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PERSONAL HEALTH

## Trying to Break Nicotine's Grip

By [JANE E. BRODY](#)

Michael Shaw, a 40-year-old from Brooklyn who has smoked [cigarettes](#) for 24 years, says he really wants to quit. And I do not doubt his sincerity. He has tried to give up cigarettes many times. But after several days or weeks of not [smoking](#), something happens — an evening out with friends, an emotional upset or just plain boredom — and he relapses.

His sole weapon so far in battling his addiction, he says, has been willpower. But what scores of experts on [nicotine](#) addiction have come to learn is that willpower is rarely enough. Most diehard smokers need methods far stronger — and usually a combination of stop-smoking aids — to help quit in the first place and, more important, remain former smokers.

There are exceptions. I was amazed when my husband, who had smoked for 50 years, quit cold turkey in 1994 after one session with a hypnotist and a few sticks of nicotine gum.

Survey statistics from the [Centers for Disease Control and Prevention](#) show that 70 percent of smokers say they want to quit and that 40 percent try to quit each year. But 80 percent of smokers who try to quit on their own relapse within a month, the data show, and only 3 percent remain former smokers at six months.

Though long called a lifestyle choice or pernicious habit, smoking is now widely recognized as an addictive disease comparable to [alcoholism](#) or heroin addiction.

“Tobacco addiction is best considered a chronic disease, with most smokers requiring repeated interventions over time before achieving permanent abstinence,” Dr. Neal L. Benowitz of the University of California, San Francisco, said last month in *The American Journal of Medicine*.

### Biological Basis of Addiction

Like other addicting substances, nicotine produces pleasurable effects that prompt smokers to keep up the habit and, ultimately, lose control over smoking, often even when dire consequences like a [heart attack](#), [cancer](#) or [emphysema](#) result.

Among the addiction-maintaining effects of nicotine are arousal, relaxation, improved mood,

reduced [anxiety and stress](#), better concentration and faster reaction time. When deprived, smokers report withdrawal symptoms that include [irritability](#), [depression](#), [restlessness](#), [anxiety](#), difficulty concentrating, increased hunger, [insomnia](#), a craving for tobacco, difficulty getting along with others and a feeling that life lacks pleasure.

These effects have a biological basis. Nicotine easily crosses the blood-brain barrier, where it binds to nicotine-specific receptors in the brain. This results in the release of a host of neurotransmitters, primarily [dopamine](#), that “signals a pleasurable experience and is critical to the reinforcing effects of nicotine and other drugs of abuse,” Dr. Benowitz explained.

Repeated exposure to nicotine increases the receptors and induces tolerance to and dependence on nicotine. Smokers typically take in the amount of nicotine needed to bind to the receptors. When the drug is withdrawn, in a night’s sleep, for example, or in an effort to quit, the falloff in nicotine rewards becomes a barrier to lasting abstinence.

Changes also occur in brain function as measured on an electroencephalogram, especially in the so-called reward center of the brain.

In addition to the biological effects of nicotine, conditioned behaviors reinforce its continued use. Smokers quickly learn to associate nicotine intake with certain moods, situations or environmental circumstances, both pleasant and unpleasant. As Mr. Shaw of Brooklyn has found, those circumstances become powerful cues for the urge to smoke.

Dr. Benowitz also noted that other aspects of smoking like lighting up, manipulating the cigarette, the taste or smell of smoke and the feel of smoke in the throat also become linked to the pleasurable effects of smoking.

## **Sources for Treatment**

Since smoking addiction involves physiological, behavioral and psychological factors, all three need to be addressed, often repeatedly, to help smokers quit for good.

As Dr. Stephen I. Rennard of the [University of Nebraska](#) Medical Center in Omaha wrote in the journal, addressing fellow clinicians, “It is no longer adequate simply to recommend smoking cessation.”

As with other chronic diseases like [diabetes](#) and heart disease, Dr. Rennard said, both pharmacological and behavioral therapy are needed to control it. He added that because smoking is often a relapsing disorder, clinicians “must be prepared to readdress the problem of smoking on a regular basis and to re-treat patients who backslide.”

Many products on the market can reduce or eliminate the symptoms of [nicotine withdrawal](#), which so often lead to failed attempts to quit. Nicotine replacement therapy is regarded as safe, even in high doses and even for heart patients, and it carries none of the risks of smoking, which exposes people to higher levels of nicotine and 4,000 toxins. Products are available as skin patches, gums, lozenges, inhalers and nasal spray.

Individuals can choose whichever method is most comfortable and convenient, as well as using a combination of a short-acting product like nicotine gum or nasal spray with a longer-acting one like the nicotine patch. According to Dr. Michael B. Steinberg of the [University of Medicine and Dentistry of New Jersey](#) in New Brunswick, nicotine replacement can be safely used for as long as a former smoker finds it necessary.

Lack of insurance coverage is a major barrier to effective use of nicotine replacements. Writing in *The Annals of Internal Medicine* in April, Dr. Steinberg and colleagues urged that the cost be covered by medical insurance, especially because it would be much cheaper than treating a smoking-induced disease. They noted that “tobacco dependence kills more people than many classic medical diseases” and far more than any other forms of addiction.

Two other drugs approved for treating smokers who want to quit are a sustained-release form of the antidepressant bupropion, which helps to curb weight gain among former smokers, and a relatively new drug, varenicline. It is the first non-nicotine product created specifically to enhance smoking cessation by partly filling up nicotine receptors to prevent the reinforcing effects of smoking.

To help would-be quitters resist emotional and behavioral cues to smoke, there are individual and group counseling programs, as well as smoking cessation phone lines, Web sites and chat rooms and state-financed support services. Call (800) QU-I-T-N-O-W to connect with a local quit line.

Smoking cessation experts at the [Mayo Clinic](#) recommend these Web sites: [www.becomeanex.org](http://www.becomeanex.org), [www.quitnet.com](http://www.quitnet.com) and, to locate state services, [www.naquitline.org](http://www.naquitline.org).

In addition, some would-be quitters like my husband have been helped by hypnosis or [acupuncture](#), though well-thought-out studies have yet to validate these methods fully, Dr. Benowitz said in an interview.

Remember, too, that even if you fail to quit once, twice or even three or more times, try again. There are more tools available than ever to assure the success of everyone who wants to become a former smoker.

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