

## Brain Health Survey Report

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Date: December 16, 2019 06:46:54 PM

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### **Background Information**

| <u>Risk factor</u>      | <u>Your Response:</u> | <u>Explanation and References</u>  |
|-------------------------|-----------------------|--|
| Age                     | 18                    | Age is the strongest known risk factor for dementia. Whilst it is possible to develop the condition earlier, the chances of developing dementia rise significantly as we get older. Above the age of 65, a person's risk of developing Alzheimer's disease or vascular dementia doubles roughly every 5 years. It is estimated that dementia affects one in 14 people over 65 and one in six over 80. By age 85 years and older, between 25% and 50% of people will exhibit signs of Alzheimer's disease. [1]  |
| Sex                     | male                  | Women are more impacted by Alzheimer's disease than men – they are at significantly greater risk of developing Alzheimer's disease, and recent research shows that they also appear to suffer a greater cognitive decline than men at the same age. Explanations have been linked to a variety of factors including differences in cognitive reserve, resilience, as well as genetics (Apolipoprotein e4) and functional and structural brain changes.[2]  |
| Education               | Under 8 years         | Higher education levels provide some preventive benefit against Alzheimer's and dementia. Scientists also believe that more years of education builds a "cognitive reserve" in the brain, which can enable a person to compensate better during the early stages of the disease. [3] In a quantitative analysis, the dementia risk was reduced by 7 % for per year increase in education.[4] This suggests a dose-response relation between education and dementia risk. However, we can still attain higher and further education as we age and learning and acquiring new skills are not limited to the young. |
| Positive Family history | yes                   | Family History of Alzheimer's Having a parent, brother, or sister diagnosed with Alzheimer's increases the risk of developing the disease. Early onset Alzheimer's (before age 65) is highly correlated with family genetic factors, but is also   |

|                  |  |  |
|------------------|--|--|
|                  |  | extremely rare in the population. [5]  |
| APOE Gene Status |  | Research indicates that the APOE gene can have a modest effect on the chances of developing late onset Alzheimer's (after age 65). There are three variants of this gene: E2, E3, E4. The E3 variant has no influence on Alzheimer's risk, while the E2 variant seems to confer some protection against Alzheimer's. The E4 variant appears to increase the risk of Alzheimer's disease. [6] |

## **Lifestyle Factors**

| <u>Risk factor</u>  | <u>Your Response:</u> | <u>Explanation and References</u>   |
|---------------------|-----------------------|---|
| Weight and Height   | <b>72 and Obesity</b> | Several studies have suggested that overweight and obesity in mid-life are related to a greater risk of cognitive decline and subsequent dementia, although in older adults this has not always been observed. [7] However, both are associated with the metabolic syndrome, diabetes and cardiovascular disease and other conditions which increase the risk of dementia. A recent study using data from more than 5,000 people has found that a higher percentage of belly fat (high waist to hip ratio) was associated with reduced cognitive function in Irish adults older than 60. [8]  |
| Diet and Nutrition  | <b>Healthy Diet</b>   | A diet rich in fish, fresh vegetables, fruit, nuts, and light on saturated fats, processed sugar, and red meat is good for heart health and brain health.[9] Several studies show that adherence to a Mediterranean diet (low in meat and dairy products, high in fruits, vegetables, legumes, cereals, and fish) is associated with a lower risk of dementia, but this also has been shown for the DASH and MIND diets.[10] Researchers from Rush University in Chicago have combined elements from both the Mediterranean Diet and the Dietary Approaches to Stop Hypertension (DASH) diets to create the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) Diet. [11] |
| Alcohol consumption | <b>Abstinence</b>     | The association of alcohol with cognitive outcomes appears to be J-shaped or U-shaped, with harmful effects of both abstinence and excessive alcohol consumption. [12] Moderate alcohol use (about 1 drink per day) is associated with a lower risk of ischemic stroke and dementia. A key point is the definition of "moderate" alcohol intake, which is between 10 grams and 20 grams of pure alcohol each day. A glass of wine contains about 12 grams of alcohol, as a reference point. [13]  |
| Smoking             | <b>Never</b>          | Current and former (to a lesser degree) cigarette smoking is  |

|                    |                                 |   |
|--------------------|---------------------------------|---|
|                    |                                 | a risk factor for Alzheimer's, cardiovascular disease and related dementias.[14] A recent meta-analysis of 34 follow-up studies showed that smokers show an increased risk of dementia, and smoking cessation decreases the risk to that of never smokers. The increased risk of AD from smoking is more pronounced in apolipoprotein E $\epsilon$ 4 non-carriers. [15]   |
| Physical activity  | Suboptimal                      | Regular physical exercise improves memory, attention, and decision-making skills in both children and adults. Physical exercise also supports cardiovascular health, which is important for brain health. [16] Physical activity is one of the most feasible interventions that people can take as a preventative practice against dementia. Leisure time physical activity (eg, sports, exercises and recreational activities) has been shown by numerous prospective studies to decrease the incidence of dementia and Alzheimer's in a dose-response fashion.[17]  |
| Cognitive activity | You scored 19 of 24 max. points | The brain grows new connections between neurons all the time, especially when we are learning something new or are exposed to a novel environment. Cognitive stimulation is good for a healthy brain.[18] In a large cohort of older adults who were free of dementia, researchers found that late-life participation in intellectual activities was associated with lower risk of dementia several years later. This association was not fully explained by other health lifestyle practices (regular physical exercise, adequate fruit and vegetable intake, and not smoking) nor by a wide range of physical health problems and limitations (cardiovascular risk factors, depression, sensory impairments, and poor mobility).[19]  |
| Sleep              | Probable Sleep problems         | Chronically restricted & disrupted sleep elevates stress hormones, which can lead to cardiovascular disease risk and stress related brain disorders. [20] New research findings have demonstrated that sleep is an important brain health factor at all ages. It appears that during sleep, particularly deep and REM sleep, the brain clears its waste products. It is suggested that poor sleep hygiene contributes to the accumulation of proteins that eventually can lead to dementia. Also, many follow up studies have shown that sleep disturbances, including insomnia, sleep disordered breathing (snoring with irregular breathing) and nonspecific sleep problems, are associated with a higher risk of all-cause dementia and both AD and vascular dementia subtypes. [21] |

### **Health Factors**

| <u>Risk factor</u> | <u>Your</u> | <u>Explanation and References</u> |
|--------------------|-------------|-----------------------------------|
|--------------------|-------------|-----------------------------------|

|                                      | Response: |   |
|--------------------------------------|-----------|---|
| Diabetes                             | Yes       | Elevated blood glucose readings are consistently linked to higher rates of Alzheimer's & dementia.[22] However, it seems that among diabetics treatment and normalization of glucose levels reduce the risk of dementia.  |
| Elevated Cholesterol                 | Yes       | High cholesterol levels in midlife are associated with an increased risk of Alzheimer's & dementia.[23] Prospective studies have found an association of lipid-lowering drugs, and in particular statins, with decreased risk for mild cognitive impairment (MCI) and dementia.[24]   |
| Hypertension                         | Yes       | High blood pressure in midlife is associated with an increased risk of Alzheimer's & dementia.[25] For years, we thought 140/70 or 140/80 was normal blood pressure. However, new guidelines, even in the cardiovascular literature, are showing that lower may be better. Tighter control of optimal blood pressure in the 120s may not only improve cognitive decline and progression towards dementia, but also reduce brain white matter lesions. This has been recently confirmed by SPRINT MIND trial, which may be the strongest evidence to date that it really is possible to delay or possibly prevent the onset of mild cognitive impairment and dementia.[26] |
| Depression or use of anti-depressant | Yes       | Social isolation and depression can negatively affect brain health.[27] Studies show that any depressive symptoms increase the risk of cognitive decline and dementia. This is probably because patients with depression are inclined to do less physical activity, cognitive activity and have less purpose in life, which are all correlated with AD risk.[28] The role of pharmacological and nonpharmacological antidepressant strategies in preventing dementia onset is still not clear.  |
| Coronary Heart disease               | Yes       | Cardiometabolic diseases such as hypertension, coronary artery disease (CAD) and diabetes have been shown to associate with impaired cognitive function in many cross-sectional studies. Impaired cardiovascular function may cause cognitive decline by inhibiting cerebral blood flow, possibly leading to hypoperfusion and the amyloid beta plaques that characterize Alzheimer's disease (AD).[29] This may explain the association between atrial fibrillation, coronary artery disease, heart failure and other cardiac diseases and dementia.   |
| Cardiovascular disease or Stroke     | Yes       | Cardiovascular disease increases the risk of stroke, Alzheimer's & dementia.[30] Several lines of evidence suggest that improved control of cardiovascular risk factors is a substantial contributor to declines in dementia rates.[31]   |

|                   |     |   |
|-------------------|-----|---|
| Renal dysfunction | Yes | Chronic kidney disease (CKD) has evolved as a possible new determinant of cognitive decline and dementia.[32] |
|-------------------|-----|---|

## **Summary**

### **Background Information**

Age: 18 years

Sex: male

Education: Under 8 years

Family history of early dementia<sup>1</sup> or genetic predisposition: yes

### **Lifestyle Factors**

BMI= Obesity

Healthy Diet: Healthy Diet

Alcohol: Abstinence

Smoking: Never

Physical activity: Suboptimal

Cognitive activity: You scored 19 of 24 max. points

Sleep: Probable Sleep problems

### **Health Factors**

- Diabetes (elevated blood sugar).
- Elevated Cholesterol (more than 200 mg/dl or taking cholesterol lowering drugs).
- Hypertension (elevated blood pressure or taking blood pressure lowering drugs).
- Depression or taking anti-depressant drugs.
- Coronary Heart disease.
- Cardiovascular disease or Stroke.
- Renal dysfunction (chronic kidney disease).

Disclaimer: The information provided in the survey report is designed to provide general, helpful information on the subjects discussed. It is not meant to be used, nor should it be used, to diagnose or treat any medical condition (including brain disorders like Alzheimer's disease,

dementia, or mild cognitive impairment). For all that purpose, consult your own physician. The author, publisher and the company are not responsible for any specific health needs that may require medical supervision and are not liable for any damage or negative consequences from any treatment, action, application or preparation, to any person reading or following the information in this report. References are provided for informational purposes only and do not constitute any endorsement.

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