Nutritional Influences on Illness
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Reducing Tobacco Craving with Nutrition

Not too long ago, the prevailing belief was that anyone who used tobacco regularly did so simply because they enjoyed it, as tobacco dependency was seen as primarily a psychological issue. Research has revealed, however, that nicotine, a component of the tobacco leaf, is highly addictive, even more addictive — according to at least one authority — than heroin, cocaine, and alcohol.

Quickly absorbed into the bloodstream, nicotine interferes with the balance of brain neurotransmitters. It increases the activity of forebrain catecholaminergic neural systems (especially in the cerebral cortex and hippocampus) by increasing the level of tyrosine hydroxylase, the rate-limiting enzyme of catecholamine synthesis. Moreover, it strongly promotes the release of dopamine, a tyrosine metabolite. It does so by attaching to the nicotinic acetylcholine receptors, causing them to release glutamate. Glutamate, in turn, signals connected neurons to release dopamine.

Besides the effects of nicotine, tobacco itself increases the brain level of dopamine by reducing levels of the enzyme which metabolizes it (monamine oxidase). While dopamine levels in the caudate nucleus are elevated in tobacco users, levels of the dopamine metabolite homovanillic acid are reduced in the caudate and putamen as well as in the cerebrospinal fluid. Dopamine’s effects are complex and poorly understood, but it appears to play a role in signaling reward in the brain. For example, “pleasurable” events such as eating, drinking, and having sex are all associated with increased brain dopamine levels, while individuals experiencing depression or anxiety may have lowered brain dopamine levels.

Nicotine also attaches to neurons that release GABA, a neurochemical that inhibits dopamine release. Although they initially respond to nicotine, they quickly become overwhelmed and lose their power to generate repeated releases of GABA for up to an hour. During that time, they are unable to counterbalance the nicotine-induced excitation. “As a result,” says Daniel McGehee, senior researcher of the study that found these results, “the reward system is turned on right away, and it keeps sending reward signals for 60 minutes even though nicotine levels drop off 15 minutes after smoking. We suspect that this ability to extend the reward only enhances the drug’s ability to reinforce smoking.”

Since nutrients serve as biochemical precursors to the neurotransmitters, it would seem that nutritional supplements may be able to rectify at least some of the aberrations caused by tobacco use, and that normalization would reduce tobacco craving as well as withdrawal symptoms. While little systematic research has been done, clinicians specializing in treating addictions have started to develop programs that utilize diet and nutritional supplements to combat tobacco craving. The following supplement program is based on the pioneering observations of Charles Gant. In his practice, Doctor Gant has found his program to reduce tobacco use down to roughly one-third of baseline. He has also made the interesting observations that his program will cause tobacco to have an unpleasant taste, and that either part of the program alone is largely ineffective. (He also states that if acupuncture is added to the program, tobacco use should stop all together.)

1. To promote production of acetylcholine

Choline: Choline is necessary for acetylcholine production. (As phosphatidylcholine is superior to choline itself for the purpose of delivering the choline molecule to cells, I suggest taking two soft gels of phosphatidylcholine [available in roughly 400 mg size], three times daily between meals.)

Pantothenic acid: Acetylcholine is synthesized from choline and acetyl-coA, and co[enzyme] A requires pantothenic acid for its synthesis. (As pantethine is the activated form of pantothenic acid, I suggest taking 300 mg of pantethine, two to three times daily.)

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2. To promote production of catecholamines

L-tyrosine: (I suggest 500 to 1,000 mg, three times daily, one hour before meals.)

The above program focuses on tobacco craving. However, any nutritional program for treating tobacco addicts should also include a broader recovery program of diet and supplementation to combat the toxic effects of tobacco. Systematic research is badly needed in this area so that an effective, comprehensive nutritional regimen is developed for treating tobacco addiction. Given the enormous cost of tobacco use to our society, it is regrettable that such research remains so poorly funded.

Notes

Doctor Werbach's voluminous Nutritional Influences on Illness CD-ROM, with 4,200 pages of text and covering over 100 different illnesses, makes it easy to search the nutritional literature. For information on his publications or a free brochure, contact Third Line Press Inc., 4751 Viviana Drive, Tarzana, California 91356. (800-916-0076; 818-996-0076; Fax: 818-774-1575; E-mail: tlp@third-line.com; Internet: http://www.third-line.com).
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