(Supplementary Material) Lifestyle factors and genetic variants on two biological age measures: evidence from 94,443 Taiwan Biobank participants

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Short title: Lifestyle and genetics on biological age measures

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<table>
<thead>
<tr>
<th>Biomarker</th>
<th>Units</th>
<th>$s$</th>
<th>$k$</th>
<th>$q$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albumin</td>
<td>g/dL</td>
<td>0.3372441</td>
<td>-0.0057658</td>
<td>4.437681</td>
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<tr>
<td>Alkaline Phosphatase</td>
<td>U/L</td>
<td>28.91255</td>
<td>0.4822007</td>
<td>58.87995</td>
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<tr>
<td>Creatinine (Serum)</td>
<td>mg/dL</td>
<td>0.206529</td>
<td>0.0029099</td>
<td>0.9299351</td>
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<tr>
<td>C-reactive protein</td>
<td>mg/dL</td>
<td>0.6014597</td>
<td>0.0058188</td>
<td>0.1414078</td>
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<tr>
<td>Glycated hemoglobin (HbA1c)</td>
<td>%</td>
<td>0.9468073</td>
<td>0.0196594</td>
<td>4.488046</td>
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<tr>
<td>Systolic blood pressure</td>
<td>mmHg</td>
<td>14.64641</td>
<td>0.6784407</td>
<td>90.98659</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>mg/dL</td>
<td>39.93671</td>
<td>0.972077</td>
<td>163.2156</td>
</tr>
</tbody>
</table>

**Table S1  Coefficients of 7 biomarkers used in BioAge**
Figure S1  - The scatter plots of “6markerPhenoAge”, PhenoAge, and chronological age in NHANES III (N = 9,598)

(A) The x-axis and y-axis mark “6markerPhenoAge” and PhenoAge of 4,483 NHANES III males, respectively.
(B) The x-axis and y-axis mark chronological age and PhenoAge of 4,483 NHANES III males, respectively.
(C) The x-axis and y-axis mark chronological age and “6markerPhenoAge” of 4,483 NHANES III males, respectively.
(D) The x-axis and y-axis mark “6markerPhenoAge” and PhenoAge of 5,115 NHANES III females, respectively.
(E) The x-axis and y-axis mark chronological age and PhenoAge of 5,115 NHANES III females, respectively.
(F) The x-axis and y-axis mark chronological age and “6markerPhenoAge” of 5,115 NHANES III females, respectively.
Figure S2 - The scatter plots of “6markerBioAge”, BioAge, and chronological age in NHANES III (N = 9,598)

(A) The x-axis and y-axis mark “6markerBioAge” and BioAge of 4,483 NHANES III males, respectively.
(B) The x-axis and y-axis mark chronological age and BioAge of 4,483 NHANES III males, respectively.
(C) The x-axis and y-axis mark chronological age and “6markerBioAge” of 4,483 NHANES III males, respectively.
(D) The x-axis and y-axis mark “6markerBioAge” and BioAge of 5,115 NHANES III females, respectively.
(E) The x-axis and y-axis mark chronological age and BioAge of 5,115 NHANES III females, respectively.
(F) The x-axis and y-axis mark chronological age and “6markerBioAge” of 5,115 NHANES III females, respectively.
Figure S3 - The quantile-quantile (Q-Q) plots of TWB1 GWAS analyses

The x-axis and y-axis mark $-\log_{10}(\text{expected } P\text{-value})$ and $-\log_{10}(\text{observed } P\text{-value})$, respectively. The red line represents $y = x$. (A) PhenoAgeAccel; (B) BioAgeAccel.
Figure S4  - The scatter plots of chronological age and PhenoAge in TWB1 \((N = 25,460)\) and TWB2 \((N = 68,983)\)

(A) The \(x\)-axis and \(y\)-axis mark chronological age and PhenoAge of 12,800 TWB1 males, respectively.
(B) The \(x\)-axis and \(y\)-axis mark chronological age and PhenoAge of 22,625 TWB2 males, respectively.
(C) The \(x\)-axis and \(y\)-axis mark chronological age and PhenoAge of 12,660 TWB1 females, respectively.
(D) The \(x\)-axis and \(y\)-axis mark chronological age and PhenoAge of 46,358 TWB2 females, respectively.
Figure S5 - The scatter plots of chronological age and BioAge in TWB1 (N = 25,460) and TWB2 (N = 68,983)

(A) The x-axis and y-axis mark chronological age and BioAge of 12,800 TWB1 males, respectively.
(B) The x-axis and y-axis mark chronological age and BioAge of 22,625 TWB2 males, respectively.
(C) The x-axis and y-axis mark chronological age and BioAge of 12,660 TWB1 females, respectively.
(D) The x-axis and y-axis mark chronological age and BioAge of 46,358 TWB2 females, respectively.
Figure S6 - The scatter plots of methylation age (DNAmAge or GrimAge) and biological age (PhenoAge or BioAge) in TWB (N = 2,313)

(A) The x-axis and y-axis mark DNAmAge and PhenoAge of 1,164 TWB males, respectively.
(B) The x-axis and y-axis mark GrimAge and PhenoAge of 1,164 TWB males, respectively.
(C) The x-axis and y-axis mark DNAmAge and BioAge of 1,164 TWB males, respectively.
(D) The x-axis and y-axis mark GrimAge and BioAge of 1,164 TWB males, respectively.
(E) The x-axis and y-axis mark DNAmAge and PhenoAge of 1,149 TWB females, respectively.
(F) The x-axis and y-axis mark GrimAge and PhenoAge of 1,149 TWB females, respectively.
(G) The $x$-axis and $y$-axis mark DNAmAge and BioAge of 1,149 TWB females, respectively.
(H) The $x$-axis and $y$-axis mark GrimAge and BioAge of 1,149 TWB females, respectively.