

## Nicotine Replacement Therapy

Nicotine replacement products help relieve some of the withdrawal symptoms people experience when they quit smoking. There are several nicotine replacement products currently available over-the-counter in the United States, including two nicotine patches, nicotine gum and nicotine lozenges. A nicotine nasal spray, inhaler (Zyban) and the recently approved nicotine-free tablet (Chantix) are available only by prescription. To be most effective, nicotine replacement products should be used in conjunction with a behavior change program. The U.S. Food and Drug Administration (FDA) have approved all of the following medications to help you quit smoking:

### Over-the-Counter

Nicotine Patch (also available by prescription):

The nicotine patch releases a constant amount of nicotine in the body. Unlike the nicotine in tobacco smoke which passes almost instantaneously into the blood through the lining of the lungs, the nicotine in the patch takes up to three hours to pass through the layers of skin and into the user's blood. The patches are similar to adhesive bandages and are available in different shapes and sizes. A larger patch delivers more nicotine through the skin. The patch must be worn all day, and cannot be put on and removed as a substitute for a cigarette. Most of the patch products are changed once every 24 hours. One particular patch is worn only during the waking hours and is removed during sleep. Wearing the nicotine patch lessens chances of suffering from several of the major smoking withdrawal symptoms such as tenseness, irritability, drowsiness, and lack of concentration.

Some side effects from wearing the patch may include:

- skin irritation
- dizziness
- racing heartbeat
- sleep problems
- headache
- nausea
- vomiting, muscle aches and stiffness

Average retail price for over-the-counter transdermal nicotine patches (starter box) is approximately \$4 a day.

Nicotine Gum:

Nicotine gum delivers nicotine to the brain more quickly than the patch however, unlike smoke, which passes almost instantaneously into the blood through the lining of the lung; the nicotine in the gum takes several minutes to reach the brain. This makes the "hit" less intense with the gum than with a cigarette.

Nicotine gum is not designed to be chewed like normal gum. Rather it is used in the "chew and park" method. When you insert a piece of gum into your mouth, chew it a few times to break it down, then park it between your gum and cheek and leave it there.

The nicotine from the gum will make its way into your system via the blood vessels just under the lining of the oral cavity. If you continue chewing without parking, the nicotine will be released directly into the saliva in your mouth, which will eventually be swallowed, leaving you with a nasty stomachache and a craving for a cigarette.

Nicotine gum contains enough nicotine to reduce the urge to smoke. The over-the-counter gum is available in 2mg doses (for smokers of 24 or fewer cigarettes each day) and 4mg doses (for smokers of 25 or more cigarettes each day). One piece of gum is one dose; maximum dosage should not exceed 24 pieces per day.

Nicotine gum helps take the edge off cigarette cravings without providing the tars and poisonous gases found in cigarettes. It is a temporary aid that reduces symptoms of nicotine withdrawal after quitting smoking.

Nicotine gum must be used properly in order to be effective.

Steps for nicotine gum users include:

Stop all smoking when beginning the nicotine gum therapy.

Do not eat or drink for 15 minutes before using, or while chewing the gum (some beverages can reduce its effectiveness). Chew the gum slowly on and off for 30 minutes to release most of the nicotine. Parking the gum between the cheek and gum allows the absorption of nicotine into the lining of the cheek.

Chew enough gum to reduce withdrawal symptoms (10-15 pieces a day but no more than 30 a day).

Use the gum every day for about a month or so, then start to reduce the number of pieces you chew a day, chewing only what you need to avoid withdrawal symptoms.

Discontinue use of gum after three months.

If the gum sticks to your dental work, stop using it and check with your medical healthcare professional or dentist. Dentures or other dental work may be damaged because nicotine gum is stickier and harder to chew than ordinary gum.

The average retail price for nicotine gum is approximately \$4.50 (10 pieces) a day for average usage during the first six weeks of use.<sup>6</sup>

Nicotine Lozenge:

In 2002, the first and only over the counter nicotine lozenge meant to help smokers kick the habit was introduced to the market.

Nicotine lozenge comes in the form of a hard candy, and releases nicotine as it slowly dissolves in the mouth. Eventually, the quitter will use fewer and fewer lozenges during the 12-week program until he or she is completely nicotine-free. Biting or chewing the lozenge will cause more nicotine to be swallowed quickly and result in indigestion and/or heartburn. Nicotine lozenge is available in 2mg or 4mg doses. One lozenge is one dose; maximum dosage should not exceed 20 lozenges per day. Each lozenge will last about 20-30 minutes and nicotine will continue to leach through the lining of the mouth for a short time after the lozenge has disappeared. Do not eat or drink 15 minutes before using the lozenge or while it is in your mouth. Do not use nicotine lozenges for longer than 12 weeks. If you feel the need to continue using the lozenges after 12 weeks, contact your healthcare professional.

The most common side effects of lozenge use are:

Soreness of the teeth and gums

Indigestion

Throat irritation

The average retail price for nicotine lozenge is approximately \$6 a day for average usage (12 doses) and up to \$12 a day for maximum usage (20 doses) during the first six weeks of use.

## By Prescription Only

### Nicotine Nasal Spray:

Nicotine nasal spray, dispensed from a pump bottle similar to over-the-counter decongestant sprays, relieves cravings for a cigarette.

Nicotine is rapidly absorbed through the nasal membranes and reaches the bloodstream faster than any other NRT product, giving a rapid nicotine “hit”. This feature makes it attractive to some highly dependent smokers.

The most common side effects due to the nasal spray are nose and throat irritations.

A usual single dose is two sprays, one in each nostril. The maximum recommended dose is 5 doses per hour or 40 doses total per day. The average retail price for nicotine nasal spray is approximately \$5 a day for average use (13 doses) and up to \$15 a day for maximum usage (40 doses).<sup>9</sup>

### Nicotine Inhaler:

The nicotine inhaler consists of a plastic cylinder containing a cartridge that delivers nicotine when you puff on it. Use the inhaler when you have a craving for a cigarette. Use no more than 16 cartridges a day for up to 12 weeks. Although similar in appearance to a cigarette, the inhaler delivers nicotine into the mouth, not the lung, and enters the body much more slowly than the nicotine in cigarettes. The nicotine inhaler is available only by prescription. Each cartridge delivers up to 400 puffs of nicotine vapor. It takes at least 80 puffs to obtain the equivalent amount of nicotine delivered by one cigarette. The initial dosage is individualized. The best effect is achieved by frequent, continuous puffing for 20 minutes. One cartridge will last for 20 minutes of continuous puffing and deliver 4 mg of nicotine; only 2 mg are actually absorbed. This is the equivalent of about 2 cigarettes. The maximum suggested dose is 16 cartridges per day.

Side effects include irritation of the throat and mouth in the beginning. You may also start to cough but you should get over this after a while, if not make sure to consult with your doctor.

The average retail cost of the nicotine inhaler is approximately \$45.00 for a package (42 cartridges).<sup>11</sup>

### Non-Nicotine Pill - Zyban:

Bupropion hydrochloride (Zyban) was approved in 1997 to help smokers quit. The drug, available by prescription only, is also sold as an antidepressant under the name Wellbutrin.

Common side effects include insomnia, dry mouth and dizziness.

Treatment with bupropion begins while the user is still smoking, one week prior to the quit date. Treatment is then continued for 7 to 12 weeks. Length of treatment is individualized. Dosing should begin at 150 mg/day given every day for the first 3 days, followed by a dose increase for most people to the recommended dose of 300 mg/day, starting on the 4 day of treatment. The maximum recommended dose is 300 mg/day, given as 150 mg twice daily. An interval of at least 8 hours between successive doses is advised. People who have not made significant progress towards abstinence by the seventh week of therapy are unlikely to successfully quit during this attempt, and bupropion treatment should be discontinued. The average wholesale price for bupropion is approximately \$2 per day.

### Chantix - tablets:

The newest prescription drug Chantix, Varenicline tartrate, is only the second nicotine-free smoking-cessation drug to gain FDA approval. The active ingredient varenicline works in two ways -- by cutting the pleasure of smoking and reducing the withdrawal symptoms that lead smokers to light up again and again.

The tablet will be taken twice-daily for 12 weeks, a period that can be doubled in patients who successfully quit to increase the likelihood they remain smoke-free.

The most common adverse side effects include:

nausea  
headache  
vomiting  
gas  
insomnia  
abnormal dreams  
and a change in taste perception.

It is necessary with all types of medication to follow the doctor's orders and use the products only as prescribed and/or according to labeling.

Studies suggest that everyone can quit smoking. Your situation or condition can give you a special reason to quit:

Pregnant women/new mothers. By quitting, you protect your baby's health and your own.

Hospitalized patients. By quitting, you reduce health problems and help healing.

Heart attack patients. By quitting, you reduce your risk of a second heart attack.

Lung, head and neck cancer patients. By quitting, you reduce your chance of a second cancer.

Parents of children and adolescents. By quitting, you protect your children and adolescents from illnesses caused by second-hand smoke.<sup>15</sup>

The goal in using nicotine replacement therapy is to stop smoking completely. If you plan to take nicotine medications begin using them on the day you quit. If you continue to have strong urges to smoke or are struggling to stop smoking completely, ask your healthcare provider about additional help