**Table 1 Measured and Estimated Oxygen Consumption Based on the American College of Sports Medicine (ACSM)\* and the Fitness Registry and the Importance of Exercise National Database (FRIEND) Equations (Mean ± Standard Deviation)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PROTOCOL** | **N** | **Age** | **Measured Maximal Oxygen Uptake** | **FRIEND**  **Maximal Oxygen Uptake** | **% Error**  **FRIEND** | **ACSM**  **Equations** | **% Error**  **ACSM** |
| BALKE | 353 | 54±14 | 24.8±8.5 | 25.0±5.6 | 5.3±17.8 | 29.9±9.3 | 23.0±19.6 |
| BRUCE | 936 | 40±13 | 40.2±11.1 | 38.4±7.7 | -1.7±15.4 | 45.9±9.0 | 17.6±20.3 |
| BRUCE-RAMP | 2,224 | 48±13 | 31.3±9.6 | 33.8±6.4 | 12.8±21.0 | 42.0±8.3 | 39.8±26.4 |
| RAMP | 230 | 54±16 | 26.3±11.7 | 26.0±9.7 | 4.3±24.4 | 26.7±14.0 | 1.8±32.3 |
| MODIFIED BALKE | 108 | 56±9 | 16.2±2.8 | 16.0±2.3 | -0.8±4.6 | 11.1±3.3 | -32.0±5.1 |
| MODIFIED BRUCE | 38 | 53±14 | 28.3±9.7 | 29.3±8.6 | 6.7± 20.0 | 35.1±10.8 | 27.3±24.9 |
| MOD-NAUGHTON | 407 | 57±9 | 23.6±5.3 | 23.7±2.5 | 3.8±17.1 | 26.5±5.6 | 14.0±16.1 |
| MANNUAL-I | 3017 | 43±11 | 37.9±10.7 | 37.5±9.0 | 1.2±14.2 | 42.9±11.5 | 14.4±17.2 |
| MANNUAL-II | 670 | 56±15 | 20.4±8.5 | 21.6±7.8 | 9.1± 18.6 | 23.5±10.2 | 15.8±20.1 |
| ENTIRE COHORT | 7,983 | 47±14 | 32.9±11.8 | 33.3±9.7 | 5.1±18.3 | 39.0±12.6 | 21.4±24.9 |

**\*** Walking and running speed equations were used