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What predicts a successful smoking cessation attempt?

EVIDENCE-BASED ANSWER

Quit date abstinence (strength of recommendation [SOR]: **B**, based on low-quality randomized controlled trial [RCT] of healthy subjects) and refraining from tobacco products within the first 2 weeks after an attempt (SOR: **A**, based on 2 RCTs) predict long-term abstinence from smoking. Inconsistent studies variously identify being married, a diagnosis of coronary artery disease (CAD) within the past 2 years, a higher education level, advanced age, and social status (such as being a homeowner) as factors correlated with successful smoking cessation (SOR: **C**, based on prospective cohort studies with conflicting

results).

Smoking cessation rates increase in a dose-response relationship with minutes per counseling session, number of counseling sessions, and total minutes of counseling time (SOR: **A**, based on good-quality meta-analyses). Among counseling techniques, providing smokers with practical counseling (problem-solving skills), providing social support as part of treatment, helping smokers obtain social support outside of treatment, and use of aversive smoking interventions (eg, rapid smoking) seem to be efficacious (SOR: **B**, based on limited-quality meta-analyses).

■ Evidence summary

This answer focuses on the behavioral and sociodemographic factors involved in smoking cessation and does not review the pharmacologic approaches to a successful smoking cessation attempt.

In 1999, 41.3% of current smokers (95% confidence interval [CI], 39.8–42.8) reported quit attempts of at least 1 day during the preceding 12 months.¹ In a 1994 survey of 2000 United Kingdom adults, 70% of smokers reported a desire to quit smoking, and 89% of smokers reported at least 1 quit attempt.² Cochrane Library meta-analyses have found that brief advice from physicians (odds ratio [OR]=1.69; 95% CI, 1.45–1.98), individual counseling or group counseling (OR=1.55; 95% CI, 1.27–

1.90), self-help materials (OR=1.23; 95% CI, 1.02–1.49), and nicotine replacement therapy (OR=1.71; 95% CI, 1.60–1.83) enhanced quit rates over a 6-month or greater period.³

However, relapse from smoking cessation is a significant problem. In the 1996 California Tobacco Survey of 4480 Californians, only 15.2% of those who used smoking cessation assistance (self-help, counseling, or nicotine replacement therapy), and 7.0% who used no assistance were abstinent from tobacco in 12 months.⁴

Smoking during the first 2 weeks of an attempt predicts decreased long-term cessation rates. In 2 independent randomized, double-blinded, placebo-controlled studies, 200 subjects were placed on various

CONTINUED

CLINICAL COMMENTARY**Address a patient's smoking in every encounter and at every opportunity**

The studies reviewed here do not show a stellar record of success in ridding patients of tobacco addiction. Few studies have success rates over the break-even point. Does this mean we should be nihilistic about this problem? Of course not!

I try to address a patient's smoking in every encounter and at every opportunity. I ask them why they smoke and often get quizzical looks in return. I often ask them to do homework and write down the exact reason(s) they smoke each cigarette through the course of a day. Many times, one reason (such as stress) dominates the list. Others may have many reasons. Helping patients quit smoking is difficult unless we address the underlying reasons with creative alternatives and interventions.

Problem-solving with your patient can help. Suggesting alternative ways of dealing with stress can be enabling. Many of our patients are conscious of the relationship with weight gain and smoking, and give suggestions to counterbalance this notion.

Behavioral modification may help those resistant to change. Patients cannot help but wince as I describe the image of licking a dirty ashtray as they puff away. Smoking is a complex behavioral activity seldom cured by simple interventions, however. Tailoring efforts to meet our patients' needs in a creative manner, tuned to their specific circumstances, is what we should aim to do.

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doses of nicotine replacement (study one: 22-mg nicotine patch for 8 weeks, study two: 22-mg patch for 4 weeks then 11 mg patch for 2 weeks). Of those who remained abstinent during the first 2 weeks while on a patch, 46.2% and 40.9% maintained abstinence at 6 months (OR=4.3 and 23.5, respectively) while abstinent subjects on placebo maintained abstinence at a rate of 43.8% and 30% (OR=9.7 and 18.9, respectively). Conversely, of those who were on a patch and smoked during the first 2 weeks of an attempt, 83.3% and 97.1% were smoking 6 months out while 92.6% and 97.8% of those in the placebo groups who smoked during the first 2 weeks were smoking at 6 months.⁵

In 2 randomized, non-placebo-controlled clinical trials of 200 subjects, 41.3% of smokers placed on nicotine replacement that were abstinent on their quit date and had a low tobacco dependence score (based on the Fagerström Test for Nicotine Dependence) were able to maintain abstinence at the 6-month mark (OR=4.1). Those who smoked on the quit date were 10 times less likely to have long-term success (OR=0.1).⁶

In a retrospective survey of 2000 subjects those with less than 5 previous cessation attempts as well as perceived helpful support from friends had a greater likelihood of successful smoking cessation.⁷ In a retrospective review of socioeconomic factors associated with tobacco cessation among 3575 subjects of the CEASE trial, being a homeowner (OR=1.62) and male gender (OR=1.38) increased likelihood of tobacco cessation at 6 months.⁸ In a retrospective review of 2684 subjects from the Framingham study, women who smoked less than 1 half-pack per day (OR=2.6) and males who were diagnosed with CAD within the past 2 years (OR=1.9) were more likely to maintain abstinence 1 year after the cessation attempt.⁹ The **TABLE** summarizes results from 5 studies focusing on a variety of factors and their effects on smoking cessation.

Counseling frequency and duration impact smoking cessation. In a meta-analysis of 23 studies, the odds ratio for cessation was 1.3 (95% CI, 1.01–1.6) for minimal counseling (<3 minutes), 1.6 (95% CI, 1.2–2.0) for low-intensity counseling (3 to 10 minutes), and 2.3 (95%

FAST TRACK

Smoking cessation rates go up in response to length and number of counseling sessions

TABLE

Factors predicting success or failure for a smoking cessation attempt

	PREDICTING SUCCESS	PREDICTING FAILURE	NONCONTRIBUTING
Lennox and Taylor ¹	Fewer previous attempts to stop Increased perceived helpful supports from friends Increased motivation Heavy smokers (>1 ppd)	Withdrawal symptoms Cravings Smoke exposure (ie, in restaurants with smoking) Smoking 1/2–1 ppd	Age Sex Type of support (smoker vs nonsmoker friends) Health issues Reasons for current attempt
Westman et al ²	Quit date abstinence (OR=10.6) Low tobacco dependence (OR=0.7)		
Kenford et al ³	Abstinence of smoking at 2 weeks after a cessation attempt (OR=4.3 and 23.5 in study 1 and 2, respectively)	Any use of tobacco within first 2 weeks of a cessation attempt	Number of cigarettes/day Number of years smoked
Freund et al ⁴	Men: increased age (OR=1.3), CAD diagnosed in past 2 years (OR=1.9) Women: low number of cigarettes per day (<2 ppd [OR=0.14]; <1/2 ppd [OR=2.6]) higher education level (OR=1.1) Both: married (OR=1.6); hospitalized in past 2 years (OR=1.3)		Diagnosis of cancer Decreased FEV ₁ Baseline alcohol use Gender Baseline weight (OR=1.1)
Monsó et al ⁵	Low number of cigarettes/day (OR=0.80) Older age (OR=1.17) Males (OR=1.38) Homeowners (OR=1.62)	CAD (OR=0.48) Lung disease (OR=0.79)	Chronic disease (OR=0.95) Depression (OR=0.82)

Ppd, packs per day; CAD, coronary artery disease; FEV₁, forced expiratory volume in 1 second; OR, odds ratio

CI, 2.0–2.7) for high-intensity counseling (>10 minutes).¹⁰ In a meta-analysis of 35 studies, smoking cessation increased as total contact time for all counseling sessions increased, peaking at 90 minutes (OR=3.0; 95% CI, 2.3–3.8).¹⁰ In a meta-analysis of 45 studies, smoking cessation increased as number of person-to-person counseling sessions increased from 2 to 3 sessions (OR=1.4; 95% CI, 1.1–1.7) to 4 to 8 sessions (OR=1.9; 95% CI, 1.6–2.2) to >8 sessions (OR=2.3; 95% CI, 2.1–3.0).¹⁰

A meta-analysis of 62 studies found no impact of relaxation/breathing techniques, contingency contracting, weight/diet counseling, cigarette fading, or negative affect counseling on smoking cessation.¹⁰ Successful counseling techniques

included providing smokers with problem solving skills (OR for successful smoking cessation=1.5; 95% CI, 1.3–1.8), providing intra-treatment social support (OR=1.3; 95% CI, 1.1–1.6), helping smokers obtain extra-treatment social support (OR=1.5; 95% CI, 1.1–2.1), use of rapid smoking (OR=2.0; 95% CI, 1.1–3.5), and use of other “aversive smoking techniques” (OR=1.7; 95% CI, 1.04–2.8).

Recommendations from others

The US Public Health Service *Clinical Practice Guideline* (2000)¹⁰ supports the following recommendations, based on rigorously conducted meta-analyses: use of office screening systems to identify smokers; physician advice to quit; use of

Evidence-based medicine ratings

THE JOURNAL OF FAMILY PRACTICE uses a simplified rating system called the Strength of Recommendation Taxonomy (SORT). More detailed information can be found in the February 2003 issue, "Simplifying the language of patient care," pages 111–120.

Strength of Recommendation (SOR) ratings are given for key recommendations for readers. SORs should be based on the highest-quality evidence available.

- A Recommendation based on consistent and good-quality patient-oriented evidence.
- B Recommendation based on inconsistent or limited-quality patient-oriented evidence.
- C Recommendation based on consensus, usual practice, opinion, disease-oriented evidence, or case series for studies of diagnosis, treatment, prevention, or screening

Levels of evidence determine whether a study measuring patient-oriented outcomes is of good or limited quality, and whether the results are consistent or inconsistent between studies.

STUDY QUALITY

- 1—Good-quality, patient-oriented evidence (eg, validated clinical decision rules, systematic reviews and meta-analyses of randomized controlled trials [RCTs] with consistent results, high-quality RCTs, or diagnostic cohort studies)
- 2—Lower-quality patient-oriented evidence (eg, unvalidated clinical decision rules, lower-quality clinical trials, retrospective cohort studies, case control studies, case series)
- 3—Other evidence (eg, consensus guidelines, usual practice, opinion, case series for studies of diagnosis, treatment, prevention, or screening)

Consistency across studies

Consistent—Most studies found similar or at least coherent conclusions (coherence means that differences are explainable); *or* If high-quality and up-to-date systematic reviews or meta-analyses exist, they support the recommendation

Inconsistent—Considerable variation among study findings and lack of coherence; *or* If high-quality and up-to-date systematic reviews or meta-analyses exist, they do not find consistent evidence in favor of the recommendation

multiple clinician types in smoking cessation counseling; and treatments delivered by telephone counseling, group counseling, and individual counseling, used alone or in combination, as opposed to self-help materials for smoking cessation.

The US Department of Health and Human Services¹¹ recommends that physicians ask and record tobacco-use status and offer smoking cessation advice and treatment at every office visit. They also recommend the "5 A's" (Ask, Advise, Assess, Assist, and Arrange) for patients who desire smoking cessation and the "5 R's" motivational intervention (Relevance, Risks, Rewards, Roadblocks, and Repetition) for those who are not ready to quit smoking.

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