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# Nutritional supplementation alters associations between one-carbon metabolites and cardiometabolic risk profiles in older adults: A secondary analysis of the Vienna Active Ageing Study.

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**Supplementary Tale 1 – Nutritional composition of the Fortifit supplement**

| Nutrient | | Per 150 mL serve |
|---|---|---|
| Energy | | 150 kcal |
| Protein | Total | 20.7g |
| | Whey Protein | 19.7g |
| | Essential amino acids (including leucine) | >10g |
| Carbohydrates | Total | 9.4g |
| | Sugars | 4.2g |
| | Dietary Fibre | |
| Fat | Total | 3.0g |
| | Saturated fat | 0.8g |
| Vitamins | Vitamin A | 150 μg RE |
| | Vitamin C | 32 mg |
| | Vitamin D3 | 20 μg |
| | Vitamin B1 | 225 μg |
| | Vitamin B2 | 250 μg |
| | Vitamin B3 | 2.7 mg NE |
| | Pantothenic Acid | 800 μg |
| | Vitamin B6 | 750 μg |
| | Folic acid | 200 μg |
| | Vitamin B12 | 3.0 μg |
| | Biotin | 6.0 μg |
| | Vitamin E | 7.5 mg α-TE |
| | Vitamin K | 11 μg |
| Minerals | Calcium | 500 mg |
| | Chloride | 70 mg |
| | Chromium | 7.4 μg |
| | Copper | 270 μg |
| | Fluoride | 150 μg |
| | Iodine | 20 μg |
| | Iron | 2.4 mg |
| | Magnesium | 37 mg |
| | Manganese | 500 μg |
| | Molybdenum | 14 μg |
| | Phosphorus | 250 mg |
| | Potassium | 270 mg |
| | Selenium | 15 μg |
| | Sodium | 150 mg |
| | Zinc | 2.2 mg |
| Others | Carotenoids | 0.3 mg |
| | Choline | 55 mg |

The Fortifit supplement (Nutricia) was consumed 9 times a week during the intervention (daily, with two occasions where the supplement was consumed following resistance training sessions).
Abbreviations: NE, niacin equivalents; RE, retinol equivalents; TE, tocopherol equivalents.

**Supplementary Table 1 – Effect of intervention with resistance training with or without nutritional supplementation compared to control on the association between changes in one-carbon metabolites and cardiometabolic parameters from baseline to six-month follow-up**

| | | BMI | | Waist/Hip ratio | | LDL-C | | HDL-C | | Total/HDL-C | | Triglycerides | | Glucose | | HOMA-IR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metabolite | | β | *p* | β | *p* | β | *p* | β | *p* | β | *p* | β | *p* | β | *p* | β | *p* |
| Betaine | RT | -0.06 | 0.183 | <0.01 | 0.157 | -0.56 | 0.706 | -0.75 | 0.136 | 0.03 | 0.360 | 0.77 | 0.691 | -0.94 | 0.175 | -0.07 | 0.326 |
| | RTS | -0.02 | 0.650 | <0.01 | 0.385 | -1.29 | 0.370 | 0.20 | 0.684 | -0.03 | 0.220 | -0.88 | 0.639 | -0.82 | 0.216 | -0.17 | 0.013[#] |
| Choline | RT | -0.11 | 0.239 | <0.01 | 0.971 | -3.85 | 0.205 | -0.06 | 0.956 | -0.07 | 0.178 | -2.51 | 0.485 | -3.14 | 0.015[#] | -0.34 | 0.016[#] |
| | RTS | <0.01 | 0.944 | -0.01 | 0.320 | -2.24 | 0.530 | 0.85 | 0.484 | -0.15 | 0.025[#] | -12.8 | 0.004[#] | -2.21 | 0.135[†] | -0.21 | 0.180[†] |
| Cysteine | RT | <0.01 | 0.467 | <0.01 | 0.233 | <0.01 | 0.976 | 0.11 | 0.488 | <0.01 | 0.490 | -0.65 | 0.259 | -0.15 | 0.481 | -0.05 | 0.013[#] |
| | RTS | <0.01 | 0.314 | <0.01 | 0.705 | -0.52 | 0.249 | 0.27 | 0.083 | -0.03 | 0.002[#] | -1.16 | 0.039[#,§] | -0.29 | 0.162 | -0.06 | 0.005[#] |
| DMG | RT | -0.05 | 0.910 | -0.02 | 0.541 | 11.4 | 0.398 | 3.97 | 0.395 | -0.13 | 0.594 | -7.58 | 0.662 | -6.50 | 0.299 | -0.66 | 0.302 |
| | RTS | -0.19 | 0.627 | 0.04 | 0.183 | -10.2 | 0.419 | 7.70 | 0.081 | -0.81 | <0.001[#,‡] | -37.8 | 0.023[#] | 0.56 | 0.924 | -0.90 | 0.137 |
| Glycine | RT | <0.01 | 0.621 | <0.01 | 0.510 | -0.21 | 0.355 | <0.01 | 0.194 | -0.01 | 0.016[#] | -0.55 | 0.052 | -0.10 | 0.310 | -0.02 | 0.067 |
| | RTS | <0.01 | 0.174 | <0.01 | 0.993[†] | -0.48 | 0.060 | 0.16 | 0.067 | -0.02 | <0.001[#] | -0.61 | 0.055 | -0.14 | 0.227 | -0.02 | 0.152 |
| Homocysteine | RT | 0.410 | 0.309 | 0.02 | 0.405 | 11.3 | 0.376 | 1.12 | 0.794 | 0.06 | 0.810 | 0.47 | 0.976 | 2.94 | 0.598 | -0.57 | 0.331 |
| | RTS | -0.02 | 0.959 | <0.01 | 0.930 | 9.32 | 0.483 | 1.67 | 0.710 | -0.09 | 0.709 | -6.21 | 0.705[§] | -3.69 | 0.522 | -0.87 | 0.150 |
| Methionine | RT | -0.12 | 0.101 | 0.01 | 0.191 | -2.03 | 0.386 | -0.40 | 0.625 | -0.04 | 0.377 | -3.65 | 0.223 | -2.29 | 0.030[#] | -0.34 | 0.001[#] |
| | RTS | -0.12 | 0.134 | -0.01 | 0.214 | -1.39 | 0.579 | 0.44 | 0.610 | -0.08 | 0.084 | -6.57 | 0.044[#] | -0.29 | 0.011[#] | -0.28 | 0.007[#] |
| Serine | RT | -0.02 | 0.289 | <0.01 | 0.271 | 0.12 | 0.812 | <0.01 | 0.560 | -0.01 | 0.347 | -0.94 | 0.152 | -0.20 | 0.382 | -0.04 | 0.071 |
| | RTS | <0.01 | 0.507 | <0.01 | 0.488 | -0.51 | 0.425 | 0.21 | 0.318 | -0.03 | 0.021[#] | -0.73 | 0.364 | -0.16 | 0.567 | -0.06 | 0.029[#] |
| Betaine/choline | RT | 0.32 | 0.712 | 0.07 | 0.171 | 37.3 | 0.164 | -8.27 | 0.367 | 1.25 | 0.012[#] | 34.7 | 0.306 | 10.3 | 0.382 | 0.95 | 0.431 |
| | RTS | 0.27 | 0.753 | 0.07 | 0.160 | 12.0 | 0.649 | 3.74 | 0.678 | 0.65 | 0.175 | 50.4 | 0.135 | -0.16 | 0.567 | -1.31 | 0.273[†] |
| DMG/betaine | RT | -1.77 | 0.919 | -3.13 | 0.002[#] | 710 | 0.203 | 400 | 0.030[#] | -9.29 | 0.354 | -860 | 0.217 | 10.3 | 0.382 | 1.77 | 0.947 |
| | RTS | -18.7 | 0.295 | 0.01 | 0.928 | 270 | 0.639 | 170 | 0.363 | -9.60 | 0.352[‡] | -1200 | 0.098 | -2.56 | 0.826[†] | 17.4 | 0.531 |

β estimates and *p* values are presented for the interaction term fitted between the independent variable (change in metabolite concentration from baseline to six-month follow-up) and intervention group (receiving the resistance training or resistance training with supplementation intervention compared to the control group). Data presented from each model is adjusted for age, sex, baseline metabolite status, GFR, and BMI (non-anthropometric variables). [#] Indicates a significant difference according to intervention, [†] Indicates that the dependent variable is inversely associated with baseline metabolite status in the corresponding model, [‡] Indicates that the dependent variable is lower in males in the corresponding model, [§] Indicates that the dependent variable is positively associated with baseline metabolite status in the corresponding model. Abbreviations: DMG, dimethylglycine; HDL-C, HDL-cholesterol; LDL-C, LDL-cholesterol.