



**CONTINUING EDUCATION (CE) COURSE MATERIAL**  
**Course No. CE1306P1 – Smoking and Nicotine Addiction – Part 1**

**COURSE OBJECTIVE**

An examination of the study of nicotine addiction, especially cigarette smoking, and an overview of the physiological, societal, commercial and environmental effects of smoking. Some of the questions that will be examined in this Part 1 include: Are There Benefits in Smoking? What Does Nicotine Do? What Are the Risks of Smoking?

**COURSE MATERIAL**

*Editor's Note: A significant portion of the information contained within this material was extracted from a series of articles on the Internet, many of which were written by Elson M. Haas, M.D.<sup>1</sup> Bernard G. Breining, Dr.AD, has contributed additional information, based on his clinical experience, as well as his 25 years of smoking some 30 cigarettes per day (492,000 cigarettes), the how's and why's of his own quitting, and how he has remained abstinent.*

**An Overview**

Cigarette smoking, the main way we take in nicotine, is the single greatest cause of preventable diseases (these are the progressive, serious diseases) and probably creates the most difficult addiction of the commonly used drugs. Smoking is a high-priced addictive pleasure (and sometimes displeasure) that is costly, not only in dollars but also in lives as well.

In the United States alone, cigarette smoking causes a third to a half million deaths per year (over 1,000 per day) and is responsible for about 25 percent of the cancer deaths and 30–40 percent of the coronary heart disease. It also increases the incidence of arteriosclerosis, strokes, and peripheral vascular disease. Diseases of the lungs—colds, flues, acute bronchitis, pneumonia, COPD (chronic obstructive pulmonary disease), which includes emphysema and chronic bronchitis, and lung cancer—are all much more common in smokers. Other infections or allergies are also prevalent, and rapid aging of the body and especially the skin results from the generally poor oxygenation of tissues and the other chemicals and physiological effects of regular cigarette smoking.

**Life Expectancy**

Smoking clearly decreases life expectancy for all age groups. One-pack-a-day smokers double their chances of death between the ages of 50 and 60, while two-packers triple theirs. And smoking also affects the life expectancy of nonsmokers close to them in heart and proximity. Of all the common drugs, nicotine intake from cigarette smoking clearly has the least benefits and the most negative consequences.

The estimated cost of smoking is somewhere between \$50 and \$100 billion a year. Some 650 billion cigarettes are sold yearly in the United States in this \$18–25 billion megabusiness. Marlboros and Winstons top the list with nearly 50 percent of the market. The 650 billion count averages about 4,000 cigarettes per year per person over age 18.

Recent estimates suggest that about 38 percent of the over-18 population in the United States smoke. Percentages of adult smokers are even much higher in most European countries and

<sup>1</sup> Elson M. Haas, M.D., is the founder and director of Preventive Medical Center of Marin (California), 25 Mitchell Boulevard, San Rafael, California 94903. Dr. Haas' Internet web site is located at [www.elsonhaas.com](http://www.elsonhaas.com).



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

some parts of Asia. In addition to the cost of the cigarettes, there are many billions spent medically to treat the problems that afflict smokers and many more billions in lost work and productivity caused from diseases generated by smoking.

It is estimated that only 10 percent of doctors in the United States smoke; the percentage used to be much higher. The number of cigarette smokers, which for many years has increased steadily, is tapering off somewhat.

Worldwide however, there is still about a 2–3 percent yearly rise in smokers. The dangers of nicotine and smoking are now so generally accepted and well documented that it would seem that more people would be stopping or not even starting. The fact that fewer doctors smoke (or admit that they smoke) is at least representative of these health dangers. People want doctors to do healthy things and to set healthy examples.

### **Cigarette Smoking**

Since most nicotine intake is from smoking cigarettes, that is the focus of this section. Cigar and pipe smoking, chewing tobacco, and snuff also pose some health risks, but far less than cigarette smoking. The regularly inhaled smoke contains tars composed of literally thousands of chemicals, including those used in tobacco cultivation as well as in cigarette making.

These agents add other health risks in addition to the nicotine, which directly acts on the cardiovascular and nervous systems. There are over 30 potentially carcinogenic chemicals contained in cigarette smoke.

Tobacco comes from a large-leafed nightshade, or Solanaceae, plant. It is one of a few plants that contain the psychoactive alkaloid, nicotine. Tobacco causes joint pain in some people; this seems correlated to the theory that arthritis is in part a result of an allergy to the nightshades, which also include potatoes, tomatoes, eggplant, and peppers.

Nicotine has been widely used throughout history, first in North America. Supposedly, Columbus and other visitors were interested in it and carried some tobacco and seeds back to Europe, where its use caught on rapidly and eventually spread to Africa and the Orient. Several countries outlawed tobacco during the early 1600s, but to no avail; then the governments eventually found ways to profit from its use. This seems fair, since it costs them in the long run with lost health and productivity of their people. The addictive nature of nicotine has been clear for hundreds of years, as people have found ways to smoke during poverty, famine, and war.

Sigmund Freud was fascinated with tobacco and obsessed with cigars (smoking more than 20 a day). He fought his addiction to nicotine (and apparently to cocaine) through much of his life, though he experienced mouth cancer, angina pain, and multiple surgeries. Freud's dance with death and his inability to get off tobacco probably generated his theory of Thanatos, our deep subconscious longing for death, manifested in part by our destructive habits.

### **Deadly Pastime**

Smoking is clearly a deadly pastime. Its addictive nature is revealed by the fact that many strong-minded and strong-willed people cannot stop smoking, even if they are otherwise health conscious or faced with death. And most smokers, over 80 percent, declare that they want to stop smoking, and plan to at some time.



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

Our passion for puffing is persistent. Nicotine is the addictive drug found in tobacco. Even though some people start smoking for the image or the ritual, they may easily become hooked.

The "up" feeling that smoking produces is likely correlated with the increased blood pressure and heart rate, as well as the production of fatty acids, steroids and possibly other hormones or neurotransmitters. Nicotine mimics acetylcholine, which then improves alertness, memory, and learning capacity.

Other neurotransmitter stimulation of norepinephrine and endorphins by nicotine may help balance moods and increase energy. The liver's increase in glycogen release gives a satisfying lift in the blood sugar. The addiction to nicotine is probably stronger than addictions to most other drugs. The initial irritating effects progress to chronic irritations, yet these are covered by the physiological and, in many instances, the psychological need (although the latter is usually secondary).

Heroin addicts and people addicted to other powerful drugs have commonly referred to nicotine as the hardest drug to kick. The American Psychiatric Association has described smoking as an "organic mental disorder." Their statistics suggest that around 50 percent of people cannot stop when they try to and that, of the people who do stop, about 75 percent of them begin again within one year.

### **Are There Benefits in Smoking?**

There obviously must be a few, or so many people would not smoke, but it is very clear that the risks outweigh the pleasures by far. Many people find smoking relaxing, but this may be a result of calming the hyperactive withdrawal symptoms.

People do experience mental stimulation and improvement of hand-to-eye coordination and work activities, probably as result of nicotine's vascular-neurological stimulation. The benefits that smokers experience were well described in Dr. Tom Ferguson's book, *The Smoker's Book of Health*,<sup>2</sup> from his interviews with hundreds of smokers. They felt better able to deal with stress and to unwind and relax. Smoking helped control their moods, improve concentration and energy levels, especially with fatigue, and reduce withdrawal symptoms, obviously. Social comfort, work breaks, reduced pain and anxiety, increased pleasure, and less boredom were also correlates for some who smoked.

Smoking also usually reduces the appetite and taste for food, so it may help people to reduce food intake, a positive step for the weight conscious. The average smoker weighs six to eight pounds less than the nonsmoker. In *Life Extension*,<sup>3</sup> Sandy Shaw and Durk Pearson note that nicotine seems to reduce distraction by outside stimuli in people working in highly stimulating environments—that is, it desensitizes people. I see this as creating a smoke screen that protects us from relating to others and keeps us in our own world. It is clear that people who work in crowded, noisy, busy offices with other workers, computers, machines running, and lots of hustle and bustle tend to smoke more frequently than do workers in more private situations.

---

<sup>2</sup> T Ferguson and GM Schmidt, *Smoker's Book of Health: How to Keep Yourself Healthier and Reduce Your Smoking Risks* (1987), Penguin Putnam Books.

<sup>3</sup> D Pearson and S Shaw, *Life Extension: A Practical Scientific Approach* (1987), Warner Books, Inc.



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

Yet, most employers now know there is a distinct disadvantage in hiring smokers. The smoke interferes with office morale, and it is more costly. Some estimates suggest that employing a smoker costs businesses nearly \$ 5,000 yearly, per employee. This cost comes from increased absenteeism, death risk, incident of accidents, and property damage or cleaning bills from smoke, as well as less productivity.

Dr. Ferguson points out that most people are aware of this and the health hazards of nicotine and cigarette smoke.

They clearly want to quit, but have not found a way to get rid of withdrawal and craving. Finding ways to reduce stress and clear those conditioned responses to want to smoke takes a great deal of effort.

### **What Does Nicotine Do?**

Nicotine, the active and addictive ingredient of tobacco, is a mild central nervous system stimulant and a stronger cardiovascular system stimulant. It constricts blood vessels, increasing the blood pressure and stimulating the heart, and raises the blood fat levels. In its liquid form, nicotine is a powerful poison—the injection of even one drop would be deadly. It is the nicotine, not the smoke, that causes people to continue to smoke cigarettes, but it is the cigarette smoke that causes many of the problems.

Cigarette smoke is a combination of lethal gases—carbon monoxide, hydrogen cyanide, and nitrogen and sulfur oxides—and tars, which contain an estimated 4,000 chemicals. Some of these chemical agents are introduced by current tobacco manufacturing processes. Although tobacco has been smoked for centuries, only recently has it moved from the naturally grown and dried process. It appears that in the last century the negative effects of smoking have skyrocketed. Dr. Haas' belief, which is shared by many authorities, is that much of the added risk is produced by the chemical treatment and unnatural processing of tobacco.<sup>4</sup>

The little research that has been done on suggests that natural tobacco poses much less cancer risk, as well as cardiovascular disease risk, though this is predominately from the nicotine, which is not changed by processing.

Dangers in modern tobacco products include pesticides used during growth and chemicals added to the tobacco to make it burn better or taste different. Chemicals added to the leaves and papers to enhance burning are among the major causes of fire deaths in this country, as cigarettes continue to burn after they have been put down. The forced burning also makes people smoke more of each cigarette in order to complete it. Sugar curing and rapid flue drying are also associated with increased toxicity of cigarettes. Kerosene heat drying contaminates the tobacco with another toxic hydrocarbon.

Using a natural tobacco, such as some imported from France or Germany and a few U.S.-made cigarettes (possibly Shermans and More), may reduce the smoking risk. ***If a cigarette does not go out when left alone, it has been chemically treated.***

Other toxic contaminants in cigarettes include cadmium (which affects the kidneys, arteries, and blood pressure), lead, arsenic, cyanide, and nickel. Dioxin, the most toxic pesticide chemical

---

<sup>4</sup> Ed. Note: Pipe tobacco and quality cigars are said to be made without added chemicals or unnatural processing.



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

known to date, has been found in cigarettes. Acetonitrile, another pesticide, is also found in tobacco. The nitrogen gases from cigarettes generate carcinogenic nitrosamines in the body tissues.

The tars in smoke contain polynuclear aromatic hydrocarbons (PAH), carcinogenic materials that bind with cellular DNA to cause damage. Antioxidant therapy, particularly with vitamin C, is protective against both PAH and nitrosamines, and extra C also blocks the irritating effects of smoke. Smoking itself reduces vitamin C absorption; blood levels of ascorbic acid average about 30–40 percent lower in smokers than in nonsmokers.

Radioactive materials are also found in cigarette smoke; polonium is the most common. Some authorities believe that cigarettes are our greatest source of radiation. A smoker of one and a half packs per day may be exposed to radiation equal to 300 chest x-rays a year. Radiation is a strong aging factor. Acetaldehyde, a chemical released during smoking, causes aging, especially of the skin, as it affects the cross-linking bonds that hold our tissues together.

**CIGARETTE CHEMICALS<sup>5</sup>**

Carbon monoxide	Hydrogen cyanide	Ozone
Vinyl chloride	Formaldehyde	Napthalenes
Acetaldehyde	Hydrazine	Arsenic
Formic acid	Cadmium	Nickel Toxins
Lead	Nitric oxide	DDT
Pyrene	Methyl chloride	Hydrogen sulfide
Benzene	Acetronitrile	Nitrosamines
Acrylonitrile	Phenols	Benzopyrene
Polynuclear aromatic	Ammonia	Hydrocarbons
Polonium-210	Radioactive compounds	Endrin
Acids	Dimethylnitrosamine	Alcohols
Ethylmethylnitrosamine		

**Diseases Associated with Smoking Cigarettes**

Cigarette smoking causes three primary degenerative-disease-producing effects:

- 1) irritation and inflammation;
- 2) free-radical generation; and
- 3) allergy-addiction.

It is clear that cigarette smoke is a constant and chronic irritant to the body tissues, most specifically the oral cavity and respiratory tract. The polluting effect from cigarettes results less from nicotine than from the thousands of chemicals, including hundreds of poisons and carcinogens, contained in the smoke and tar. Supporting the nicotine addiction without the smoke (by using chewing tobacco, snuff, or nicotine gum) will reduce many of the undesirable respiratory effects of cigarettes. Cigarette smoke is a potent free-radical generator, also primarily a result of the many chemical irritants.

**Allergy – Addiction**

Tobacco users exhibit the classic allergy-addiction picture. Studies testing smokers and nonsmokers in a variety of ways have shown that tobacco is a common allergen. Smoking causes irritation and many symptoms; stopping smoking causes cravings and withdrawal

<sup>5</sup> From *The Smoker's Book of Health*, *ibid.*



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

symptoms, so that smoking is needed for relief from the withdrawal. The ups and downs are associated with the chemical release of adrenal hormone and endorphins, such as that seen in allergies.

The main risk factor is the number of cigarettes smoked over time. "Pack years" is a common measurement in medical lingo. Someone who smoked one pack per day for 15 years and then two packs per day for 20 years would have 55 pack years, which is fairly high; even 20 pack years will increase the risk of many chronic problems, chiefly lung disease (bronchitis and emphysema), lung cancer, and heart disease. Smokers have twice the risk of death prior to age 65 than nonsmokers, and there is an average reduced longevity of 5–10 years for smokers, varying from lighter to heavier users.

For shorter-term problems, such as bronchitis, smoking more than 25 cigarettes per day is associated with a high risk and smoking between 10 and 25 per day with a moderate one; smoking fewer than 10 cigarettes daily poses a low risk. The length and depth of inhalations also contribute to nicotine and tar intake.

There are also different levels of addiction. Least addicted are those who smoke only socially—at parties with friends—and usually only during certain parts of the day or week. They may smoke primarily for psychosocial or image reasons. Next are those who smoke in response to stress, mainly at work. They may stop and start. These first two smoking types are usually less addicted than heavier smokers, and it is easier for them to cut down or stop. The third type of smoker is the more serious, all-day-long smokers who have a fairly strong physical and psychological addiction; for these people, going more than an hour without nicotine causes the onset of withdrawal symptoms, such as irritability, anxiety, or headache.

### **Psychological Influences**

Often, the psychological influences lead to more frequent smoking of cigarettes than even the physical needs require. The extreme, "graduate" level smoker is the "chain smoker." He or she puffs nearly constantly, usually consuming three packs or more a day, and is strongly addicted. The latter two types often need medical and psychological support unless some special circumstance or divine intervention motivates them to stop immediately. Specialized stop-smoking programs are often needed, and even these are only sometimes helpful.

Currently, about a third of adult men and women smoke in the United States. Between 10 and 20 percent of previous smokers have quit, leaving only 40–50 percent of adults who have not been regular smokers, and even most of them have at least tried cigarettes. But now by popular demand, from medical and social support, over 1 million smokers of the 50 million in the United States are stopping yearly, and they will immediately begin to lower their cancer and cardiovascular disease risks as well as reduce the negative effects on their lungs and other tissues.

Contrary to current marketing hype about low-tar, low-nicotine cigarettes, there are no safe cigarettes. Some of the newer "lights" may be even worse than regular cigarettes. Users inhale more deeply and smoke more in order to satisfy their nicotine needs.

Unless they have a low ratio of tar to nicotine, there are more risks posed by the increased chemical tars in the cigarettes. More carbon monoxide, hydrogen cyanide, and nitrogen gases are consumed with many of these low-nicotine cigarettes, and this can increase the oxygen deficit, heart disease, and lung damage associated with smoking. What smokers really need are



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

high-nicotine, low-tar cigarettes, so that they need to smoke less to get their nicotine and have less exposure to the more carcinogenic, destructive tars. Even better will be ways to get nicotine to the blood without smoke.

**What Are the Risks of Smoking?**

Cigarette smoking probably has more harmful effects than any other commonly used drug, and affects more organs and tissues than most others. The total destructive nature of this one drug in the worldwide population is surpassed by no other, even though there are many drugs for which one dose is much worse than one cigarette. This is because it is so addictive and people use it so frequently for so long.

**DISEASES ASSOCIATED WITH SMOKING**

Atherosclerosis	Acute bronchitis	Allergies
Hypertension	Chronic bronchitis	Rhinitis
Heart disease	Emphysema	Sinusitis
Coronary disease	Lung cancer	Vascular disease
Mouth cancer	Burns	Myocardial infarction
Tongue cancer	Peptic ulcers	Stroke
Laryngeal cancer	Varicose veins	Polycythemia
Esophageal cancer	Hiatal hernia	Low birth weight
Bladder cancer	Osteoporosis	High infant mortality
Kidney cancer	Periodontal disease	Alzheimer's disease
Pancreatic cancer	Senility	Cervical cancer
Impotence	Vitamin deficiencies	

Cardiovascular disease (CVD) is one of the biggest concerns with tobacco use, both because of the direct effects of nicotine on the circulatory system (irritation and increased arteriosclerosis) and the effects of other agents, such as carbon monoxide in inhaled smoke, which displaces oxygen. Carbon monoxide reduces the delivery of vital oxygen, our key life force, to all of our cells. Even low-tar cigarettes have high levels of carbon monoxide. Because of reduced oxygen delivery, our body makes more red blood cells (polycythemia), which can thicken the blood and further slow the circulation.

The CVD problem is primarily responsible for the decreased life expectancy associated with smoking, even more so than lung cancer, which usually results from 20–30 years of use. Circulatory effects start immediately and precipitate the development of CVD, mainly by increasing blood fats and blood pressure. Remember, the three primary contributors to CVD are smoking, hypertension, and high cholesterol, and smoking itself increases the incidence of the other two.

Nicotine particularly lowers the level of the protective HDL cholesterol while increasing the supposedly destructive LDL cholesterol. It decreases circulation, especially of the hands and feet, and increases peripheral vascular resistance, so that the heart has to work harder with every beat. These factors contribute to the commonly elevated blood pressure of smokers. Nicotine's effect on increasing platelet aggregation leads to more cases of cerebrovascular accidents (CVAs), or strokes, and myocardial infarctions (MIs), or heart attacks. Diabetics who smoke are at a very high cardiovascular risk, as nicotine increases blood fats and blood vessel effects and may increase insulin needs.



### **SYMPTOMS AND PROBLEMS ASSOCIATED WITH SMOKING**

Heartburn	Surgical complications	Allergies
Nutritional deficiencies	Angina	Pectoris
Stains on teeth and fingers	Hoarseness	Cough
Increased caffeine use	Headaches	Memory loss
More divorce	Anxiety	Job changes
Fatigue	Lowered immunity	Fires
Low sexuality	Higher insurance rates	

Smokers are three times as likely as nonsmokers to suffer heart attacks, and many of these are the artery-spasm type.

Heart attack risks are even higher for smokers who have elevated blood pressure or increased cholesterol or who use drugs such as birth control pills. The pre-heart-attack propensity to angina pectoris is also much higher in smokers, and nicotine has been known to generate "tobacco angina"—that is, chest pain with smoking. Nicotine (and other agents in smoke) also increases the incidence of problems with the heartbeat—that is, arrhythmias.

High blood pressure and arteriosclerosis are associated with an increased risk of strokes. Cerebral aneurysm (ballooning of the artery wall) occurs more commonly in smokers than in nonsmokers, and ruptured aneurysms are often fatal or at least lead to lifelong impairment. Hypertension can also be more serious in smokers; a rapid rise in blood pressure requires prompt control or it may also be fatal.

Peripheral vascular disease—that is, disease of the extremity arteries—is much more common in smokers. This may manifest as intermittent claudication (pain in the legs with walking), as the poor circulation caused by arteriosclerosis and vasoconstriction reduces oxygen delivery to the muscles, leading to arterial insufficiency and pain much like that of angina pectoris. Buerger's disease is a specific arterial disease in smokers that may be caused by a hypersensitivity or allergy to tobacco. The inflammation and scarring of the arteries of the arms and legs caused by this disease in a small number of smokers are associated with pain and decreased function. Amputation may be needed if stopping smoking or drug therapy does not help. It would seem much easier and wiser to give up smoking than body parts, or life itself.

Although snuff and chewing tobacco are less toxic because they cause less air contamination, with chronic use the nicotine absorbed from them affects the circulatory system almost as seriously as smoking. There are currently over 10 million chewers addicted to nicotine, and even though they are not exposed to smoke, and thus, have reduced lung damage and lung cancers, tobacco chewers still have the negative cardiovascular effects of nicotine and a higher incidence of mouth, tongue, and throat cancers than smokers.

The smoke from cigars and pipes is not usually inhaled, so less nicotine and tars are absorbed with their use, though local irritation is possible. If we want to do ourselves a favor, particularly for our heart and blood vessels, we obviously will not use tobacco at all.

For smokers, the lungs are the other key area of concern. Chronic inhalation of tobacco smoke leads to eventual destruction of the lung tissues through a process of irritation, inflammation, and scarring.



## **Respiratory System**

Our respiratory tract includes the oral airway, the nose and sinuses, the larynx area, the large bronchial tubes, the smaller bronchioles, and the millions of tiny alveolar sacs at the depth of lung tissue where the massive surface area that contacts the blood stream allows the various inhaled substances to be absorbed. Primarily oxygen and carbon dioxide are exchanged there, but nicotine and other liquids and gases may be absorbed as well.

Carbon monoxide, sulfur and nitrogen gases, hydrogen cyanide, and various metals and chemicals may also get into the body through the lungs. The respiratory tract can be used as a route for medication, mainly to affect lung function.

Smokers have a higher than average incidence of respiratory infections, including colds and flues, bronchitis, and sinusitis. By most estimates, smokers have at least twice as great an incidence as nonsmokers of these diseases, particularly acute bronchitis and bad flues. Cigarette smoke causes a decrease in the action of the cilia, and even temporary paralysis of these fine hairs on the mucous linings, which help protect the deeper tissues by pushing out microorganisms and other foreign materials. Smoke also decreases phagocyte activity by diminishing macrophage function. The thinning and drying of the mucus itself cause the bronchial tubes to become dry and irritated. This not only decreases defenses, but leads to much of the inflammation, hoarseness, and chronic cough associated with smoking.

Chronic bronchitis, one form of chronic obstructive pulmonary disease (COPD), results from long-term irritation, loss of mucus protection, and recurrent infection secondary to smoke, with a subsequent loss of function and lung capacity.

This limitation in respiratory function occurs even in early smoking. When smoking is stopped, much of the function returns, unless there is lung tissue scarring, which is irreversible. Generally, smoking decreases lung capacity and endurance and often even the desire or ability to exercise.

Emphysema, the other form of COPD, results from progressive alveolar scarring and loss of lung elasticity, and thus, the diminished ability to expand and contract—the basic breathing function. The irreversible damage that occurs from the chronic inhalation of tars and nicotine can cause respiratory crippling in later years, totally limiting activity and requiring regular breathing treatments. Exposure to other chemicals, usually industrial types, can also lead to lung scarring and emphysema, especially bad when combined with smoking.

Tobacco smoke is a carcinogen (many of the poisons in cigarette smoke are known carcinogens) and is the main contributor to our most deadly cancer, cancer of the lungs. This problem used to be almost exclusive to males, but now females have been smoking more, and their rates of lung cancer and death from this disease are rapidly catching up with those of the men.

Equal rights to life and death! Recent studies show that the incidence of lung cancer is higher in people with low beta-carotene levels, so this is a protective nutrient. Further research will likely reveal that other nutrient deficiencies increase cancer rates, especially low levels of the other antioxidants. This has already been shown to be true for selenium.

Smokers are from five to ten times more likely to contract lung cancer than nonsmokers. These rates are even further increased with occupational exposure to agents such as asbestos, coal,



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

textiles, and other chemicals. With regular alcohol use, smokers have greater than fifteen times the risk of lung cancer of nonsmokers.

Many other cancer rates are higher for smokers, particularly for alcohol-drinking smokers who are exposed to other carcinogenic chemicals. Smokers also have higher rates of cancer of the bladder, cervix, pancreas, esophagus, lips, mouth, and larynx. The risks are increased even further with a high-fat diet and probably with other habits that contribute to cancer, such as emotional stress, low-fiber diets, obesity, and so on.

Smoking is the major cause of cancer of the mouth, tongue, and larynx, the latter being almost exclusive to smokers. Regular alcohol use along with smoking brings an increase in gastrointestinal tract cancers as well.

### **Cancer**

The incidence of cervical cancer has recently been shown to be increased in smokers, theoretically because chemicals from the smoke get into the blood and are released into the uterus and cervix. Deficiencies of nutrients such as vitamin A and folic acid may also be contributing factors in this cancer. Smoking is further implicated in bladder cancer as the bladder is a site where cigarette carcinogenic chemicals can be concentrated.

Cigarette smoking is clearly a common allergy-addiction. Symptoms of both irritation and allergy may appear when smoking is first begun and then decrease with continued smoking. Symptoms will increase with avoidance and increase further with full withdrawal before they diminish. This is classic for allergies as well as drug addictions. In addition to tobacco smoke being an allergen, many people with other allergies or with lowered immunity are very sensitive to smoke. Some people with allergies have even noticed that certain foods may stimulate the desire to smoke; the mechanism for this is unknown.

Cigarette smoking itself lowers general immunity, causing sedation of the protective phagocyte cells and cilia, as well as other effects. Cigarette smoke may be a powerful brain allergen, as nicotine goes rapidly to the brain. Many people, nearly 50 percent according to some reports, also notice decreased thinking ability with smoking (others notice improvement). And in the long run, the increase in arteriosclerosis and subsequent decrease in blood circulation to the brain lead to further memory and thinking problems and early dementia. Recent research shows a four times increased risk of Alzheimer's disease in smokers over nonsmokers.

### **Aging Process**

Cigarette smoking also increases the aging process through many effects, including chronic irritation, free-radical formation, arteriosclerosis, lung inflammation, and the breathing of other toxic gases, such as carbon monoxide.

The poor oxygen delivery to the skin and general dehydration of the tissues caused by smoking seem to cause an increase in deep wrinkles, or "smoker's face." This begins soon after age 30 in smokers. By age 40–50, the facial wrinkles of smokers are similar to those of nonsmokers 20 years older. I can often correctly guess that people are smokers just by knowing their age and looking at their skin, if I have not already smelled smoke on their clothes or breath. The wrinkling and aging effects may also result from nutritional depletions associated with smoking, such as deficiencies of vitamins C, B1, and B2, folic acid, zinc, and calcium. In addition to the carbon monoxide in smoke, acetaldehyde can also weaken the tissue cross-linking, causing more skin aging.



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

Worldwide reports suggest that smoking also affects sexuality and reproduction. In men, it has been shown to lower sperm counts and motility and thus sexual potency and reproductive ability. Smoking may also cause genetic mutation. There appears to be a slightly higher incidence of congenital malformations in the offspring of men who smoke.

In women who smoke, there are clearly more miscarriages and smaller babies. There are many increased risks for pregnant smokers as well as for their fetuses and infants. Besides resulting in babies with lower birth weight than those of nonsmoking women, which may result from a decrease in blood circulation and thus a lower oxygen and nutrient supply to the fetus throughout pregnancy, smoking increases the incidence of miscarriages, stillbirths, congenital malformations, and early infant deaths. Nicotine gets into breast milk and may decrease its production. I believe that early nicotine exposure may cause a greater likelihood of smoking addiction in later life. Smoking around newborns and infants increases their susceptibility to many diseases, particularly colds, bronchitis, and pneumonia.

### **Women Who Smoke**

The increase in the number of teenage girls who smoke creates more problems in pregnancy than occur in adult smokers; in pregnant teenagers, poor development and lack of placental circulation and oxygen lead to more fetal and newborn deaths, more hospitalized newborns, and babies that are slow to learn.

Women in general have a higher incidence of many problems since more of them have started smoking. In addition to the worst, lung cancer, these include bronchitis and emphysema, hypertension and heart attacks, strokes, and hemorrhages. The use of birth control pills increases the risk of circulatory problems even further; for example, women who smoke and use the pill are 25 times more likely to suffer heart attacks than women who do neither.

### **HIGH-RISK SMOKERS**

---

Pregnant women  
Alcoholics or alcohol  
Nursing mothers  
Diabetics  
Birth control pill users  
Family history of heart disease  
Patients with high cholesterol  
Heavy smokers  
Ulcer patients  
Obese people  
Type A personalities  
Very thin people

### **SUGGESTED ADDITIONAL RESOURCES**

---

- ❑ T Ferguson and GM Schmidt, *Smoker's Book of Health: How to Keep Yourself Healthier and Reduce Your Smoking Risks* (1987), Penguin Putnam Books
- ❑ E Haas, MD, Preventive Medical Center of Marin, 25 Mitchell Boulevard, San Rafael, California 94903, [www.elsonhaas.com](http://www.elsonhaas.com)
- ❑ DS Inaba and WE Cohen, *Uppers, Downers, All Arounders: Physical and Mental Effects of Psychoactive Drugs* (2000), CNS Publications, Inc.



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

- D Pearson and S Shaw, *Life Extension: A Practical Scientific Approach* (1987), Warner Books, Inc.

**ACKNOWLEDGEMENTS**

---

The information contained within this Course Material has been drawn from many sources, including the references cited herein, the Breining Institute **Chemical Dependency and other Addictive Disorders** "Workbook Series," the professional, academic and teaching experiences of Bernard G. Breining, Dr.AD, and research input from Breining Institute graduate students.



**CONTINUING EDUCATION (CE) EXAMINATION QUESTIONS**  
**Course No. CE1306P1 – Smoking and Nicotine Addiction – Part 1**

You are encouraged to refer to the Course Material when answering these questions. Choose the best answer based upon the information contained within the Course Material. Answers which are not consistent with the information provided within the Course Material will be marked incorrect. A score of 70% correct answers is required to receive Continuing Education credit. GOOD LUCK!

**QUESTIONS**

1. In the United States, cigarette smoking causes:
  - a. One third to one half million deaths per year.
  - b. Twenty-five percent of the cancer deaths.
  - c. Thirty to forty percent of the coronary heart disease.
  - d. All of the above.
  
2. The dangers of nicotine and smoking cigarettes are well documented:
  - a. Resulting in a decrease of the number of smokers each year.
  - b. Resulting in no increase in the number of smokers each year.
  - c. Yet, there is still a 2 to 3 percent increase in the number of smokers each year.
  - d. None of the above.
  
3. The number of current smokers who say that they want to quit is estimated to be:
  - a. 20%
  - b. 40%
  - c. 60%
  - d. 80%
  
4. The benefits of smoking identified in *The Smoker's Book of Health* does not include which of the following:
  - a. Improved concentration.
  - b. Better able to deal with stress.
  - c. Improved energy levels.
  - d. Improved eyesight.
  
5. The increased cost to employers in employing a smoker comes from which of the following:
  - a. Increased absenteeism.
  - b. Incidence of accidents.
  - c. Property damage.
  - d. All of the above.
  
6. Nicotine does all of the following except:
  - a. Constricts blood vessels.
  - b. Increases blood pressure.
  - c. Raises blood fat levels.
  - d. Contains a central nervous system depressant.



Breining Institute  
**COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

7. Some of the many chemicals found in cigarettes include which of the following:
  - a. Carbon monoxide.
  - b. Formaldehyde.
  - c. Lead.
  - d. All of the above.
  
8. Three primary degenerative-disease-producing effects associated with cigarette smoking include all of the following except:
  - a. Chronic weight fluctuation.
  - b. Irritation and inflammation.
  - c. Free-radical generation.
  - d. Allergy-addiction.
  
9. Someone who smoked one pack of cigarettes each day for 15 years, then two packs per day for 20 years, would have how many "pack years" of smoking?
  - a. 35
  - b. 55
  - c. 70
  - d. None of the above.
  
10. Identify which of the following are diseases associated with smoking:
  - a. Arteriosclerosis.
  - b. Bronchitis.
  - c. Cervical cancer.
  - d. All of the above.
  
11. Pregnant teenagers who smoke risk the following:
  - a. More fetal and newborn deaths.
  - b. More hospitalized newborns.
  - c. Babies that are slower to learn.
  - d. All of the above.

**This is an eleven-question examination. Answer Questions 1 through 11 for full CE credit in this course. Questions 12 through 21 have been omitted.**



**Breining Institute  
COLLEGE FOR THE ADVANCED STUDY OF ADDICTIVE DISORDERS**

**CONTINUING EDUCATION (CE) ANSWER SHEET**

**SECTION 1.** Please type or print your information clearly. This information is required for CE Course credit.

First Name																			
Middle Name																			
Last Name																			
Address (Number, Street, Apt or Suite No.)																			
City																			
State (or Province)										USA Zip Code									
Country (other than USA)										Country Code									
Primary Telephone Number (including Area Code)										Facsimile Number (including Area Code)									
E-mail Address																			

**SECTION 2.** Credit Card Payment Information (if paying by credit card): Circle type of card: **VISA** or **MasterCard**

Credit Card Number																				Expiration Date														
Full Name on Credit Card																																		

Authorized Signature **Breining Institute is authorized to charge Twenty-nine dollars (\$29.00) to this card.**

**SECTION 3.**  
Course Title: **CE-1306P1 / SMOKING AND NICOTINE ADDICTION – PART 1**

- Answers (circle correct answer):
- |            |             |             |
|------------|-------------|-------------|
| 1. A B C D | 8. A B C D  | 15. A B C D |
| 2. A B C D | 9. A B C D  | 16. A B C D |
| 3. A B C D | 10. A B C D | 17. A B C D |
| 4. A B C D | 11. A B C D | 18. A B C D |
| 5. A B C D | 12. A B C D | 19. A B C D |
| 6. A B C D | 13. A B C D | 20. A B C D |
| 7. A B C D | 14. A B C D | 21. A B C D |

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Return Answer Sheet, with \$29 Continuing Education examination fee, by mail or facsimile to:  
**BREINING INSTITUTE · 8880 Greenback Lane · Orangevale, California USA 95662-4019 · Facsimile (916) 987-8823**