Supplementary table 1. Definitions for all site-specific cancers according to ICD diagnosis.

<table>
<thead>
<tr>
<th>Type of cancer</th>
<th>ICD-8</th>
<th>ICD-9</th>
<th>ICD-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>185</td>
<td>185</td>
<td>C61</td>
</tr>
<tr>
<td>Bronchi and lung</td>
<td>162</td>
<td>162</td>
<td>C34</td>
</tr>
<tr>
<td>Colon</td>
<td>153</td>
<td>153</td>
<td>C18</td>
</tr>
<tr>
<td>Rectum</td>
<td>154</td>
<td>154</td>
<td>C19 &amp; C20</td>
</tr>
<tr>
<td>Malignant skin</td>
<td>172-173</td>
<td>172-173</td>
<td>C43-C44</td>
</tr>
<tr>
<td>Non-Hodgkin’s lymphoma</td>
<td>200</td>
<td>200</td>
<td>C82-C86</td>
</tr>
<tr>
<td>Renal</td>
<td>189</td>
<td>189</td>
<td>C64</td>
</tr>
<tr>
<td>Head-Neck</td>
<td>140-149</td>
<td>140-149</td>
<td>C00-C14, C30-C32</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>191-192</td>
<td>191-192, 194D &amp; 194E</td>
<td>C70-C72, C73.1-C75.3</td>
</tr>
<tr>
<td>Pancreas</td>
<td>157</td>
<td>157</td>
<td>C25</td>
</tr>
<tr>
<td>Bladder</td>
<td>188</td>
<td>188</td>
<td>C67</td>
</tr>
<tr>
<td>Esophagus</td>
<td>150</td>
<td>150</td>
<td>C15</td>
</tr>
<tr>
<td>Stomach</td>
<td>151</td>
<td>151</td>
<td>C16</td>
</tr>
<tr>
<td>Liver, bile ducts and gallbladder</td>
<td>155-156</td>
<td>155-156, Not 155C</td>
<td>C22-C24, Not C22.9</td>
</tr>
<tr>
<td>Myeloma</td>
<td>203</td>
<td>203</td>
<td>C90</td>
</tr>
<tr>
<td>Thyroid gland</td>
<td>193</td>
<td>193</td>
<td>C73</td>
</tr>
<tr>
<td>Hodgkin’s lymphoma</td>
<td>201</td>
<td>201</td>
<td>C81</td>
</tr>
<tr>
<td>Leukemia</td>
<td>204-207</td>
<td>204-208</td>
<td>C91-C95</td>
</tr>
</tbody>
</table>
Supplementary table 2. Absolute numbers for outcomes, in total and by level of fitness at conscription.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Low (N=368,971)</th>
<th>Moderate (N=523,970)</th>
<th>High (N=343,648)</th>
<th>Total (N=1,236,589)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malignant skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronchi and lung</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central nervous system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thyroid gland</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GASTROINTESTINAL CANCERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esophagus</td>
<td>436 (0.1 %)</td>
<td>333 (0.1 %)</td>
<td>240 (0.1 %)</td>
<td>1,009 (0.1 %)</td>
</tr>
<tr>
<td>Stomach</td>
<td>503 (0.1 %)</td>
<td>458 (0.1 %)</td>
<td>331 (0.1 %)</td>
<td>1,292 (0.1 %)</td>
</tr>
<tr>
<td>Liver, bile ducts and gallbladder</td>
<td>703 (0.2 %)</td>
<td>557 (0.1 %)</td>
<td>333 (0.1 %)</td>
<td>1,593 (0.1 %)</td>
</tr>
<tr>
<td>Pancreas</td>
<td>693 (0.2 %)</td>
<td>661 (0.1 %)</td>
<td>505 (0.2 %)</td>
<td>1,859 (0.2 %)</td>
</tr>
<tr>
<td>Colon</td>
<td>1,610 (0.4 %)</td>
<td>1,598 (0.3 %)</td>
<td>1,093 (0.3 %)</td>
<td>4,301 (0.4 %)</td>
</tr>
<tr>
<td>Rectum</td>
<td>1,128 (0.3 %)</td>
<td>1,152 (0.2 %)</td>
<td>857 (0.3 %)</td>
<td>3,137 (0.3 %)</td>
</tr>
<tr>
<td>UROLOGICAL CANCERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prostate</td>
<td>6,766 (1.9 %)</td>
<td>6,745 (1.3 %)</td>
<td>6,168 (1.8 %)</td>
<td>19,679 (1.6 %)</td>
</tr>
<tr>
<td>Bladder</td>
<td>1,164 (0.3 %)</td>
<td>1,071 (0.2 %)</td>
<td>835 (0.2 %)</td>
<td>3,070 (0.3 %)</td>
</tr>
<tr>
<td>Kidney</td>
<td>874 (0.2 %)</td>
<td>834 (0.2 %)</td>
<td>586 (0.2 %)</td>
<td>2,294 (0.2 %)</td>
</tr>
<tr>
<td>HEMATOLOGICAL CANCERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myeloma</td>
<td>378 (0.1 %)</td>
<td>441 (0.1 %)</td>
<td>394 (0.1 %)</td>
<td>1,213 (0.1 %)</td>
</tr>
<tr>
<td>Non-Hodgkin's lymphoma</td>
<td>1,050 (0.3 %)</td>
<td>1,228 (0.2 %)</td>
<td>972 (0.3 %)</td>
<td>3,250 (0.3 %)</td>
</tr>
<tr>
<td>Hodgkin's lymphoma</td>
<td>324 (0.1 %)</td>
<td>407 (0.1 %)</td>
<td>307 (0.1 %)</td>
<td>1,038 (0.1 %)</td>
</tr>
<tr>
<td>Leukemia</td>
<td>881 (0.2 %)</td>
<td>1,007 (0.2 %)</td>
<td>842 (0.3 %)</td>
<td>2,730 (0.2 %)</td>
</tr>
</tbody>
</table>
Supplementary table 3. CRF at conscription and incidence of cancer (n=1,005,911), muscle strength included as covariate.

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>n cases</th>
<th>Moderate HR (95% CI)</th>
<th>High HR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any cancer site</td>
<td>62,748</td>
<td>1.01 (0.99-1.03)</td>
<td>1.04 (1.02-1.07)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Malignant skin</td>
<td>22,405</td>
<td>1.12 (1.08-1.15)</td>
<td>1.29 (1.24-1.34)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bronchi and lung</td>
<td>1,596</td>
<td>0.82 (0.73-0.92)</td>
<td>0.58 (0.51-0.67)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>2,666</td>
<td>0.84 (0.77-0.92)</td>
<td>0.78 (0.70-0.86)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>1,926</td>
<td>0.94 (0.84-1.05)</td>
<td>1.01 (0.90-1.14)</td>
<td>0.75</td>
</tr>
<tr>
<td>Thyroid gland</td>
<td>643</td>
<td>1.05 (0.86-1.27)</td>
<td>1.06 (0.86-1.31)</td>
<td>0.71</td>
</tr>
<tr>
<td><strong>GASTROINTESTINAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esophagus</td>
<td>680</td>
<td>0.75 (0.63-0.90)</td>
<td>0.59 (0.48-0.72)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stomach</td>
<td>880</td>
<td>0.86 (0.73-1.01)</td>
<td>0.75 (0.63-0.90)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Pancreas</td>
<td>1,257</td>
<td>0.92 (0.81-1.06)</td>
<td>0.89 (0.77-1.19)</td>
<td>0.001</td>
</tr>
<tr>
<td>Liver, bile ducts and gallbladder</td>
<td>1,090</td>
<td>0.81 (0.71-0.94)</td>
<td>0.59 (0.50-0.69)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Colon</td>
<td>3,143</td>
<td>0.94 (0.87-1.03)</td>
<td>0.84 (0.76-0.92)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Rectum</td>
<td>2,281</td>
<td>1.03 (0.93-1.14)</td>
<td>0.96 (0.86-1.07)</td>
<td>0.09</td>
</tr>
<tr>
<td><strong>UROLOGICAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prostate</td>
<td>14,021</td>
<td>1.03 (0.98-1.07)</td>
<td>1.04 (1.00-1.09)</td>
<td>0.001</td>
</tr>
<tr>
<td>Kidney</td>
<td>1,724</td>
<td>0.91 (0.82-1.02)</td>
<td>0.80 (0.70-0.91)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bladder</td>
<td>2,217</td>
<td>0.92 (0.84-1.02)</td>
<td>0.89 (0.80-0.99)</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>HEMATOLOGICAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leukemia</td>
<td>1,910</td>
<td>1.05 (0.94-1.17)</td>
<td>1.11 (0.98-1.25)</td>
<td>0.46</td>
</tr>
<tr>
<td>Myeloma</td>
<td>895</td>
<td>1.15 (0.98-1.36)</td>
<td>1.21 (1.01-1.44)</td>
<td>0.03</td>
</tr>
<tr>
<td>Hodgkin's lymphoma</td>
<td>794</td>
<td>0.91 (0.77-1.08)</td>
<td>0.99 (0.82-1.19)</td>
<td>0.39</td>
</tr>
<tr>
<td>Non-Hodgkin’s lymphoma</td>
<td>2,471</td>
<td>1.05 (0.95-1.16)</td>
<td>1.09 (0.98-1.21)</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Covariates included in analysis: CRF, muscle strength, site of conscription, year of conscription, parental education, age at conscription, and BMI. CRF=cardiorespiratory fitness. HR=Hazard ratio.
Supplementary table 4. Interaction analyses between CRF and BMI for the association with site-specific cancer, as well as hazard ratios for the association between CRF and site-specific cancer, stratified by BMI (N=1,078,000).

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>Interaction with BMI</th>
<th>Underweight/normal weight</th>
<th>Overweight/obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P</td>
<td>HR (95% CI)</td>
<td>HR (95% CI)</td>
</tr>
<tr>
<td>Malignant skin, low CRF</td>
<td>0.33</td>
<td>Ref</td>
<td>0.85 (0.78-0.92)</td>
</tr>
<tr>
<td>Moderate/high CRF</td>
<td></td>
<td>1.2 (1.17-1.24)</td>
<td>1.07 (1.01-1.14)</td>
</tr>
<tr>
<td>Bronchi and lung, low CRF</td>
<td>0.08</td>
<td>Ref</td>
<td>0.96 (0.71-1.29)</td>
</tr>
<tr>
<td>Moderate/high CRF</td>
<td></td>
<td>0.67 (0.60-0.74)</td>
<td>0.88 (0.72-1.08)</td>
</tr>
<tr>
<td>Head &amp; Neck, low CRF</td>
<td>0.64</td>
<td>Ref</td>
<td>1.19 (0.97-1.46)</td>
</tr>
<tr>
<td>Moderate/high CRF</td>
<td></td>
<td>0.85 (0.79-0.93)</td>
<td>0.95 (0.81-1.12)</td>
</tr>
<tr>
<td>Central nervous system, low CRF</td>
<td>0.73</td>
<td>Ref</td>
<td>1.07 (0.85-1.35)</td>
</tr>
<tr>
<td>Moderate/high CRF</td>
<td></td>
<td>0.98 (0.88-1.08)</td>
<td>1.00 (0.82-1.21)</td>
</tr>
<tr>
<td>Thyroid gland, low CRF</td>
<td>0.23</td>
<td>Ref</td>
<td>0.99 (0.86-1.48)</td>
</tr>
<tr>
<td>Moderate/high CRF</td>
<td></td>
<td>0.99 (0.83-1.18)</td>
<td>1.32 (0.97-1.81)</td>
</tr>
</tbody>
</table>

GASTROINTESTINAL CANCERS

| Esophagus, low CRF               | 0.86                 | Ref                       | 2.19 (1.55-3.09)  |
| Moderate/high CRF                |                      | 0.71 (0.60-0.83)          | 1.49 (1.14-1.95)  |
| Stomach, low CRF                 | 0.46                 | Ref                       | 2.18 (1.62-2.94)  |
| Moderate/high CRF                |                      | 0.86 (0.74-1.00)          | 1.63 (1.28-2.07)  |
| Pancreas, low CRF                | 0.37                 | Ref                       | 1.37 (1.01-1.88)  |
| Moderate/high CRF                |                      | 0.88 (0.78-1.00)          | 1.43 (1.16-1.77)  |
| Liver, bile ducts and gallbladder, low CRF | 0.25 | Ref   | 1.77 (1.34-1.32)  |
| Moderate/high CRF                |                      | 0.76 (0.66-0.86)          | 1.08 (0.85-1.37)  |
| Colon, low CRF                   | 0.35                 | Ref                       | 1.40 (1.17-1.67)  |
| Moderate/high CRF                |                      | 0.90 (0.83-0.97)          | 1.13 (0.98-1.31)  |
| Rectum, low CRF                  | 0.27                 | Ref                       | 1.35 (1.07-1.69)  |
| Moderate/high CRF                |                      | 0.99 (0.91-1.09)          | 1.14 (0.96-1.36)  |

UROLOGICAL CANCERS

| Prostate, low CRF                | 0.74                 | Ref                       | 0.88 (0.77-1.01)  |
| Moderate/high CRF                |                      | 1.07 (1.03-1.11)          | 0.92 (0.85-0.99)  |
| Kidney, low CRF                  | 0.09                 | Ref                       | 2.00 (1.61-2.49)  |
| Moderate/high CRF                |                      | 0.91 (0.82-1.01)          | 1.42 (1.18-1.71)  |
| Bladder, low CRF                 | 0.01                 | Ref                       | 1.37 (1.08-1.73)  |
| Moderate/high CRF                |                      | 0.96 (0.88-1.05)          | 0.88 (0.72-1.07)  |

HEMATOLOGICAL CANCERS

| Leukemia, low CRF                | 0.78                 | Ref                       | 1.35 (1.06-1.71)  |
| Moderate/high CRF                |                      | 1.09 (0.98-1.21)          | 1.53 (1.28-1.83)  |
| Myeloma, low CRF                 | 0.21                 | Ref                       | 1.43 (0.97-2.10)  |
| Moderate/high CRF                |                      | 1.25 (1.08-1.46)          | 1.33 (1.00-1.76)  |
| Hodgkin’s lymphoma, low CRF      | 0.11                 | Ref                       | 1.72 (1.28-2.30)  |
| Moderate/high CRF                |                      | 1.02 (0.87-1.21)          | 1.27 (0.95-1.70)  |
| Non-Hodgkin’s lymphoma, low CRF  | 0.007                | Ref                       | 1.53 (1.26-1.86)  |
| Moderate/high CRF                |                      | 1.13 (1.03-1.24)          | 1.22 (1.02-1.14)  |
Cox regression models including an interaction term between dichotomized CRF (low vs. moderate/high) and dichotomized BMI category (underweight/normal weight vs. overweight/obesity), with likelihood ratio testing of the interaction. Adjusted for site, year, and age at conscription as well as parental level of education.

CRF=cardiorespiratory fitness. BMI=Body mass index. HR=Hazard ratio
Supplementary Table 5: Cardiorespiratory fitness at conscription and incidence of cancer (n = 1,077,042)

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>n cases</th>
<th>Moderate</th>
<th>High</th>
<th>p-value for linear trend</th>
<th>P for cognitive ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any cancer site</td>
<td>64,541</td>
<td>1.01 (0.99-1.03)</td>
<td>1.05 (1.03-1.07)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Malignant skin</td>
<td>23,045</td>
<td>1.10 (1.07-1.14)</td>
<td>1.25 (1.21-1.30)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bronchi and lung</td>
<td>1,634</td>
<td>0.84 (0.75-0.95)</td>
<td>0.63 (0.55-0.72)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>2,734</td>
<td>0.88 (0.80-0.96)</td>
<td>0.84 (0.76-0.92)</td>
<td>&lt;0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>2,012</td>
<td>0.94 (0.84-1.04)</td>
<td>1.00 (0.89-1.13)</td>
<td>0.85</td>
<td>0.60</td>
</tr>
<tr>
<td>Thyroid gland</td>
<td>683</td>
<td>1.01 (0.84-1.21)</td>
<td>1.01 (0.82-1.23)</td>
<td>0.86</td>
<td>0.57</td>
</tr>
<tr>
<td><strong>GASTROINTESTINAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esophagus</td>
<td>688</td>
<td>0.79 (0.66-0.94)</td>
<td>0.68 (0.56-0.83)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stomach</td>
<td>902</td>
<td>0.89 (0.76-1.04)</td>
<td>0.83 (0.69-0.98)</td>
<td>&lt;0.001</td>
<td>0.002</td>
</tr>
<tr>
<td>Pancreas</td>
<td>1,278</td>
<td>0.93 (0.82-1.07)</td>
<td>0.92 (0.79-1.06)</td>
<td>0.001</td>
<td>0.003</td>
</tr>
<tr>
<td>Liver, bile ducts and gallbladder</td>
<td>1,109</td>
<td>0.86 (0.75-0.99)</td>
<td>0.66 (0.56-0.77)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Colon</td>
<td>3,220</td>
<td>0.95 (0.87-1.03)</td>
<td>0.83 (0.76-0.91)</td>
<td>&lt;0.001</td>
<td>0.07</td>
</tr>
<tr>
<td>Rectum</td>
<td>2,335</td>
<td>1.03 (0.93-1.13)</td>
<td>0.97 (0.87-1.08)</td>
<td>0.09</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>UROLOGICAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prostate</td>
<td>14,214</td>
<td>1.03 (0.99-1.07)</td>
<td>1.04 (1.00-1.09)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Kidney</td>
<td>1,752</td>
<td>0.94 (0.74-1.05)</td>
<td>0.84 (0.74-0.95)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bladder</td>
<td>2,259</td>
<td>0.94 (0.85-1.04)</td>
<td>0.93 (0.83-1.03)</td>
<td>0.08</td>
<td>0.001</td>
</tr>
<tr>
<td><strong>HEMATOLOGICAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leukemia</td>
<td>1,987</td>
<td>1.05 (0.94-1.17)</td>
<td>1.14 (1.02-1.29)</td>
<td>0.18</td>
<td>0.99</td>
</tr>
<tr>
<td>Myeloma</td>
<td>915</td>
<td>1.15 (0.98-1.35)</td>
<td>1.21 (1.02-1.44)</td>
<td>0.03</td>
<td>0.96</td>
</tr>
<tr>
<td>Hodgkin’s lymphoma</td>
<td>842</td>
<td>0.95 (0.80-1.12)</td>
<td>1.02 (0.85-1.23)</td>
<td>0.74</td>
<td>0.33</td>
</tr>
<tr>
<td>Non-Hodgkin’s lymphoma</td>
<td>2,556</td>
<td>1.07 (0.97-1.17)</td>
<td>1.12 (1.01-1.24)</td>
<td>0.03</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Adjusted for year, site, age, body mass index, parental education at conscription, and cognitive ability at conscription where indicated. *Linear trends tested utilizing 9-level cardiorespiratory fitness. HR=Hazard ratio
### Supplementary table 6. Baseline demographics at conscription for the full target population and the analytic sample.

<table>
<thead>
<tr>
<th></th>
<th>Sample with information on parental education (N=1,078,000)</th>
<th>Study sample (N=1,226,478)</th>
<th>Full target population (N=1,811,024)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year for conscription, mean (SD)</strong></td>
<td>1985 (9)</td>
<td>1984 (9)</td>
<td>1987 (10)</td>
</tr>
<tr>
<td><strong>Age at conscription, years, mean (SD)</strong></td>
<td>18.3 (0.6)</td>
<td>18.3 (0.7)</td>
<td>18.3 (0.7)</td>
</tr>
<tr>
<td><strong>Years of follow-up, mean (SD)</strong></td>
<td>32.2 (10.3)</td>
<td>32.8 (10.3)</td>
<td>30.1 (11)</td>
</tr>
<tr>
<td><strong>Height, cm, mean (SD)</strong></td>
<td>179 (7)</td>
<td>179 (7)</td>
<td>179 (7)</td>
</tr>
<tr>
<td><strong>Missing, n (%)</strong></td>
<td>0</td>
<td>0</td>
<td>145,576 (8%)</td>
</tr>
<tr>
<td><strong>Body Mass Index (BMI), kg/m², mean (SD)</strong></td>
<td>21.8 (2.8)</td>
<td>21.7 (2.8)</td>
<td>21.9 (3.1)</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>0</td>
<td>0</td>
<td>145,800 (8%)</td>
</tr>
<tr>
<td><strong>BMI-category</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>77,361 (7 %)</td>
<td>92,267 (8 %)</td>
<td>129,584 (8 %)</td>
</tr>
<tr>
<td>Normal weight</td>
<td>882,598 (82 %)</td>
<td>1,002,221 (82 %)</td>
<td>1,327,781 (80 %)</td>
</tr>
<tr>
<td>Overweight</td>
<td>101,383 (9 %)</td>
<td>113,253 (9 %)</td>
<td>169,551 (10 %)</td>
</tr>
<tr>
<td>Obesity</td>
<td>16,658 (2 %)</td>
<td>18,737 (2 %)</td>
<td>38,308 (2 %)</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>0</td>
<td>0</td>
<td>145,800 (8%)</td>
</tr>
<tr>
<td><strong>CRF category</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>308,974 (29 %)</td>
<td>365,874 (30 %)</td>
<td>367,544 (30 %)</td>
</tr>
<tr>
<td>Moderate</td>
<td>468,677 (43 %)</td>
<td>519,652 (42 %)</td>
<td>520,899 (42 %)</td>
</tr>
<tr>
<td>High</td>
<td>300,349 (28 %)</td>
<td>340,952 (28 %)</td>
<td>341,488 (28 %)</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>0</td>
<td>0</td>
<td>581,093 (32 %)</td>
</tr>
<tr>
<td><strong>Muscle strength category</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>101,444 (10 %)</td>
<td>120,089 (10 %)</td>
<td>182,617 (12 %)</td>
</tr>
<tr>
<td>Moderate</td>
<td>582,047 (58 %)</td>
<td>673,405 (58 %)</td>
<td>857,958 (58 %)</td>
</tr>
<tr>
<td>High</td>
<td>322,420 (32 %)</td>
<td>357,933 (31 %)</td>
<td>451,080 (30 %)</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>0</td>
<td>0</td>
<td>581,093 (32 %)</td>
</tr>
<tr>
<td><strong>Systolic blood pressure, mean (SD)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>128 (11)</td>
<td>128 (11)</td>
<td>129 (11)</td>
</tr>
<tr>
<td>Moderate</td>
<td>3,361 (0.3 %)</td>
<td>3,439 (0.3 %)</td>
<td>226,701 (13 %)</td>
</tr>
<tr>
<td>High</td>
<td>67 (10)</td>
<td>67 (10)</td>
<td>68 (10)</td>
</tr>
<tr>
<td><strong>Diastolic blood pressure, mean (SD)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>4,298 (0.4 %)</td>
<td>4,414 (0.4 %)</td>
<td>227,988 (13 %)</td>
</tr>
<tr>
<td>Moderate</td>
<td>381 (0.04 %)</td>
<td>453 (0.04 %)</td>
<td>4,605 (0.25 %)</td>
</tr>
<tr>
<td>High</td>
<td>1,343 (12 %)</td>
<td>1,586 (13 %)</td>
<td>2,661 (0.15 %)</td>
</tr>
<tr>
<td><strong>Kidney disease</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>20,769 (1.9 %)</td>
<td>23,901 (2.0 %)</td>
<td>41,417 (2.3 %)</td>
</tr>
<tr>
<td>Moderate</td>
<td>192 (0.01 %)</td>
<td>213 (0.01 %)</td>
<td>414 (0.02 %)</td>
</tr>
<tr>
<td>High</td>
<td>921 (0.01 %)</td>
<td>1,062 (0.01 %)</td>
<td>1,984 (0.01 %)</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>0</td>
<td>0</td>
<td>581,093 (32 %)</td>
</tr>
<tr>
<td><strong>Cardiovascular disease</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>3,517 (0.19 %)</td>
<td>3,517 (0.19 %)</td>
<td>3,517 (0.19 %)</td>
</tr>
<tr>
<td>Moderate</td>
<td>2,258 (0.21 %)</td>
<td>3,329 (0.27 %)</td>
<td>3,329 (0.27 %)</td>
</tr>
<tr>
<td>High</td>
<td>1,510 (0.14 %)</td>
<td>2,300 (0.19 %)</td>
<td>3,177 (0.19 %)</td>
</tr>
<tr>
<td><strong>Parental education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compulsory school</td>
<td>299,188 (28 %)</td>
<td>299,188 (28 %)</td>
<td>397,934 (24 %)</td>
</tr>
<tr>
<td>High school-&lt;2 years university</td>
<td>602,461 (56 %)</td>
<td>602,461 (56 %)</td>
<td>942,996 (58 %)</td>
</tr>
<tr>
<td>&gt;2 years university</td>
<td>176,351 (16 %)</td>
<td>176,351 (16 %)</td>
<td>287,545 (18 %)</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>0</td>
<td>148,478 (12 %)</td>
<td>182,749 (10 %)</td>
</tr>
</tbody>
</table>
Supplementary table 7. Sensitivity analysis in population excluding all individuals with preexisting diabetes, hypertension, cardiovascular disease, kidney disease, alcohol abuse, or substance abuse at baseline (n = 1,052,447)

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>n cases</th>
<th>Moderate HR (95% CI)</th>
<th>High HR (95% CI)</th>
<th>p-value for linear trend*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any cancer site</td>
<td>62,692</td>
<td>1.02 (1.00-1.04)</td>
<td>1.06 (1.04-1.08)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Malignant skin</td>
<td>22,434</td>
<td>1.13 (1.09-1.16)</td>
<td>1.31 (1.26-1.35)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bronchi and lung</td>
<td>1,578</td>
<td>0.81 (0.72-0.91)</td>
<td>0.58 (0.51-0.67)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>2,658</td>
<td>0.86 (0.79-0.95)</td>
<td>0.81 (0.74-0.90)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>1,958</td>
<td>0.93 (0.84-1.04)</td>
<td>0.99 (0.88-1.12)</td>
<td>0.95</td>
</tr>
<tr>
<td>Thyroid gland</td>
<td>664</td>
<td>1.02 (0.84-1.23)</td>
<td>1.03 (0.84-1.26)</td>
<td>0.97</td>
</tr>
</tbody>
</table>

**GASTROINTESTINAL CANCERS**

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>n cases</th>
<th>Moderate HR (95% CI)</th>
<th>High HR (95% CI)</th>
<th>p-value for linear trend*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esophagus</td>
<td>664</td>
<td>0.76 (0.64-0.91)</td>
<td>0.62 (0.50-0.75)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stomach</td>
<td>862</td>
<td>0.88 (0.75-1.03)</td>
<td>0.80 (0.67-0.95)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Pancreas</td>
<td>1,228</td>
<td>0.93 (0.81-1.06)</td>
<td>0.87 (0.76-1.01)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Liver, bile ducts and gallbladder</td>
<td>1,012</td>
<td>0.86 (0.74-0.99)</td>
<td>0.63 (0.53-0.74)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Colon</td>
<td>3,136</td>
<td>0.94 (0.87-1.02)</td>
<td>0.83 (0.75-0.91)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Rectum</td>
<td>2,275</td>
<td>1.02 (0.92-1.12)</td>
<td>0.94 (0.84-1.04)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

**UROLOGICAL CANCERS**

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>n cases</th>
<th>Moderate HR (95% CI)</th>
<th>High HR (95% CI)</th>
<th>p-value for linear trend*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>13,835</td>
<td>1.05 (1.01-1.09)</td>
<td>1.07 (1.03-1.12)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Kidney</td>
<td>1,700</td>
<td>0.92 (0.82-1.02)</td>
<td>0.79 (0.70-0.90)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bladder</td>
<td>2,192</td>
<td>0.94 (0.85-1.04)</td>
<td>0.91 (0.82-1.02)</td>
<td>0.04</td>
</tr>
</tbody>
</table>

**HEMATOLOGICAL CANCERS**

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>n cases</th>
<th>Moderate HR (95% CI)</th>
<th>High HR (95% CI)</th>
<th>p-value for linear trend*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leukemia</td>
<td>1,930</td>
<td>1.05 (0.94-1.17)</td>
<td>1.15 (1.02-1.29)</td>
<td>0.11</td>
</tr>
<tr>
<td>Myeloma</td>
<td>880</td>
<td>1.16 (0.98-1.37)</td>
<td>1.26 (1.06-1.49)</td>
<td>0.01</td>
</tr>
<tr>
<td>Hodgkin's lymphoma</td>
<td>817</td>
<td>0.96 (0.81-1.13)</td>
<td>1.01 (0.84-1.22)</td>
<td>0.68</td>
</tr>
<tr>
<td>Non-Hodgkin's lymphoma</td>
<td>2,481</td>
<td>1.06 (0.96-1.17)</td>
<td>1.12 (1.01-1.24)</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Adjusted for year, site, age, body mass index, and parental education at conscription. *Linear trends tested utilizing 9-level CRF. CRF=cardiorespiratory fitness. HR=Hazard ratio
Supplementary table 8. Analyses in the full study sample, not adjusted for parental level of education (n = 1,226,478)

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>n cases</th>
<th>Moderate (ref = low)</th>
<th>High</th>
<th>p-value for linear trend*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HR (95% CI)</td>
<td>HR (95% CI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any cancer site</td>
<td>84,117</td>
<td>1.03 (1.01-1.04)</td>
<td>1.06 (1.04-1.08)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Malignant skin</td>
<td>28,290</td>
<td>1.14 (1.10-1.17)</td>
<td>1.34 (1.30-1.38)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bronchi and lung</td>
<td>2,567</td>
<td>0.79 (0.72-0.87)</td>
<td>0.58 (0.52-0.64)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>3,544</td>
<td>0.88 (0.81-0.95)</td>
<td>0.82 (0.75-0.89)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>2,840</td>
<td>0.96 (0.88-1.05)</td>
<td>1.03 (0.94-1.14)</td>
<td>0.24</td>
</tr>
<tr>
<td>Thyroid gland</td>
<td>822</td>
<td>1.02 (0.87-1.21)</td>
<td>1.01 (0.84-1.21)</td>
<td>0.85</td>
</tr>
<tr>
<td><strong>GASTROINTESTINAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esophagus</td>
<td>1,009</td>
<td>0.77 (0.67-0.89)</td>
<td>0.63 (0.54-0.74)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stomach</td>
<td>1,292</td>
<td>0.90 (0.79-1.02)</td>
<td>0.77 (0.67-0.89)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Pancreas</td>
<td>1,859</td>
<td>0.97 (0.87-1.06)</td>
<td>0.86 (0.77-0.97)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Liver, bile ducts and gallbladder</td>
<td>1,593</td>
<td>0.79 (0.71-0.89)</td>
<td>0.56 (0.49-0.65)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Colon</td>
<td>4,301</td>
<td>0.96 (0.90-1.03)</td>
<td>0.81 (0.75-0.88)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Rectum</td>
<td>3,137</td>
<td>1.01 (0.93-1.10)</td>
<td>0.91 (0.83-1.00)</td>
<td>0.002</td>
</tr>
<tr>
<td><strong>UROLOGICAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prostate</td>
<td>19,679</td>
<td>1.07 (1.03-1.11)</td>
<td>1.11 (1.07-1.15)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Kidney</td>
<td>2,794</td>
<td>0.91 (0.83-1.00)</td>
<td>0.76 (0.69-0.85)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bladder</td>
<td>3,070</td>
<td>0.94 (0.87-1.03)</td>
<td>0.88 (0.80-0.96)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>HEMATOLOGICAL CANCERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leukemia</td>
<td>2,780</td>
<td>1.05 (0.96-1.15)</td>
<td>1.11 (1.00-1.22)</td>
<td>0.17</td>
</tr>
<tr>
<td>Myeloma</td>
<td>1,213</td>
<td>1.13 (0.98-1.30)</td>
<td>1.21 (1.05-1.40)</td>
<td>0.004</td>
</tr>
<tr>
<td>Hodgkin’s lymphoma</td>
<td>1,038</td>
<td>1.00 (0.86-1.16)</td>
<td>1.11 (0.94-1.30)</td>
<td>0.48</td>
</tr>
<tr>
<td>Non-Hodgkin’s lymphoma</td>
<td>3,250</td>
<td>1.06 (0.97-1.15)</td>
<td>1.09 (1.00-1.20)</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Adjusted for year, site, age, and body mass index at conscription. *Linear trends tested utilizing 9-level CRF. CRF=cardiorespiratory fitness. HR=Hazard ratio