**Table 2. Summary of Methodological Controls Adopted for Research Studies Included in the Systematic Review.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Authors** | **Sex** | **Age****(yrs)** | **Body Mass****(kg)** | **BMI (Kg·m-2) Body Fat (%)** | **Time of Day**  | **Alcohol** | **Caffeine** | **Smoking** | **Vigorous****Exercise** | **Food** | **Participants** |
| Giles et al. 2016 | 20(17 M, 3 F) | 29 ±10 | 75.9 ± 9.5 | - | - | - | Not allowed “prior to test” | - | - | 2 hrsLight meal | Healthy |   |
| Montano et al. 2015 | 20 (9 M, 11 F) | 26 ± 5 | - | 24.7 ± 3.8 | 07.00 - 10.00 | 24 hrs | - | - | 24 hrs |  | Healthy |
| De Rezende-Barbosa et al. 2015 | 30(30 M, 0 F) | 21 ± 1 | 92.7 ± 11.1 | 24.2 ± 4.0 | 13.00 - 19.00 | 12 hrs | 12 hrs | Non-smokers | - | - | Healthy |
| Vasconcellos et al. 2015 | 15(15M, 0 F) | 15 ± 2 | 91.2 ± 21.6 | 28.3 ± 3.042.0 ± 6.5 | - | - | 24 hrs | - | 24 hrs | 8 hrs fast | Healthy |
| Dourado & Guerra 2013 | 31(14 M, 17 F) | 57 ± 9 | 76.0 ± 14.0 | 28.0 ± 3.0 | - | - | - | Non-smokers | - | - | HealthyActive |
| Wallen et al. 2012 | 341(139 M, 202 F) | 52 | - | - | 07.00 - 11.30 | 24 hrs | Not allowed “morning of trial” | 2 hrs | 24 hrs | 10 hrs fast | HealthyActive |
| Weippert et al. 2010 |  19(19 M, 0 F) | 24 | 77.3 ± 7.0 | - | - | - | - | - | - | - | HealthyActive |
| Porto & Junqueira 2009 | 34(15 M, 18 F) | 26 ± 8 | - | - | - | 12 hrs | 12 hrs | Non-smokers12 hrs | 12 hrs | 2-4 hrsLight meal | Healthy/ ClinicalSedentary/Active |
| Nunan et al. 2009 | 33(19 M, 14 F) | 34 M48 F | 74.6 ± 15.6 | - | 08.00 - 13.00 | 24 hrs | Not allowed “on test day” | “Not on test day” | 24 hrs | 2 hrsLight meal | HealthyActive |
| Nunan et al. 2008 | 33(19 M, 14 F) | 34 M48 F | 74.6 ± 15.6 | - | 08.00 - 13.00 | 24 hrs | Not allowed“on test day” | “Not on test day” | 24 hrs | 2 hrsLight meal | HealthyActive |
| Vanerlei et al. 2008 | 15(15, 0 F) | 21 ± 1 | 77.2 ± 10.9 | 24.3 ± 3.1 | 06.00 - 10.002 hrs of waking | 12 hrs | 12 hrs | Non-smokers | - | 2 hrsLight meal | HealthyActive |
| Gamelin et al. 2006 | 18(18 M, 0 F) | 27 ± 2 | 77.1 ± 7.7 | - | 06.00 – 10.002 hrs of waking | - | 24 hrs | Non-smokers | - | - | HealthyActive |
| Kingsley et al. 2005 | 8(6 / 2) | 29 ± 4 | 77.5 ± 11.2 | - | - | - | - | - | - | - | - |

 |

 **Table 2. Summary of Methodological Controls Adopted for Research Studies Included in the Systematic Review (continued).**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Authors** | **Sample epoch** | **Laboratory Conditions** | **Protocol** | **Pre-stabilisation time period** | **Breathing****Pattern** | **Equipment**ECGPolar® HRM | **Inter-Beat Interval** **Pre-Processing software** | **HRV Analysis****Software** |
|  |  |  |  |  |  |  |  |  |
| Giles et al. 2016 | 256 s | 21 ± 1oC | SupineStand | 5 min2 min | Controlled0.20 Hz12 breaths·min-1 | 3-lead ECGPolar® V800™ | MP36, Biopac, MatLabPolar Flow web service | KubiosKubios |
| Montano et al. 2015 | 300 s | - | Supine | 20 min | - | Powerlab 30 seriesPolar® RS800CX™ | -Polar Precision 5.0 | KubiosKubios |
| De Rezende-Barbosa et al. 2015 | 20 min | 21-23oC | Supine | 10 min | Spontaneous | Bio1000 LNYXPolar® RS800G3™ | Bio-inspector 1.8Polar Precision 5.0 | KubiosKubios |
| Vasconcellos et al. 2015 | 300 s | 22-24oCQuiet, semi-dark | Supine | 20 min | Spontaneous | 3-lead ECGPolar® RS800CX™ | Micromed, Elite ErgoPolar Precision 5.0 | KubiosKubios |
| Dourado & Guerra 2013 | 300 s | - | Exercise(Ventilatory Threshold) | - | - | - | - | - |
| Wallen et al. 2012 | 300 s | - | Supine | 5 min | - | 3-lead ECGPolar® RS800CX™ | Polar Precision 5.0 | KubiosKubios |
| Weippert et al. 2010 | 300 s | - | Supine | 3-5 min | Controlled0.20 Hz12 breaths·min-1 | 5-lead ECGPolar® S810™ | Padsy 5.0Polar Precision 4.0 | -- |
| Porto & Junqueira 2009 | 300 s | 22-28oCQuiet  | SupineStand | 10-15 min2 min | - | -Polar® S810™ | -Polar Precision 4.0 | MATLAB 5.03 (Mathsworks Inc.) |
| Nunan et al. 2009 | 300 s | Thermo-neutralQuiet | Supine | Minimum 3 min | - | 12-lead ECGPolar® S810™ | CardioPerfect Polar Precision 3.0 | CardioPerfectPolar Precision |
| Nunan et al. 2008 | 300 s | Thermo-neutralQuiet | Supine | Minimum 3 min | - | 12-lead ECGPolar® S810™ | CardioPerfect Polar Precision 3.0 | CardioPerfectPolar Precision |
| Vanderlei et al. 2008 | 300 s | 22-24oCRH 50-60%Quiet, semi-dark | SupineSub-maximal Exercise(60% HRmax) | 20 min  | - | Bio 1000 LYNXPolar® S810™ | Bio-inspector 1.8Polar Precision 3.0 | MATLAB 5.03 (Mathsworks Inc.) |
| Gamelin et al. 2006 | 256 s | 19-21oCQuiet, semi-dark | Supine Stand | 10 min | Controlled0.20 Hz12 breaths·min-1 | 2-lead ECGPolar® S810™ | Physiotrace, EstarisPolar Precision 3.0 | Physiotrace, EstarisPolar Precision Performance 3.0 |
| Kingsley et al. 2005 | 60 s | - | SupineSub-maximal Exercise(40-100% HR max) | - | Spontaneous | 3-lead ECGPolar® S810™ | Reynolds Pathfinder, v 8.4Polar Precision 3.0 | Reynolds Pathfinder, v 8.4Polar Precision 3.0 |

**Table 3. Validity of Short-Term Inter-Beat Interval Time Series Data Derived from Polar® Heart Rate Monitors Under Stable and Provocative Conditions.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Group** **features** |  **ECG** **(mean ± SD)** |  **HRM** **(mean ± SD)** |  **ICC** **(95% CI)** |  **Mean Bias (SD)** **#Median** |  **Limits of Agreement** **(90%\* or 95%)** |  **Valid** **Measure** **(ICC / LOA)** |
| **RR Count** |  |  |  |  |  |  |  |
| Vasconcellos et al. 2015 | Supine | 345 ± 42 | 345 ± 45 | 0.99 (0.96 to 0.99) | -0.14 ± 7.3 | -14.4 to 14.3Uncorrected data | Yes / Yes |
| Wallen et al. 2012 | Supine | 318 | 336 | - | - | - | Unclear |
| Porto & Junqueira 2009 | SupineStand | 318 ± 46404 ± 6.1 | 320 ± 46 406 ± 6.1 | - | -2.00# -2.61 | --7.70 to 2.48 | UnclearYes |
| Nunan et al. 2008 | Supine | 319 ± 55 | 320 ± 53 | 0.96 (0.92 to 0.98) | 1.4 ± 11.6 | -21.8 to 24.6Corrected data | Yes / Yes |
| Vanderlei et al. 2008 | Supine | 402 ± 62 | 401 ± 62 | 1.00 (1.00 to 1.00) | 1.0 | - | Yes |
| Gamelin et al. 2006 | SupineStand | 631 549 estimated total/sample size | 630 548 estimated total/sample size | 0.990.99 | 0.9 ± 6.0- | -11.0 to 13.0- | YesYes |
| **Error Detection (%)** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand | -- | -- | -- | 0.082%0.089% | -- | YesYes |
| Wallen et al. 2012 | Supine | 21 errant beats | 3 errant beats | - | 85.7% | - | No |
| Vanderlei et al. 2008 | Supine60% VO2 max | 7.0 ± 1.084.2 ± 0.43 | 6.9 ± 1.164.1 ± 0.27 | 0.99 (0.96 to 1.00)0.65 (-0.05 to 0.88) | 0.10%0.10% | -- | YesNo |
| Vanderlei et al. 2008 | Supine | - | - | - | 6.93% | - | Unclear |
| Gamelin et al. 2006 | Supine | - | - | - | 0.40% | - | Yes |
| Kingsley et al. 2006 | Supine | - | - | - | 0.32% | - | Yes |

**Table 3. Validity of Short-Term Inter-Beat Interval Time Series Data Derived from Polar® Heart Rate Monitors Under Stable and Provocative Conditions (continued).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Group****features** | **ECG****(mean ± SD)** | **HRM****(mean ± SD)** | **ICC****(95% CI)** | **Mean Bias (SD)****#Median** | **Limits of Agreement****(90%\* or 95%)** | **Valid****Measure****(ICC / LOA)** |
| **RR Interval (ms)** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand | Data unclear | Data unclear | - | 0.06 ± 2.240.59 ± 1.14 | -4.33 to 4.45-1.70 ± 2.87 | YesYes |
| Montano et al. 2016 | Supine | 1026 ± 1.15 | 1016 ± 1.15 | 0.99 | 10.0 ± 1.02 (SEE) | 8.0 to 12.0  | Yes / Yes |
| Vasconcellos et al. 2015 | Supine | 875 ± 109 | 885 ± 122 | 0.98 (0.94 to 0.99) | -10.1 ± 20.9 | -51.9 to 31.7 | Yes / No |
| Weippert et al. 2010 | Supine |  |  | 1.00 (1.00 to 1.00) | -0.41 ± 7.35 | -15.1 to 14.3 | Yes/ Yes |
| Nunan et al. 2009 | Supine |  1004 ± 158 | 1001 ± 158 | 0.99 (0.98 to 1.00)(Pearson) | 2.4  |  | Yes  |
| Porto & Junqueira 2009 | SupineStand | 949 ± 141 745 ± 16 | 951 ± 151746 ± 116 | -- | -1.85 ± 2.26-0.70 ± 1.60 | -6.37 to 2.67-3.89 to 2.50 | YesYes |
| Nunan et al. 2008 | Supine |  965 ± 173 | 970 ±168 | 0.98 ( 0.95 to 0.99) | 2.5 ± 30.9 | -59.3 to 64.2 | Yes / No |
| Gamelinet al. 2006 | SupineStand | Data unclearData unclear | Data unclearData unclear | 0.990.99 | 0.9 ± 6.01.0 ± 3.7 | -11.0 to 13.0-6.0 to 8.5(estimated from corrected data figure) | Yes / Yes |
| Kingsleyet al. 2005 | Supine<40% VO2 max40-60% VO2 max60-80% VO2 max80-100% VO2 max | ----- | ----- | 1.001.000.990.980.93 | -0.06 ± 2.93---- | -5.92 to 5.89-6.79 to 6.75-8.21 to 8.26-8.37 to 8.35-9.16 to 9.10 | Yes / YesYes / YesYes / YesYes / YesYes / Yes |

**Table 3. Validity of Short-Term Inter-Beat Interval Time Series Data Derived from Polar® Heart Rate Monitors Under Stable and Provocative Conditions (continued).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Group****features** | **ECG****(mean ± SD)** | **HRM****(mean ± SD)** | **ICC****(95% CI)** | **Mean Bias (SD)****#Median** | **Limits of Agreement****(90%\* or 95%)** | **Valid****Measure****(ICC / LOA)** |
| **RMSSD (ms)** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand |  55.9 ± 37.8 30.9 ± 18.24 | 55.9 ± 37.830.6 ± 18.14 | 1.00 (1.00 to 1.00)1.00 (1.00 to 1.00) | 0.00 ± 0.160.03 ± 0.16 | -0.32 to 0.32-0.28 to 0.34 | Yes / YesYes / Yes |
| Montano et al. 2016 | Supine | 46.0 ± 1.7 | 54.1 ± 1.6 | 0.96 | -8.1 ± 1.16 (SEE) | -10.4 to -5.8 | Yes / No |
| De Rezende-Barbosa et al. 2016 | Supine | - | - | 0.99 (0.97 to 0.99) | 1.48 ± 1.24 | -0.95 to 3.91 | Yes / Yes |
| Vasconcellos et al. 2015 | Supine | 88 ± 55 | 68 ± 24 | 0.90 (0.75 to 0.80) | 13.8 ± 15.9 | -18.0 to 45.6 | Yes / No |
| Wallen et al. 2012 | Group (<45 yrs)MaleFemale | --- | --- | 0.95 (0.93 to 0.97)1.00 (1.00 to 1.00)0.91 (0.84 to 0.94) | --0.21 ± 3.00-0.70 ± 10.6 | --5.79 to 6.21-20.5 to 21.9 | Yes / YesYes / No |
| Porto & Junqueira 2009 | Supine Stand | 60.4 ± 35.7 24.5 ± 7.6 | 59.6 ± 36.5 22.3 ± 7.9 | -- | 0.90#1.70# | -- | -- |
| Nunan et al. 2009 | Supine | 44 x/÷ 1.8 | 41 x/÷ 1.7 | 0.97 (0.94 to 0.99) | 0.92 | - | Yes |
| Nunan et al. 2008 | Supine | 45.6 ± 2.01 | 42.5 ± 1.86 | 0.88 (0.77 to 0.94) | 0.95 ± 0.71 | 0.54 to 1.66 | Yes / Yes |
| Vanderlei et al. 2008 | Supine60% VO2 max | 52.84 ± 15.94 12.21 ± 5.69 | 53.12 ± 16.29 11.45 ± 4.76 | 1.00 (0.98 to 1.00)0.93 (0.79 to 0.98) | -- | -- | YesYes |
| Gamelin et al. 2006 | SupineStand | 46.7 ± 23.7 21.1 ± 8.9 | 46.5 ± 23.7 20.7 ± 8.6 | 0.990.99 | 0.21 ± 0.690.46 ± 0.81 | -1.17 to 1.58-1.15 to 2.07 | Yes / YesYes / Yes |
| **pNN50 (%)** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand | 29.1 ± 23.17.2 ± 7.8 | 29.3 ±24.07.3 ± 8.0 | 1.00 (1.00 to 1.00)1.00 (0.99 to 1.00) | -0.25 ± 0.48-0.04 ± 0.69 | -1.20 to 0.70-1.42 to 1.34 | Yes / YesYes /Yes |
| Vasconcellos et al. 2015 | Supine | 44 ± 20 |  38 ± 14 | 0.77 (0.47 to 0.92) |  5.6 ± 10.3 | -15.0 to 26.2 | No / No |
| Porto and Junqueira 2009 | SupineStand | 30.1 ± 20.44.10 ± 4.93 | 32.3 ± 20.94.36 ± 5.63 | -- | -2.20 ± 1.670.01# | -5.53 to 1.13- | Yes |
| Vanderlei et al. 2008 | Supine60% VO2 max | 29.46 ± 12.730.65 ± 1.20 | 29.73 ± 12.890.42 ± 0.66 | 0.99 (0.98 to 0.99)0.87 (0.61 to 0.96) | -- | -- | YesNo |
| Gamelin et al. 2006 | SupineStand | 26.2 ± 20.84.1 ± 5.5 | 25.9 ± 20.74.0 ± 5.4 | 0.990.97 | 0.29 ± 1.380.10 ± 0.57 | -2.47 to 3.04-1.03 to 1.23 | Yes / YesYes / Yes |

**Table 3. Validity of Short-Term Inter-Beat Interval Time Series Data Derived from Polar® Heart Rate Monitors Under Stable and Provocative Conditions (continued).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Group****features** | **ECG****(mean ± SD)** | **HRM****(mean ± SD)** | **ICC****(95% CI)** | **Mean Bias (SD)****#Median** | **Limits of Agreement****(90%\* or 95%)** | **Valid****Measure****(ICC / LOA)** |
| **SDNN (ms2)** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand | 61.4 ± 32.052.0 ± 16.7 | 61.4 ± 32.052.0 ± 16.7 | 1.00 (1.00 to 1.00)1.00 (1.00 to 1.00) | * 1. ± 0.12
	2. ± 0.10
 | -0.22 to 0.24-0.17 to 0.22 | Yes / YesYes / Yes |
| Montano et al. 2016 | Supine | 57.3 ± 1.52 | 63.1 ± 1.49 | 0.97 | -5.8 ± 1.1 (SEE) | -8.0 to -3.6 | Yes /  |
| De Rezende-Barbosa et al. 2016 | Supine | - | - | 0.99 (0.97 to 0.99) | 1.51 ± 0.91 | -0.27 to 3.29 | Yes / Yes |
| Wallen et al. 2012 | Group (<45 yrs)MaleFemale | --- | --- | 0.87 (0.81 to 0.91)1.00 (0.99 to 1.00)0.75 (0.61 to 0.85) | --0.22 ± 2.44-4.1 ± 26.5 | --5.10 to 4.66-57.1 to 48.9 | YesYes / YesNo / No |
| Porto & Junqueira 2009 | SupineStand | 61.2 ± 31.246.8 ± 12.3 | 60.9 ± 32.746.6 ±12.1 | -- | 0.32 ± 0.980.24 ± 0.86 | -1.65 to 2.28-1.47 to 1.96 | YesYes |
| Nunan et al. 2009 | Supine | 58 x/÷ 1.5 | 56 x/÷ 1.5 | 0.99 (0.98 to 1.00) | 0.97 | - | Yes |
| Nunan et al. 2008 | Supine | 60.9 ± 1.57 | 60.3 ± 1.60¥ | 0.94 (0.88 to 0.97) | -0.06  | 0.68 to 1.45 | Yes / Yes |
| Gamelin et al. 2006 | SupineStand | 50.2 ± 18.841.4 ± 13.1 | 50.1 ± 18.841.4 ± 13.0 | 0.990.99 | 0.08 ± 0.270.06 ± 0.17 | -0.47 to 0.63-0.28 to 0.40 | Yes / YesYes / Yes |
| **LF (ms2)** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand |  1050.9 ± 994.31371.9 ± 1132.9 |  1051.8 ± 994.91371.3 ± 1133.3 | 1.00 (1.00 to 1.00)  1.00 (1.00 to 1.00)  | -0.95 ± 2.700.58 ± 3.63 | -6.25 to 4.36-6.67 to 7.83 | Yes / YesYes / Yes |
| Montano et al. 2016 | Supine | 827 ± 2.95 | 799 ± 2.76 | 0.98 | 28.0 ± 1.25 (SEE) | 25.6 to 30.5 | Yes / No |
| De Rezende-Barbosa et al. 2016 | Supine | - | - | 0.94 (0.87 to 0.97) | 36.3 ± 40.1 | -42.3 to 114.9 | Yes / No |
| Wallen et al. 2012 | Group (<45 yrs)MaleFemale | --- | --- | 0.95 (0.93 to 0.97)1.00 (1.00 to 1.00)0.91 (0.84 to 0.94) | -45.1 ± 337.3-0.33 ± 362.9 | --629.5 to 719.7-725.5 to 726.1 | YesYes / NoYes / No |
| Nunan et al. 2009 | Supine | 904 x/÷ 2.4 | 960 x/÷ 2.2 | 0.94 (0.87 to 0.97) | 1.06  |  | Yes |
| Nunan et al. 2008 | Supine |  1012.3 ± 2.5 |  916.0 ± 3.0 | 0.84 (0.70 to 0.92) | 1.19  | 0.32 to 4.44 | No / Yes |
| Gamelin et al. 2006 | SupineStand | 192.0 ± 119.4243.7 ± 180.6 | 192.8 ± 122.1244.6 ± 180.3 | 0.990.99 | 0.06 ± 2.94-0.86 ± 2.90 | -5.82 to 5.94-6.66 to 4.94 | Yes / YesYes / Yes |
| Kingsleyet al. 2005 | SupineExercise<40% VO2 max40-60% VO2 max60-80% VO2 max | ---- | ---- | ---- | ---- | -6.6 to 7.3-2.7 to 2.3-1.6 to 1.6-0.3 to 0.3 | Yes / YesYes / YesYes / YesYes / Yes |

**Table 3. Validity of Short-Term Inter-Beat Interval Time Series Data Derived from Polar® Heart Rate Monitors Under Stable and Provocative Conditions (continued).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Group****features** | **ECG****(mean ± SD)** | **HRM****(mean ± SD)** | **ICC****(95% CI)** | **Mean Bias (SD)****#Median** | **Limits of Agreement****(90%\* or 95%)** | **Valid****Measure****(ICC / LOA)** |
| **HF (ms2)**  |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand |  183.0 ± 2212.3652.3 ± 754.0 | 1826.5 ± 2216.2647.9 ± 742.4 | 1.00 (1.00 to1.00)1.00 (1.00 to1.00) | 0.45 ± 14.54.33 ± 14.7 | -27.95 to 28.84-25.1 to 33.7 | Yes / YesYes / Yes |
| Montano et al. 2016 | Supine | 843 ± 2.94 | 1071 ± 2.96 | 0.96 | -228 ± 1.35 (SEE) | -230.7 to -225.4 | Yes / No |
| De Rezende-Barbosa et al. 2016 | Supine | - | - | 0.95 (0.90 to 0.98) | 27.3 ± 84.1 | -137.5 to 192.1 | Yes / No |
| Wallen et al. 2012 | Group (<45 yrs)MaleFemale | --- | --- | 0.92 (0.90 to 0.94)0.98 (0.97 to 0.99)0.88 (0.84 to 0.91) | --70.1 ± 236.9-3.00 ± 641.0 | --543.9 to 403.7-1285.0 to 1279.0 | YesYes / NoYes / No |
| Nunan et al. 2009 | Supine | 608 x/÷ 2.8 | 557 x/÷ 2.7 | 0.94 (0.87 to 0.97) | 0.92  | - | Yes |
| Nunan et al. 2008 | Supine | 584 ± 3.22 | 493 ± 3.71 | 0.81 (0.65 to 0.91) | - | - | No |
| Gamelin et al. 2006 | SupineStand | 335.0 ± 429.867.1 ± 64.9 | 333.9 ± 428.964.9 ± 62.1 | 0.990.99 | 0.39 ± 4.512.13 ± 4.42 | -8.63 to 9.42-6.72 to 10.97 | Yes / YesYes / Yes |
| Kingsleyet al. 2005 | Supine<40% VO2 max40-60% VO2 max60-80% VO2 max80-100% VO2 max | ----- | ----- | ----- | ----- | -5.6 to 7.6-4.1 to 3.5-1.1 to 0.7-0.5 to 0.2-0.4 to 0.4 | Yes / YesYes / YesYes / YesYes / YesYes / Yes |
| **LF (nu)** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand | 41.0 ± 15.970.1 ± 13.2 | 41.1 ± 16.170.2 ± 13.1 | 1.00 (1.00 to 1.00)1.00 (1.00 to 1.00) | -0.08 ± 0.33-0.05 ± 0.39 | -0.72 to 0.56-0.83 ± 0.74 | Yes / YesYes / Yes |
| De Rezende-Barbosa et al. 2016 | Supine | - | - | 0.87 (0.74 to 0.94) |  0.03 ± 1.12 | - 2.2 to 2.2 | No / Yes |
| Vasconcellos et al. 2015 | Supine | 48 ± 21 | 56 ± 17 | 0.70 (0.31 to 0.89) |  -7.5 ± 13.6 | -34.7 to 19.7 | No / No |
| Weippert et al. 2012 | Supine | 0.61 ± 0.15 | 0.62 ± 0.15 | 0.90 (0.88 to 0.92) | -0.01 ± 0.00 | - | Yes |
| Nunan et al. 2009 | Supine | 61 ± 15 | 63 ± 13 | 0.86 (0.73 to 0.93) | -2.7  | - | No |
| Nunan, *et al*., 2008 | Supine | 58.5 ± 18.6 | 62.9 ± 14.5 | 0.73 (0.51 to 0.86) | 3.1 ± 11.6 | -20.1 to 26.3 | No / No |
| Vanderlei et al. 2008 | Supine60% VO2 max | 60.53 ± 14.7880.40 ± 10.10 | 61.67 ± 13.97 80.33 ± 9.87 | 0.98 (0.93 to 0.99)0.97 (0.92 to 0.99) | -- | -- | YesYes |
| Gamelin et al. 2006 | SupineStand | 44.9 ± 22.577.4 ± 15.5 | 45.0 ± 22.977.9 ± 15.2 | 0.990.98 | 0.03 ± 0.97 -0.47 ± 1.53 | -1.90 to 1.96-3.53 to 2.58 | Yes / YesYes / Yes |

**Table 3. Validity of Short-Term Inter-Beat Interval Time Series Data Derived from Polar® Heart Rate Monitors Under Stable and Provocative Conditions (continued).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **HF (nu)** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand | 58.9 ± 15.929.8 ± 13.1 |  58.8 ± 16.029.7 ± 13.1 | 1.00 (1.00 to1.00)1.00 (1.00 to1.00) |  0.08 ± 0.33 0.05 ± 0.39 | -0.57 to 0.72-0.73 to 0.83 | Yes / YesYes / Yes |
| De Rezende-Barbosa et al. 2016 | Supine | - | - | 0.87 (0.74 to 0.94) | -0.04 ± 1.12 | - 2.2 to 2.2 | No / Yes |
| Vasconcellos et al. 2015 | Supine | 52 ± 21 | 44 ± 17 | 0.70 (0.32 to 0.89) |  7.6 ± 13.5 |  -19.4 to 34.6 | No / No |
| Weippert et al. 2012 | Supine | 0.28 ± 0.14 | 0.28 ± 0.14 | 0.99 (0.99 to 0.99) | 0.00 ± 0.00 | - | Yes |
| Nunan et al. 2009 | Supine | 40 ± 15 | 37 ± 13 | 0.85 (0.71 to 0.92) | -2.9  | - | No |
| Nunan et al. 2008 | Supine | 6.50 ± 1.10 | 6.38 ± 1.16 | 0.81 (0.62 to 0.91) | -3.3 ± 11.7 | -26.7 to 20.1 | No / No |
| Vanderlei et al. 2008 | Supine60% VO2 max | 39.47 ± 14.7819.60 ± 10.10 | 38.33 ± 13.97 19.70 ± 9.87 | 0.98 (0.93 to 0.99)0.97 (0.92 to 0.99) | -- | -- | YesYes |
| Gamelin et al. 2006 | SupineStand | 55.0 ± 22.522.6 ± 15.5 | 55.0 ± 22.922.1 ± 15.2 | 0.990.98 | 0.03 ± 0.970.47 ± 1.53 | -1.96 to 1.90-2.58 to 3.53 | Yes / YesYes / Yes |
| **LF/HF** |  |  |  |  |  |  |  |
| Giles et al. 2016 | SupineStand | 1.0 ± 1.43.2 ± 2.4 | 1.1 ± 1.63.2 ± 2.4 | 0.99 (0.98 to 1.00)1.00 (0.99 to1.00) | -0.04 ± 0.39-0.01 ± 0.17 | -0.43 to 0.35-0.35 to 0.33 | Yes / YesYes / Yes |
| Montano et al. 2016 | Supine | 1.0 ± 0.2 | 1.0 ± 0.2 | 0.99 | 0.04 ± 0.03 (SEE) | -0.10 to 0.02 | Yes / Yes |
|   | Supine | - | - | 0.91 (0.81 to 0.96) | 0.12 ± 0.60 | -1.1 to 1.3 | Yes / Yes |
| Vasconcellos et al. 2015 | Supine | 1.3 ± 1.2 | 1.6 ± 1.2 | 0.92 (0.77 to 0.97) | -0.30 ± 0.40 | -1.1 to 0.5 | Yes / Yes |
| Nunan et al. 2009 | Supine | 1.9 x/÷ 2.0 | 2.0 x/÷ 1.8 | 0.87 (0.74 to0.93) | 1.05  |  | No |
| Nunan et al. 2008 | Supine | 2.1 ± 1.9 | 2.2 ± 1.5 | 0.87 (0.76 to 0.94) | 0.06 ± 1.12 |  -2.2 to 2.29 |  Yes / No |
| Vanderlei et al. 2008 | Supine60% VO2 max | 1.9 ± 1.05.1 ± 2.3 |  1.94 ± 1.05.0 ± 2.3 | 0.98 (0.95 to 0.99)0.94 (0.83 to 0.98) | -- | -- | YesYes |
| Gamelin et al. 2006 | SupineStand | 1.2 ± 1.26.8 ± 7.3 | 1.3 ± 1.26.8 ± 7.3 | 0.990.98 | -0.02 ± 0.08-0.03 ± 0.41 | -0.18 to 0.13-0.85 to 0.78 | Yes / YesYes / Yes |

Where feasible non-reported data were calculated from available data presented by authors to provide more comprehensive comparisons. ¥ Back transformed data from Ln10, # median;