

# Serum iron parameters, HFE C282Y genotype, and cognitive performance in older adults: results from the FACIT study

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**TABLE 1**Baseline characteristics of the study population according to *HFE* C282Y genotype

|   | Total sample       | <i>HFE</i> C282Y non-carriers | <i>HFE</i> C282Y carriers | <i>p</i> * |
|---|--------------------|-------------------------------|---------------------------|------------|
| <i>n</i>  | 818                | 685                           | 80                        |            |
| Age (years)                                     | 60.3 ± 5.6         | 60.3 ± 5.6                    | 59.8 ± 5.6                | 0.508      |
| Female sex (%)                                  | 28.4               | 27.9                          | 30.0                      | 0.690      |
| Level of education, low/middle/high (%)         | 22.4 / 38.1 / 39.5 | 21.8 / 38.4 / 39.9            | 28.8 / 31.2 / 40.0        | 0.282      |
| Alcohol consumption (g/day) <sup>†</sup>        | 12.5 (4.4; 23.5)   | 12.5 (4.4; 23.4)              | 14.3 (3.7; 26.1)          | 0.447      |
| Current smoker (%)                              | 20.4               | 20.0                          | 23.8                      | 0.431      |
| BMI (kg/m <sup>2</sup> )                        | 26.6 ± 3.6         | 26.5 ± 3.6                    | 26.6 ± 3.5                | 0.846      |
| Physical activity (PASE score)                  | 152.8 ± 68.6       | 153.3 ± 69.3                  | 153.1 ± 65.4              | 0.981      |
| Blood donor, current/former/never (%)           | 54.2 / 14.7 / 31.2 | 54.5 / 14.7 / 30.8            | 53.8 / 15.0 / 31.2        | 0.993      |
| <i>APOE</i> E4 alleles, 0/1/2 (%) <sup>§</sup>  | 67.9 / 29.2 / 2.8  | 69.4 / 28.0 / 2.6             | 58.8 / 38.8 / 2.5         | 0.134      |
| Serum C-reactive protein (mg/dL) <sup>†,¶</sup> | 1.1 (0.6; 2.3)     | 1.1 (0.6; 2.3)                | 1.1 (0.6; 2.1)            | 0.956      |
| Serum hemoglobin (mmol/L)                       | 8.9 ± 0.7          | 8.9 ± 0.7                     | 9.0 ± 0.7                 | 0.088      |
| Serum iron parameters                           |                    |                               |                           |            |

|   |                    |                    |                    |        |
|---|--------------------|--------------------|--------------------|--------|
| Serum iron ( $\mu\text{mol/L}$ )                              | $18.5 \pm 6.4$     | $18.2 \pm 6.2$     | $21.4 \pm 7.3$     | <0.001 |
| Total iron binding capacity ( $\mu\text{mol/L}$ )             | $60.0 \pm 8.1$     | $60.4 \pm 8.1$     | $56.9 \pm 7.8$     | <0.001 |
| Transferrin saturation (%)                                    | $31.4 \pm 11.5$    | $30.6 \pm 10.8$    | $38.7 \pm 15.8$    | <0.001 |
| Ferritin ( $\mu\text{g/L}$ ) <sup>†</sup>                     | 67.0 (35.0; 131.0) | 65.0 (34.0; 125.0) | 86.5 (47.8; 138.8) | 0.063  |
| Non-transferrin bound iron ( $\mu\text{mol/L}$ ) <sup>#</sup> | $2.4 \pm 0.9$      | $2.4 \pm 0.9$      | $2.8 \pm 1.0$      | <0.001 |

Note: Values are means  $\pm$  SD. BMI, body mass index; PASE, Physical Activity Scale for the Elderly.

\* *P*-values for the differences between carriers and non-carriers of the *HFE* C282Y mutation using Chi-square tests, independent samples *t* tests, or non-parametric Mann-Whitney tests.

<sup>†</sup> Median value (interquartile range) is given because of skewed data distribution.

<sup>§</sup> *n*=814 in the total sample, *n*=682 in *HFE* C282Y non-carriers, and *n*=80 in *HFE* C282Y carriers.

<sup>¶</sup> *n*=803 in the total sample, *n*=678 in *HFE* C282Y non-carriers, and *n*=78 in *HFE* C282Y carriers.

<sup>#</sup> *n*=808 in the total sample, *n*=678 in *HFE* C282Y non-carriers, and *n*=78 in *HFE* C282Y carriers.

**TABLE 2**Serum iron parameters in carriers and non-carriers of the *HFE* C282Y mutation at baseline, stratified by *APOE* E4 carrier status

| Serum iron parameters                            | <i>HFE</i> C282Y non-carriers |                         |            | <i>HFE</i> C282Y carriers   |                         |          |
|--|-------------------------------|-------------------------|------------|-----------------------------|-------------------------|----------|
|  | <i>APOE</i> E4 non-carriers   | <i>APOE</i> E4 carriers | <i>p</i> * | <i>APOE</i> E4 non-carriers | <i>APOE</i> E4 carriers | <i>p</i> |
| <i>n</i>   | 473                           | 209                     |            | 47                          | 33                      |          |
| Serum iron (μmol/L)                              | 18.2 ± 6.5                    | 18.1 ± 5.8              | 0.966      | 21.2 ± 7.7                  | 21.6 ± 6.9              | 0.819    |
| Total iron binding capacity (μmol/L)             | 60.5 ± 8.2                    | 60.2 ± 7.7              | 0.691      | 55.5 ± 6.4                  | 58.8 ± 9.2              | 0.064    |
| Transferrin saturation (%)                       | 30.6 ± 11.1                   | 30.6 ± 9.9              | 0.958      | 39.0 ± 16.3                 | 38.4 ± 15.3             | 0.862    |
| Ferritin (μg/L) <sup>†</sup>                     | 67.0 (35.0; 131.0)            | 63.0 (30.0; 119.0)      | 0.251      | 91.0 (50.0; 139.0)          | 79.0 (26.0; 147.0)      | 0.479    |
| Non-transferrin bound iron (μmol/L) <sup>§</sup> | 2.4 ± 0.9                     | 2.4 ± 0.8               | 0.369      | 2.8 ± 1.0                   | 2.9 ± 1.1               | 0.661    |
| Hemoglobin (mmol/L)                              | 8.9 ± 0.7                     | 8.8 ± 0.6               | 0.086      | 9.1 ± 0.6                   | 9.0 ± 0.7               | 0.728    |

*Note:* Values are means ± SD.\* *P*-value for independent samples *t* tests or non-parametric Mann-Whitney tests.<sup>†</sup> Median value (interquartile range) is given because of skewed data distribution.<sup>§</sup> *HFE* C282Y−/*APOE* E4−, *n*=469; *HFE* C282Y−/*APOE* E4+, *n*=206; *HFE* C282Y+/*APOE* E4−, *n*=46; *HFE* C282Y+/*APOE* E4+, *n*=32.