**Table S1.** A non-exercise testing regression model for estimating cardiorespiratory fitness in whites and South Asians using physical activity categories without an ethnicity variable\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | | | Observed coefficient | Standard error | 95% CI | p-value |
| Constant | | | 79.565 | 5.365 | 68.970, 90.160 | <0.001 |
| Age, y | | | -0.329 | 0.063 | -0.454, -0.204 | <0.001 |
| BMI, kg⋅m-2 | | | -0.801 | 0.112 | -1.023, -0.579 | <0.001 |
| Smoking status | | |  |  |  |  |
|  | Never smoked | | 0, reference | - | - | - |
|  | Ex or current | | 0.272 | 0.940 | -1.584, 2.128 | 0.773 |
| Physical activity category† | | | |  |  |  |
|  | | 1 | 0, reference | - | - | - |
|  | | 2 | 2.902 | 1.543 | -0.146, 5.950 | 0.062 |
|  | | 3 | 4.150 | 1.558 | 1.073, 7.228 | 0.009 |
|  | | 4 | 7.072 | 1.729 | 3.658, 10.486 | <0.001 |
|  | | 5 | 8.056 | 1.527 | 5.041, 11.070 | <0.001 |
| Resting heart rate | | | -0.174 | 0.050 | -0.272, -0.076 | 0.001 |

\*This model is referred to as model 2 in the text of the manuscript. Model R2 value was 0.5431, adjusted R2 was 0.5201, and root-mean-square error was 5.5572. N=168. †Physical activity categories were derived from minutes per week of moderate- to vigorous-intensity physical activity, where category 1 is <75 minutes per week, category 2 is 75-150 minutes per week, category 3 is 150-225 minutes per week, category 4 is 225-300 minutes per week, and category 5 is >300 minutes per week.

**Table S2.** A non-exercise testing regression model for estimating cardiorespiratory fitness in whites and South Asians using physical activity minutes per week without an ethnicity variable\*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | | Observed coefficient | Standard error | 95% CI | p-value |
| Constant | | 83.035 | 5.042 | 73.078, 92.991 | <0.001 |
| Age, y | | -0.341 | 0.062 | -0.463, -0.219 | <0.001 |
| BMI, kg⋅m-2 | | -0.806 | 0.112 | -1.027, -0.585 | <0.001 |
| Smoking status | |  |  |  |  |
|  | Never smoked | 0, reference | - | - | - |
|  | Ex or current | 0.600 | 0.941 | -1.258, 2.457 | 0.525 |
| Physical activity† | | 0.016 | 0.003 | 0.010, 0.021 | <0.001 |
| Resting heart rate | | -0.200 | 0.048 | -0.295, -0.105 | <0.001 |

\*This model is referred to as model 3 in the text of the manuscript. Model R2 value was 0.5305, adjusted R2 was 0.5160, and root-mean-square error was 5.5809. N=168. †Physical activity is a continuous variable derived from minutes per week of moderate- to vigorous-intensity physical activity.

**Table S3.** A non-exercise testing regression model for estimating cardiorespiratory fitness in whites and South Asians using physical activity categories with an ethnicity variable\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | | | Observed coefficient | Standard error | 95% CI | p-value |
| Constant | | | 76.212 | 4.249 | 67.819, 84.605 | <0.001 |
| Age, y | | | -0.364 | 0.050 | -0.463, -0.265 | <0.001 |
| BMI, kg⋅m-2 | | | -0.888 | 0.089 | -1.064, -0.712 | <0.001 |
| Smoking status | | |  |  |  |  |
|  | Never smoked | | 0, reference | - | - | - |
|  | Ex or current | | -1.958 | 0.776 | -3.490, -0.426 | 0.013 |
| Physical activity category† | | | |  |  |  |
|  | | 1 | 0, reference | - | - | - |
|  | | 2 | 1.108 | 1.232 | -1.325, 3.541 | 0.370 |
|  | | 3 | 2.551 | 1.241 | 0.100, 5.002 | 0.041 |
|  | | 4 | 3.753 | 1.406 | 0.976, 6.530 | 0.008 |
|  | | 5 | 4.094 | 1.271 | 1.585, 6.604 | 0.002 |
| Resting heart rate | | | -0.070 | 0.041 | -0.151, 0.010 | 0.085 |
| Ethnicity | | |  |  |  |  |
|  | | South Asian | 0, reference | - | - | - |
|  | | White | 7.843 | 0.796 | 6.270, 9.415 | <0.001 |

\*This model is referred to as model 5 in the text of the manuscript. Model R2 value was 0.7170, adjusted R2 was 0.7008, and root-mean-square error was 4.3879. N=168. †Physical activity categories were derived from minutes per week of moderate- to vigorous-intensity physical activity, where category 1 is <75 minutes per week, category 2 is 75-150 minutes per week, category 3 is 150-225 minutes per week, category 4 is 225-300 minutes per week, and category 5 is >300 minutes per week.

**Table S4.** A non-exercise testing regression model for estimating cardiorespiratory fitness in whites and South Asians using physical activity minutes per week with an ethnicity variable\*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | | | Observed coefficient | | Standard error | 95% CI | p-value |
| Constant | | | 79.258 | | 4.027 | 71.304, 87.211 | <0.001 |
| Age, y | | | -0.378 | | 0.049 | -0.475, -0.280 | <0.001 |
| BMI, kg⋅m-2 | | | -0.897 | | 0.090 | -1.074, -0.720 | <0.001 |
| Smoking status | | |  | |  |  |  |
|  | Never smoked | | 0, reference | | - | - | - |
|  | Ex or current | | -1.791 | | 0.787 | -3.345, -0.237 | 0.024 |
| Physical activity† | | | 0.007 | | 0.002 | 0.002, 0.011 | 0.005 |
| Resting heart rate | | | -0.090 | | 0.040 | -0.169, -0.011 | 0.025 |
| Ethnicity | | | |  |  |  |  |
|  | | South Asian | | 0, reference | - | - | - |
|  | | White | | 7.951 | 0.815 | 6.342, 9.560 | <0.001 |

\*This model is referred to as model 6 in the text of the manuscript. Model R2 value was 0.7051, adjusted R2 was 0.6941, and root-mean-square error was 4.4372. N=168. †Physical activity is a continuous variable derived from minutes per week of moderate- to vigorous-intensity physical activity.

**Table S5.** Bootstrapping data for the model containing age, BMI, smoking status, resting heart rate, physical activity quintile, and ethnicity\*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Covariate | Observed Coefficient | 500 replications | | 2000 replications | | 10000 replications | | 20000 replications | | 40000 replications | |
| SE | 95% CI | SE | 95% CI | SE | 95% CI | SE | 95% CI | SE | 95% CI |
| Constant | 77.409 | 4.073 | 69.858, 86.075 | 4.099 | 69.415, 85.493 | 4.074 | 69.339, 85.327 | 4.129 | 69.269, 85.420 | 4.125 | 69.324, 85.482 |
| Age | -0.374 | 0.051 | -0.477, -0.273 | 0.051 | -0.474, -0.273 | 0.053 | -0.473, -0.267 | 0.052 | -0.473, -0.269 | 0.052 | -0.473, -0.269 |
| BMI | -0.906 | 0.081 | -1.071, -0.740 | 0.083 | -1.072, -0.744 | 0.084 | -1.075, -0.742 | 0.085 | -1.076, -0.740 | 0.085 | -1.077, -0.742 |
| Smoking Status  (Never; Ex or Current) | 0, reference  -1.976 | -  0.839 | -  -3.709, -0.297 | -  0.878 | -  -3.669, -0.230 | -  0.877 | -  -3.733, -0.265 | -  0.883 | -  -3.711, -0.233 | -  0.881 | -  -3.715, -0.261 |
| Physical Activity Quintile (1, 2, 3, 4, 5) | 0, reference  1.127  1.869  3.793  3.029 | -  1.050  1.302  1.170  1.367 | -  -0.896, 3.127  -0.699, 4.415  1.683, 6.267  0.447, 5.852 | -  0.988  1.272  1.220  1.299 | -  -0.820, 3.082  -0.542, 4.525  1.442, 6.308  0.584, 5.641 | -  0.995  1.262  1.200  1.307 | -  -0.806, 3.079  -0.594, 4.369  1.442, 6.212  0.602, 5.720 | -  1.010  1.250  1.210  1.327 | -  -0.816, 3.149  -0.528, 4.391  1.433, 6.211  0.537, 5.737 | -  1.010  1.260  1.205  1.319 | -  -0.822, 3.135  -0.542, 4.413  1.459, 6.186  0.514, 5.694 |
| Resting heart rate | -0.066 | 0.044 | -0.155, 0.023 | 0.044 | -0.152, 0.020 | 0.044 | -0.154, 0.018 | 0.044 | -0.156, 0.017 | 0.044 | -0.156, 0.018 |
| Ethnicity  (South Asian; White European) | 0, reference  8.032 | -  0.934 | -  6.153, 9.936 | -  0.926 | -  6.195, 9.777 | -  0.929 | -  6.175, 9.818 | -  0.930 | -  6.135, 9.766 | -  0.927 | -  6.165, 9.785 |
| R-Squared | 0.7148 | 0.035 | 0.661, 0.792 | 0.035 | 0.658, 0.793 | 0.036 | 0.654, 0.795 | 0.036 | 0.656, 0.795 | 0.036 | 0.654, 0.795 |
| RMSE | 4.4046 | 0.281 | 3.748, 4.794 | 0.289 | 3.711, 4.836 | 0.285 | 3.713, 4.822 | 0.288 | 3.710, 4.825 | 0.287 | 3.704, 4.825 |

**\*** This model is shown in Table 3 in the manuscript and is referred to as model 4 in the text of the manuscript.

**Table S6.** Jackknife data for the model containing age, BMI, smoking status, resting heart rate, physical activity quintile, and ethnicity\*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | | | | Observed coefficient | Observed  SE | Observed  95% CI | Jackknife  SE | Jackknife  95% CI |
| Constant | | | | 77.409 | 4.148 | 69.217, 85.601 | 4.198 | 69.121, 85.698 |
| Age, y | | | | -0.374 | 0.050 | -0.472, -0.276 | 0.055 | -0.482, -0.266 |
| BMI, kg⋅m-2 | | | | -0.906 | 0.089 | -1.082, -0.731 | 0.085 | -1.075, -0.738 |
| Smoking status | | | |  |  |  |  |  |
|  | Never smoked | | | 0, reference | - | - |  |  |
|  | Ex or current | | | -1.976 | 0.792 | -3.540, -0.413 | 0.913 | -3.778, -0.175 |
| Physical activity quintile | | | | |  |  |  |  |
|  | | | 1 | 0, reference | - | - |  |  |
|  | | | 2 | 1.127 | 1.091 | -1.028, 3.281 | 1.031 | -0.908, 3.162 |
|  | | | 3 | 1.869 | 1.139 | -0.381, 4.118 | 1.294 | -0.685, 4.422 |
|  | | | 4 | 3.793 | 1.115 | 1.591, 5.996 | 1.247 | 1.332, 6.254 |
|  | | | 5 | 3.029 | 1.188 | 0.682, 5.376 | 1.357 | 0.350, 5.709 |
| Resting heart rate | | | | -0.066 | 0.041 | -0.146, 0.015 | 0.046 | -0.157, 0.025 |
| Ethnicity | | | |  |  |  |  |  |
|  | | South Asian | | 0, reference | - | - |  |  |
|  | | White | | 8.032 | 0.821 | 6.410, 9.654 | 0.965 | 6.127, 9.937 |

\*This model is shown in Table 3 in the manuscript and is referred to as model 4 in the text of the manuscript.