**Lower hemoglobin levels associate with higher baroreflex sensitivity and heart rate variability**

Running head: Hemoglobin and heart rate variability

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**Table S1. Number of participants and statistical significance in one-way ANOVA analyses of background and metabolic parameters (Table 1).** Hb; Hemoglobin**,** Bp; Blood Pressure**,** Ca; Calcium**,** ACE; Angiotensin Converting Enzyme, BMI; Body Mass Index, WH; ratio Waist to Hip ratio, HOMA-IR; Homeostatic Model Assessment For Insulin Resistance**,** HDL; High-Density Lipoprotein, LDL; Low-Density Lipoprotein**.** Hb; Hemoglobin**,** Bp; Blood Pressure**,** Ca; Calcium**,** ACE; Angiotensin Converting Enzyme, BMI; Body Mass Index, WH; ratio Waist to Hip ratio, HOMA-IR; Homeostatic Model Assessment For Insulin Resistance**,** HDL; High-Density Lipoprotein, LDL; Low-Density Lipoprotein**.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | All subjects | Hb Tertile 1 | Hb Tertile 2 | Hb Tertile 3 |  |
|  | n | n | n | n | *p* |
| Age (years) | 733 | 269 | 241 | 223 | 0.870 |
| Hb (g/L) | 733 | 269 | 241 | 223 | < 0.0001 |
| Smoking (package years) | 733 | 269 | 241 | 223 | 0.019 |
| Alcohol consumption (g/week) | 733 | 269 | 241 | 223 | 0.148 |
| Physical activity | 721 | 265 | 237 | 219 | 0.391 |
| Lipid medication users (n) | 733 | 269 | 241 | 223 | 0.333 |
| Bp medication users (n) | 733 | 269 | 241 | 223 | 0.017 |
| Digitalis users (n) | 733 | 269 | 241 | 223 | 0.382 |
| Diuretics users (n) | 733 | 269 | 241 | 223 | 0.330 |
| Beta blocker users (n) | 733 | 269 | 241 | 223 | 0.083 |
| Ca channel blocker users (n) | 733 | 269 | 241 | 223 | 0.153 |
| ACE blocker users (n) | 733 | 269 | 241 | 223 | 0.627 |
| BMI (kg/m2) | 733 | 269 | 241 | 223 | < 0.0001 |
| Waist circumference (cm) | 731 | 268 | 241 | 222 | < 0.001 |
| Hip circumference (cm) | 731 | 268 | 241 | 222 | < 0.001 |
| WH ratio | 731 | 268 | 241 | 222 | 0.065 |
| Systolic bp (mmHg) | 733 | 269 | 241 | 223 | < 0.0001 |
| Diastolic bp (mmHg) | 733 | 269 | 241 | 223 | < 0.0001 |
| Heart rate (bpm) | 733 | 269 | 241 | 223 | 0.041 |
| Fasting glucose (mmol/L) | 733 | 269 | 241 | 223 | 0.021 |
| Fasting insulin (mU/L) | 733 | 269 | 241 | 223 | < 0.001 |
| HOMA-IR | 733 | 269 | 241 | 223 | < 0.001 |
| Total cholesterol (mmol/L) | 733 | 269 | 241 | 223 | 0.372 |
| Triglycerides (mmol/L) | 733 | 269 | 241 | 223 | < 0.0001 |
| HDL cholesterol (mmol/L) | 733 | 269 | 241 | 223 | 0.005 |
| LDL cholesterol (mmol/L) | 733 | 269 | 241 | 223 | 0.276 |

**Table S2. Background and metabolic characteristics of males in the study population.** The values are mean with (SD) or percentages. SD; Standard Deviation**,** Hb; Hemoglobin**,** Bp; Blood Pressure**,** Ca; Calcium**,** ACE; Angiotensin Converting Enzyme, BMI; Body Mass Index, WH ratio; Waist to Hip ratio, HOMA-IR; Homeostatic Model Assessment For Insulin Resistance**,** HDL; High-Density Lipoprotein, LDL; Low-Density Lipoprotein**.** SD; Standard Deviation**,** Hb; Hemoglobin**,** Bp; Blood Pressure**,** Ca; Calcium**,** ACE; Angiotensin Converting Enzyme, BMI; Body Mass Index, WH ratio; Waist to Hip ratio, HOMA-IR; Homeostatic Model Assessment For Insulin Resistance**,** HDL; High-Density Lipoprotein, LDL; Low-Density Lipoprotein**.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | All male subjects | Hb Tertile 1 | Hb Tertile 2 | Hb Tertile 3 |
|  | Mean (SD/%) | Mean (SD/%) | Mean (SD/%) | Mean (SD/%) |
| Number of subjects (n) | 389 | 141 | 135 | 113 |
| Age (years) | 50.63 (6.15) | 51.10 (6.14) | 50.05 (6.07) | 50.75 (6.24) |
| Hb (g/L) | 150.71 (7.86) | 142.16 (3.84) | 151.88 (2.25) | 159.97 (3.03) |
| Smoking (package years) | 14.04 (15.67) | 14.83 (15.40) | 11.23 (13.97) | 16.42 (17.46) |
| Alcohol consumption (g/week) | 97.47 (106.69) | 84.30 (100.25) | 103.71 (112.85) | 106.45 (106.24) |
| Physical activity (none) | 14 (3.6) | 2 (1.4) | 8 (5.9) | 4 (3.5) |
| Physical activity (irregular) | 125 (32.1) | 45 (31.9) | 39 (28.9) | 41 (36.3) |
| Physical activity (regular) | 131 (33.7) | 47 (33.3) | 45 (33.3) | 39 (34.5) |
| Physical activity (active) | 110 (28.3) | 45 (31.91) | 39 (28.9) | 26 (23.0) |
| Lipid medication users (n) | 16 (4.1) | 5 (3.5) | 6 (4.4) | 5 (4.4) |
| Bp medication users (n) | 195 (50.1) | 70 (49.6) | 64 (47.4) | 61 (54.0) |
| Digitalis users (n) | 4 (1.0) | 2 (1.4) | 0 (0) | 2 (1.8) |
| Diuretics users (n) | 45 (11.6) | 16. (11.3) | 15 (11.1) | 14 (12.4) |
| Beta blocker users (n) | 112 (28.8) | 37 (26.2) | 35 (25.9) | 40 (35.4) |
| Ca channel blocker users (n) | 48 (12.3) | 13 (9.2) | 18 (13.3) | 17 (15.0) |
| ACE blocker users (n) | 84 (21.6) | 35 (24.8) | 28 (20.7) | 21 (18.6) |
| BMI (kg/m2) | 27.95 (4.20) | 27.33 (4.20) | 27.57 (3.65) | 29.17 (4.57) |
| Waist circumference (cm) | 97.40 (10.77) | 95.87 (11.28) | 96.64 (9.52) | 100.24 (11.06) |
| Hip circumference (cm) | 104.57 (7.39) | 103.42 (7.11) | 104.17 (6.87) | 106.47 (8.00) |
| WH ratio | 0.93 (0.06) | 0.92 (0.06) | 0.93 (0.06) | 0.94 (0.05) |
| Systolic bp (mmHg) | 151.71 (20.49) | 148.72 (21.48) | 151.70 (19.57) | 155.45 (19.88) |
| Diastolic bp (mmHg) | 92.48 (10.91) | 90.51 (11.82) | 93.06 (10.27) | 94.24 (10.17) |
| Heart rate (bpm) | 72.07 (14.27) | 70.09 (14.86) | 73.26 (14.05) | 73.12 (13.62) |
| Fasting glucose (mmol/L) | 4.82 (1.51) | 4.79 (1.37) | 4.73 (1.29) | 4.97 (1.87) |
| Fasting insulin (mU/L) | 15.57 (13.43) | 12.83 (8.29) | 16.37 (17.11) | 18.03 (13.14) |
| HOMA-IR | 3.54 (4.03) | 2.88 (2.50) | 3.57 (4.21) | 4.34 (5.10) |
| Total cholesterol (mmol/L) | 5.78 (1.05) | 5.68 (1.05) | 5.82 (1.00) | 5.85 (1.12) |
| Triglycerides (mmol/L) | 1.71 (0.98) | 1.55 (0.69) | 1.68 (1.04) | 1.96 (1.16) |
| HDL cholesterol (mmol/L) | 1.22 (0.30) | 1.25 (0.30) | 1.23 (0.31) | 1.15 (0.30) |
| LDL cholesterol (mmol/L) | 3.69 (0.95) | 3.62 (0.95) | 3.74 (0.93) | 3.72 (0.97) |

**Table S3. Background and metabolic characteristics of females in the study population.** The values are mean with (SD) or percentages. SD; Standard Deviation**,** Hb; Hemoglobin**,** Bp; Blood Pressure**,** Ca; Calcium**,** ACE; Angiotensin Converting Enzyme, BMI; Body Mass Index, WH ratio; Waist to Hip ratio, HOMA-IR; Homeostatic Model Assessment For Insulin Resistance**,** HDL; High-Density Lipoprotein, LDL; Low-Density Lipoprotein**.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | All female subjects | Hb Tertile 1 | Hb Tertile 2 | Hb Tertile 3 |
|  | Mean (SD/%) | Mean (SD/%) | Mean (SD/%) | Mean (SD/%) |
| Number of subjects (n) | 344 | 128 | 106 | 110 |
| Age (years) | 51.81 (5.85) | 51.20 (5.83) | 52.37 (6.00) | 51.98 (5.71) |
| Hb (g/L) | 134.51 (8.25) | 126.19 (4.21) | 134.58 (1.88) | 144.13 (3.93) |
| Smoking (package years) | 4.47 (9.77) | 2.83 (6.18) | 4.07 (9.90) | 6.78 (12.36) |
| Alcohol consumption (g/week) | 25.00 (40.11) | 22.59 (42.28) | 24.10 (32.82) | 28.68 (43.84) |
| Physical activity (none) | 23 (6.7) | 11 (8.6) | 3 (2.8) | 9 (8.2) |
| Physical activity (irregular) | 92 (26.7) | 27 (21.1) | 34 (32.1) | 31 (28.2) |
| Physical activity (regular) | 102 (29.7) | 42 (32.8) | 30 (28.3) | 30 (27.3) |
| Physical activity (active) | 124 (36.0) | 46 (35.9) | 39 (36.8) | 39 (35.5) |
| Lipid medication users (n) | 8 (2.3) | 1 (0.8) | 5 (4.7) | 2 (1.8) |
| Bp medication users (n) | 184 (53.5) | 59 (46.1) | 53 (50.0) | 72 (65.5) |
| Digitalis users (n) | 11 (3.2) | 2 (1.6) | 4 (3.8) | 5 (4.5) |
| Diuretics users (n) | 68 (19.8) | 21 (16.4) | 20 (18.9) | 27 (24.5) |
| Beta blocker users (n) | 91 (26.5) | 29 (22.7) | 28 (26.4) | 34 (30.9) |
| Ca channel blocker users (n) | 45 (13.1) | 15 (11.7) | 11 (10.4) | 19 (17.3) |
| ACE blocker users (n) | 58 (16.9) | 22 (17.2) | 17 (16.0) | 19 (17.3) |
| BMI (kg/m2) | 27.47 (5.15) | 26.37 (4.85) | 27.37 (4.90) | 28.86 (5.45) |
| Waist circumference (cm) | 83.60 (11.72) | 81.08 (11.55) | 83.08 (10.84) | 87.03 (12.00) |
| Hip circumference (cm) | 104.16 (9.59) | 102.43 (8.88) | 104.00 (9.39) | 106.32 (10.22) |
| WH ratio | 0.80 (0.06) | 0.79 (0.07) | 0.80 (0.05) | 0.82 (0.06) |
| Systolic bp (mmHg) | 146.20 (22.00) | 140.09 (20.66) | 147.27 (21.40) | 152.28 (22.40) |
| Diastolic bp (mmHg) | 86.52 (11.97) | 83.12 (12.32) | 87.22 (10.76) | 89.79 (11.72) |
| Heart rate (bpm) | 75.74 (12.15) | 74.86 (11.90) | 74.69 (12.17) | 77.79 (12.29) |
| Fasting glucose (mmol/L) | 4.56 (1.04) | 4.41 (0.57) | 4.46 (0.71) | 4.83 (1.57) |
| Fasting insulin (mU/L) | 11.89 (8.52) | 10.50 (7.44) | 11.13 (8.22) | 14.24 (9.52) |
| HOMA-IR | 2.51 (2.08) | 2.15 (1.75) | 2.31 (2.02) | 3.11 (2.36) |
| Total cholesterol (mmol/L) | 5.63 (1.00) | 5.59 (0.96) | 5.66 (1.01) | 5.64 (1.02) |
| Triglycerides (mmol/L) | 1.40 (0.88) | 1.30 (0.81) | 1.29 (0.81) | 1.62 (0.97) |
| HDL cholesterol (mmol/L) | 1.50 (0.38) | 1.55 (0.39) | 1.51 (0.36) | 1.42 (0.38) |
| LDL cholesterol (mmol/L) | 3.41 (0.91) | 3.35 (0.93) | 3.47 (0.90) | 3.42 (0.89) |

**Table S4. Number of participants and statistical significance in one-way ANOVA analyses of baroreflex sensitivity and heart rate variability parameters (Table 2).** Hb; Hemoglobin, BRS; Baroreflex Sensitivity, RRi; R-R interval, SDNNindex; index of the SD of the RRi, HF; High Frequency, ln; natural logarithm, LF; Low Frequency, VLF; Very Low Frequency, LFHF; LF to HF ratio.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | All subjects | Hb Tertile 1 | Hb Tertile 2 | Hb Tertile 3 |  |
|  | n | n | n | n | *p* |
| BRS | 443 | 167 | 153 | 123 | 0.027 |
| **Total** |  |  |  |  |  |
| RRi (ms) | 733 | 269 | 241 | 223 | 0.022 |
| SDNNindex | 733 | 269 | 241 | 223 | 0.004 |
| HF (ln) | 733 | 269 | 241 | 223 | 0.023 |
| LF (ln) | 733 | 269 | 241 | 223 | 0.074 |
| VLF (ln) | 733 | 269 | 241 | 223 | 0.009 |
| LFHF | 733 | 269 | 241 | 223 | 0.800 |
| **Lying down** |  |  |  |  |  |
| RRi (ms) | 733 | 269 | 241 | 223 | 0.015 |
| SDNNindex | 733 | 269 | 241 | 223 | 0.042 |
| HF (ln) | 733 | 269 | 241 | 223 | 0.042 |
| LF (ln) | 733 | 269 | 241 | 223 | 0.299 |
| VLF (ln) | 733 | 269 | 241 | 223 | 0.112 |
| LFHF | 733 | 269 | 241 | 223 | 0.532 |
| **Sitting down** |  |  |  |  |  |
| RRi (ms) | 733 | 269 | 241 | 223 | 0.034 |
| SDNNindex | 733 | 269 | 241 | 223 | 0.045 |
| HF (ln) | 733 | 269 | 241 | 223 | 0.018 |
| LF (ln) | 733 | 269 | 241 | 223 | 0.050 |
| VLF (ln) | 733 | 269 | 241 | 223 | 0.011 |
| LFHF | 733 | 269 | 241 | 223 | 0.336 |
| **Walking** |  |  |  |  |  |
| RRi (ms) | 733 | 269 | 241 | 223 | 0.058 |
| SDNNindex | 733 | 269 | 241 | 223 | 0.006 |
| HF (ln) | 733 | 269 | 241 | 223 | 0.025 |
| LF (ln) | 733 | 269 | 241 | 223 | 0.057 |
| VLF (ln) | 733 | 269 | 241 | 223 | 0.012 |
| LFHF | 733 | 269 | 241 | 223 | 0.137 |

**Table S5. Baroreflex and heart rate variability parameters of males in the study population.** Hb; Hemoglobin, BRS; Baroreflex Sensitivity, RRi; R-R interval, SDNNindex; index of the SD of the RRi, HF; High Frequency, ln; natural logarithm, LF; Low Frequency, VLF; Very Low Frequency, LFHF; LF to HF ratio.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | All male subjects | | Hb Tertile 1 | | Hb Tertile 2 | | Hb Tertile 3 | |
|  | n | Mean (SD) | n | Mean (SD) | n | Mean (SD) | n | Mean (SD) |
| BRS | 254 | 9.66 (4.40) | 91 | 10.58 (4.60) | 96 | 9.25 (4.24) | 67 | 9.00 (4.21) |
| **Total** |  |  |  |  |  |  |  |  |
| RRi (ms) | 389 | 828.0 (126.1) | 141 | 843.6 (126.8) | 135 | 821.1 (134.5) | 113 | 816.6 (113.6) |
| SDNNindex | 389 | 56.1 (19.4) | 141 | 58.5 (19.4) | 135 | 55.9 (20.3) | 113 | 53.4 (18.2) |
| HF (ln) | 389 | 5.09 (0.78) | 141 | 5.16 (0.79) | 135 | 5.07 (0.77) | 113 | 5.05 (0.78) |
| LF (ln) | 389 | 5.93 (0.83) | 141 | 5.96 (0.86) | 135 | 5.93 (0.79) | 113 | 5.88 (0.83) |
| VLF (ln) | 389 | 6.82 (0.75) | 141 | 6.90 (0.75) | 135 | 6.81 (0.76) | 113 | 6.75 (0.73) |
| LFHF | 389 | 2.67 (1.51) | 141 | 2.65 (1.59) | 135 | 2.71 (1.46) | 113 | 2.66 (1.49) |
| **Lying down** |  |  |  |  |  |  |  |  |
| RRi (ms) | 389 | 903.1 (144.2) | 141 | 922.2 (146.2) | 135 | 892.6 (152.8) | 113 | 891.6 (129.2) |
| SDNNindex | 389 | 55.0 (23.3) | 141 | 56.79 (24.16) | 135 | 55.36 (22.95) | 113 | 52.34 (22.55) |
| HF (ln) | 389 | 5.24 (0.87) | 141 | 5.28 (0.90) | 135 | 5.24 (0.84) | 113 | 5.18 (0.88) |
| LF (ln) | 389 | 6.01 (0.88) | 141 | 6.01 (0.87) | 135 | 6.01 (0.88) | 113 | 6.00 (0.91) |
| VLF (ln) | 389 | 6.81 (0.84) | 141 | 6.85 (0.84) | 135 | 6.82 (0.84) | 113 | 6.75 (0.83) |
| LFHF | 389 | 2.60 (1.60) | 141 | 2.55 (1.66) | 135 | 2.56 (1.57) | 113 | 2.69 (1.57) |
| **Sitting down** |  |  |  |  |  |  |  |  |
| RRi (ms) | 389 | 845.0 (136.4) | 141 | 862.5 (135.6) | 135 | 834.9 (142.3) | 113 | 835.0 (129.1) |
| SDNNindex | 389 | 63.6 (24.7) | 141 | 65.7 (23.4) | 135 | 62.9 (27.3) | 113 | 61.7 (23.1) |
| HF (ln) | 389 | 5.09 (0.86) | 141 | 5.17 (0.82) | 135 | 5.05 (0.85) | 113 | 5.04 (0.91) |
| LF (ln) | 389 | 6.05 (0.89) | 141 | 6.12 (0.93) | 135 | 6.03 (0.86) | 113 | 6.00 (0.87) |
| VLF (ln) | 389 | 7.02 (0.85) | 141 | 7.13 (0.80) | 135 | 6.96 (0.86) | 113 | 6.95 (0.88) |
| LFHF | 389 | 3.19 (2.54) | 141 | 3.14 (2.02) | 135 | 3.10 (1.76) | 113 | 3.35 (3.67) |
| **Walking** |  |  |  |  |  |  |  |  |
| RRi (ms) | 389 | 735.8 (112.6) | 141 | 746.1 (114.2) | 135 | 735.8 (121.9) | 113 | 723.1 (97.8) |
| SDNNindex | 389 | 49.8 (23.1) | 141 | 53.0 (25.3) | 135 | 49.5 (23.0) | 113 | 46.1 (19.7) |
| HF (ln) | 389 | 4.71 (0.77) | 141 | 4.81 (0.81) | 135 | 4.68 (0.77) | 113 | 4.64 (0.73) |
| LF (ln) | 389 | 5.45 (0.94) | 141 | 5.47 (1.01) | 135 | 5.48 (0.91) | 113 | 5.37 (0.90) |
| VLF (ln) | 389 | 6.29 (0.85) | 141 | 6.39 (0.87) | 135 | 6.29 (0.87) | 113 | 6.16 (0.78) |
| LFHF | 389 | 2.73 (2.39) | 141 | 2.51 (1.81) | 135 | 2.97 (2.73) | 113 | 2.73 (2.59) |

**Table S6. Baroreflex and heart rate variability parameters of females in the study population.** Hb; Hemoglobin, BRS; Baroreflex Sensitivity, RRi; R-R interval, SDNNindex; index of the SD of the RRi, HF; High Frequency, ln; natural logarithm, LF; Low Frequency, VLF; Very Low Frequency, LFHF; LF to HF ratio.

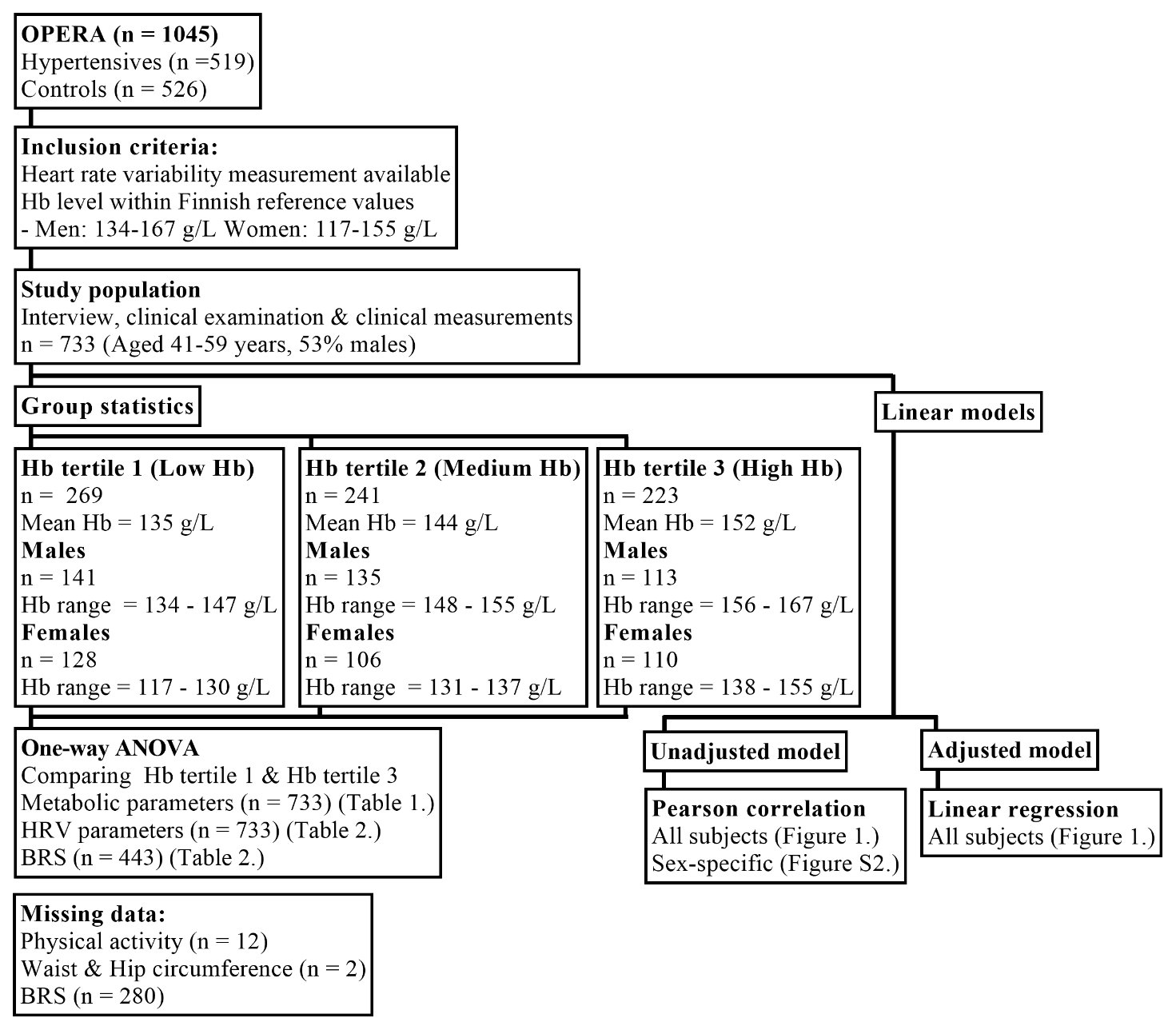
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | All female subjects | | Hb Tertile 1 | | Hb Tertile 2 | | Hb Tertile 3 | |
|  | n | Mean (SD) | n | Mean (SD) | n | Mean (SD) | n | Mean (SD) |
| BRS | 189 | 7.42 (4.56) | 76 | 7.95 (5.37) | 57 | 7.48 (3.74) | 56 | 6.65 (4.06) |
| **Total** |  |  |  |  |  |  |  |  |
| RRi (ms) | 344 | 826.5 (114.0) | 128 | 839.0 (115.5) | 106 | 833.0 (121.0) | 110 | 805.8 (102.9) |
| SDNNindex | 344 | 54.7 (17.5) | 128 | 57.3 (17.7) | 106 | 55.1 (17.3) | 110 | 51.3 (17.1) |
| HF (ln) | 344 | 5.22 (0.82) | 128 | 5.35 (0.84) | 106 | 5.25 (0.82) | 110 | 5.05 (0.78) |
| LF (ln) | 344 | 5.80 (0.84) | 128 | 5.92 (0.80) | 106 | 5.80 (0.85) | 110 | 5.66 (0.86) |
| VLF (ln) | 344 | 6.79 (0.73) | 128 | 6.90 (0.69) | 106 | 6.79 (0.74) | 110 | 6.64 (0.76) |
| LFHF | 344 | 2.04 (1.16) | 128 | 1.98 (0.93) | 106 | 2.01 (1.20) | 110 | 2.15 (1.35) |
| **Lying down** |  |  |  |  |  |  |  |  |
| RRi (ms) | 344 | 892.7 (129.8) | 128 | 907.6 (129.7) | 106 | 901.7 (136.9) | 110 | 866.8 (119.6) |
| SDNNindex | 344 | 50.2 (19.9) | 128 | 52.6 (20.3) | 106 | 50.4 (19.3) | 110 | 47.3 (20.0) |
| HF (ln) | 344 | 5.34 (0.95) | 128 | 5.47 (0.99) | 106 | 5.38 (0.91) | 110 | 5.14 (0.90) |
| LF (ln) | 344 | 5.86 (0.89) | 128 | 5.99 (0.82) | 106 | 5.82 (0.92) | 110 | 5.76 (0.94) |
| VLF (ln) | 344 | 6.66 (0.85) | 128 | 6.76 (0.77) | 106 | 6.66 (0.87) | 110 | 6.54 (0.90) |
| LFHF | 344 | 2.03 (1.34) | 128 | 2.01 (1.33) | 106 | 1.94 (1.44) | 110 | 2.15 (1.25) |
| **Sitting down** |  |  |  |  |  |  |  |  |
| RRi (ms) | 344 | 856.1 (126.1) | 128 | 867.4 (122.4) | 106 | 866.9 (137.3) | 110 | 832.7 (116.7) |
| SDNNindex | 344 | 59.8 (21.1) | 128 | 61.6 (20.1) | 106 | 61.9 (22.9) | 110 | 55.6 (19.8) |
| HF (ln) | 344 | 5.29 (0.92) | 128 | 5.43 (0.94) | 106 | 5.32 (0.94) | 110 | 5.10 (0.87) |
| LF (ln) | 344 | 5.97 (0.90) | 128 | 6.09 (0.87) | 106 | 5.99 (0.91) | 110 | 5.82 (0.92) |
| VLF (ln) | 344 | 7.03 (0.79) | 128 | 7.15 (0.77) | 106 | 7.05 (0.82) | 110 | 6.89 (0.76) |
| LFHF | 344 | 2.38 (1.67) | 128 | 2.21 (1.14) | 106 | 2.35 (1.48) | 110 | 2.61 (2.24) |
| **Walking** |  |  |  |  |  |  |  |  |
| RRi (ms) | 344 | 730.7 (105.1) | 128 | 741.9 (110.8) | 106 | 730.5 (109.1) | 110 | 717.9 (93.1) |
| SDNNindex | 344 | 54.1 (23.9) | 128 | 57.7 (26.2) | 106 | 52.9 (21.9) | 110 | 51.2 (22.5) |
| HF (ln) | 344 | 4.77 (0.71) | 128 | 4.87 (0.71) | 106 | 4.75 (0.72) | 110 | 4.68 (0.69) |
| LF (ln) | 344 | 5.23 (0.95) | 128 | 5.34 (0.99) | 106 | 5.26 (0.94) | 110 | 5.06 (0.91) |
| VLF (ln) | 344 | 6.32 (0.88) | 128 | 6.42 (0.91) | 106 | 6.32 (0.82) | 110 | 6.19 (0.90) |
| LFHF | 344 | 1.98 (1.55) | 128 | 1.99 (1.31) | 106 | 2.13 (1.87) | 110 | 1.84 (1.46) |

**Table S7. Effect sizes of association of Hb levels with Baroreflex and heart rate variability parameters in the study population.** Unadjusted model is a Pearson correlation with Hb and the presented variables. Adjusted model is a stepwise linear regression model of Hb and the presented variables. The effect size for the adjusted model is given for variables where Hb remained as an explanatory factor in the model. In the adjusted model age, sex, BMI, smoking, systolic bp, bp medication, fasting glucose and HDL cholesterol were used as covariates. CI; Confidence interval, BRS; Baroreflex sensitivity, RRi; R-R interval, SDNNindex; index of the SD of the RRi, HF; High Frequency, ln; natural logarithm, BMI; Body Mass Index, bp; blood pressure, HDL, High-Density Lipoprotein

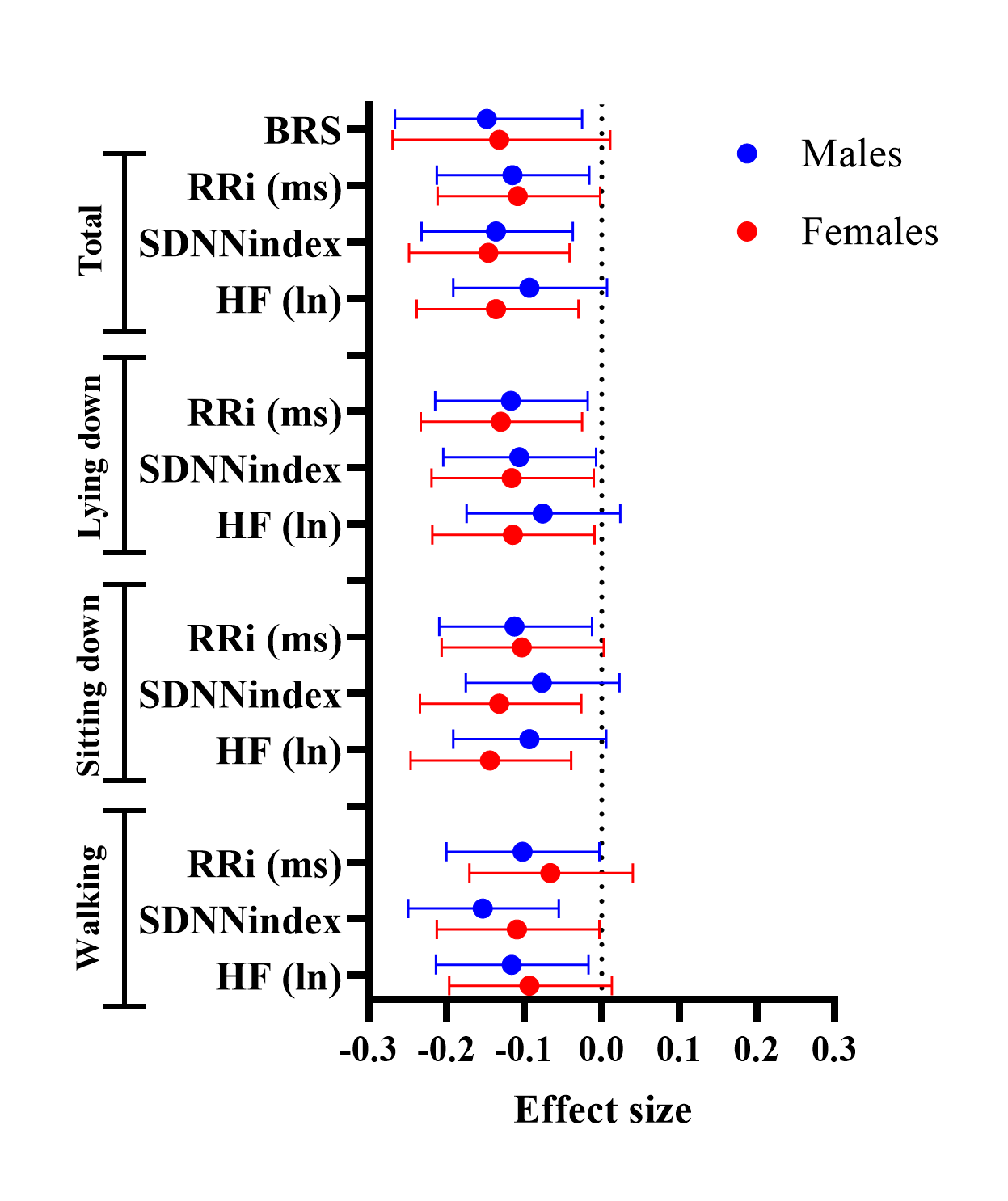
|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Unadjusted model | | | | | Adjusted model | | | |
|  | n | Pearson | CI (lower) | CI (upper) | *p* | Effect size | CI (lower) | CI (upper) | *p* |
| BRS | 443 | 0,083 | -0,01 | 0,175 | 0,082 | -0.160 | -0.285 | -0.035 | 0.012 |
| **Total** |  |  |  |  |  |  |  |  |  |
| RRi (ms) | 733 | -0,074 | -0,146 | -0,002 | 0,044 |  |  |  |  |
| SDNNindex | 733 | -0,071 | -0,143 | 0,001 | 0,054 |  |  |  |  |
| HF (ln) | 733 | -0,137 | -0,207 | -0,065 | < 0.0001 | -0.124 | -0.196 | -0.053 | 0.001 |
| **Lying down** |  |  |  |  |  |  |  |  |  |
| RRi (ms) | 733 | -0,06 | -0,132 | 0,013 | 0,106 |  |  |  |  |
| SDNNindex | 733 | 0.001 | -0,072 | 0,073 | 0,993 | -0.105 | -0.207 | -0.003 | 0.044 |
| HF (ln) | 733 | -0,106 | -0,177 | -0,034 | 0,004 | -0.110 | -0.18 | -0.04 | 0.002 |
| **Sitting down** |  |  |  |  |  |  |  |  |  |
| RRi (ms) | 733 | -0,106 | -0,177 | -0,033 | 0,004 | -0.090 | -0.161 | -0.018 | 0.015 |
| SDNNindex | 733 | -0,012 | -0,084 | 0,061 | 0,754 |  |  |  |  |
| HF (ln) | 733 | -0,162 | -0,231 | -0,09 | < 0.0001 | -0.150 | -0.221 | -0.079 | < 0.0001 |
| **Walking** |  |  |  |  |  |  |  |  |  |
| RRi (ms) | 733 | -0,043 | -0,115 | 0,029 | 0,241 |  |  |  |  |
| SDNNindex | 733 | -0,157 | -0,227 | -0,086 | < 0.0001 | -0.154 | -0.224 | -0.083 | < 0.0001 |
| HF (ln) | 733 | -0,103 | -0,174 | -0,03 | 0,005 |  |  |  |  |

**Table S8. Sex-specific Pearson correlations of Hb levels with Baroreflex and heart rate variability parameters in the study population.** CI; Confidence interval, BRS; Baroreflex sensitivity, RRi; R-R interval, SDNNindex; index of the SD of the RRi, HF; High Frequency, ln; natural logarithm.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Males | | | | | Females | | | | |
|  | n | Pearson | CI (lower) | CI (upper) | *p* | n | Pearson | CI (lower) | CI (upper) | *p* |
| BRS | 254 | -0.148 | -0.266 | -0.025 | 0.019 | 189 | -0.132 | -0.269 | 0.011 | 0.071 |
| **Total** |  |  |  |  |  |  |  |  |  |  |
| RRi (ms) | 389 | -0.115 | -0.212 | -0.016 | 0.023 | 344 | -0.108 | -0.211 | -0.002 | 0.046 |
| SDNNindex | 389 | -0.136 | -0.232 | -0.037 | 0.007 | 344 | -0.146 | -0.248 | -0.041 | 0.007 |
| HF (ln) | 389 | -0.093 | -0.191 | 0.007 | 0.067 | 344 | -0.136 | -0.238 | -0.03 | 0.012 |
| **Lying down** |  |  |  |  |  |  |  |  |  |  |
| RRi (ms) | 389 | -0.117 | -0.214 | -0.018 | 0.021 | 344 | -0.13 | -0.233 | -0.025 | 0.015 |
| SDNNindex | 389 | -0.106 | -0.204 | -0.007 | 0.036 | 344 | -0.116 | -0.219 | -0.01 | 0.032 |
| HF (ln) | 389 | -0.076 | -0.174 | 0.024 | 0.136 | 344 | -0.114 | -0.218 | -0.009 | 0.034 |
| **Sitting down** |  |  |  |  |  |  |  |  |  |  |
| RRi (ms) | 389 | -0.112 | -0.209 | -0.012 | 0.028 | 344 | -0.103 | -0.206 | 0.003 | 0.057 |
| SDNNindex | 389 | -0.077 | -0.175 | 0.023 | 0.132 | 344 | -0.132 | -0.234 | -0.026 | 0.015 |
| HF (ln) | 389 | -0.093 | -0.191 | 0.006 | 0.066 | 344 | -0.144 | -0.246 | -0.039 | 0.007 |
| **Walking** |  |  |  |  |  |  |  |  |  |  |
| RRi (ms) | 389 | -0.102 | -0.2 | -0.003 | 0.044 | 344 | -0.066 | -0.17 | 0.04 | 0.224 |
| SDNNindex | 389 | -0.153 | -0.249 | -0.055 | 0.002 | 344 | -0.109 | -0.212 | -0.003 | 0.044 |
| HF (ln) | 389 | -0.116 | -0.213 | -0.017 | 0.022 | 344 | -0.093 | -0.196 | 0.013 | 0.086 |

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**Figure S1. Flow chart representing the study population and analyses done.** OPERA; Oulu Project Elucidating Risk of Atherosclerosis, Hb; Hemoglobin, HRV; Heart Rate Variability, BRS; Baroreflex Sensitivity.

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**Figure S2. Sex-specific Pearson correlations of Hb levels with Baroreflex and heart rate variability parameters in the study population.** CI; Confidence interval,BRS; Baroreflex sensitivity, RRi; R-R interval, SDNNindex: index of the SD of the RRi, HF; High Frequency.