

SMOKING Cessation ROUNDS

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Women and Smoking Cessation

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Smokers are at an increased risk for developing diseases such as lung cancer, chronic pulmonary disease, emphysema, and cardiovascular disease. Smoking has additional health risks for women, including increased risk for breast and cervical cancer, osteoporosis, reduced fertility, and poor pregnancy outcomes and menstrual function.^{1,2} More specifically, women who smoke have twice the risk of myocardial infarction (MI) than men, and the risk is heightened with the use of oral contraceptives.¹ Despite the known health risks associated with cigarette smoking, nearly one-fifth of the Canadian population continues to smoke.³ Further, although the rates of current smoking status of Canadians aged >15 years are higher in men than in women (20% vs. 17%),³ the gap between the sexes has narrowed over the years, with the rates of female teenagers and young women on the rise until the past year. On a positive note, most smokers, including women, are interested in quitting.

The majority of physician visits (over 60%) are made by women.⁴ Physicians comprise one of the most successful groups in assisting patients with smoking cessation⁵ and even brief smoking cessation advice from a physician is effective.⁶ Therefore, there is an ongoing opportunity for physicians to counsel women regarding smoking cessation and strong evidence to support the effectiveness of such an approach. Two questions remain, however:

- What are the factors that influence women's smoking cessation?
- What is the best way to assist women in their quit attempts?

Factors influencing smoking cessation in women

Although women have the same level of desire and motivation to quit smoking as men, their success rate is lower.⁷ Many explanations have been offered to account for the differences in cessation rates between men and women. These factors are outlined in Table 1 and discussed below.

Although results are somewhat mixed and few studies report results by gender, it appears that women are less likely to be asked about smoking status, counselled to quit, and prescribed smoking cessation medication.^{8,9} Moreover, older women are less likely to be asked about tobacco use.¹⁰ The misconception that older women are less willing or able to quit may contribute to lower counselling rates. Ironically, older patients who have experienced symptoms of tobacco-related disease may, in fact, be more willing and ready to make a quit attempt.¹¹ The "bottom line" is that we need to capitalize on each opportunity to intervene with female smokers of every age.

When compared to men, women enjoy more sensations associated with smoking (eg, taste, hand-to-mouth), are more susceptible to environmental cues associated with smoking rituals, and experience more withdrawal symptoms (eg, problems with concentration and headaches) when quitting.^{1,2,12-14} Moreover, the menstrual cycle affects tobacco withdrawal symptoms. The response to anti-smoking drugs varies



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Table 1. Factors influencing smoking cessation in women

- Less likely to be asked about smoking status, counselled about smoking cessation, and prescribed smoking cessation medications
- More susceptible to environmental and sensory cues
- Report more withdrawal symptoms than men
- Menstrual cycle may affect withdrawal symptoms and response to medications
- Less confidence in their ability to quit
- May have more emotional concerns (eg, depression, anxiety, stress); smoking used as a coping mechanism
- Have higher expectations that smoking enhances social interactions and thus need more social support in the cessation process
- Targeted by the tobacco industry

according to the menstrual cycle phase. Finally, nicotine replacement therapies (NRTs) aimed at suppressing withdrawal symptoms may be less effective in women than in men.^{15,16} Not surprisingly, then, women report lower confidence in their ability to quit or resist the temptations to smoke.

The higher prevalence of anxiety and depression reported among women is another issue; many women use cigarettes to manage the negative affect associated with these mental health problems. Disadvantaged women, in particular, have the perception that smoking helps ease the symptoms of anxiety and use smoking as a coping mechanism.¹⁷ Further, women raise more emotional concerns than men during a quit attempt and these have a negative impact on their cessation success.^{4,7}

Concern about potential weight gain is another significant factor affecting cessation rates in women. In fact, weight-gain concerns lead women to drop out of treatment programs prior to making a quit attempt and actual weight gain is a common precursor of relapse for women.^{18,19} One study, for example, found that 52% of women (compared to 32% of men) reported that weight gain was a reason for relapse.²⁰

Social factors related to smoking are also more prominent among women than men. Women have higher expectations that smoking will enhance social interactions. They fear the loss of pleasure associated with “social smoking” and, should they quit, the loss of contact with friends who smoke.¹⁷ In addition, women need more social support while quitting, but ironically, in reality, they receive less support than men.²¹ However, when women are supported, they are more successful. Abstinence rates are higher in married women than in unmarried women (31% vs. 15%).¹⁸ Finally, to add to their difficulties in making

a quit attempt, women are the specific targets of tobacco companies that produce distinct cigarette brands and promote smoking as socially desirable for women.¹

Smoking cessation treatment for women

Since most cessation studies do not report results by gender, there is a paucity of evidence to suggest that treatment should be tailored to women. However, there is an increasing awareness that, in general, approaches to the provision of women’s healthcare should be different from those applied to men. Recent smoking cessation research suggests that the content of interventions should differ between men and women.¹⁴ Considering the factors discussed above, we contend that physicians can be much more effective in assisting their female smokers with cessation if they understand and adapt to these gender considerations.

The approach to treating nicotine dependence may be divided into two broad categories: pharmacotherapy and counselling:

Pharmacotherapy addresses the physiological addiction of nicotine by attempting to alleviate the profound withdrawal symptoms that delay the onset of nonsmoking. Pharmacotherapy includes the use of NRT, psychotropic medications known to influence the mechanisms of nicotine addiction (bupropion, nortriptyline), and agents that specifically interact with nicotine receptors (varenicline).

Counselling treatments typically include motivational interviewing to help ambivalent patients move towards changing their patterns of tobacco-use, followed by cognitive and behaviour therapy. As discussed in the April issue of *Smoking Cessation Rounds*, the key principles of motivational interviewing thought to bring about change include expressing empathy, “rolling with resistance,” and supporting self-efficacy. As patients move towards the preparation and action phases of smoking cessation, cognitive therapy helps them to reframe the way they think about smoking (eg, distraction techniques, positive self-talk, relaxation, mental imagery), while behaviour therapy helps smokers learn to identify and avoid triggers associated with smoking (eg, cigarettes in the home, stimuli associated with smoking such as alcohol or coffee, identifying alternative behaviours, anticipating cravings, and applying problem-solving solutions).

The combination of pharmacotherapy and counselling increases the odds that a smoker will successfully quit,⁸ especially women.¹⁵ The remainder of this article is devoted to addressing pharmacological and counselling strategies that specifically assist women in their attempts at smoking cessation.

Pharmacological strategies

Research regarding the efficacy of NRT in women has been mixed. Singleton and colleagues²¹ reported that there is not enough evidence to conclude that NRT is more effective in one gender than in the other. The authors of a recent meta-analysis,¹⁵ however, found that NRT was effective for both men and women in the short-term (3- and 6-month follow-ups), but not effective for women for long-term maintenance (ie, 12 months). That is, the efficacy of NRT declined as time passed, but only among women. These authors noted that women need more comprehensive treatments (NRT + psychological support) for maintenance over 6 months. Therefore, prescriptions for NRT are recommended for female patients, but additional resources should be used in the maintenance phase.

Contemporary practice in the use of NRT increasingly emphasizes titration of NRT to accurately reflect (and replace) a patient's actual nicotine needs. Many earlier investigators used fixed-dose paradigms that may have limited the effectiveness of NRT.

It has been demonstrated that the antidepressant medication, bupropion, is effective in smoking cessation and may be especially effective for women. Given the higher rates of mood disorders in women, bupropion has the added advantage of addressing both conditions simultaneously. In addition to attenuating negative affect, bupropion reduces appetite and weight gain post cessation, particularly for women.^{22,23} Bupropion was identified as the most cost-effective pharmacotherapy for smoking cessation in Canada.²⁴ A recent trial¹⁸ revealed a high drug effect for bupropion among women classified as lighter smokers (ie, <1 pack/day); women given bupropion were twice as likely to abstain as compared to those given placebo. However, among women who smoke more heavily, bupropion added little to the effectiveness of counselling treatment (ie, 7 sessions of 60-90 minutes of behavioural counselling on nicotine fading, self-monitoring, managing triggers, stress management, problem-solving, and relapse prevention). It appears that female heavy-smokers need more resources than medication alone.

Counselling strategies

Given that women have unique issues that influence their ability to stop smoking, we suggest the following counselling strategies consistent with the well-known "5 As" approach—Ask, Advise, Assess, Assist, and Arrange (Table 2). First, since women appear to be asked and advised to quit smoking at lower rates than men, it is important to ensure a systematic approach to identifying all smokers in every practice

Table 2. Treatment strategies for women

- **Ask** and **Advise** women to stop smoking
- **Assess** readiness for quit attempt
- Identify any relevant emotional issues
- **Assist** in the identification of environmental triggers, the anticipation of cravings, the development of appropriate coping strategies, and the recognition of weight gain issues before the quit attempt. Identify sources of social support
- **Assist** by prescribing medication when appropriate; (bupropion may be more effective for some women in addressing withdrawal symptoms and negative affect)
- **Arrange** referral to smoking cessation specialists and/or quit lines if necessary
- *Support Confidence – let patients know that you think they can do it!*

setting. The use of chart markers or electronic-record prompts will cue the practitioner to deliver a simple, sensitive, and supportive offer of assistance with cessation. It is important that the advice be unambiguous, personally-relevant, and nonjudgemental (eg, "The best thing we can do to help you deal with your angina Ms. Parker, is to help you stop smoking; it is important to do this as soon as possible."). These messages can be delivered opportunistically during every consultation to all smokers, whether or not they are specifically seeking help with cessation.

Once smoking status has been established and smokers are advised to quit, a patient's readiness to quit should be assessed. Motivational interviewing techniques are effective for ambivalent patients,²⁵ as well as the 5 Rs of motivational intervention (Table 3).⁸ One important point to remember when engaging in these motivational interventions: if you find you are "arguing for change" with the patient, then you are playing the wrong role. Physicians need to provide advice reflecting the patient's profile and then elicit arguments for change *from* the patient. However, patients may not be prepared to make a quit attempt

Table 3. The 5 Rs – When patients are not ready to quit

- **Relevance** – have patient indicate why quitting is personally relevant them
- **Risks** – have the patient identify potential negative consequences of tobacco use
- **Rewards** – have the patient identify the potential rewards of quitting
- **Roadblocks** – identify barriers to quitting
- **Repetition** – repeat the intervention every time you see the patient

at that time. If this is the case, it is important to request that the topic be approached during future appointments (eg, “I understand that you are not ready at this time but, as your physician, I think it is important that we speak about this again in the future. Is that okay with you?”). Leaving the counselling at this stage is often difficult for healthcare providers who know that smoking cessation will improve the health of their patients. Remind yourself that just because change is not occurring at that moment, the consultation has not failed – decisions are more likely to happen outside the appointment setting²⁶ and you have left the door open for future interventions.

When the smoker is ready to make a lifestyle change, their belief in the possibility of change is an important motivator. As noted above, women report lower levels of self-efficacy for smoking cessation (ie, confidence in their ability to quit smoking) than men. Therefore, interventions need to target and enhance those beliefs. Strategies to enhance self-efficacy include brainstorming solutions about problems in the past, providing encouragement and praise during a quit attempt and — possibly the most important intervention — letting patients know that you think they can do it!

As women report experiencing more withdrawal symptoms than men, it is important for them to be prepared in advance for these symptoms and have strategies in place to cope with them. As the level of nicotine in the body drops in association with a quit-attempt, smokers are likely to experience powerful cravings and be tempted to smoke. Alternative competing behaviours such as distractions with other enjoyable activities (eg, phoning a friend), exercising (eg, going for a 5-minute walk), eating or chewing gum, remembering that the urge will pass, using relaxation skills (eg, deep breathing), taking a hot bath, and/or leaving the vicinity of the “trigger” situation, may help the patient deal with these urges. Providing an explanation about potential withdrawal symptoms and medications that may help reduce their discomfort (ie, NRT or bupropion) is also recommended. Finally, women should be reassured that most withdrawal symptoms last 2-4 weeks and become less severe/frequent as they remain abstinent.

As noted above, bupropion may help to alleviate some of the negative affect associated with smoking cessation. Cognitive and behavioural therapy has also been shown to be effective in the

treatment of mood disorders. Specific strategies include scheduling pleasurable events, taking time for oneself, identifying negative thoughts and replacing these with more realistic and positive thoughts, talking to a supportive friend/family member, practicing proper sleep hygiene, and using relaxation skills. In individuals with pre-existing emotional issues, it may be beneficial to refer them to a mental health professional (eg, psychologist, psychiatrist).

A prominent concern of women that reduces both their confidence in quitting and their cessation success rates is the fear of, or actual experience with, weight gain following cessation. Cognitive behaviour therapy has been shown to improve cessation outcomes in women concerned with weight-gain.²⁷ Self-monitoring and restructuring maladaptive thoughts and beliefs about the importance of low weight and a “perfect shape” have proven to be helpful. Other strategies to minimize weight gain include re-channelling the tactile sensations previously supplied by cigarettes by eating carrots or celery sticks or chewing on straws, increasing exercise levels, increasing water intake or consuming low-calorie drinks, and using positive self-talk.²⁸

Considering that women may need more support than men to maintain abstinence²¹ arranging for follow-up and establishing external supports (out-of-office) may be especially important. Women smokers need to identify potential sources of social support for their cessation attempt. They should then tell these individuals that they are quitting and request their assistance during the quit attempt. For example, if a women’s partner smokes and is not ready to quit, she may need to enlist the support of other friends or family members or escape the situation by visiting friends in their home. In addition, women should be encouraged to build social interactions around healthy behaviours such as going for a walk at lunch instead of socializing during a “smoke break” at work.

In addition to these informal resources, women may benefit from well-established community resources such as referrals to Smoker’s Help Lines and/or smoking cessation specialists. Women tend to seek out formal assistance and report that they value the support of others more than men.²⁹ Smoker’s Help Lines in Canada have recently developed a cooperative system, in which physicians fax patient referrals to the Help Line for smoking cessation assistance. Depending on the smokers’ stage of change, smokers receive

2-10 proactive calls, each of 20-30 minutes duration, from quit specialists (ie, trained staff with post-secondary education in health or social sciences and experience in counselling). These individuals help smokers establish a quit plan, cope with cravings, deal with withdrawal symptoms, manage stress, and provide information on quitting methods (eg, NRT, bupropion) and other services and resources.

A new and innovative approach for telephone follow-up uses automated phone calls with Interactive Voice Recognition (IVR) Technology. As described in the May issue of *Smoking Cessation Rounds*, this technology was initially introduced to facilitate the follow-up of patients who quit smoking while hospitalized.³⁰ In addition to providing services to previously hospitalized patients, this “Ottawa Model” has been introduced in an outpatient primary care clinic for women in Ottawa, The Shirley E. Greenberg Women’s Health Centre of The Ottawa Hospital. In that setting, primary care nurses and physicians routinely: ask patients about tobacco use; advise them to quit smoking; assess their readiness for a cessation attempt; as appropriate, assist them with the provision of smoking cessation materials and pharmacotherapy prescriptions; and arrange follow-up with the IVR system. Interested women smokers receive 8 automated calls over 6 months that assess their smoking behaviour, self-efficacy to remain a nonsmoker, and the use of quit methods (eg, NRT, counselling). If patients report low self-efficacy or request to be contacted during the IVR call, a nurse counsellor makes a follow-up phone call. Patients who indicate they are not ready to quit are provided with a motivational booklet directed to “smokers who are not ready to quit,” and information on smoking cessation programs available in their communities. This smoking cessation intervention is repeated at every clinic visit and is easily incorporated into routine practice. An evaluation of the impact of the Ottawa Model in the primary care setting is currently underway. Based on the success of the Ottawa Model, we expect cessation rates to improve among participating women smokers.

Conclusions

Smoking is a serious health risk for women. Quitting smoking is the single most important undertaking any woman can take to enhance their quality of life and prevent future disease. Effective smoking cessation interventions exist that can significantly increase the likelihood of a woman quitting and are easily incorporated into daily

medical practice. Like their male counterparts, women are interested in quitting smoking and are responsive to unsolicited smoking cessation interventions. Although few studies report results by gender, women appear to experience unique difficulties related to smoking cessation, including being less likely to be asked about their tobacco use, counselled to quit, or prescribed smoking cessation medications by their physicians. When compared to men, women tend to be more likely to enjoy the sensations associated with smoking, are more susceptible to environmental cues, report more withdrawal symptoms – particularly negative affect; have less confidence in their ability to quit; report greater concern about weight gain; are more likely to believe that smoking enhances social interactions; and need more social support while engaged in a quit attempt. By understanding and addressing these concerns, and with the use of appropriate pharmacological and counselling strategies, smoking cessation outcomes in women can only improve.

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Abstract of Interest

The Effects of Smoking on Bone Health

WONG PK, CHRISTIE JJ, WARK JD, VICTORIA, AUSTRALIA.
 Osteoporotic fractures are a major public health problem in most developed countries and an increasing concern in much of the developing world. This healthcare burden will increase significantly worldwide over the next 20 years due to aging of the population. Smoking is a key lifestyle risk factor for bone loss and fractures that appears to be independent of other risk factors for fracture such as age, weight, sex and menopausal status. This review discusses the effects of smoking on bone health in premenopausal and postmenopausal women and men. Data from twin studies and the three main published meta-analyses are presented. Possible mechanisms by which smoking affects bone mass are reviewed. Despite smoking being a major lifestyle risk factor for osteoporosis, the mechanisms underlying smoking-associated bone loss and fracture risk remain poorly understood. The effect appears dose-dependent, and may be, at least partially, reversible. However, more work is required to confirm and characterize the reversibility of smoking-associated bone defects. Finally, strategies for quitting smoking are discussed. Encouragement of lifestyle alterations, including smoking cessation, should be a major component of any bone therapeutic programme. *Clin Sci (Lond)* 2007;113(5):233-41.

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