

# More on the benefits of wine for cognitive decline and dementia

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The beneficial impact of moderate and regular consumption of alcohol and wine for cognitive decline and the risks of dementia has been widely studied and reported.<sup>1-4</sup> The pages of the *International Journal of Wine Research* have seen two reviews of the field,<sup>5,6</sup> while our sister journal, *Neuropsychiatric Disease and Treatment*, has also focused on this issue, first in 2006 with a research investigation in Danish women,<sup>7</sup> and now in a more recent comprehensive review including 143 published papers.<sup>8</sup> One of the more poignant aspects of the new publication is that the authors, Edward Neafsey and Michael Collins from Loyola University in Chicago, come from a background of experimental molecular pharmacology and wondered why moderate alcohol exposure appeared to protect rat hippocampal-entorhinal cortex brain slice cultures from the toxicity of amyloid- $\beta$ , the protein that has been strongly implicated in the pathogenesis of Alzheimer's disease (AD). Their curiosity led to a literature search on whether alcohol protects against AD and other forms of cognitive impairment in humans, an endeavor that rather overwhelmed them with the immensity of the data.

Of the 143 papers that described the relationship between moderate consumption of alcohol and some aspect of cognition, Neafsey and Collins identified two groups: publications from 1977–1997 involved neuropsychological evaluations of mostly young to middle aged (18–50 years old) subjects, while studies after 1997 examined mental status in mostly older ( $\geq 55$  years old) individuals. The earliest studies in younger subjects indicated that moderate drinking impaired cognition although many later studies from the same period found no difference in cognition between drinkers and nondrinkers. In contrast, studies in older subjects overwhelmingly found that moderate drinking either reduced or had no effect on the risk of cognitive impairment or dementia. From a meta-analysis of the 74 studies in older individuals, which estimated ratios of risk, a relative risk of 0.77 was calculated for cognitive risk (dementia or cognitive impairment/decline) associated with moderate drinkers compared to nondrinkers. This benefit applied to both men and women, and to all forms of dementia and cognitive impairment. It was found with both light and moderate drinking, while heavy drinking was associated with a trend towards higher risk for cognitive impairment and dementia. Wine appeared to be more beneficial than beer or spirits, but only a small number of studies distinguished between the alcohol types, some of which reported no difference. There were no apparent geographical factors to account for the findings, because significant benefit persisted in 14/19 countries for which country-specific data were available, with 3/5 of the remaining countries showing nonsignificant reductions

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as well. The level of risk reduction from moderate drinking was similar in size to that associated with other factors, such as the Mediterranean diet and cognitive reserve. Neafsey and Collins conclude that “Overall, light to moderate drinking does not appear to impair cognition in younger subjects and actually seems to reduce the risk of dementia and cognitive decline in older subjects.”

The long established and generally accepted benefits of moderate consumption of alcohol, and in particular of wine, on the risk of mortality,<sup>9,10</sup> cardiovascular disease,<sup>11</sup> stroke<sup>12</sup> and type 2 diabetes<sup>13</sup> appear now to have been joined by its influence on the risk of cognitive decline and dementia. Already well established in other meta-analyses and systematic reviews,<sup>1-5</sup> this property of alcohol and wine has been amply confirmed by the mammoth study of Neafsey and Collins. The wealth of data and the existence of plausible biological mechanisms suggest more than an association between moderate alcohol consumption and lowered risk of cognitive impairment and dementia; rather, causality can be imputed. Conclusions such as those expressed in a recent consensus statement<sup>14</sup> that “No evidence of even moderate scientific quality exists to support the association of any modifiable factor ... with reduced risk for Alzheimer’s disease” need serious reevaluation.

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