be more likely to relapse if they do quit. In cessation programs using nicotine replacement methods, such as the patch or gum, the nicotine does not seem to reduce craving as effectively for women as for men. Other factors that may contribute to women's difficulty with quitting are that the withdrawal syndrome may be more intense for women and that they appear more likely than men to gain weight upon quitting. It is important for women entering smoking cessation programs to be aware that standard treatment regimens may have to be adjusted to compensate for gender differences in nicotine sensitivity.

What is nicotine?



Nicotine, one of more than 4,000 chemicals found in the smoke from tobacco products such as cigarettes, cigars, and pipes, is the primary component in tobacco that acts on the brain. Smokeless tobacco products such as snuff and chewing tobacco also contain many toxins as well as high levels of nicotine. Nicotine, recognized as one of the most frequently used addictive drugs, is a naturally occurring colorless liquid that turns brown when burned and acquires the odor of tobacco when exposed to air. There are many species of tobacco plants; the tabacum species serves as the major source of tobacco products today. Since nicotine was first identified in the early 1800s, it has been studied extensively and shown to have a number of complex and sometimes unpredictable effects on the brain and the body.

Cigarette smoking is the most prevalent form of nicotine addiction in the United States. Most cigarettes in the U.S. market today contain 10 milligrams (mg) or more of nicotine. Through inhaling smoke, the average smoker takes in 1 to 2 mg nicotine per cigarette. There have been substantial increases in the sale and consumption of smokeless tobacco products also, and more recently, in cigar sales.

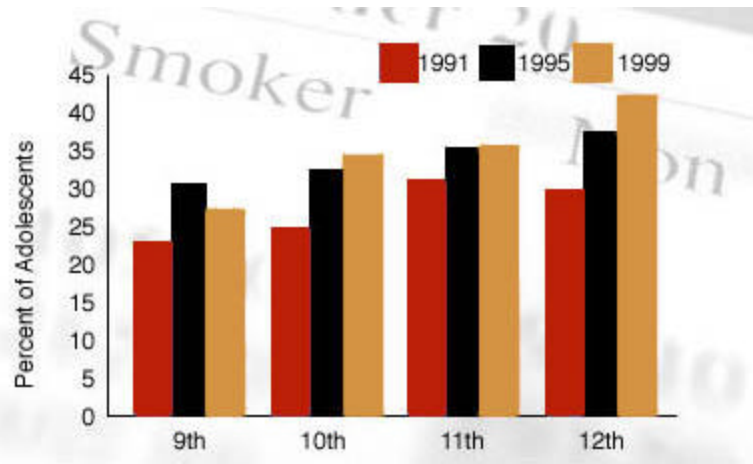
Nicotine is absorbed through the skin and mucosal lining of the mouth and nose or by inhalation in the lungs. Depending on how tobacco is taken, nicotine can reach peak levels in the bloodstream and brain rapidly. Cigarette smoking, for example, results in rapid distribution of nicotine throughout the body, reaching the brain within 10 seconds of inhalation. Cigar and pipe smokers, on the other hand, typically do not inhale the smoke, so nicotine is absorbed more slowly through the mucosal membranes of their mouths. Nicotine from smokeless tobacco also is absorbed through the mucosal membranes.

Is nicotine addictive?

Yes, nicotine is addictive. Most smokers use tobacco regularly because they are addicted to nicotine. Addiction is characterized by compulsive drug-seeking and use, even in the face of negative health consequences, and tobacco use certainly fits the description. It is well documented that most smokers identify tobacco as harmful and express a desire to reduce or stop using it, and nearly 35 million of them make a serious attempt to quit each year. Unfortunately, less than 7 percent of those who try to quit on their own achieve more than 1 year of abstinence; most relapse within a few days of attempting to quit.

Other factors to consider besides nicotine's addictive properties include its high level of availability, the small number of legal and social consequences of tobacco use, and the sophisticated marketing and advertising methods used by tobacco companies. These factors, combined with nicotine's addictive properties, often serve as determinants for first use and, ultimately, addiction.

Trends in percent of adolescents reporting current* cigarette use



*Individual with reports smoking one or more cigarettes during the previous 30 days.

Source: CDC, MMWR, 2000; 49(33): 755-758

Recent research has shown in fine detail how nicotine acts on the brain to produce a number of behavioral effects. Of primary importance to its addictive nature are findings that nicotine activates the brain circuitry that regulates feelings of pleasure, the so-called reward pathways. A key brain chemical involved in mediating the desire to consume drugs is the neurotransmitter dopamine, and research has shown that nicotine increases the levels of dopamine in the reward circuits. Nicotine's pharmacokinetic properties have been found also to enhance its abuse potential. Cigarette smoking produces a rapid distribution of nicotine to the brain, with drug levels peaking within 10 seconds of inhalation. The acute effects of nicotine dissipate in a few minutes, causing the smoker to continue dosing frequently throughout the day to maintain the drug's pleasurable effects and prevent withdrawal.

What people frequently do not realize is that the cigarette is a very efficient and highly engineered drug-delivery system. By inhaling, the smoker can get nicotine to the brain very rapidly with every puff. A typical smoker will take 10 puffs on a cigarette over a period of 5 minutes that the cigarette is lit. Thus, a person who smokes about 1-1/2 packs (30 cigarettes) daily, gets 300 "hits" of nicotine to the brain each day. These factors contribute considerably to nicotine's highly addictive nature.

Scientific research is also beginning to show that nicotine may not be the only psychoactive ingredient in tobacco. Using advanced neuroimaging technology, scientists can see the dramatic effect of cigarette smoking on the brain and are finding a marked decrease in the levels of monoamineoxidase (MAO), an important enzyme that is responsible for breaking down dopamine. The change in MAO must be caused by some tobacco smoke ingredient other than nicotine,

since we know that nicotine itself does not dramatically alter MAO levels. The decrease in two forms of MAO, A and B, then results in higher dopamine levels and may be another reason that smokers continue to smoke - to sustain the high dopamine levels that result in the desire for repeated drug use.

What is the extent and impact of tobacco use?

According to the 1999 National Household Survey on Drug Abuse, an estimated 57.0 million Americans were current smokers and 7.6 million used smokeless tobacco, which means that nicotine is one of the most widely abused substances. In addition, in 1998 each day in the United States more than 2,000 people under the age of 18 began daily smoking. According to the Centers for Disease Control and Prevention (CDC), the prevalence of cigarette smoking among U.S. high school students increased from 27.5 percent in 1991 to 36.4 percent in 1997 before declining to 34.8 percent in 1999. NIDA's own Monitoring the Future Study, which annually surveys drug use and related attitudes of America's adolescents, also found the prevalence rates for smoking among youth declined from 1999 to 2000. Since 1975, nicotine in the form of cigarettes has consistently been the substance the greatest number of high school students use daily.

Percentage of high school students who currently use cigarettes, smokeless tobacco, or cigars, by gender, race/ethnicity, and grade			
Category	Cigarettes	Smokeless	Cigars
Gender			
Male	34.7%	14.2%	25.4%
Female	34.9%	1.3%	9.9%
Race/Ethnicity			
White, non-Hispanic	38.6%	10.4%	18.8%
Male	38.2%	18.8%	28.3%
Female	39.1%	1.5%	8.6%
Black, non-Hispanic	19.7%	1.3%	13.7%
Male	21.8%	2.5%	16.0%
Female	17.7%	0.2%	11.6%

Hispanic	32.7%	3.9%	16.7%
Male	34.0%	6.1%	21.9%
Female	31.5%	1.8%	11.6%
Grade			
9	27.6%	6.8%	13.7%
10	34.7%	7.1%	17.8%
11	36.0%	8.4%	18.2%
12	42.8%	8.9%	22.0%
Total % Surveyed	34.8%	7.8%	17.7%

Source: Centers for Disease Control and Prevention, CDC Surveillance Summaries, June 9, 2000. MMWR 49, SS-5, 2000.

The impact of nicotine addiction in terms of morbidity, mortality, and economic costs to society is staggering. Tobacco kills more than 430,000 U.S. citizens each year—more than alcohol, cocaine, heroin, homicide, suicide, car accidents, fire, and AIDS combined. Tobacco use is the leading preventable cause of death in the United States.

Economically, an estimated \$80 billion of total U.S. health care costs each year is attributable to smoking. However, this cost is well below the total cost to society because it does not include burn care from smoking-related fires, perinatal care for low-birth-weight infants of mothers who smoke, and medical care costs associated with disease caused by secondhand smoke. Taken together, the direct and indirect costs of smoking are estimated at \$138 billion per year.

How does nicotine deliver its effect?

Nicotine can act as both a stimulant and a sedative. Immediately after exposure to nicotine, there is a "kick" caused in part by the drug's stimulation of the adrenal glands and resulting discharge of epinephrine (adrenaline). The rush of adrenaline stimulates the body and causes a sudden release of glucose as well as an increase in blood pressure, respiration, and heart rate. Nicotine also suppresses insulin output from the pancreas, which means that smokers are always slightly hyperglycemic. In addition, nicotine indirectly causes a release of dopamine in the brain regions that control pleasure and motivation. This reaction is similar to that seen with other drugs of abuse—such as cocaine and heroin— and it is thought to underlie the pleasurable sensations experienced by many

smokers. In contrast, nicotine can also exert a sedative effect, depending on the level of the smoker's nervous system arousal and the dose of nicotine taken.

What happens when nicotine is taken for long periods of time?

Chronic exposure to nicotine results in addiction. Research is just beginning to document all of the neurological changes that accompany the development and maintenance of nicotine addiction. The behavioral consequences of these changes are well documented, however. Greater than 90 percent of those smokers who try to quit without seeking treatment fail, with most relapsing within a week.

Repeated exposure to nicotine results in the development of tolerance, the condition in which higher doses of a drug are required to produce the same initial stimulation. Nicotine is metabolized fairly rapidly, disappearing from the body in a few hours. Therefore some tolerance is lost overnight, and smokers often report that the first cigarettes of the day are the strongest and/or the "best." As the day progresses, acute tolerance develops, and later cigarettes have less effect.

Cessation of nicotine use is followed by a withdrawal syndrome that may last a month or more; it includes symptoms that can quickly drive people back to tobacco use. Nicotine withdrawal symptoms include irritability, craving, cognitive and attentional deficits, sleep disturbances, and increased appetite and may begin within a few hours after the last cigarette. Symptoms peak within the first few days and may subside within a few weeks. For some people, however, symptoms may persist for months or longer.

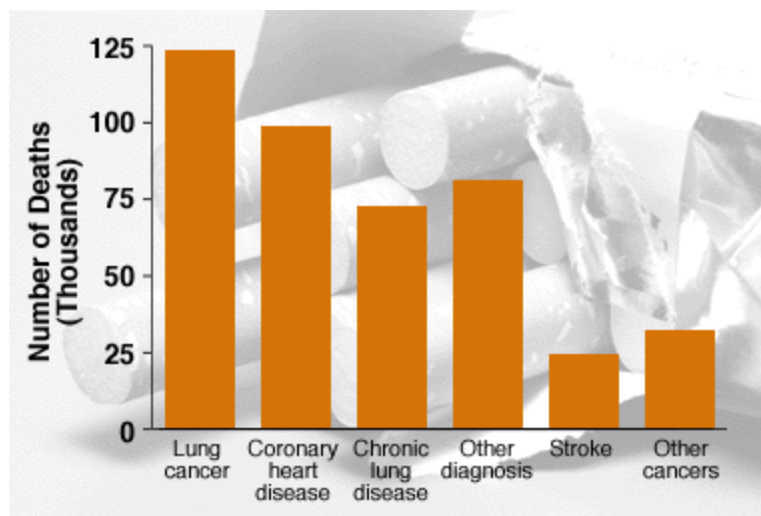
An important but poorly understood component of the nicotine withdrawal syndrome is craving, an urge for nicotine that has been described as a major obstacle to successful abstinence. High levels of craving for tobacco may persist for 6 months or longer. While the withdrawal syndrome is related to the pharmacological effects of nicotine, many behavioral factors also can affect the severity of withdrawal symptoms. For some people, the feel, smell, and sight of a cigarette and the ritual of obtaining, handling, lighting, and smoking the cigarette are all associated with the pleasurable effects of smoking and can make withdrawal or craving worse. While nicotine gum and patches may alleviate the pharmacological aspects of withdrawal, cravings often persist.

What are the medical consequences of nicotine use?

The medical consequences of nicotine exposure result from effects of both the nicotine itself and how it is taken. The most deleterious effects of nicotine addiction are the result of tobacco use, which accounts for one-third of all cancers. Foremost among the cancers caused by tobacco is lung cancer-the number one cancer killer of both men and women. Cigarette smoking has been linked to about 90 percent of all lung cancer cases.

In addition to lung cancer, smoking also causes lung diseases such as chronic bronchitis and emphysema, and it has been found to exacerbate asthma symptoms in adults and children. Smoking is also associated with cancers of the mouth, pharynx, larynx, esophagus, stomach, pancreas, cervix, kidney, ureter, and bladder. The overall rates of death from cancer are twice as high among smokers as among nonsmokers, with heavy smokers having rates that are four times greater than those of nonsmokers. Cigarette smoking is the most important preventable cause of cancer in the United States.

430,000 annual deaths are attributable to cigarette smoking



Source: CDC, *MMWR* 1997; 46; 448-51

In addition to its ability to cause cancer, a relationship between cigarette smoking and coronary heart disease was first reported in the 1940s. Since that time, it has been well documented that smoking substantially increases the risk of heart disease, including stroke, heart attack, vascular disease, and aneurysm. It is estimated that nearly one-fifth of deaths from heart disease are attributable to smoking.

While we often think of medical consequences that result from direct use of tobacco products, passive or secondary smoke also increases the risk for many diseases. Environmental tobacco smoke (ETS) is a major source of indoor air contaminants; secondhand smoke is estimated to cause approximately 3,000 lung cancer deaths per year among nonsmokers and contributes to as many as

40,000 deaths related to cardiovascular disease. Exposure to tobacco smoke in the home increases the severity of asthma for children and is a risk factor for new cases of childhood asthma. ETS exposure has been linked also with sudden infant death syndrome. Additionally, dropped cigarettes are the leading cause of residential fire fatalities, leading to more than 1,000 such deaths each year.

WARNING: There is no safe tobacco product - including cigarettes, cigars, pipes, and spit tobacco; mentholated, "low tar," "naturally grown" or "additive free" - can cause cancer and other adverse health effects.

At higher doses, such as the nicotine that can be found in some insecticide sprays, nicotine can be extremely toxic, causing vomiting, tremors, convulsions, and death. Nicotine poisoning has been reported from accidental ingestion of insecticides by adults and ingestion of tobacco products by children and pets. Death usually results in a few minutes from respiratory failure caused by paralysis.

Laboratory research indicates that cigarette smoking causes toxic cardiovascular effects. For this reason, nicotine replacement medicines such as nicotine gum and the patch have been extensively evaluated for cardiovascular toxicity, especially for patients with cardiac disease. These trials suggest that use of nicotine replacements for smoking cessation does not increase cardiovascular risk. These findings are consistent with the generally slower and lower doses of nicotine obtained from the medicines as compared to tobacco products, and to the absence of carbon monoxide and numerous other toxins in tobacco smoke.