



## SMOKING'S EFFECT ON ALZHEIMER'S DISEASE AND DEMENTIA

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Alzheimer's Disease is the most common cause of dementia, causing insidious impairment of higher intellectual function, with progressive disorientation, memory loss, and disability. Although some older research studies have found that smoking has a protective effect against developing Alzheimer's, more recent studies have found just the opposite.<sup>1</sup> Moreover, it is absolutely clear that using smoking as a potential preventive therapy for mental illness or dementia makes absolutely no sense, even among people who are at high risk. Besides the emerging evidence that smoking actually increases the risk of Alzheimer's, it is already well established that smoking directly causes suffering, disability, and early death from lung cancer, other cancers, heart disease, stroke, emphysema, and numerous other diseases.

### **Studies Finding That Smoking Increases Alzheimer's Risk**

- A 2010 study in the *Archives of Internal Medicine* found that people smoking more than two packs a day were twice as likely to suffer from dementia than nonsmokers, even after controlling for age, sex, education, race, marital status, hypertension, alcohol use, body mass index and various other factors.<sup>2</sup>
- A 2010 review of 43 individual studies on smoking and Alzheimer's disease concluded that smoking is a significant risk factor for Alzheimer's disease (but that looking only at studies done by researchers with tobacco industry affiliations would find that smoking protects against Alzheimer's disease).<sup>3</sup>
- In a study published in the *Lancet* medical journal, smoking was associated with a doubling of the risk of dementia and Alzheimer's disease.<sup>4</sup>
- A study in the *Neurology* medical journal found that smoking does not protect against Alzheimer's, and that current smoking was associated with increased risk of Alzheimer's.<sup>5</sup>
- Another *Neurology* study found that smokers who quit may have a lower risk of Alzheimer's disease compared with those who continue to smoke.<sup>6</sup>

### **Problems with the Findings that Smoking Reduces Alzheimer Risk or Symptoms**

The reports that smoking may reduce Alzheimer's risk could be due to the fact that, on average, cigarette smokers die at younger ages than nonsmokers. Consequently, fewer smokers are alive at the ages when Alzheimer's symptoms typically start, and those that die earliest may have been more susceptible to Alzheimer's than those that survive into their later years. Thus, any lower rates of Alzheimer's among smokers may have little or nothing to do with any protective quality of smoking and actually be attributable to smokers dying early from other diseases before they can develop Alzheimer's disease.<sup>7</sup>

In addition, the possible protective effect of smoking on the development of Alzheimer's has been attributed to nicotine in some studies.<sup>8</sup> If nicotine actually does produce some protective effect among smokers – or improves cognition in patients with Alzheimer's – it could be administered through a patch or other means.<sup>9</sup> Given the horrible health consequences from smoking, there would be no justification for delivering the nicotine through cigarettes to get any beneficial effects. It is also important to note that nicotine consumption, while much less harmful than smoking, is also associated with serious health risks, including hypertension and cardiovascular disease. Accordingly, research is currently underway to develop drugs that simulate the effect of nicotine on receptors in the brain implicated in Alzheimer's disease – and ideally have a more definitely beneficial effect – while minimizing the side effects and health risks of nicotine.<sup>10</sup>

***Campaign for Tobacco-Free Kids, April 19, 2002 (with minor updates October 26, 2010)***

*This factsheet was originally developed by Dr. Courtney Caños while an intern at the Campaign for Tobacco-Free Kids through Georgetown Hospital's Community Pediatrics Program.*

**More information on the health harms of tobacco use is available at**  
[http://www.tobaccofreekids.org/facts\\_issues/fact\\_sheets/toll/products/](http://www.tobaccofreekids.org/facts_issues/fact_sheets/toll/products/).

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- <sup>1</sup> See, e.g., Fratiglioni, L & Wang HX, "Smoking and Parkinson's and Alzheimer's disease: review of the epidemiological studies," *Behavioural Brain Research* 113(1-2):117-20, August 2000.
- <sup>2</sup> Rusanen, M, et al., "Heavy Smoking in Midlife and Long-term Risk of Alzheimer Disease and Vascular Dementia," *Archives of Internal Medicine*, published online October 25, 2010.
- <sup>3</sup> Cataldo, JK, "Cigarette smoking is a risk factor for Alzheimer's Disease: an analysis controlling for tobacco industry affiliation," *Journal of Alzheimer's Disease* 19(2):465-80, 2010.
- <sup>4</sup> Ott, A, et al, "Smoking and risk of dementia and Alzheimer's disease in a population-based cohort study: the Rotterdam Study," *Lancet* 351(9119):1840-3, September 1998.
- <sup>5</sup> Launer, LJ, et al, "Rates and risk factors for dementia and Alzheimer's disease: results from EURODEM pooled analyses," *Neurology* 52(1):78-84, January 1999.
- <sup>6</sup> Merchant, C, et al, "The influence of smoking on the risk of Alzheimer's disease," *Neurology* 52 (7):1408-12, April 22, 1999.
- <sup>7</sup> Debanne, SM, et al, "Association of Alzheimer's disease and smoking: the case for sibling controls," *Journal of the American Geriatric Society* 48(7):800-6, July 2000.
- <sup>8</sup> White, HK, "Four-week nicotine skin patch treatment effects on cognitive performance in Alzheimer's disease," *Psychopharmacology* 143(2):158-65, April 1, 1999.
- <sup>9</sup> Grundman, M & Thal, LJ, "Treatment of Alzheimer's disease: Rationale and Strategies," *Neurologic Clinics* 18(4):807-28, November 2000.
- <sup>10</sup> Kem, WR, "The brain alpha7 nicotinic receptor may be an important therapeutic target for the treatment of Alzheimer's disease: studies with DMXBA (GTS-21)," *Behavioural Brain Research* 113(1-2):169-81, August 1, 2000.