**Supplementary Material**

**The National FINRISK Study**

The FINRISK surveys have been carried out since 1972 every five years using independent, random, and representative samples from different parts of Finland, drawn from the national population register. In the first two surveys (1972, 1977) separate independent random samples of 6.6% of the middle-aged population were drawn. Later surveys drew a random sample stratified by sex and 10-year age group from the population aged 25–64 years separately for each survey area. For the 2007 and 2012 surveys, the age group was 25–74 years. Participation rates varied from above 90% in the 1970s to above 60% in the most recent surveys [1].

The surveys included a self-administered questionnaire, physical measurements and blood samples. The questionnaire, together with an invitation to the health examination, was sent by mail to all the subjects. Trained nurses carried out physical measurements and blood sampling in local health centers or other survey sites. Education was assessed as total years of formal schooling. Blood pressure was measured by mercury sphygmomanometers in all surveys. In 1977, the cuff bladder size was 13 cm by 23 cm; in 1982–1997, 13 cm by 42 cm; and in 2002–2007, 14 cm by 36 cm. Measurements were made from the right arm in a seated position with at least a 5-min rest before the measurement. The first phase of Korotkoff sounds was recorded as systolic blood pressure and the fifth phase as diastolic blood pressure. Height was measured to the nearest 0.5 cm (1997) and 0.1 cm (2002 onwards). Weight was measured in light clothing to the nearest 100 g with a beam balance scale. Body mass index (BMI) was calculated as weight in kilograms divided by squared height in meters (kg/m2).

Venous blood samples were centrifuged at the field survey sites and transferred daily for cholesterol measurements to the National Institute for Health and Welfare (THL) laboratory. In 2007, sera were frozen immediately after separation and transferred weekly in dry ice to the laboratory for analyses. In 1977, serum total cholesterol was determined from fresh samples using the Liebermann–Burchard method. In the other surveys, analyses were conducted using an enzymatic method as described previously [1]. As the enzymatic method gave 2.3% lower values than the Liebermann–Burchard method, the serum total cholesterol values in 1977 have been corrected by the same amount.

Physical activity was self-reported in the questionnaire and the questions have been similar over the years. Leisure-time physical activity was assessed with the question: ‘How often do you participate in leisure-time physical activity that lasts at least 20-30 min and causes breathlessness and sweating?’ Response options until 2007 were 1=daily; 2=2-3 times a week; 3=once a week; 4=2-3 times a month; 5=a few times a year; and 6=not at all. Response options in 2007 were: 1=disability or disease which does not enable exercise; 2=less than once a week; 3=once a week; 4=2 times a week; 5=3 times a week; 6=4 times a week; 7=at least 5 times a week. In the present study, physical inactivity was defined as frequency of leisure time physical activity less than two times a week (response options 3 to 6 until 2007, and 1 to 3 in 2007).

**FIN-D2D**

The two FIN-D2D surveys are population-based cross-sectional surveys that were carried out in three hospital districts of South Ostrobothnia, Central Finland and Pirkanmaa during October 2004 to January 2005, and during October to December 2007 in relation to the FIN-D2D Project [2]. For the FIN-D2D 2004 survey, a random sample of 4500 subjects aged 45–74 years, stratified according to sex, 10-year-age groups (45–54, 55–64 and 65–74 years) and the three geographical areas, were selected from the National Population Register in September 2004 [3]. A total of 2,896 subjects (64%) participated. For the FIN-D2D 2007 survey, a random sample of 4500 subjects aged 45–74 years, which was stratified according to gender, 10-year age groups (45–54, 55–64, and 65–74 years), and the three geographical areas, was selected from the National Population Register in August 2007 [4]. A total of 2,868 subjects (64%) participated.

Each survey included a self-administered questionnaire, health examination and blood samples. The questionnaire, together with an invitation to the health examination, was sent by mail to all the subjects. The self-administered questionnaire included questions on socio-economic background, medical history and health behavior. Trained nurses carried out the health examination and blood sampling at the study site. The health examination was carried out according to the Monitoring of trends and determinants in cardiovascular disease (MONICA) protocol [5].

Education was assessed as total years of formal schooling. Nurses measured height, weight and blood pressure. Height was measured to the nearest 0.1 cm, and weight was measured in light clothing. BMI was calculated as weight in kilograms divided by squared height in meters (kg/m2). Blood pressure was measured twice, and the latter was used in the analysis, in a sitting position after a minimum of 15 min of acclimatization before blood sampling using a mercury sphygmomanometer.

After an overnight fast, venous blood samples were drawn into a gel tube (containing clot activator) for serum lipid assessments. The samples were immediately frozen after separating serum and plasma and transferred in dry ice to the laboratory once a week for analyses. Serum concentrations of total cholesterol were measured with fully enzymatic assays using Abbott reagents.

In FIN-D2D 2004, leisure-time physical activity was assessed with the question: ‘How often do you participate in leisure-time physical activity that lasts at least 20-30 min and causes breathlessness and sweating?’ Response options were 1=daily; 2=2-3 times a week; 3=once a week; 4=2-3 times a month; 5=a few times a year; and 6=not at all. Physical inactivity was defined as frequency of leisure time physical activity less than two times a week (response options 3 to 6). The physical activity questions in FIN-D2D 2007 were different, and were not used in the present study.

**REFERENCES**

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**Supplementary Table 1.** CAIDE Dementia Risk Score factors and number of points.

|  |  |  |
| --- | --- | --- |
|  | **CAIDE Dementia Risk Score** | **CAIDE Dementia Risk Score** **including APOE** |
| **Age**  <47 years  47-53 years  >53 years | 0  3  4 | 0  3  5 |
| **Education**  ≥10 years  7-9 years  0-6 years | 0  2  3 | 0  3  4 |
| **Sex**  Women  Men | 0  1 | 0  1 |
| **Systolic blood pressure**  ≤140 mmHg  >140 mmHg | 0  2 | 0  2 |
| **Body-mass index**  ≤ 30 kg/m2  >30 kg/m2 | 0  2 | 0  2 |
| **Total cholesterol**  ≤6.5 mmol/l  >6.5 mmol/l | 0  2 | 0  1 |
| **APOE ε4 status**  Non-carrier  Carrier | -  - | 0  2 |
| **Total number of points** | Max. 15 points | Max. 18 points |

**Supplementary Table 2.** Number, percentage, and mean age at the FINRISK or FIN-D2D visit for FINGER participants

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **All (n=1260)** | | **Baseline MRI population (n=132)** | | **Baseline PIB-PET population (n=48)** | |
| n (%) | Age (mean, SD) | n (%) | Age (mean, SD) | n (%) | Age (mean, SD) |
| **FINRISK** | **1972** | 12 (0.95) | 30.5 (5.3) | 0 | 0 | 0 | 0 |
| **1977** | 101 (8.0) | 35.9 (4.4) | 6 (4.5) | 35.1 (4.0) | 0 | 0 |
| **1982** | 68 (5.4) | 40.4 (5.1) | 21 (15.9) | 41.2 (5.0) | 0 | 0 |
| **1987** | 74 (5.9) | 46.0 (4.5) | 28 (21.2) | 46.0 (4.9) | 26 (54.2) | 46.0 (5.1) |
| **1992** | 159 (12.6) | 51.9 (5.0) | 26 (19.7) | 52.2 (4.7) | 19 (39.6) | 52.7 (4.8) |
| **1997** | 229 (18.2) | 56.6 (4.6) | 15 (11.4) | 57.2 (4.3) | 3 (6.25) | 53.0 (5.2) |
| **2002** | 217 (17.2) | 60.3 (4.4) | 14 (10.6) | 59.5 (3.9) | 0 | 0 |
| **2007** | 239 (18.9) | 66.3 (4.6) | 22 (16.7) | 68.2 (4.3) | 0 | 0 |
| **FIN-D2D** | **2004** | 72 (5.7) | 63.4 (4.2) | 0 | 0 | 0 | 0 |
| **2007** | 89 (7.1) | 66.3 (4.4) | 0 | 0 | 0 | 0 |