**Supplementary Table 1.** Precision analysis of consumer-grade devices

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Total**  **(n=182)** | **Female**  **(n=114)** | **Male**  **(n=68)** | **White**  **(n=114)** | **BAA**  **(n=47)** |
| VATNIRS | 0.952‡  (0.34) | 0.934‡  (0.34) | 0.966‡  (0.34) | 0.917‡  (0.42) | 0.999‡  (0.18) |
| VATVBC | 0.982‡  (0.22) | 0.937‡  (0.24) | 0.991‡  (0.19) | 0.972‡  (0.25) | 0.994‡  (0.17) |
| VATMFBIA | 0.998‡  (0.61) | 0.994‡  (0.18) | 0.999‡  (0.19) | 0.998‡  (0.19) | 0.999‡  (0.18) |

BAA, Black/African-American; VAT, visceral adipose tissue; NIRS, near-infrared reactance spectroscopy; VBC, visual body composition; MFBIA, multifrequency BIA. Data are presented as intraclass correlation coefficients using two-way random effects with absolute agreement and (precision error). ‡ significant at p < 0.001

**Supplementary Table 2a.** Associations Between VAT Indices and VAT/SAT Estimates From DXA by VAT and SAT Quartiles

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **DXA Visceral Adipose Area (cm2)a** | | | | | | | | |
|  | **Visceral Classificationb,c** | | | |  | **Subcutaneous Classificationb,d** | | | |
|  | **< 16.5**  **(n=45)** | **16.5-39.99**  **(n=47)** | **40.0-66.99**  **(n=44)** | **≥ 67.0**  **(n=46)** |  | **< 77.0**  **(n=46)** | **77.0-139.99**  **(n=47)** | **140.0-229.99**  **(n=44)** | **≥ 230.0**  **(n=45)** |
| Waist (cm) | 0.12  (0.03) | 0.21  (0.01) | 0.42†  (0.14) | 0.67‡  (0.46)† |  | 0.16  (0.25) | 0.50‡  (0.43)† | 0.41†  (0.37)\* | 0.89‡  (0.77)‡ |
| BMI (kg/m2) | 0.12  (0.06) | 0.23  (0.07) | 0.30  (-0.03) | 0.64‡  (0.39)† |  | -0.06  (0.02) | 0.58‡  (0.53)‡ | 0.32\*  (0.27) | 0.88‡  (0.77)‡ |
| Waist:hip | 0.03  (-0.03) | 0.00  (0.12) | 0.31\*  (0.22) | 0.60‡  (0.37)\* |  | -0.19  (-0.12) | 0.10  (-0.01) | 0.01  (-0.09) | 0.61  (0.34)\* |
| Waist:height | 0.14  (0.04) | 0.23  (-0.03) | 0.46†  (0.20) | 0.56‡  (0.14) |  | 0.36\*  (0.40)† | 0.72‡  (0.69)‡ | 0.33\*  (0.28) | 0.86‡  (0.78)‡ |
| VATNIRS | 0.03  (-0.06) | -0.00  (-0.30) | 0.34\*  (-0.00) | 0.71‡  (0.53)‡ |  | 0.42†  (0.52)‡ | 0.26  (0.21) | 0.39\*  (0.34)\* | 0.85‡  (0.69)‡ |
| VATVBC | -0.09  (-0.13) | -0.04  (-0.10) | 0.14  (0.10) | 0.76‡  (0.63)‡ |  | 0.01  (0.19) | 0.44†  (0.35)\* | 0.26  (0.17) | 0.81‡  (0.60)‡ |
| VATMFBIA | -0.03  (-0.06) | 0.01  (-0.14) | 0.39\*  (0.26) | 0.77‡  (0.64)‡ |  | 0.14  (0.32)\* | 0.41†  (0.31)\* | 0.19  (0.07) | 0.80‡  (0.57)‡ |
| Unadjusted  SAT (cm2) | 0.15 | 0.37\* | 0.44† | 0.56‡ |  |  |  |  |  |

a Values presented as: Pearson r (rpartial adjusted); b adipose tissue area quartiles measured in cm2; c values are total and partial correlations between each VAT index and VATDXA after adjusting for SATDXA; d values are total and partial correlations between each VAT index and SATDXA after adjusting for VATDXA ‡ significant at p < 0.001; † significant at p < 0.010; \*  significant at p < 0.050.

**Supplementary Table 2b.** Associations Between VAT Indices and VAT Estimates From DXA by VAT Quartiles Across Race and Sex Groups

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Visceral Classification (cm2)** | | | | | | | |
|  | **< 16.5** | | **16.5-39.99** | | **40.0-66.99** | | **≥ 67.0** | |
|  | **W** | **BAA** | **W** | **BAA** | **W** | **BAA** | **W** | **BAA** |
|  | n=31  M=6 | n=11  M=0 | n=32  M=16 | n=12  M=6 | n=26  M=9 | n=10  M=3 | n=25  M=14 | n=14  M=8 |
| Waist (cm) | 0.17  (0.03) | 0.15  (0.23) | 0.07  (-0.19) | 0.54  (0.47) | 0.18  (0.01) | 0.73\*  (0.23) | 0.64†  (0.44)\* | 0.83‡  (0.57)\* |
| BMI (kg/m2) | 0.13  (0.04) | 0.07  (0.08) | 0.11  (-0.03) | 0.56  (0.49) | -0.09  (-0.30) | 0.66\*  (0.01) | 0.64†  (0.49)\* | 0.69†  (0.27) |
| Waist:hip | 0.13  (0.03) | -0.04  (-0.03) | -0.18  (-0.06) | 0.39  (0.47) | 0.21  (0.23) | 0.66\*  (0.47) | 0.66‡  (0.51)\* | 0.47  (0.06) |
| Waist:height | 0.14  (-0.07) | 0.14  (0.19) | 0.21  (-0.05) | 0.34  (0.17) | 0.39\*  (0.31) | 0.62  (-0.24) | 0.54†  (0.17) | 0.70†  (0.19) |
| VATNIRS | -0.03  (-0.13) | 0.03  (0.13) | 0.03  (-0.29) | -0.01  (-0.34) | 0.10  (-0.10) | 0.67\*  (0.00) | 0.70‡  (0.56)† | 0.68†  (0.09) |
| VATVBC | -0.15  (-0.18) | 0.03  (0.03) | -0.33  (-0.35) | 0.64\*  (0.60) | -0.10  (-0.08) | 0.53  (0.44) | 0.84‡  (0.78)‡ | 0.61\*  (-0.04) |
| VATMFBIA | -0.08  (-0.09) | 0.11  (0.23) | -0.35  (-0.50)‡ | 0.80†  (0.79)† | 0.03  (-0.02) | 0.83†  (0.67)\* | 0.89‡  (0.84)‡ | 0.65\*  (0.15) |
| Unadjusted  SAT (cm2) | 0.21 | -0.08 | 0.37\* | 0.30 | 0.26 | 0.73\* | 0.52† | 0.74† |
|  | **F** | **M** | **F** | **M** | **F** | **M** | **F** | **M** |
|  | n=39 | n=6 | n=23 | n=24 | n=31 | n=13 | n=21 | n=25 |
| Waist (cm) | 0.16  (-0.04) | -0.29  (0.58) | 0.39  (0.04) | 0.04  (-0.16) | 0.52†  (0.25) | 0.05  (-0.05) | 0.58†  (0.26) | 0.72‡  (0.64)† |
| BMI (kg/m2) | 0.10  (-0.03) | -0.04  (0.31) | 0.30  (-0.07) | 0.19  (0.11) | 0.36\*  (-0.11) | -0.01  (-0.12) | 0.56†  (0.20) | 0.67‡  (0.35) |
| Waist:hip | 0.06  (-0.05) | -0.54  (-0.29) | -0.01  (0.21) | 0.07  (0.08) | 0.46\*  (0.39)\* | -0.22  (-0.28) | 0.44\*  (0.03) | 0.62†  (0.38) |
| Waist:height | 0.24  (0.04) | -0.27  (0.22) | 0.25  (-0.08) | 0.21  (0.09) | 0.51†  (0.23) | 0.23  (0.18) | 0.47\*  (-0.11) | 0.72‡  (0.58)† |
| VATNIRS | 0.00  (-0.17) | 0.22  (0.59) | 0.33  (-0.02) | -0.21  (-0.38) | 0.48†  (0.19) | -0.18  (-0.37) | 0.44\*  (0.06) | 0.79‡  (0.68)‡ |
| VATVBC | -0.19  (-0.25) | -0.25  (0.22) | -0.12  (-0.21) | 0.06  (-0.09) | 0.64‡  (0.53)† | -0.40  (-0.64) | 0.59†  (0.33) | 0.76‡  (0.61)† |
| VATMFBIA | -0.01  (-0.03) | -0.37  (0.00) | -0.04  (-0.21) | 0.05  (-0.13) | 0.62‡  (0.45)\* | 0.14  (0.07) | 0.52†  (0.20) | 0.77‡  (0.62)† |
| Unadjusted  SAT (cm2) | 0.27 | -0.48 | 0.58† | 0.19 | 0.48† | 0.15 | 0.56† | 0.61† |

a values are presented as: Pearson r (rpartial adjusted for SAT); b visceral adipose tissue area quartiles measured in cm2 ‡ significant at p < 0.001; † significant at p < 0.010; \*  significant at p < 0.050