

Supplementary Table S3. Additional running prediction equations.

| Category | Multiple Regression Equation | MAE | Adjusted R ² |
|------------------------------|--|------|-------------------------|
| VO _{2AT} (eqs) | $17.03_{[0.176]SE} + 0.49_{[0.04]SEX} cVO_{2RCP}$ | 2.21 | 0.56 |
| VO _{2AT} (eqms) | --- | --- | --- |
| HR _{AT} (eqs) | $43.84_{[17.50]SE} - 0.76_{[0.36]SEX} cVO_{2AT} - 0.002_{[0.08]SEX} cVE_{AT} + 0.74_{[0.07]SEX} cHR_{max} + 0.39_{[0.27]SEX} cVO_{2RCP} - 1.20_{[0.50]SEX} BMI + 0.73_{[0.25]SEX} BF$ | 5.36 | 0.50 |
| HR _{AT} (eqms) | $8.06_{[12.89]SE} + 0.76_{[0.07]SEX} cHR_{max} + 0.42_{[0.16]SEX} BF$ | 5.72 | 0.50 |
| VO _{2RCP} (eqs) | $14.67_{[2.57]SE} + 0.23_{[0.12]SEX} cVO_{2AT} - 0.08_{[0.36]SEX} cVE_{AT} + 0.08_{[0.06]SEX} cFR_{AT} + 0.04_{[0.01]SEX} cP_{AT} - 0.45_{[0.09]SEX} cVO_{2max}$ | 2.44 | 0.72 |
| VO _{2RCP} (eqms) | $12.83_{[2.11]SE} + 0.60_{[0.04]SEX} cVO_{2max} + 0.03_{[0.01]SEX} cP_{AT}$ | 2.28 | 0.71 |
| HR _{RCP} (eqs) | $67.13_{[13.00]SE} - 1.17_{[0.31]SEX} cVO_{2AT} - 0.07_{[0.02]SEX} cVE_{max} + 0.01_{[0.002]SEX} cVO_{2ATA} + 0.77_{[0.05]SEX} cHR_{max} + 0.49_{[0.21]SEX} cVO_{2RCP} - 0.15_{[0.05]SEX} Age - 0.59_{[0.28]SEX} BMI$ | 3.47 | 0.76 |
| HR _{RCP} (eqms) | $33.70_{[8.69]SE} - 0.25_{[0.09]SEX} cVO_{2AT} + 0.83_{[0.05]SEX} cHR_{max}$ | 3.80 | 0.71 |
| VO _{2max} (eqs) | $28.49_{[5.23]SE} + 0.39_{[0.15]SEX} cVO_{2AT} - 0.06_{[0.03]SEX} cHR_{AT} - 0.21_{[0.08]SEX} cFR_{AT} - 0.003_{[0.001]X} cVO_{2ATA} - 0.03_{[0.01]X} cP_{AT} - 0.14_{[0.06]X} cFR_{RCP} + 0.49_{[0.09]SEX} cVO_{2max} - 0.07_{[0.03]SEX} Age$ | 2.38 | 0.74 |
| VO _{2max} (eqms) | $16.51_{[2.10]SE} + 0.26_{[0.12]SEX} cVO_{2AT} + 0.55_{[0.09]SEX} cVO_{2max}$ | 2.57 | 0.71 |
| HR _{max} (eqs) | $89.45_{[26.65]SE} - 0.25_{[0.09]SEX} cVO_{2AT} - 0.02_{[0.02]SEX} cVE_{max} - 28.49_{[24.10]SEX} cRER_{RCP} + 0.84_{[0.05]SEX} cHR_{max} - 0.14_{[0.05]SEX} Age - 0.60_{[0.30]SEX} BMI + 0.30_{[0.16]SEX} BF$ | 3.35 | 0.79 |
| HR _{max} (eqms) | $27.43_{[8.18]SE} + 0.88_{[0.05]SEX} cHR_{max}$ | 3.72 | 0.75 |

Abbreviations: MAE, mean absolute error; VO_{2AT}, relative VO₂ at AT (mL·min⁻¹·kg⁻¹); CVO_{2RCP}, cycling relative VO₂ at RCP (mL·min⁻¹·kg⁻¹); eqs, equation in the simplified form; eqms, equation in the most simplified form; HR_{AT}, heart rate at AT (bpm); CVO_{2AT}, cycling relative VO₂ at AT (mL·min⁻¹·kg⁻¹); CVE_{AT}, cycling pulmonary ventilation at AT (L·min⁻¹); CHR_{max}, cycling maximal heart rate (bpm); BMI, body mass index (kg·m⁻²); BF, body fat (%); VO_{2RCP}, relative VO₂ at RCP (mL·min⁻¹·kg⁻¹); cFR_{AT}, cycling respiratory rate at AT (breaths per minute); cP_{AT}, cycling power at AT (watt); CVO_{2max}, cycling relative maximum VO₂ (mL·min⁻¹·kg⁻¹); HRR_{RCP}, heart rate at RCP (bpm); CVE_{max}, cycling maximal pulmonary ventilation (L·min⁻¹); CVO_{2ATA}, cycling absolute VO₂ at AT (mL·min⁻¹); Age, age (years); VO_{2max}, relative maximum VO₂ (mL·min⁻¹·kg⁻¹); CHR_{AT}, cycling heart rate at AT (bpm); cFR_{RCP}, cycling respiratory rate at RCP (breaths per minute); HR_{max}, maximal heart rate (bpm); cRER_{RCP}, cycling respiratory exchange ratio at RCP.