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Effects of Smoking on Human Health

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1. Introduction

Tobacco has a negative effect on almost every organ of the body. According to the U.S. Department of Health & Human Services, tobacco use is the leading preventable cause of death in the United States, resulting in more than 443,000 deaths each year. Worldwide, recent studies have shown that tobacco is responsible for about 6 million deaths each year. In March 2012, the U.S. Department of Health & Human Services reported that, from 1975 to 2000, nearly 800,000 deaths from lung cancer in the United States were prevented due to declines in smoking as a result of tobacco control programs and policies. This data was presented in the *Journal of the National Cancer Institute* (NCI).

A report called *Smokeless Tobacco and Public Health: A Global Perspective* was released by the National Cancer Institute in December 2014. According to this report, more than 300 million people in at least 70 countries use harmful smokeless tobacco products. Cigar smokers and smokeless tobacco (chew or spit tobacco) users have similar health risks as cigarette smokers, including oral cancer, esophageal cancer, and pancreatic cancer, as well as oral health problems like mucosal lesions, leukoplakia, and periodontal disease. Smokeless tobacco products also contain nicotine, and users often demonstrate signs of dependence similar to those of cigarette smokers.

2. Toxic Chemicals in Tobacco Smoke

Tobacco smoke contains chemicals that are harmful to both smokers and nonsmokers. Breathing even a little tobacco smoke can be harmful. Cigarettes contain about 600 ingredients. When they burn, they generate more than 7,000 chemicals, according to the American Lung Association. Of the more than 7,000 chemicals in tobacco smoke, at least 250 are known to be harmful, including hydrogen cyanide, carbon monoxide, and ammonia. Among the 250 known harmful chemicals in tobacco smoke, at least 69 can cause cancer.

Many of the same ingredients are found in cigars and in tobacco used in pipes and hookahs. According to the National Cancer Institute, cigars have a higher level of carcinogens, toxins, and tar than cigarettes.

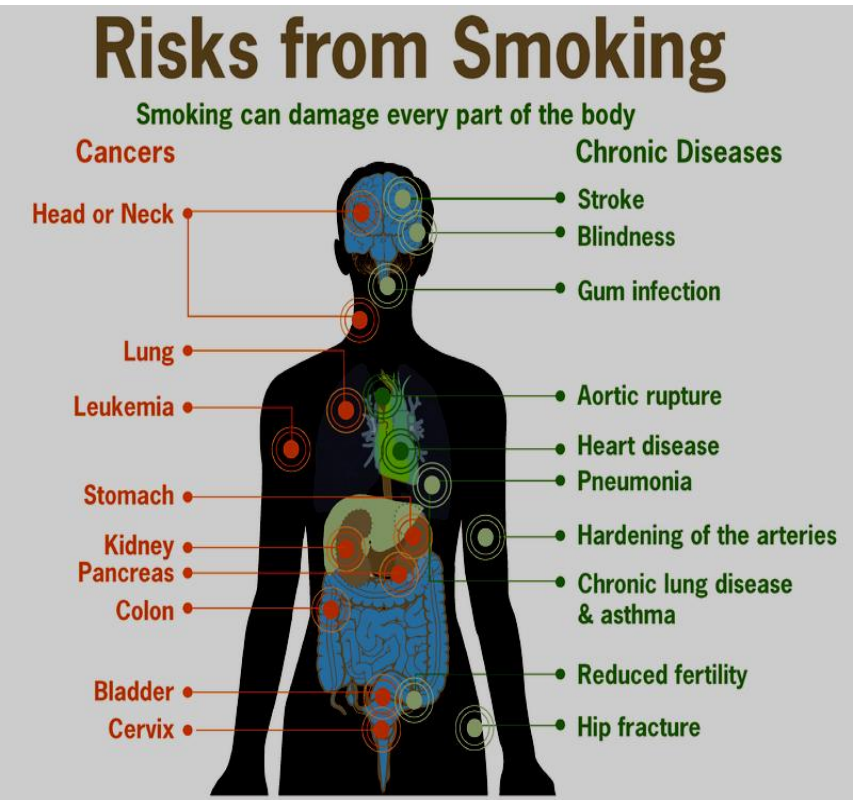
These cancer-causing chemicals include the following : Arsenic, Benzene, Beryllium (a toxic metal), 1,3–Butadiene (a hazardous gas), Cadmium (a toxic metal), Chromium (a metallic element), Ethylene oxide, Nickel (a metallic element), Polonium-210 (a radioactive chemical element) and Vinyl chloride.

Other toxic chemicals in tobacco smoke are suspected to cause cancer, including Formaldehyde, Benzo[α]pyrene and Toluene.

3. Effects of Smoking on Human Health

Tobacco use most commonly leads to diseases affecting the heart and lungs and will most commonly affect areas such as hands or feet with first signs of smoking related health issues showing up as numbness, with smoking being a major risk factor for heart attacks, Chronic Obstructive Pulmonary Disease (COPD), emphysema, and cancer, particularly lung cancer, cancers of the larynx and mouth, and pancreatic cancer. Overall life expectancy is also reduced in long term smokers, with estimates ranging from 10 to 17.9 years fewer than nonsmokers.

About one half of long term male smokers will die of illness due to smoking. The association of smoking with lung cancer is strongest, both in the public perception and etiologically. Among male smokers, the lifetime risk of developing lung cancer is 17.2%; among female smokers, the risk is 11.6%. This risk is significantly lower in nonsmokers: 1.3% in men and 1.4% in women.

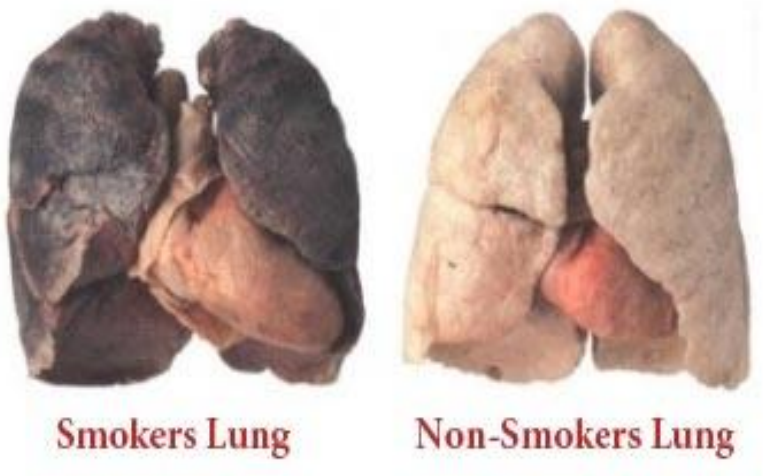


Smoking harms nearly every organ of the body. Tobacco smoke is enormously harmful to your health. There's no safe way to smoke. Replacing your cigarette with a cigar, pipe, or hookah won't help you avoid the health risks associated with tobacco products.

When using a hookah pipe, you're likely to inhale more smoke than you would from a cigarette. Hookah smoke has many toxic compounds and exposes you to more carbon monoxide than cigarettes do. Hookahs also produce more secondhand smoke. In the United States, the mortality rate for smokers is three times that of people who never smoked, according to the Centers for Disease Control and Prevention.

3.1. Effects on Lung

Cigarette smoking is the major cause of chronic obstructive pulmonary disease (COPD), which includes chronic bronchitis and emphysema. Chronic bronchitis occurs when the airways in your lungs have become narrow and partly clogged with mucus. Smoking destroys the tiny air sacs, or alveoli, in the lungs that allow oxygen exchange. When you smoke, you are damaging some of those air sacs. Alveoli don't grow back, so when you destroy them, you have permanently destroyed part of your lungs.



When enough alveoli are destroyed, the disease emphysema develops. Emphysema causes severe shortness of breath and can lead to death. Smoking also increases your risk of getting the flu and colds. Your airways are lined with tiny brush like hairs, called cilia. The cilia sweep out mucus and dirt so your lungs stay clear. Smoking temporarily paralyzes and even kills cilia. This makes you more at risk for infection. Smokers get more colds and respiratory infections than non-smokers. Long-term smokers are also at increased risk of lung cancer.

3.2. Smoking and Heart Disease Risk

Smoking can cause atherosclerosis leading to coronary artery disease and peripheral arterial disease. Inhalation of tobacco smoke causes several immediate responses within the heart and blood vessels. Within one minute the heart rate begins to rise, increasing by as much as 30 percent during the first 10 minutes of smoking. Carbon monoxide in tobacco smoke exerts its negative effects by reducing the blood's ability to carry oxygen. Both of these conditions can become permanent with prolonged use of cigarettes.

Smoking also increases the chance of heart disease, stroke, atherosclerosis, and peripheral vascular disease. Several ingredients of tobacco lead to the narrowing of blood vessels, increasing the likelihood of a blockage, and thus a heart attack or stroke. According to a study by an international team of researchers, people under 40 are five times more likely to have a heart attack if they smoke.

Recent research by American biologists has shown that cigarette smoke also influences the process of cell division in the cardiac muscle and changes the heart's shape. The usage of tobacco has also been linked to Buerger's disease (*thromboangiitis obliterans*) the acute inflammation and thrombosis (clotting) of arteries and veins of the hands and feet.

Smoking tends to increase blood cholesterol levels. Furthermore, the ratio of high-density lipoprotein (the "good" cholesterol) to low-density lipoprotein (the "bad" cholesterol) tends to be lower in smokers compared to non-smokers. Smoking also raises the levels of fibrinogen and increases platelet production (both involved in blood clotting) which makes the blood viscous. Carbon monoxide binds to haemoglobin (the oxygen-carrying component in red blood cells), resulting in a much stabler complex than haemoglobin bound with oxygen or carbon dioxide—the result is permanent loss of blood cell functionality.

Blood cells are naturally recycled after a certain period of time, allowing for the creation of new, functional erythrocytes. However, if carbon monoxide exposure reaches a certain point before they can be recycled, hypoxia (and later death) occurs. All these factors make smokers more at risk of developing various forms of arteriosclerosis. As the arteriosclerosis progresses, blood flows less easily through rigid and narrowed blood vessels, making the blood more likely to form a thrombosis (clot). Sudden blockage of a blood vessel may lead to an infarction (stroke). However, it is also worth noting that the effects of smoking on the heart may be more subtle. These conditions may develop gradually given the smoking-healing cycle (the human body heals itself between periods of smoking), and therefore a smoker may develop less significant disorders such as worsening or maintenance of unpleasant dermatological conditions, e.g. eczema, due to reduced blood supply. Smoking also increases blood pressure and weakens blood vessels.

3.3. Effects on Brain

Smoking blocks the carotid artery. So, blood supply to the brain cells are cut off. This results in stroke, called cerebral thrombosis. Smokers' risk of having a stroke is 1.5 times more than non-smokers. Smoking increases your risk of having a stroke by at least 50%, which can cause brain damage and death. And, by smoking, you double your risk of dying from a stroke.

One way that smoking can increase your risk of a stroke is by increasing your chances of developing a brain aneurysm. This is a bulge in a blood vessel caused by a weakness in the blood vessel wall. This can rupture or burst which will lead to an extremely serious condition known as a subarachnoid haemorrhage, which is a type of stroke, and can cause extensive brain damage and death. The good news is that within two years of stopping smoking, your risk of stroke is reduced to half that of a non-smoker and within five years it will be the same as a non-smoker.

Smoking also lowers down the smokers' IQ. This fact has been established by a study conducted by University of Michigan researchers

3.4. Oral Problems

Smokers are at great risk of developing oral problems. Tobacco use can cause gum inflammation (gingivitis) or infection (periodontitis). These problems can lead to tooth decay, tooth loss, and bad breath.

Tobacco exposure, whether in the form of chewing tobacco or smoking cigarettes, pipes, or cigars, greatly increases your risk of getting mouth cancer and other mouth diseases. In fact, people who smoke cigarettes are about 5 to 10 times as likely to get mouth (oral) cancer as are non-smokers. In the following figure, white spots are a form of oral cancer caused primarily by smoking.

Another disease that can affect the gums besides cancer is periodontal (gum) disease. This disease is known in its early stages as *gingivitis*. Gingivitis is a condition where the gums swell, redden, and bleed because of a buildup of bacteria. Although non-smokers can also develop gingivitis because of poor oral hygiene, the toxic chemicals from tobacco increase your risk of developing this gum disease.

Full-blown periodontal disease is a more serious infection that leads to pockets forming around the teeth. As these pockets become infected, the body tries to kill off the bacteria, but instead it causes damage to the gums and bone holding the teeth in place. This can eventually lead to tooth loss. If you quit smoking and maintain good oral hygiene, you can greatly reduce your chances of gum disease.

3.5. Smoking affects Digestive System

Smoking has been shown to have harmful effects on all parts of the digestive system, contributing to such common disorders as heartburn and peptic ulcers. It also increases the risk of Crohn's disease and possibly gallstones. Smoking seems to affect the liver, too, by changing the way it handles drugs and alcohol.

Heartburn is common among Americans. More than 60 million Americans have heartburn at least once a month, and about 15 million have it daily. Heartburn happens when acidic juices from the stomach splash into the esophagus. Normally, a muscular valve at the lower end of the esophagus, the lower esophageal sphincter (LES), keeps the acid solution in the stomach and out of the esophagus. Smoking decreases the strength of the esophageal valve, thereby allowing stomach juice to reflux, or flow backward into the esophagus.

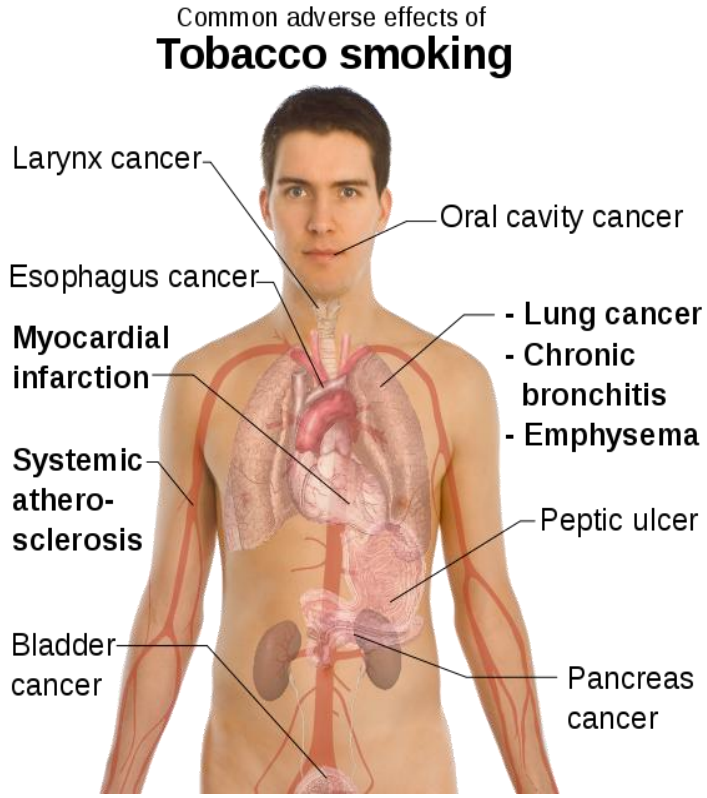
Smoking also seems to promote the movement of bile salts from the intestine to the stomach, which makes the stomach juice more harmful. Finally, smoking may directly injure the esophagus, making it less able to resist further damage from refluxed material.

Stomach acid is also important in producing ulcers. Normally, most of this acid is buffered by the food we eat. Most of the unbuffered acid that enters the duodenum is quickly neutralized by sodium bicarbonate, a naturally occurring alkali produced by the pancreas. Some studies show that smoking reduces the bicarbonate produced by the pancreas, interfering with the neutralization of acid in the duodenum. Other studies suggest that chronic cigarette smoking may increase the amount of acid secreted by the stomach.

People who smoke are more likely to develop an ulcer, especially a duodenal ulcer, and ulcers are less likely to heal quickly among smokers in response to otherwise effective treatment. This research tracing the relationship between smoking and ulcers strongly suggests that a person with an ulcer should stop smoking.

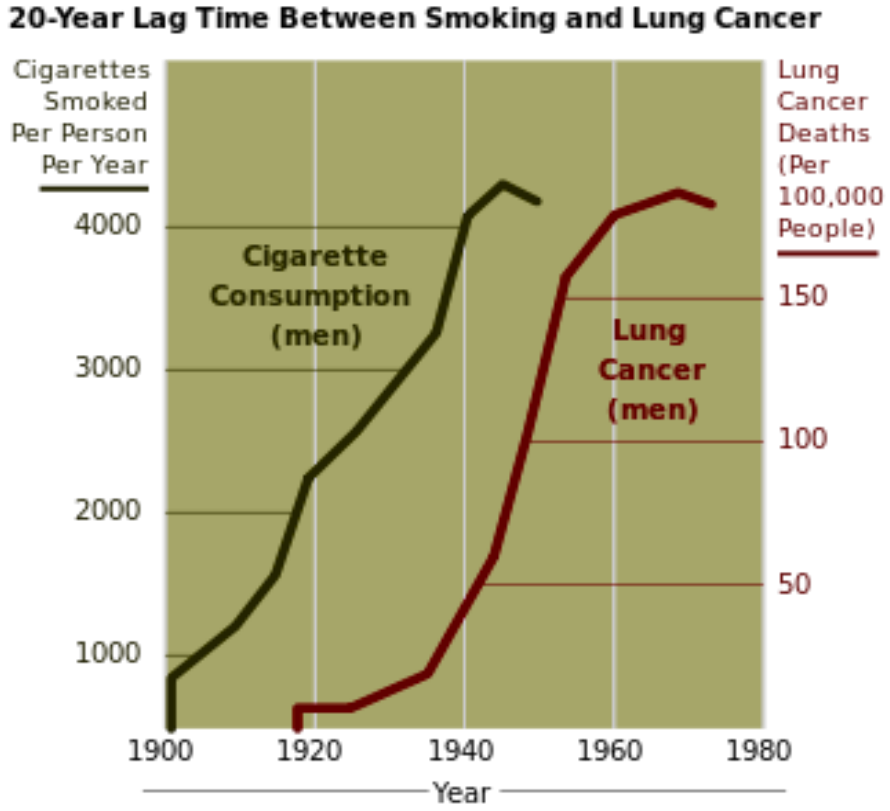
3.6. Smoking cause Cancer

Tobacco smoke contains more than 7,000 chemicals. About 70 of them are known to cause cancer. The primary risks of tobacco usage include many forms of cancer, particularly lung cancer, kidney cancer, cancer of the larynx and head and neck, bladder cancer, cancer of the esophagus, cancer of the pancreas and stomach cancer. Studies have established a relationship between tobacco smoke, including secondhand smoke, and cervical cancer in women.



There is some evidence suggesting a small increased risk of myeloid leukaemia, squamous cell sinonasal cancer, liver cancer, colorectal cancer, cancers of the gallbladder, the adrenal gland, the small intestine, and various childhood cancers. The possible connection between breast cancer and tobacco is still uncertain.

The risk of dying from lung cancer before age 85 is 22.1% for a male smoker and 11.9% for a female smoker, in the absence of competing causes of death. The corresponding estimates for lifelong nonsmokers are a 1.1% probability of dying from lung cancer before age 85 for a man of European descent, and a 0.8% probability for a woman. Smoking causes 84% of deaths from lung cancer and 83% of deaths from chronic obstructive lung disease, including bronchitis.



The most serious damage smoking causes in your mouth and throat is an increased risk of cancer in your lips, tongue, throat, voice box and gullet (oesophagus). More than 93% of oropharangeal cancers (cancer in part of the throat) are caused by smoking.

3.7. Smoking affects Eyes

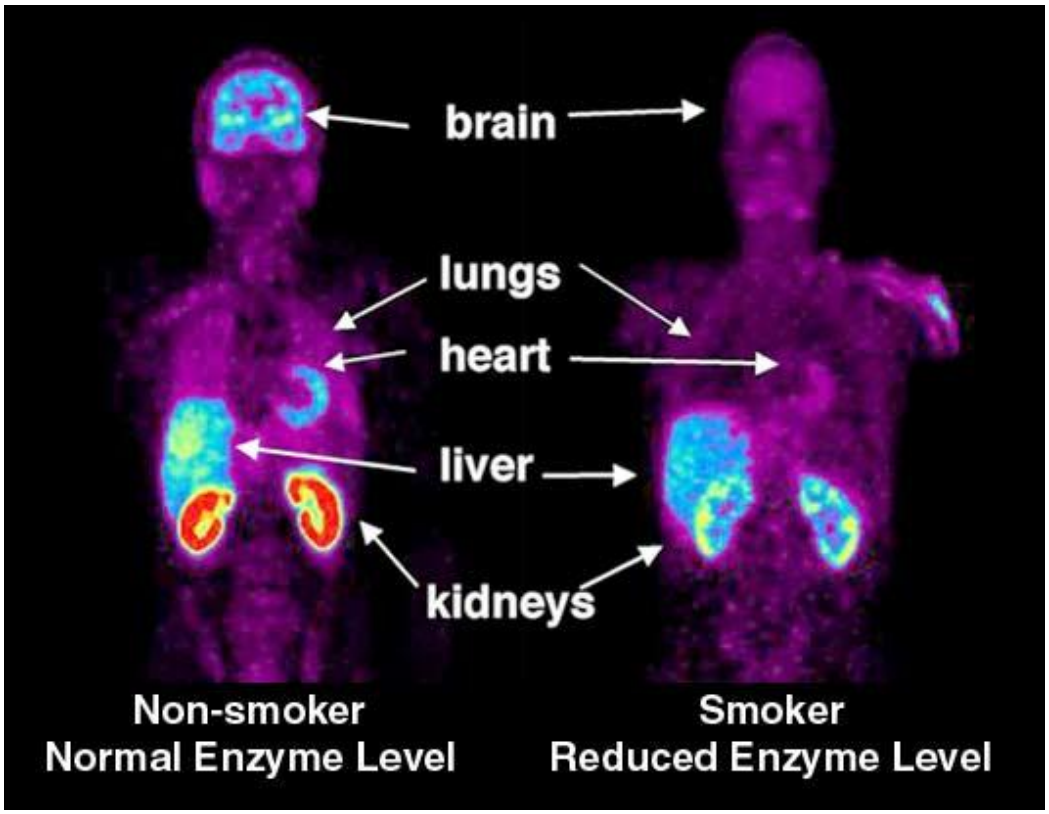
Smoking tobacco or being exposed to tobacco smoke can also increase your risk for developing a number of eye disorders and diseases. Smoking can cause chronic redness of your eyes. Tobacco smoke, even passive smoke inhaled by children, can alter the tear film of eyes, exacerbating dry eye syndrome and allergic eye conditions. Smoking may increase your risk for developing cataracts, or clouding of the lenses, much earlier and possibly much worse than people who do not smoke. Smoking reduces the supply of antioxidants in our eyes, which may lead to cataracts.

Smoking contributes to the development of arteriosclerosis, or hardening of the arteries, that can contribute to or worsen vascular disease of the eyes. Smoking decreases blood flow throughout the body, which could result in damage to the optic nerve. Toxic optic neuropathy, caused by methyl alcohol consumption, results in rapid deterioration in vision and irreversible blindness if not treated within 24 to 48 hours.

3.8. PET Scans Show Smoke affects Peripheral Organs

New research, with support from the National Institute for Biomedical Imaging and Bioengineering and the National Institute on Drug Abuse, National Institutes of Health, and the Department of Energy, shows that cigarette smoke also decreases levels of a critical enzyme called monoamine oxidase B (MAO B) in the kidneys, heart, lungs, and spleen. Too much or too little of this crucial enzyme can have an effect on a person's mental or physical health. MAO B is important because it breaks down the chemicals that allow nerve cells to communicate and regulate blood pressure.

PET, or positron emission tomography, employs computer technology and radioactive compounds to produce images of biochemical processes within living systems.



The illustration shows the concentration of radioactive tracer bound to monoamine oxidase B (MAO B). Red shows the highest concentration. Clearly, lower concentrations are seen in the smoker. In certain areas, such as the lungs and brain, concentrations are so low as to be virtually absent. This demonstrates decreased amounts of MAO B in the peripheral organs of smokers compared with nonsmokers. The researchers observed that MAO B activity in the peripheral organs was reduced by one-third to almost one-half in smokers compared with nonsmokers.

3.9. Smoking affects Skin, Hair, Nails and Ears

The substances in tobacco smoke actually change the structure of your skin. Smoking causes skin discoloration, wrinkles, and premature aging. Smoking reduces the amount of oxygen that gets to your skin. This means that if you smoke, your skin ages more quickly and looks grey and dull. Smoking prematurely ages your skin by between 10 and 20 years, and

makes it three times more likely you'll get facial wrinkling, particularly around the eyes and mouth. Smoking even gives you a sallow, yellow-grey complexion and hollow cheeks, which can cause you to look gaunt. The good news is that once you stop smoking, you will prevent further deterioration to your skin caused by smoking.

Fingernails and the skin on your fingers may have yellow staining from holding cigarettes. Smokers usually develop yellow or brown stains on their teeth. Hair holds on to the smell of tobacco long after you put your cigarette out. It even clings to nonsmokers.

Smoking reduces the oxygen supply to the cochlea, a snail-shaped organ in the inner ear. This may result in permanent damage to the cochlea and mild to moderate hearing loss.

3.10. Higher risk of Infertility

Both men and women who smoke may have difficulty achieving orgasm and are at higher risk of infertility.

3.10.1. Male infertility. Incidence of impotence is approximately 85 percent higher in male smokers compared to non-smokers, and it is a key cause of erectile dysfunction (ED). Smoking causes impotence because it promotes arterial narrowing.

Erectile dysfunction, a condition that prevents a man from being able to get or keep an erection, is twice as likely to affect those who smoke. Even men who are exposed to second-hand smoke have a greater risk of experiencing erectile dysfunction. Millions of men are affected by erectile dysfunction, but one way to significantly reduce your risk is to quit smoking.

Studies on male smoking have shown a decrease in the quality of semen. Sperm concentration refers to the number of sperm found in a measured quantity of semen. Studies have shown a 23% decrease in sperm concentration in men who smoke. Sperm motility refers to the swimming capabilities of the sperm. If sperm cannot swim properly, they may have trouble reaching the egg and fertilizing it. In men who smoke, researchers found a 13% decrease in sperm motility.

3.10.2. Female infertility. Smoking is harmful to the ovaries, potentially causing female infertility, and the degree of damage is dependent upon the amount and length of time a woman smokes. Nicotine and other harmful chemicals in cigarettes interfere with the body's ability to create estrogen, a hormone that regulates folliculogenesis and ovulation. Also, cigarette smoking interferes with folliculogenesis, embryo transport, endometrial receptivity, endometrial angiogenesis, uterine blood flow and the uterine myometrium. Some damage is irreversible, but stopping smoking can prevent further damage. Smokers are 60% more likely to be infertile than non-smokers.

3.11. Kidney damage

Smoking is a significant risk factor for developing kidney cancer, and the more you smoke the greater the risk. For example, research has shown that if you regularly smoke 10 cigarettes a day, you are one and a half times more likely to develop kidney cancer compared with a non-smoker. This is increased to twice as likely if you smoke 20 or more cigarettes a day.

In addition to increasing the risk of kidney cancer, smoking can also contribute to additional renal damage. Smokers are at a significantly increased risk for chronic kidney disease than non-smokers. A history of smoking encourages the progression of diabetic nephropathy.

3.12. Diabetes

Various clinical studies have linked smoking with increased risk of insulin resistance and type 2 diabetes. According to a case-control study of 234 cases with newly diagnosed type 2 diabetes and 468 diabetes-free controls, There was more than 2 fold increase in the incidence of diabetes among current smokers compared with never-smokers. Those who had been smokers for 10 or more pack-years had twice the risk of diabetes versus non-smokers. Since smoking may raise blood glues levels and increase insulin resistance-it makes it more difficult for people with diabetes to control their glucose levels compared with non-smoking individuals with diabetes.

3.13. Effect of Smoking on Urinary Bladder

According to the American Cancer Society, smoking is one of the main causes of bladder cancer. The accumulation of carcinogenic chemicals in urine damages cells in the bladder. Bladder cancer occurs when cells in the lining of the bladder grow uncontrollably and form tumors that can invade normal tissues and spread to other parts of the body. Persons who smoke have more than twice the risk for bladder cancer than non-smokers. Research indicates that smoking may cause about 30% of bladder cancers among women and 50% among men.

Bladder cancer is the fifth most common type of cancer in the United States and causes approximately 13,000 deaths annually. Not smoking is the most important behavior to reduce bladder-cancer risk. The risk for bladder cancer among smokers who quit smoking eventually returns to normal.

3.14. Influenza

A study of an outbreak of A (H1N1) influenza in an Israeli military unit of 336 healthy young men to determine the relation of cigarette smoking to the incidence of clinically apparent influenza, revealed that, of 168 smokers, 68.5 percent had influenza, as compared with 47.2 percent of nonsmokers. Influenza was also more severe in the smokers; 50.6 percent of the smokers lost work days or required bed rest, or both, as compared with 30.1 percent of the nonsmokers.

According to a study of 1,900 male cadets after the 1968 Hong Kong A2 influenza epidemic at a South Carolina military academy, compared with nonsmokers heavy smokers (more than 20 cigarettes per day), had 21% more illnesses and 20% more bed rest, light smokers (less than 20 cigarettes per day) had 10% more illnesses and 7% more bed rest.

The effect of cigarette smoking upon epidemic influenza was studied prospectively among 1,811 male college students. Clinical influenza incidence among those who daily smoked 21 or more cigarettes was 21% higher than that of non-smokers. Influenza incidence

among smokers of 1 to 20 cigarettes daily was intermediate between non-smokers and heavy cigarette smokers.

Surveillance of a 1979 influenza outbreak at a military base for women in Israel revealed that influenza symptoms developed in 60.0% of the current smokers vs. 41.6% of the nonsmokers. Smoking seems to cause a higher relative influenza-risk in older populations than in younger populations. In a prospective study of community-dwelling people 60–90 years of age, during 1993, of unimmunized people 23% of smokers had clinical influenza as compared with 6% of non-smokers.

3.15. Smoking affects Blood and the Immune System

3.15.1. High white blood cell count. Smoking cause high white blood cells (the cells that defend your body from infections) count. A high white blood cell count is like a signal from your body, letting you know you've been injured. White blood cell counts that stay elevated for a long time are linked with an increased risk of heart attacks, strokes, and cancer.

3.15.2. Longer to heal. Nutrients, minerals, and oxygen are all supplied to the tissue through the blood stream. Nicotine causes blood vessels to tighten, which decreases levels of nutrients supplied to wounds. As a result, wounds take longer to heal. Slow wound healing increases the risk of infection after an injury or surgery and painful skin ulcers can develop, causing the tissue to slowly die.

3.15.3. Weakened immune system. Cigarette smoke contains high levels of tar and other chemicals, which can make your immune system less effective at fighting off infections. This means you're more likely to get sick. Continued weakening of the immune system can make you more vulnerable to autoimmune diseases like rheumatoid arthritis and multiple sclerosis. It also decreases your body's ability to fight off cancer!

3.16. Smoking affect Bones

Recent studies show a direct relationship between tobacco use and decreased bone density. Smoking is one of many factors—including weight, alcohol consumption, and activity level—that increase your risk for osteoporosis, a condition in which bones weaken and become more likely to fracture.

Significant bone loss has been found in older women and men who smoke. Quitting smoking appears to reduce the risk for low bone mass and fractures. However, it may take several years to lower a former smoker's risk.

In addition, smoking from an early age puts women at even higher risk for osteoporosis. Smoking lowers the level of the hormone *estrogen* in your body, which can cause you to go through menopause earlier, boosting your risk for osteoporosis. smoking leads to a thinning of bone tissue and loss of bone density. This causes bones to become weak and brittle. Compared to non-smokers, smokers have a higher risk of bone fractures, and their broken bones take longer to heal.

3.17. Muscle deterioration

When you smoke, less blood and oxygen flow to your muscles, making it harder to build muscle. The lack of oxygen also makes muscles tire more easily. Smokers have more muscle aches and pains than non-smokers.

3.18. Susceptibility to Infectious diseases

Tobacco is also linked to susceptibility to infectious diseases, particularly in the lungs. Smoking more than 20 cigarettes a day increases the risk of by two to four times, and being a current smoker has been linked to a fourfold increase in the risk of invasive pneumococcal disease. It is believed that smoking increases the risk of these and other pulmonary and respiratory tract infections both through structural damage and through effects on the immune system. The effects on the immune system include an increase in CD4+ cell production attributable to nicotine, which has tentatively been linked to increased HIV susceptibility. The usage of tobacco also increases rates of infection: common cold and bronchitis, chronic obstructive pulmonary disease, emphysema and chronic bronchitis in particular.

Smoking increases the risk of Kaposi's sarcoma in people without HIV infection. One study found this only with the male population and could not draw any conclusions for the female participants in the study.

3.19. Smoking and Pregnancy

Mothers who smoke while pregnant are exposing their unborn baby to nicotine (a highly addictive substance), carbon monoxide, and thousands of other chemicals (including cancer-causing agents) that are found in tobacco. With each puff of a cigarette, these toxic chemicals travel through the mother's blood, cross through the placenta, and enter the baby's body. When an unborn baby is exposed to nicotine, their heart rate increases and they begin breathing at a faster rate.

Women who smoke while pregnant have a higher risk of miscarriage or serious birth complications. Complications to the baby that can occur include:

- higher risk of death at or soon after birth
- high risk of getting infections or having other health problems
- slower growth of the fetus
- smaller size at birth (on average, 150 grams less than babies born to non-smokers)

After a baby is born, mothers who smoke while breast-feeding can still expose their baby to harmful chemicals through breast milk. Despite this fact, it is important to note that a smoking mother's breast milk is still preferred over formula for a baby's growth and development.

Women who smoke have about a 50% higher chance of giving birth to a child with behavioral disorders. Later in life, children of mothers who smoke are more likely to have: asthma, changes in behavior, impaired learning, a nighttime cough, respiratory infections and slower growth.

Pregnant mothers who are exposed to secondhand smoke are also more likely to have a baby with low birth weight. Babies born to mothers who smoke while pregnant are at greater risk of low birth weight, birth defects, and sudden infant death syndrome (SIDS). Newborns who breathe secondhand smoke suffer more ear infections and asthma attacks.

3.20. The Dangers Secondhand Smoke

Cigarette smoking can harm your health even if you're not a smoker. Exposure to secondhand smoke is believed to cause the lung cancer or heart disease deaths of about 49,000 non-smokers every year. Nonsmokers who are exposed to secondhand smoke in their homes or workplaces have a 25 to 30 percent increase in their heart disease risk and a 20 to 30 percent increase in their lung cancer risk. Children whose parents or caregivers smoke have an increased risk of asthma, bronchitis, pneumonia, coughing, wheezing, and ear infections. Babies of smokers have a higher risk of sudden infant death syndrome, or SIDS.

4. Conclusion

The chemicals in cigarette smoke are inhaled into the lungs and from there travel throughout the body, causing damage in numerous ways. Nicotine reaches the brain in 7 to 10 seconds after smoke is inhaled. Nicotine has been found in every part of a smoker's body, including breast milk. Carbon monoxide, which is present in cigarette smoke, binds to hemoglobin in red blood cells, preventing these cells from carrying all of the oxygen they normally would. This can lead to symptoms of carbon monoxide poisoning. Cancer-causing agents (carcinogens) in tobacco smoke damage important genes that control the growth of cells, causing them to grow abnormally or to reproduce too rapidly. Seventy such cancer-causing chemicals have been identified in cigarette smoke to date.

In 2000, smoking was practiced by 1.22 billion people, predicted to rise to 1.45 billion people in 2010 and 1.5 to 1.9 billion by 2025. As of 2002, about twenty percent of young teens (13–15) smoke worldwide, with 80,000 to 100,000 children taking up the addiction every day—roughly half of whom live in Asia. Half of those who begin smoking in adolescent years are projected to go on to smoke for 15 to 20 years.

The WHO states that "Much of the disease burden and premature mortality attributable to tobacco use disproportionately affect the poor". Of the 1.22 billion smokers, 1 billion of them live in developing or transitional nations. Rates of smoking have leveled off or declined in the developed world. In the developing world, however, tobacco consumption is rising by 3.4% per year as of 2002. The WHO in 2004 projected 58.8 million deaths to occur globally, from which 5.4 million are tobacco-attribute and 4.9 million as of 2007. As of 2002, 70% of the deaths are in developing countries.

According to WHO (2011) report, almost six million people die from tobacco use each year worldwide. The report explains that tobacco is expected to kill 7.5 million people worldwide by 2020, accounting for 10 percent of all deaths. That number is expected to increase to 8 million by the year 2030. Smoking causes an estimated 71 percent of lung cancers, 42 percent of chronic respiratory disease and almost 10 percent of cardiovascular disease, the report states.

To reduce tobacco use, WHO recommends strategies including tobacco tax increases, distributing information about the health risks of smoking, restrictions on smoking in public

places and workplaces, and comprehensive bans on tobacco advertising, promotion and sponsorship.

Education and counselling by physicians of children and adolescents has been found to be effective in decreasing the risk of tobacco use. Many government regulations have been passed to protect citizens from harm caused by public environmental tobacco smoke. Myanmar has prohibited smoking in university campuses in the country since 2006 in an effort to create tobacco-smoke-free environment for the health of the university students. The ban also applies to a wide range of public accessible areas such as hospitals, schools, airports, cinemas, stadium and marts. The law introduces some strict restrictions with regard to sale and production of cigar and totally bans all forms of tobacco advertisement including advertising through sponsoring sports matches.

Quitting smoking reduces the risk of cancer and other diseases, such as heart disease and COPD, caused by smoking. People who quit smoking, regardless of their age, are less likely than those who continue to smoke to die from smoking-related illness. Quitting smoking reduces the risk of developing and dying from cancer. However, it takes a number of years after quitting for the risk of cancer to start to decline. This benefit increases the longer a person remains smoke free the risk of premature death and the chance of developing cancer from smoking cigarettes depend on many factors, including the number of years a person smokes, the number of cigarettes he or she smokes per day, the age at which he or she began smoking, and whether or not he or she was already ill at the time of quitting. For people who have already developed cancer, quitting smoking reduces the risk of developing a second cancer.

Second-hand smoke is also a major source of air pollution. In fact, the cancer risk from exposure to second-hand smoke is much greater than the combined risk of all other regulated air contaminants. There is no safe level of exposure to second-hand smoke. The best thing to do is to remove the source of smoke. So, if you smoke, quit. It is the single best way to protect yourself and those around you. To reduce the health risks of second-hand smoke by making your home and car smoke-free environments**.** A smoke-free environment means not smoking inside the home or car. Since smoke can easily seep through closed doors and cling onto fabrics, this rule needs to be applied at all times in all areas of your home and vehicle.

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