**Supplementary Table 1** Fatty Acid Composition of Placebo Capsules.

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| Fatty Acid Profile | | % Fatty Acid Methyl Ester | Milligram triglyceride per Capsule |
| 14:0 | Myristic | 0.4 | 3.3 |
| 16:0 | Palmitic | 7.3 | 67.8 |
| 16:1 | Hexadecenoic | 0.5 | 4.2 |
| 16:3 | Heptadecatrienoic | 0.1 | 0.5 |
| 16:4 | Hexadecatetraenoic | 0.1 | 0.8 |
| 17:0 | Heptadecanoic | 0.1 | 0.5 |
| 18:0 | Stearic | 6.6 | 60.3 |
| 18:1 (n-9) | Oleic | 72.4 | 656.5 |
| 18:1 (n-7) | CIS-vaccenic | 0.8 | 6.8 |
| 18:2 (n-7) | Linoleic | 8.2 | 74.1 |
| 18:3 (n-3) | Alpha-linoleic | 0.1 | 1.1 |
| 18:4 (n-3) | Octadecatetraenoic | 0.1 | 1.2 |
| 20:0 | Icosanoic | 0.3 | 2.7 |
| 20:1 | Icosenoic | 0.3 | 3.0 |
| 20:4 (n-6) | Arachidonic | 0.0 | 0.4 |
| 20:5 (n-3) | Icosapentaenoic | 0.8 | 6.8 |
| 22:0 | Docosanoic | 0.9 | 7.6 |
| 22:1 (n-11) | Cetoleic | 0.1 | 0.8 |
| 22:5 (n-3) | Docosapentaenoic | 0.1 | 0.7 |
| 24:0 | Tetracosanoic | 0.3 | 2.5 |
| 22:6 (n-3) | Docosahexaenoic | 0.5 | 4.3 |

**Supplementary Table 2** Correlation matrix plotting serum homocysteine against primary and secondary outcome measures.

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| Outcome Measure | Homocysteine Correlation |
| Habitual Gait Speed (m/s) | R=0.190 (*p=*0.197) |
| Fast Walking Speed (m/s) | R=0.256 (*p=*0.079) |
| Dual Task Gait Speed (m/s) | R=-0.005 (*p=*0.975) |
| DTE on Gait Speed (%) | R=-0.209 (*p=*0.155) |
| Dual Task Variability (%) | R=0.040 (*p=*0.788) |
| FTSTS (s) | R= |
| Verbal Memory (%) | R=-0.093 (*p=*0.528) |
| SWM (%) | R=-0.194 (*p=*0.187) |
| EF (number of correct connections) | R=0.218 (*p=*0.136) |
| Interference control (ms) | R=-0.158 (*p=*0.283) |
| Physical Function (SF-36 score) | R=0.083 (*p=*0.591) |
| Emotional Wellbeing (SF-36 score) | R=-0.289 (*p=*0.057) |
| Energy/ Fatigue (SF-36 score) | R=0.042 (*p=*0.787) |
| Bodily Pain (SF-36 score) | R=-0.050 (*p=*0.749) |
| General Health Perceptions (SF-36 score) | R=-0.138 (*p=*0.373) |