

### Brain Health and Population-Based Modifiable Risk Factors

Examining the existing, published body of evidence for risk factors for cognitive decline and dementia from a population-based health perspective, the Alzheimer's Association has found there is sufficient evidence (a) to support the correlation between several modifiable risk factors and a reduced risk for cognitive decline; and (b) to suggest that some modifiable risk factors may be associated with reduced risk of dementia<sup>1</sup>. Conclusions are summarized in Tables 1 and 2 below.

*Table 1. Potential Risk Factors and Corresponding Evidence*

	Increases Risk of Cognitive Decline	Increases Risk of Dementia
Traumatic Brain Injury	Strong Evidence	Strong Evidence
Mid-Life Obesity	Strong Evidence	Moderate Evidence
Mid-Life Hypertension	Strong Evidence	Moderate Evidence
Current Smoking	Strong Evidence	Moderate Evidence
Diabetes	Strong Evidence	Moderate Evidence
History of Depression	Lower Evidence	Unclear Evidence
Sleep Disturbances	Lower Evidence	Unclear Evidence
Hyperlipidemia	Unclear Evidence	Unclear Evidence

*Table 2. Potential Protective Factors and Corresponding Evidence*

	Reduces Risk of Cognitive Decline	Reduces Risk of Dementia
Years of Formal Education	Strong Evidence	Strong Evidence
Physical Activity	Strong Evidence	Moderate Evidence
Mediterranean Diet	Moderate Evidence	Lower Evidence
Cognitive Training	Moderate Evidence	Lower Evidence
Moderate Alcohol Consumption	Lower Evidence	Unclear Evidence
Social Engagement	Unclear Evidence	Unclear Evidence

### Key Points<sup>1</sup>

*Healthy habits known to combat cancer, diabetes and cardiovascular disease reduce the risk of cognitive decline and may reduce the risk of dementia.*

- Current smoking increases the risk of cognitive decline and possibly dementia; smoking cessation may reduce the associated risk to levels comparable to those who have not smoked.
- Although not fully conclusive, the association between diabetes and cognitive decline/dementia appears moderate to strong. The increased risk may be due to vascular pathways as well as interactions of other biological mechanisms related to diabetes itself.
- There is a strong link between mid-life obesity and increased risk of cognitive decline.

- There is some evidence to suggest an overall balanced diet may be linked to lesser risk of cognitive decline, and possibly dementia. Examples of balanced diets that have been studied include the Mediterranean diet and Mediterranean-DASH (Dietary Approaches to Stop Hypertension) diet.

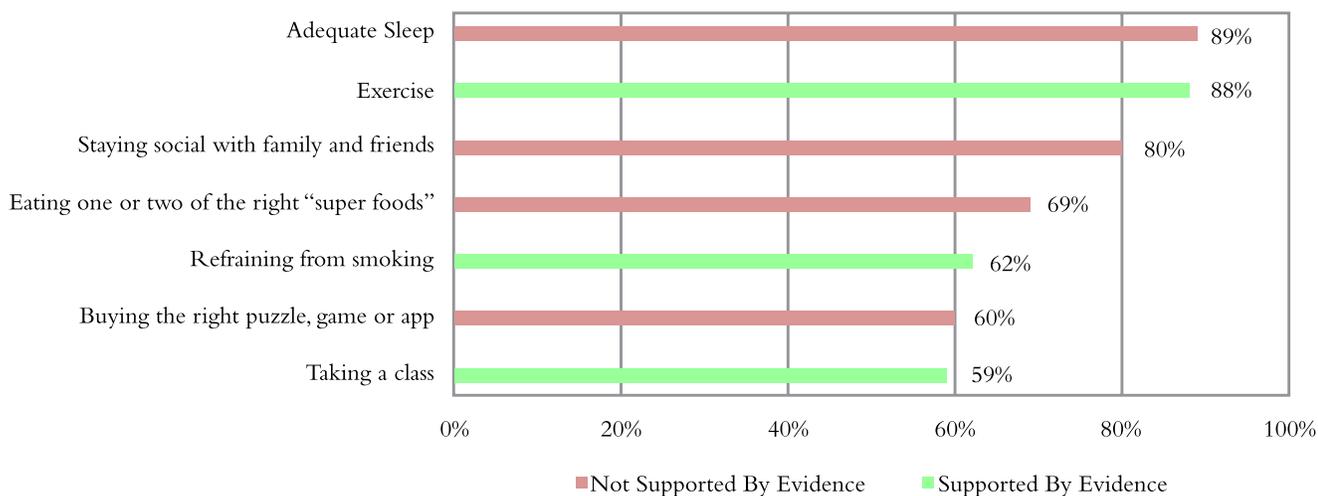
**Evidence is unclear about the association between sleep, social engagement and hyperlipidemia and cognitive decline/dementia.**

- It is not clear whether sleep disturbances cause dementia or are a related symptom of dementia, nor is it clear how the exact nature or duration of sleep problems are related to increased risk of cognitive decline.
- There are limited systematic reviews of the evidence of social support as a protective factor against cognitive decline or dementia as well as conflicting findings between individual studies that examine the association. Furthermore, most studies are combined with other interventions, making it even more difficult to assess the impact of social support alone.
- Systematic reviews of prospective studies have found mixed results for the relationship between high cholesterol levels and dementia. In addition, currently statins have *not* been shown to reduce the risk of dementia in clinical trials and high-quality cohort studies despite findings from some observational studies that suggest the drugs may reduce the risk of dementia.

**Public’s Perception of Brain Health and Risk Factors Do Not Align with Current Research**

A recent survey by *Reader’s Digest* and the Alzheimer’s Association of approximately 1,600 people in May 2015 shows that **while 91 percent of surveyed individuals felt they could generally reduce their risk of cognitive decline, their perceptions on how to reduce the risk do not always align with current research (See Figure 1).**<sup>2,3</sup> For example, ≥80 percent of respondents felt that being social or having adequate sleep would protect against cognitive decline; however, more research is needed to fully answer questions regarding links of socialization or sleep to cognitive health.<sup>1</sup> Likewise, there is no single “brain game” or super food that is proven to reduce the risk of cognitive decline. On the other hand, there *is* moderate evidence that shows cognitive training, such as consistently engaging in activities that involve learning new skills, solving problems or that stretch the mind strategically are ways to potentially reduce risk of cognitive decline.

**Figure 1. Public’s Perception of Lifestyle Factors that Protect Against Cognitive Decline**



**References**

<sup>1</sup> Baumgart M, Snyder H, Carrillo M, Fazio S, Kim H, and Johns H. Summary of the evidence on modifiable risk factors for cognitive decline and dementia: A population-based perspective. *Alzheimer’s & Dementia: The Journal of the Alzheimer’s Association*, 2015; 11(6). 718 – 726. **Last accessed online September 23, 2015, at:** [http://www.alzheimersanddementia.com/article/S1552-5260\(15\)00197-1/fulltext](http://www.alzheimersanddementia.com/article/S1552-5260(15)00197-1/fulltext)

<sup>2</sup> Gelman, Laura. New survey: Science-backed habits reduce dementia risk, but many Americans are misinformed. *Readers Digest*. **Last accessed online July 17, 2015, at:** <http://www.rd.com/health/conditions/dementia-alzheimers-survey/#ixzz3g4TUaucA>.

<sup>3</sup> *Reader’s Digest* Survey, May 2015, data not published.