

# CAMPAIGN For TOBACCO-FREE Kids<sup>®</sup>

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

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 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> Because of these mixed results, it has not yet been conclusively established that smoking increases the risk of Alzheimer's. But 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 may actually increase 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

- 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>2</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>3</sup>
- In a study in the *British Medical Journal*, male doctors who smoked were just as likely to develop dementia and Alzheimer's as their non-smoking counterparts, and smoking may have increased their dementia risk. The study noted that decreased oxygen to the brain from blockages in blood vessels causes some forms of dementia, and cigarette smoking is a leading risk factor for such blockages.<sup>4</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>5</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>6</sup>

In addition, the possible protective effect of smoking on the development of Alzheimer's has been attributed to nicotine in some studies.<sup>7</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 other means.<sup>8</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>9</sup>

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**Related Campaign Factsheets (available at <http://www.tobaccofreekids.org/>)**

- *Health Harms from Smoking and Other Tobacco Use*
- *Smoking and Decreased Physical Performance*
- *Harm Caused by Pregnant Women Smoking or Being Exposed to Secondhand Smoke*
- *Tobacco Use and Impotence*
- *It's Not Just Impotence: Smoking Can Wreck and Prematurely Age Your Body Before It Kills You*
- *Tobacco Harm to Kids*

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

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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*, August 2000, 113(1-2): 117-20.

<sup>2</sup> Ott A, et al, "Smoking and risk of dementia and Alzheimer's disease in a population-based cohort study: the Rotterdam Study," *Lancet*, September 1998, 351(9119):1840-3.

<sup>3</sup> Launer LJ, et al, "Rates and risk factors for dementia and Alzheimer's disease: results from EURODEM pooled analyses," *Neurology*, January 1999, 52(1): 78-84.

<sup>4</sup> Doll R, et al, "Smoking and dementia in male British doctors: prospective study," *British Medical Journal*, April 22, 2000, 320: 1097-102.

<sup>5</sup> Merchant C, et al, "The influence of smoking on the risk of Alzheimer's disease," *Neurology*, 1999 April 22, 52 (7), 1408-12.

<sup>6</sup> Debanne SM, et al, "Association of Alzheimer's disease and smoking: the case for sibling controls," *Journal of the American Geriatric Society*, July 2000, 48(7): 800-6.

<sup>7</sup> White HK, "Four-week nicotine skin patch treatment effects on cognitive performance in Alzheimer's disease," *Psychopharmacology*, 1999 April 1, 143 (2), 158-65.

<sup>8</sup> Grundman M, Thal LJ, "Treatment of Alzheimer's disease: Rationale and Strategies," *Neurologic Clinics*, November 2000, 18 (4), 807-28.

<sup>9</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*, 2000 August 1, 113 (1-2), 169-81.