



Effect of Smoking on Nutrition

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ABSTRACT

Tobacco smoke contains numerous compounds emitted as gases and condensed tar particles, many of them being oxidants and pro oxidants, capable of producing free radicals thus enhancing lipid per oxidation in biological membranes. Vitamin E, vitamin C, B-carotene and selenium are involved in the overall cellular anti-oxidant defense against deleterious effects of reactive oxygen species. Although smokers have poor health and consequently poor dietary intake compared with nonsmokers. The purpose of this study is to alert smokers the effect of smoking on nutrition status.

KEYWORD: Tobacco, oxidants and pro oxidants, lipid, nutrition.

1. INTRODUCTION

It is known to everyone that cigarette smoking is harmful and addictive. But very few know the risks of cigarette addiction. Smoking inflicts body with many irreversible damages and reduces the human life span by around 25 years. Tobacco smoking seriously affects internal organs, particularly the heart and lungs, but it also affects a person's appearance. While these changes are generally not as life threatening as heart and lung disease, they can, nevertheless, increase the risk of more serious disorders and have a noticeable ageing effect on the body. It even affects your nutritional intake. It has been found that smoking dulls taste, making food less palatable and therefore tends to cause a lower intake of a variety of food. Smoking affects the way the body absorbs and uses nutrient because it narrows the blood vessels and can affect circulation.

Smoking has been shown to lower the level of vitamin C and B-carotene in plasma. Cadmium, naturally found in tobacco, decreases the bioavailability of

selenium and acts antagonistically to zinc, a cofactor for the antioxidant enzyme, superoxide dismutase. Vitamin E, the principle lipid-soluble antioxidant, may be at suboptimal levels in tissues of smokers. In addition, tobacco constituents have been shown to reduce levels of several vitamins of the B-complex. Nutritional status in smokers may be further compromised by an inadequate diet. Survey indicates that smokers are less likely to consume fruits and vegetables, particularly those high in vitamin C and carotenes. Cessation of smoking is the obvious solution to ending cigarette-related problems.

2. EFFECTS ON SMOKING

Effect on Carbohydrate Metabolism

Smokers differed from non-smokers in significantly higher diastolic blood pressure and non-significantly higher concentration of triglycerides, cholesterol, total lipids, and beta-lipoproteins. The significant higher level of serum basal IRI was found in smokers when compared to non-smokers. Results suggest non-effective hyperinsulinemia in people smoking cigarettes.

Effect on Protein Metabolism

Smoking causes multiple organ dysfunctions. The rate of skeletal muscle protein synthesis is depressed in smokers compared with non-smokers. Smoking impairs the muscle protein synthesis process and increases the expression of genes associated with impaired muscle maintenance; smoking therefore likely increases the risk of sarcopenia.

Tobacco use poses a major public health problem because smoking is a major risk factor for cardiovascular disease, chronic obstructive pulmonary disease, and lung cancer and is associated with increased risk for other debilitating conditions, such

as cataract, pneumonia, and cancers of the cervix, kidney, pancreas, and stomach. Smoking has direct adverse effects on muscle protein metabolism, which may lead to loss of independence and disability with advanced age. Nevertheless, the effect of smoking on muscle protein metabolism is not known. Surfactant protein levels are increased in the serum of smokers. However, it was found that this is not a sensitive discriminating factor to separate smokers from non-smokers.

Effect on Metabolic Syndrome

Smokers compared with non smokers showed lower fasting glucose levels in blood (87.0 ± 10.9 and 93.2 ± 13.6 mg/dl, $p < 0.05$), higher mean systolic (131.1 ± 15.9 vs. 123.0 ± 10.9 mm Hg, $p < 0.05$) and diastolic (81.7 ± 11.4 vs. 75.2 ± 9.2 mm Hg, $p < 0.05$) blood pressure during daytime, and higher average heart rate during the daytime (78.2 ± 9.3 /min vs. 71.5 ± 9.5 /min, $p < 0.01$) and at night (67.2 ± 10.6 /min vs. 61.7 ± 7.7 /min, $p < 0.05$), respectively. Smoking in hypertensive postmenopausal women is associated with lower fasting blood glucose and BMI values, but higher arterial pressure and heart rate, and increases in right carotid artery.

Effect on Vitamin-E

One damage that is done by smoking is that the numerous toxic substances from the cigarette smoke cause scars to form on the arterial walls. These scars take the place of normal cells in the body and they don't replace their function. This replacement happens in the process called oxidation. Vitamin E can stop that damage from occurring as it is an antioxidant.

Effect on Vitamin-B

Smoking triggers the release of stress hormones in the body. This means an increased need for all the B vitamins, including folic acid. The following B vitamins are specifically needed:

Effect on Vitamin-B₅

Cigarette smoking damages collagen, depletes vitamin C (necessary for collagen), causes wrinkles, blood vessel constriction and sallow skin.

Effect on Vitamin-B₁₂

It is found that smokers have low blood levels of cobalamin (Vitamin B₁₂). Also, note large doses of Vitamin C destroy cobalamin, so Vitamin C and B₁₂

supplements should be an hour or more apart, not at the same time.

Effect on Vitamin-B₆

Tobacco blocks body's use of pyridoxine (Vitamin B₆). Pyridoxine turns the proteins we eat into proteins our body needs and we need it to convert carbohydrates from the form you store them in into the form we can use for energy. It is needed for hormones, neurotransmitters and enzymes.

Effect on Vitamin-C

Smokers have below-normal levels of Vitamin C - as much as 40 percent lower in pack-a-day smokers. Toxic substances from the cigarettes destroy the Vitamin C. One of the risks faced in smoking is heavy metal poisoning from the cadmium in cigarette smoke. The accumulation of cadmium in organs caused by smoking and the severe anemia associated with cadmium toxicity are prevented by dietary Vitamin C supplements. Cadmium is also in the air we breathe. If we live near any pollution, Vitamin C again is needed. Vitamin C protects against this and other oxidative damage caused by smoking as it is an antioxidant.

Smokers, and those exposed to second-hand smoke should consume more foods high in beta-carotene (carrots, squash, yams, sweet potatoes and other yellow-orange vegetables) as well as foods rich in Vitamin C (citrus fruits, peppers, and broccoli) and vitamin E (wheat germ and nuts). Vegetable has all the co-factors necessary for the proper use of the vitamin.

Effect on Selenium

Selenium acts to prevent the accumulation in our body of toxic deposits of heavy metals like cadmium. Chemically, it creates a bond with the metal, thus rendering it less harmful and helping our body to eliminate it.

Effect on Magnesium

Smoking causes stress that in turn causes blood cholesterol levels to rise and magnesium levels to fall. Since magnesium and calcium all work together to make our heart muscle contract in a regular rhythm, one of the first signs of a magnesium deficiency is an irregular heartbeat. As a result of calcium/magnesium imbalance, calcium deposits may form on the heart muscle. If this happens, the heart cannot contract properly. Magnesium is also important in breaking

down fats you eat into fatty acids that can be useful in building body parts like nerve sheaths and cellular membranes. If those fats are not broken down properly, they begin to collect in deposits, which lodge on damaged arterial points. Thus a magnesium deficiency can increase the risks of contracting the two major degenerative heart diseases: arteriosclerosis and arteriosclerosis. Another point to remember in this regard is that magnesium is necessary for the synthesis of lecithin, which also helps break down those fats. Magnesium deficiencies can lead to other problems. It can lead to high blood pressure. Your kidneys are very vulnerable to damage by sharp crystalline oxalic acid which can result in hypertension. Spasms of an artery caused by a lack of magnesium can be a direct cause of angina pectoris or even a heart attack.

Effect of Carbon Monoxide

Carbon monoxide is the odorless, colorless gas that comes out the tailpipe from a car or a faulty gas heater. In high enough concentrations it is deadly; in lower doses it causes shortness of breath and increased heart rate. Normally red blood cells carry oxygen to all parts of the body by attaching the oxygen to a molecule called haemoglobin. When carbon monoxide is present, it will attach itself to haemoglobin instead of oxygen. The red blood cells are then unable to perform their regular duties for a period of time. Eventually the carbon monoxide falls off or the red blood cells are replaced; however, more carbon monoxide enters the body through continued smoking.

This is one of the key reasons athletes almost never smoke, since smoking can inactivate over 10% of the body's haemoglobin.

The body is able to eliminate most of the carbon monoxide fairly quickly when someone stops smoking. Most people who quit feel more energetic and less short of breath within a few days of quitting.

Effect of Nicotine

Although it is only one of many dangerous substances in cigarettes, nicotine is responsible for making cigarettes so addictive. Studies have shown nicotine to be as addictive as heroin and cocaine.

Effect of Tar

Tar is the dark substance that actually carries the nicotine to the lungs. Along with the nicotine, it also

carries the long list of other chemicals: Benzene, Radon Other Nasty Stuff. These are chemicals that the Environmental Protection Agency has said you don't want in your home since they cause cancer. We inhale them when we smoke.

3. OTHER PROBLEMS RELATED TO SMOKING:

Effect on Skin

The skin is affected by tobacco smoke in at least two ways. Firstly, tobacco smoke released into the environment has a drying effect on the skin's surface. Secondly, because smoking restricts blood vessels, it reduces the amount of blood flowing to the skin, thus depleting the skin of oxygen and essential nutrients.

Compared with non-smokers, smokers have a two to threefold higher risk of developing psoriasis, a chronic skin condition which. Smoking also appears to be more strongly associated with psoriasis among women than among men

Effect on Weight

When people stop smoking, they usually put on weight. Although this is often a cause for concern, the average weight gain is around 2 to 3 kg and may be temporary. It has been partly explained by the fact that smoking increases the body's metabolic rate – i.e. the rate at which calories are burned up. In addition, nicotine may act as an appetite suppressant so that when smokers quit an increase in appetite leads to an increase in calorie intake.

Other Effects

Halitosis (bad breath) and stained teeth and gums are perhaps the best known and most obvious effects of smoking. Smoking may indeed be responsible for more than half of periodontitis cases among adults. Smoke can also damage eye blood vessels creating a bloodshot appearance and causing irritation

Effect on Cataracts

What clouds the eye lens is the damage from oxidation. Smoking and increase oxidative damage, to prevent cataracts-antioxidants, In addition to antioxidants - trace minerals magnesium and manganese appear to play a role in cataract prevention.

Effect on Coughing

There are herbs that stop coughing by increasing the production of saliva, which makes you swallow more

frequently, suppressing the cough reflex. These herbs are the contained in the cough drops containing the oil from herbs including eucalyptus, peppermint, anise and fennel.

Effect on Reproductive System

Smoking reduces fertility in both men and women.

In Women

Smoking imbalances estrogen hormones in women, it causes dryness of vagina and reduces blood flow to genital organs. Women who smoke can get diseases of fallopian tubes and their egg production is affected. Smoking can cause abortion. It accelerates aging process and can cause early menopause.

The growth of baby retards when mother smokes in pregnancy. It affects the brain development of baby and reduces IQ. This happens even when mother is a passive smoker. The chances of miscarriage, premature birth and fetal death increase.

In Men

Smoking impairs erections and can become a reason for erectile dysfunction. It affects semen and also reduces sperm count and impairs sperm. But these are reversed after stopping smoking.

Effect on Digestive System

Smoking cause's heart burn, delays healing of peptic ulcers, increases risk of crown's disease and formation of gall stones. It affects liver and increases chances of stomach cancer.

4. CONCLUSION

Smokers seem to have lower amounts of vitamins A, E, and C, the B-vitamin group and minerals such as selenium, zinc, copper, and iron. These deficiencies are caused by both decreased intake of nutrients, increased need of nutrients and other effects of smoking on the body. Nicotine is responsible for making cigarettes so addictive. Nicotine to be as addictive as heroin and cocaine, Carbon monoxide is the odorless, colorless gas that comes out the tailpipe from car or a faulty gas heater. In high enough concentrations it is deadly; in lower doses it causes shortness of breath and increased heart rate. Normally red blood cells carry oxygen to all parts of the body by attaching the oxygen to a molecule called hemoglobin. When carbon monoxide is present, it will attach itself to hemoglobin instead of oxygen. The red blood cells are then unable to perform their regular

duties for a period of time. The skin is affected by tobacco smoke in at least two ways. Firstly, tobacco smoke released into the environment has a drying effect on the skin's surface. Secondly, because smoking restricts blood vessels, it reduces the amount of blood flowing to the skin, thus depleting the skin of oxygen and essential nutrients. When people stop smoking, they usually put on weight. Although this is often a cause for concern, the average weight gain is around 2 to 3 kg and may be temporary. In addition, nicotine may act as an appetite suppressant so that when smokers quit an increase in appetite leads to an increase in calorie intake. Smoking and increase oxidative damage, to prevent cataracts—antioxidants and trace minerals like magnesium and manganese appear to play a role in cataract prevention, Smoking reduces fertility in both men and women. Smoking cause's heart burn, delays healing of peptic ulcers, increases risk of crown's disease and formation of gall stones. It affects liver and increases chances of stomach cancer. The growth of baby retards when mother smokes in pregnancy. It affects the brain development of baby and reduces IQ.

As a result of smoking, the body not only absorbs toxins, but loses nutrients. Because smoking interferes with absorption of vital nutrients, deficiencies can develop. Nutrient deficiencies create some of the major health problems that smokers risk. One effective approach to avoiding nutrient deficiencies is to quit smoking. If not ready to quit, nutrient supplements may help to avoid dangerous deficiencies.

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