

**Supplementary table S1. Hazard ratios (95% confidence interval) for the association of a 10 unit increase in cognitive function between early adulthood and middle-age with selected causes of mortality (N=4289) – with additional adjustment for baseline cognitive function**

| Adjustments   | All causes<br>(237 deaths) | CVD<br>(62 deaths) | All cancers<br>(47 deaths) | Injury<br>(51 deaths) |
|---|----------------------------|--------------------|----------------------------|-----------------------|
| Age, baseline CF <sup>a</sup>                           | 0.83 (0.75, 0.91)          | 0.77 (0.64, 0.93)  | 1.10 (0.86, 1.40)          | 0.94 (0.75, 1.19)     |
| Age, baseline CF + army rank, ethnicity                 | 0.86 (0.77, 0.95)          | 0.80 (0.66, 0.97)  | 1.09 (0.86, 1.40)          | 0.95 (0.75, 1.20)     |
| Age, baseline CF + behavioural factors <sup>a</sup>     | 0.84 (0.76, 0.93)          | 0.78 (0.64, 0.95)  | 1.09 (0.86, 1.40)          | 0.96 (0.76, 1.22)     |
| Age, baseline CF + chronic disease factors <sup>b</sup> | 0.84 (0.76, 0.93)          | 0.79 (0.65, 0.96)  | 1.11 (0.87, 1.41)          | 0.96 (0.76, 1.21)     |
| Age, baseline CF + physiological factors <sup>c</sup>   | 0.87 (0.78, 0.96)          | 0.80 (0.66, 0.97)  | 1.14 (0.89, 1.45)          | 0.96 (0.76, 1.22)     |
| Age, baseline CF + socioeconomic factors <sup>d</sup>   | 0.90 (0.81, 0.99)          | 0.83 (0.69, 1.01)  | 1.10 (0.85, 1.42)          | 1.06 (0.83, 1.34)     |
| All above covariates                                    | 0.95 (0.85, 1.05)          | 0.88 (0.72, 1.08)  | 1.10 (0.85, 1.42)          | 1.07 (0.83, 1.37)     |

CVD, cardiovascular disease

<sup>a</sup> Behavioural factors are: smoking habit, alcohol consumption

<sup>b</sup> Chronic disease factors are: somatic disease, psychiatric factors (depression, post traumatic stress disorder, anxiety)

<sup>c</sup> Physiological factors are: systolic blood pressure, diastolic blood pressure, pulse rate, blood glucose, FEV1, BMI, cholesterol

<sup>d</sup> Socioeconomic factors are: marital status, occupational prestige, education, family income

**Supplementary table S2. Hazard ratios (95% confidence interval) for the association of a 10 unit increase in cognitive function between early adulthood and middle-age with selected causes of mortality (N=4289) – with cognitive change score estimated from residuals**

| Adjustments                                | All causes<br>(237 deaths) | CVD<br>(62 deaths) | All cancers<br>(47 deaths) | Injury<br>(51 deaths) |
|--|----------------------------|--------------------|----------------------------|-----------------------|
| Age  | 0.81 (0.73, 0.89)          | 0.75 (0.62, 0.91)  | 1.11 (0.85, 1.43)          | 0.94 (0.74, 1.19)     |
| Age + army rank, ethnicity                 | 0.86 (0.77, 0.95)          | 0.80 (0.66, 0.97)  | 1.11 (0.86, 1.44)          | 0.95 (0.75, 1.21)     |
| Age + behavioural factors <sup>a</sup>     | 0.83 (0.74, 0.92)          | 0.77 (0.63, 0.93)  | 1.10 (0.85, 1.43)          | 0.96 (0.75, 1.22)     |
| Age + chronic disease factors <sup>b</sup> | 0.83 (0.74, 0.91)          | 0.77 (0.64, 0.94)  | 1.11 (0.86, 1.44)          | 0.95 (0.75, 1.21)     |
| Age + physiological factors <sup>c</sup>   | 0.86 (0.77, 0.95)          | 0.79 (0.65, 0.96)  | 1.15 (0.89, 1.49)          | 0.96 (0.76, 1.22)     |
| Age + socioeconomic factors <sup>d</sup>   | 0.90 (0.81, 1.00)          | 0.83 (0.69, 1.01)  | 1.12 (0.86, 1.45)          | 1.04 (0.83, 1.31)     |
| All above covariates                       | 0.94 (0.85, 1.05)          | 0.87 (0.71, 1.07)  | 1.13 (0.87, 1.47)          | 1.04 (0.82, 1.33)     |

<sup>a</sup> Behavioural factors are: smoking habit, alcohol consumption

<sup>b</sup> Chronic disease factors are: somatic disease, psychiatric factors (depression, post traumatic stress disorder, anxiety)

<sup>c</sup> Physiological factors are: systolic blood pressure, diastolic blood pressure, pulse rate, blood glucose, FEV1, BMI, cholesterol

<sup>d</sup> Socioeconomic factors are: marital status, occupational prestige, education, family income