

Are the Inhibitory Effects of Nicotine on Erectile Response in Nonsmokers Generalizable to Long-Term Smokers? A Reply

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Thank you for bringing to our attention your study examining the effects of smoking cessation on erectile functioning in men. Guay and colleagues [1] found no difference in erectile response during nicotine administration (via a 21-mg transdermal patch) compared to no nicotine administration (24 hours postcessation), while Harte and Meston [2] demonstrated that nonsmoking men exhibited significantly reduced physiological sexual arousal responses during nicotine gum ingestion compared to placebo. We are confident that isolated nicotine produced deleterious effects on genital responses in nonsmoking men; however, we agree with Guay that projecting these findings to chronic smokers may have been premature, as it may be the case that these data do not extend to long-term smokers. However, before conclusions can be drawn, a number of other factors need to be examined.

First, it is important to compare nicotine replacement therapies (NRTs) with cigarettes in order to elucidate whether nicotine alone or other pharmacological constituents found within cigarettes are responsible for the observed deleterious effects on sexual arousal. However, without measuring the concentration of the drug *in vivo*, it is impossible to know if the absence of nicotine-induced impaired sexual arousal was because the actual plasma nicotine levels during erectile assessment throughout the duration of the NRT was significantly lower than when smoking *ad lib*. In fact, it has been documented that the nicotine patch does not enable one to reach nicotine plasma levels of heavy smokers [3]. Precise measurement of plasma nicotine or plasma cotinine (a by-product of nicotine) levels, in both cigarette smoking and the NRT phases, would enable a balanced comparison between these two nicotine delivery methods, allowing one to more accurately determine if nicotine alone is primarily responsible for inhibited sexual arousal.

Second, the timing of assessment of physiological sexual arousal with respect to drug delivery is quite important because of the differing pharmacokinetics of nicotine cigarettes and the nicotine transdermal patch. That is, cigarettes reach peak within 5–10 minutes [4], whereas the 21-mg patch

reaches peak after approximately 12 hours [5]. This further underscores the importance of collecting nicotine plasma levels.

Third, because long-term cigarette smoking can cause vascular degeneration [6,7], it is reasonable to believe that smoking cessation may differentially enhance smoker's sexual arousal as a function of their lifetime cigarette consumption. It is therefore important to control for the number of pack years for which a participant has smoked. Finally, it would be interesting to see if long-term follow-up assessments (6–12 months) would indicate increased erectile function compared to immediate smoking cessation assessment (24 hours).

The study by Guay et al. [1], as well as a similar study by Sighinolfi and colleagues [8], provides a valuable starting point to researching the salutary effects of smoking cessation as it relates to sexual health. We are currently planning a study examining smoking cessation effects on male physiological and subjective sexual arousal responses, with the previously mentioned considerations in mind. It is our hope that we may build upon the novel work of Guay and colleagues in an effort to provide an additional piece of the smoking and sexual dysfunction puzzle.

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