

# XI. Anthropometry, Body Composition and Resting Metabolic Profiles

## [1\) Anthropometric measurements](#)

## [2\) Thickness of subcutaneous fat and muscle](#)

## [3\) Abdominal fat distribution](#)

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1. Body composition by DXA
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## [5\) Resting metabolic profiles](#)

### 1) Anthropometric measurements

#### Height (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 170.0     | 5.6 | 266 | 167.3     | 6.1 | 331 | 164.5     | 5.2 | 297 | 161.3     | 5.2 | 267 | 158.1  | 6.7 | 43 | 165.6 | 6.5 | 1204 |
| Female | 156.1     | 5.1 | 294 | 154.0     | 4.9 | 285 | 151.9     | 5.0 | 286 | 147.4     | 5.2 | 275 | 144.3  | 5.7 | 34 | 152.2 | 6.1 | 1174 |
| Total  | 162.7     | 8.8 | 560 | 161.2     | 8.7 | 616 | 158.3     | 8.1 | 583 | 154.3     | 8.7 | 542 | 152.0  | 9.3 | 77 | 159.0 | 9.2 | 2378 |

#### Weight (kg)

|        | 40 – 49yr |      |     | 50 – 59yr |      |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |      |    | Total |      |      |
|--------|-----------|------|-----|-----------|------|-----|-----------|-----|-----|-----------|-----|-----|--------|------|----|-------|------|------|
|        | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD   | N  | Mean  | SD   | N    |
| Male   | 67.7      | 10.2 | 266 | 65.9      | 9.2  | 331 | 63.2      | 8.3 | 297 | 58.9      | 8.4 | 267 | 56.0   | 10.2 | 43 | 63.7  | 9.7  | 1204 |
| Female | 54.4      | 9.4  | 294 | 53.6      | 7.7  | 284 | 52.6      | 7.3 | 286 | 50.8      | 7.7 | 275 | 44.9   | 7.2  | 34 | 52.6  | 8.3  | 1173 |
| Total  | 60.7      | 11.8 | 560 | 60.2      | 10.5 | 615 | 58.0      | 9.4 | 583 | 54.8      | 9.0 | 542 | 51.1   | 10.5 | 77 | 58.3  | 10.6 | 2377 |

#### Body mass index (kg/m<sup>2</sup>)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 23.4      | 3.0 | 266 | 23.5      | 2.7 | 331 | 23.3      | 2.8 | 297 | 22.6      | 2.8 | 267 | 22.4   | 3.6 | 43 | 23.2  | 2.9 | 1204 |
| Female | 22.3      | 3.7 | 294 | 22.6      | 3.1 | 284 | 22.7      | 2.8 | 286 | 23.4      | 3.4 | 275 | 21.5   | 2.7 | 34 | 22.7  | 3.3 | 1173 |
| Total  | 22.8      | 3.4 | 560 | 23.1      | 2.9 | 615 | 23.0      | 2.8 | 583 | 23.0      | 3.1 | 542 | 22.0   | 3.2 | 77 | 23.0  | 3.1 | 2377 |

#### Trochanterion height (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 83.4      | 4.0 | 266 | 81.7      | 4.3 | 330 | 80.3      | 3.6 | 296 | 79.4      | 3.3 | 267 | 78.6   | 4.7 | 43 | 81.1  | 4.1 | 1202 |
| Female | 76.5      | 3.6 | 294 | 74.9      | 3.3 | 285 | 74.3      | 3.4 | 286 | 72.7      | 3.3 | 275 | 72.3   | 3.1 | 34 | 74.6  | 3.7 | 1174 |
| Total  | 79.8      | 5.1 | 560 | 78.6      | 5.1 | 615 | 77.4      | 4.6 | 582 | 76.0      | 4.7 | 542 | 75.8   | 5.2 | 77 | 77.9  | 5.1 | 2376 |

#### Iliocristal height (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 98.4      | 4.4 | 266 | 96.7      | 4.5 | 330 | 95.0      | 3.9 | 296 | 94.1      | 3.6 | 267 | 92.9   | 5.2 | 43 | 95.9  | 4.5 | 1202 |
| Female | 90.6      | 3.8 | 294 | 89.0      | 3.6 | 285 | 88.3      | 3.8 | 286 | 86.2      | 3.7 | 275 | 85.1   | 3.7 | 34 | 88.5  | 4.1 | 1174 |
| Total  | 94.3      | 5.6 | 560 | 93.1      | 5.6 | 615 | 91.7      | 5.1 | 582 | 90.1      | 5.4 | 542 | 89.4   | 6.0 | 77 | 92.2  | 5.7 | 2376 |

Waist circumference at midway (cm)

|        | 40 – 49yr |      |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |      |     | 80yr – |      |    | Total |     |      |
|--------|-----------|------|-----|-----------|-----|-----|-----------|-----|-----|-----------|------|-----|--------|------|----|-------|-----|------|
|        | Mean      | SD   | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD   | N   | Mean   | SD   | N  | Mean  | SD  | N    |
| Male   | 82.6      | 8.4  | 266 | 83.9      | 7.9 | 331 | 84.3      | 8.2 | 297 | 82.9      | 8.9  | 267 | 80.8   | 11.4 | 43 | 83.3  | 8.5 | 1204 |
| Female | 72.7      | 9.3  | 294 | 74.3      | 8.4 | 285 | 76.3      | 8.1 | 286 | 79.4      | 10.3 | 275 | 74.3   | 7.6  | 34 | 75.6  | 9.3 | 1174 |
| Total  | 77.4      | 10.1 | 560 | 79.5      | 9.4 | 616 | 80.4      | 9.0 | 583 | 81.1      | 9.8  | 542 | 77.9   | 10.4 | 77 | 79.5  | 9.7 | 2378 |

Waist circumference at umbilicus (cm)

|        | 40 – 49yr |      |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |      |     | 80yr – |      |    | Total |      |      |
|--------|-----------|------|-----|-----------|-----|-----|-----------|-----|-----|-----------|------|-----|--------|------|----|-------|------|------|
|        | Mean      | SD   | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD   | N   | Mean   | SD   | N  | Mean  | SD   | N    |
| Male   | 84.6      | 8.3  | 266 | 85.8      | 7.8 | 331 | 86.2      | 8.2 | 297 | 84.7      | 8.8  | 267 | 83.2   | 11.0 | 43 | 85.3  | 8.4  | 1204 |
| Female | 78.8      | 10.2 | 294 | 81.1      | 9.4 | 285 | 83.6      | 9.1 | 286 | 86.1      | 10.5 | 275 | 79.2   | 8.0  | 34 | 82.2  | 10.1 | 1174 |
| Total  | 81.5      | 9.8  | 560 | 83.6      | 8.9 | 616 | 84.9      | 8.7 | 583 | 85.4      | 9.7  | 542 | 81.4   | 10.0 | 77 | 83.8  | 9.4  | 2378 |

Hip circumference (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 94.4      | 5.3 | 266 | 93.4      | 4.9 | 330 | 92.0      | 4.7 | 296 | 90.0      | 4.7 | 267 | 88.8   | 5.9 | 43 | 92.4  | 5.2 | 1202 |
| Female | 92.1      | 6.1 | 294 | 91.3      | 4.9 | 285 | 90.2      | 4.8 | 286 | 89.7      | 5.5 | 275 | 86.2   | 5.3 | 34 | 90.7  | 5.5 | 1174 |
| Total  | 93.2      | 5.9 | 560 | 92.4      | 5.0 | 615 | 91.1      | 4.8 | 582 | 89.8      | 5.1 | 542 | 87.7   | 5.7 | 77 | 91.5  | 5.4 | 2376 |

Thigh circumference at midway (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 50.2      | 4.0 | 266 | 49.0      | 3.6 | 331 | 47.6      | 3.7 | 296 | 45.8      | 3.8 | 267 | 44.9   | 4.8 | 43 | 48.1  | 4.2 | 1203 |
| Female | 48.9      | 4.3 | 294 | 47.8      | 4.0 | 285 | 46.8      | 3.6 | 286 | 45.2      | 4.1 | 275 | 43.2   | 3.8 | 34 | 47.1  | 4.3 | 1174 |
| Total  | 49.5      | 4.2 | 560 | 48.4      | 3.9 | 616 | 47.2      | 3.7 | 582 | 45.5      | 4.0 | 542 | 44.1   | 4.5 | 77 | 47.6  | 4.3 | 2377 |

Thigh circumference at 10 cm above knee (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 45.4      | 3.6 | 266 | 44.6      | 3.4 | 331 | 43.5      | 3.4 | 296 | 42.2      | 3.5 | 267 | 41.9   | 4.5 | 43 | 43.9  | 3.7 | 1203 |
| Female | 44.3      | 3.8 | 294 | 43.8      | 3.7 | 285 | 43.0      | 3.3 | 286 | 42.0      | 3.8 | 275 | 40.3   | 3.5 | 34 | 43.2  | 3.8 | 1174 |
| Total  | 44.8      | 3.8 | 560 | 44.2      | 3.6 | 616 | 43.3      | 3.4 | 582 | 42.1      | 3.6 | 542 | 41.2   | 4.2 | 77 | 43.6  | 3.8 | 2377 |

Calf circumference (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 36.9      | 2.8 | 266 | 36.2      | 2.6 | 331 | 35.3      | 2.5 | 296 | 33.9      | 2.5 | 267 | 33.2   | 3.0 | 43 | 35.5  | 2.9 | 1203 |
| Female | 34.8      | 2.7 | 294 | 34.2      | 2.6 | 285 | 33.5      | 2.3 | 286 | 32.6      | 2.4 | 275 | 31.3   | 2.6 | 34 | 33.7  | 2.7 | 1174 |
| Total  | 35.8      | 3.0 | 560 | 35.3      | 2.8 | 616 | 34.4      | 2.6 | 582 | 33.2      | 2.5 | 542 | 32.4   | 3.0 | 77 | 34.6  | 2.9 | 2377 |

Upper-arm circumference (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 29.3      | 2.6 | 266 | 28.9      | 2.2 | 331 | 28.3      | 2.2 | 297 | 27.1      | 2.3 | 267 | 26.3   | 2.8 | 43 | 28.3  | 2.5 | 1204 |
| Female | 26.9      | 3.0 | 294 | 27.2      | 2.6 | 285 | 27.4      | 2.6 | 286 | 27.0      | 2.9 | 275 | 24.9   | 2.4 | 34 | 27.1  | 2.8 | 1174 |
| Total  | 28.1      | 3.1 | 560 | 28.1      | 2.6 | 616 | 27.8      | 2.5 | 583 | 27.0      | 2.6 | 542 | 25.7   | 2.7 | 77 | 27.7  | 2.7 | 2378 |

Sagittal abdominal diameter (cm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 20.9      | 2.8 | 266 | 21.4      | 2.6 | 331 | 21.6      | 2.9 | 297 | 21.2      | 3.0 | 267 | 20.9   | 3.6 | 43 | 21.3  | 2.9 | 1204 |
| Female | 18.1      | 3.2 | 294 | 19.1      | 3.1 | 285 | 20.2      | 3.0 | 286 | 21.4      | 3.6 | 275 | 19.7   | 2.7 | 34 | 19.7  | 3.4 | 1174 |
| Total  | 19.4      | 3.3 | 560 | 20.4      | 3.1 | 616 | 20.9      | 3.0 | 583 | 21.3      | 3.3 | 542 | 20.4   | 3.2 | 77 | 20.5  | 3.2 | 2378 |

2) Thickness of subcutaneous fat and muscle  
(Ultrasound scanner, ECHOPAL; Hitachi Medical Corp.)

Thickness of subcutaneous fat at anterior upper-arm (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 3.0       | 1.3 | 266 | 2.9       | 1.2 | 331 | 2.8       | 1.1 | 297 | 2.6       | 1.0 | 267 | 2.6    | 0.9 | 43 | 2.8   | 1.1 | 1204 |
| Female | 4.4       | 2.2 | 294 | 4.1       | 1.6 | 285 | 4.3       | 1.7 | 286 | 4.1       | 1.6 | 275 | 3.0    | 1.0 | 34 | 4.2   | 1.8 | 1174 |
| Total  | 3.8       | 2.0 | 560 | 3.4       | 1.5 | 616 | 3.5       | 1.6 | 583 | 3.3       | 1.5 | 542 | 2.7    | 1.0 | 77 | 3.5   | 1.7 | 2378 |

Thickness of musculus biceps brachii and brachialis (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 26.4      | 4.8 | 266 | 25.9      | 4.2 | 331 | 24.8      | 4.1 | 297 | 23.2      | 4.0 | 267 | 21.3   | 5.2 | 43 | 25.0  | 4.5 | 1204 |
| Female | 19.9      | 4.2 | 294 | 20.0      | 3.4 | 285 | 19.2      | 3.8 | 286 | 18.1      | 3.4 | 275 | 16.3   | 2.9 | 34 | 19.2  | 3.8 | 1174 |
| Total  | 23.0      | 5.5 | 560 | 23.2      | 4.8 | 616 | 22.0      | 4.8 | 583 | 20.6      | 4.5 | 542 | 19.1   | 4.9 | 77 | 22.1  | 5.1 | 2378 |

Thickness of subcutaneous fat at forearm (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 3.2       | 1.1 | 266 | 3.3       | 1.2 | 331 | 3.2       | 1.0 | 297 | 3.1       | 1.0 | 267 | 3.1    | 1.2 | 43 | 3.2   | 1.1 | 1204 |
| Female | 3.9       | 1.4 | 294 | 3.9       | 1.5 | 285 | 4.0       | 1.6 | 285 | 3.7       | 1.5 | 275 | 2.9    | 1.0 | 34 | 3.8   | 1.5 | 1173 |
| Total  | 3.6       | 1.3 | 560 | 3.6       | 1.4 | 616 | 3.6       | 1.4 | 582 | 3.4       | 1.3 | 542 | 3.0    | 1.1 | 77 | 3.5   | 1.4 | 2377 |

Thickness of musculus brachioradialis (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 19.9      | 3.2 | 266 | 18.4      | 2.9 | 331 | 17.9      | 3.1 | 297 | 16.6      | 3.3 | 267 | 15.2   | 2.9 | 43 | 18.1  | 3.3 | 1204 |
| Female | 15.8      | 2.9 | 294 | 14.9      | 2.7 | 285 | 14.7      | 2.9 | 285 | 14.1      | 2.7 | 275 | 13.1   | 2.7 | 34 | 14.8  | 2.9 | 1173 |
| Total  | 17.8      | 3.7 | 560 | 16.8      | 3.3 | 616 | 16.3      | 3.4 | 582 | 15.4      | 3.3 | 542 | 14.3   | 3.0 | 77 | 16.5  | 3.5 | 2377 |

Thickness of subcutaneous fat at right of umbilicus (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 16.7      | 6.8 | 266 | 15.9      | 5.7 | 331 | 14.5      | 5.1 | 297 | 13.3      | 5.2 | 267 | 12.2   | 4.4 | 43 | 15.0  | 5.8 | 1204 |
| Female | 20.6      | 9.8 | 294 | 22.2      | 8.4 | 285 | 23.2      | 8.0 | 286 | 22.0      | 8.7 | 275 | 15.0   | 5.2 | 34 | 21.8  | 8.8 | 1174 |
| Total  | 18.7      | 8.7 | 560 | 18.8      | 7.7 | 616 | 18.8      | 7.9 | 583 | 17.7      | 8.4 | 542 | 13.5   | 5.0 | 77 | 18.4  | 8.2 | 2378 |

Thickness of musculus rectus abdominis at right of umbilicus (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 11.2      | 1.9 | 266 | 10.7      | 1.9 | 331 | 9.9       | 1.9 | 297 | 9.2       | 1.7 | 267 | 8.6    | 1.6 | 43 | 10.2  | 2.0 | 1204 |
| Female | 8.8       | 1.8 | 294 | 8.1       | 1.5 | 285 | 7.7       | 1.6 | 286 | 7.3       | 1.8 | 275 | 6.7    | 1.7 | 34 | 7.9   | 1.8 | 1174 |
| Total  | 9.9       | 2.2 | 560 | 9.5       | 2.2 | 616 | 8.8       | 2.0 | 583 | 8.2       | 2.0 | 542 | 7.8    | 1.9 | 77 | 9.1   | 2.2 | 2378 |

Thickness of subcutaneous fat at thigh (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 6.3       | 2.0 | 265 | 6.0       | 1.9 | 331 | 5.6       | 1.9 | 295 | 5.5       | 1.7 | 267 | 5.8    | 2.0 | 43 | 5.8   | 1.9 | 1201 |
| Female | 10.6      | 2.8 | 294 | 10.0      | 2.7 | 285 | 9.0       | 2.7 | 286 | 8.3       | 3.1 | 275 | 7.2    | 2.6 | 34 | 9.4   | 3.0 | 1174 |
| Total  | 8.5       | 3.2 | 559 | 7.8       | 3.0 | 616 | 7.3       | 2.9 | 581 | 6.9       | 2.9 | 542 | 6.4    | 2.4 | 77 | 7.6   | 3.1 | 2375 |

Thickness of musculus rectus femoris at thigh (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 32.6      | 6.0 | 265 | 31.0      | 6.3 | 331 | 28.8      | 6.3 | 295 | 25.3      | 5.9 | 267 | 23.7   | 6.6 | 43 | 29.3  | 6.8 | 1201 |
| Female | 29.8      | 6.8 | 294 | 27.0      | 5.8 | 285 | 25.4      | 5.6 | 285 | 21.9      | 5.3 | 275 | 19.6   | 5.4 | 34 | 25.9  | 6.6 | 1173 |
| Total  | 31.2      | 6.6 | 559 | 29.1      | 6.4 | 616 | 27.1      | 6.2 | 580 | 23.5      | 5.9 | 542 | 21.9   | 6.4 | 77 | 27.6  | 6.9 | 2374 |

Thickness of subcutaneous fat at anterior calf (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 2.4       | 0.7 | 266 | 2.3       | 0.8 | 330 | 2.2       | 0.8 | 296 | 2.2       | 0.7 | 267 | 2.2    | 0.8 | 43 | 2.3   | 0.8 | 1202 |
| Female | 3.6       | 1.4 | 294 | 3.4       | 1.4 | 285 | 3.1       | 1.3 | 286 | 3.1       | 1.2 | 275 | 2.6    | 1.2 | 34 | 3.3   | 1.3 | 1174 |
| Total  | 3.0       | 1.3 | 560 | 2.8       | 1.2 | 615 | 2.6       | 1.2 | 582 | 2.6       | 1.1 | 542 | 2.4    | 1.0 | 77 | 2.8   | 1.2 | 2376 |

Thickness of musculus tibialis anterior (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 26.5      | 3.0 | 266 | 26.4      | 3.1 | 331 | 25.3      | 3.3 | 296 | 23.6      | 2.9 | 267 | 23.3   | 3.9 | 43 | 25.4  | 3.4 | 1203 |
| Female | 22.5      | 2.8 | 294 | 22.1      | 2.8 | 285 | 22.0      | 2.7 | 286 | 20.8      | 2.9 | 275 | 20.5   | 2.7 | 34 | 21.8  | 2.8 | 1174 |
| Total  | 24.4      | 3.5 | 560 | 24.4      | 3.7 | 616 | 23.7      | 3.4 | 582 | 22.2      | 3.2 | 542 | 22.0   | 3.7 | 77 | 23.6  | 3.6 | 2377 |

Thickness of subcutaneous fat at upper-arm (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 6.1       | 2.0 | 266 | 5.9       | 1.9 | 331 | 5.5       | 1.7 | 296 | 5.4       | 1.7 | 266 | 5.5    | 1.6 | 43 | 5.7   | 1.8 | 1202 |
| Female | 9.9       | 2.8 | 294 | 9.8       | 2.7 | 285 | 9.7       | 2.5 | 286 | 9.1       | 2.6 | 275 | 8.1    | 2.2 | 34 | 9.6   | 2.7 | 1174 |
| Total  | 8.1       | 3.1 | 560 | 7.7       | 3.0 | 616 | 7.6       | 3.0 | 582 | 7.3       | 2.9 | 541 | 6.7    | 2.3 | 77 | 7.6   | 3.0 | 2376 |

Thickness of musculus triceps brachi (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 24.9      | 4.9 | 266 | 24.2      | 5.2 | 331 | 22.7      | 4.9 | 295 | 20.5      | 4.9 | 266 | 19.7   | 5.6 | 43 | 23.0  | 5.3 | 1201 |
| Female | 20.0      | 5.2 | 294 | 19.8      | 4.2 | 285 | 19.5      | 4.7 | 286 | 18.6      | 4.8 | 275 | 15.3   | 3.3 | 34 | 19.3  | 4.8 | 1174 |
| Total  | 22.4      | 5.6 | 560 | 22.1      | 5.3 | 616 | 21.1      | 5.1 | 581 | 19.5      | 4.9 | 541 | 17.8   | 5.2 | 77 | 21.2  | 5.4 | 2375 |

Thickness of subcutaneous fat at subscapula (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 8.5       | 3.0 | 265 | 8.0       | 2.7 | 331 | 7.6       | 2.5 | 296 | 7.2       | 2.4 | 266 | 6.9    | 2.8 | 43 | 7.8   | 2.7 | 1201 |
| Female | 10.0      | 5.0 | 294 | 9.8       | 3.8 | 284 | 9.8       | 3.7 | 286 | 9.4       | 3.7 | 275 | 7.1    | 3.0 | 34 | 9.7   | 4.1 | 1173 |
| Total  | 9.3       | 4.3 | 559 | 8.8       | 3.4 | 615 | 8.7       | 3.3 | 582 | 8.3       | 3.3 | 541 | 7.0    | 2.9 | 77 | 8.7   | 3.6 | 2374 |

Thickness of musculus latissimus dorsi at subscapula (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 5.6       | 1.5 | 265 | 4.9       | 1.3 | 331 | 4.8       | 1.4 | 296 | 4.7       | 1.5 | 266 | 4.2    | 1.5 | 43 | 5.0   | 1.5 | 1201 |
| Female | 4.2       | 1.4 | 294 | 4.1       | 1.1 | 284 | 4.1       | 1.2 | 286 | 4.1       | 1.4 | 275 | 3.9    | 1.2 | 34 | 4.1   | 1.3 | 1173 |
| Total  | 4.8       | 1.6 | 559 | 4.5       | 1.3 | 615 | 4.5       | 1.4 | 582 | 4.4       | 1.5 | 541 | 4.1    | 1.3 | 77 | 4.5   | 1.4 | 2374 |

Thickness of subcutaneous fat at posterior mid-thigh (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 5.6       | 1.8 | 266 | 5.3       | 1.7 | 331 | 5.1       | 1.8 | 296 | 5.0       | 1.6 | 266 | 5.4    | 1.8 | 43 | 5.3   | 1.8 | 1202 |
| Female | 9.5       | 3.3 | 294 | 8.7       | 3.3 | 285 | 8.0       | 3.2 | 286 | 7.5       | 3.5 | 275 | 7.6    | 3.9 | 34 | 8.4   | 3.4 | 1174 |
| Total  | 7.7       | 3.4 | 560 | 6.8       | 3.1 | 616 | 6.5       | 2.9 | 582 | 6.3       | 3.0 | 541 | 6.4    | 3.1 | 77 | 6.8   | 3.1 | 2376 |

Thickness of subcutaneous fat at posterior calf (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 4.5       | 1.3 | 266 | 4.3       | 1.3 | 331 | 4.0       | 1.2 | 295 | 3.8       | 1.3 | 266 | 4.1    | 1.4 | 43 | 4.2   | 1.3 | 1201 |
| Female | 6.7       | 1.6 | 294 | 6.3       | 1.9 | 285 | 5.7       | 1.9 | 286 | 5.4       | 2.0 | 274 | 4.9    | 2.0 | 34 | 6.0   | 1.9 | 1173 |
| Total  | 5.7       | 1.8 | 560 | 5.2       | 1.9 | 616 | 4.8       | 1.8 | 581 | 4.6       | 1.8 | 540 | 4.4    | 1.7 | 77 | 5.1   | 1.9 | 2374 |

Thickness of musculus gastrocnemius and soleus (mm)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 58.9      | 6.0 | 264 | 56.9      | 5.9 | 330 | 55.2      | 6.2 | 295 | 52.2      | 6.1 | 266 | 50.5   | 7.6 | 43 | 55.7  | 6.6 | 1198 |
| Female | 52.3      | 6.3 | 294 | 50.3      | 5.5 | 284 | 49.8      | 5.4 | 286 | 48.0      | 5.4 | 272 | 47.2   | 6.0 | 34 | 50.0  | 5.9 | 1170 |
| Total  | 55.5      | 7.0 | 558 | 53.9      | 6.6 | 614 | 52.5      | 6.4 | 581 | 50.0      | 6.1 | 538 | 49.1   | 7.1 | 77 | 52.9  | 6.9 | 2368 |

3) Abdominal fat distribution

(GT Scan, SCT-6800TX; Shimadzu, Fat Scan; N2 Corp.)

Intra-abdominal fat area at umbilicus by CT (cm<sup>2</sup>)

|        | 40 – 49yr |      |     | 50 – 59yr |      |     | 60 – 69yr |      |     | 70 – 79yr |      |     | 80yr – |      |    | Total |      |      |
|--------|-----------|------|-----|-----------|------|-----|-----------|------|-----|-----------|------|-----|--------|------|----|-------|------|------|
|        | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean   | SD   | N  | Mean  | SD   | N    |
| Male   | 78.6      | 36.8 | 263 | 89.1      | 43.1 | 329 | 98.5      | 47.9 | 296 | 92.0      | 49.6 | 267 | 91.9   | 64.0 | 43 | 89.9  | 45.9 | 1198 |
| Female | 40.6      | 28.6 | 292 | 57.4      | 35.7 | 282 | 66.0      | 34.4 | 285 | 81.8      | 42.4 | 273 | 72.6   | 40.5 | 34 | 61.5  | 38.5 | 1166 |
| Total  | 58.6      | 37.8 | 555 | 74.5      | 42.9 | 611 | 82.5      | 44.9 | 581 | 86.9      | 46.3 | 540 | 83.4   | 55.4 | 77 | 75.8  | 44.7 | 2364 |

Subcutaneous fat area at umbilicus by CT (cm<sup>2</sup>)

|        | 40 – 49yr |      |     | 50 – 59yr |      |     | 60 – 69yr |      |     | 70 – 79yr |      |     | 80yr – |      |    | Total |      |      |
|--------|-----------|------|-----|-----------|------|-----|-----------|------|-----|-----------|------|-----|--------|------|----|-------|------|------|
|        | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean   | SD   | N  | Mean  | SD   | N    |
| Male   | 119.3     | 57.8 | 263 | 115.8     | 50.2 | 329 | 115.4     | 47.2 | 296 | 106.5     | 45.8 | 267 | 101.7  | 46.7 | 43 | 113.9 | 50.4 | 1198 |
| Female | 150.3     | 81.4 | 292 | 163.0     | 67.5 | 282 | 164.7     | 61.8 | 285 | 164.8     | 68.7 | 273 | 121.9  | 49.5 | 34 | 159.5 | 70.2 | 1166 |
| Total  | 135.7     | 72.8 | 555 | 137.5     | 63.3 | 611 | 139.6     | 60.1 | 581 | 136.0     | 65.3 | 540 | 110.6  | 48.7 | 77 | 136.4 | 65.1 | 2364 |

Waist circumference at umbilicus by CT (cm)

|        | 40 – 49yr |      |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |      |     | 80yr – |      |    | Total |     |      |
|--------|-----------|------|-----|-----------|-----|-----|-----------|-----|-----|-----------|------|-----|--------|------|----|-------|-----|------|
|        | Mean      | SD   | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD   | N   | Mean   | SD   | N  | Mean  | SD  | N    |
| Male   | 85.3      | 8.5  | 262 | 86.0      | 8.2 | 330 | 86.4      | 8.3 | 296 | 85.0      | 9.1  | 267 | 83.7   | 11.3 | 43 | 85.6  | 8.6 | 1198 |
| Female | 81.2      | 10.2 | 292 | 84.2      | 9.2 | 282 | 85.5      | 8.7 | 285 | 87.3      | 10.3 | 273 | 82.1   | 8.6  | 34 | 84.4  | 9.8 | 1166 |
| Total  | 83.1      | 9.6  | 554 | 85.1      | 8.7 | 612 | 86.0      | 8.5 | 581 | 86.1      | 9.7  | 540 | 83.0   | 10.1 | 77 | 85.0  | 9.3 | 2364 |

4) Body composition

1.Body composition by DXA

(Dual energy x-ray absorptiometry, QDR-4500A: Hologic)縹?

Head fat weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 1.007     | 0.088 | 258 | 1.008     | 0.089 | 323 | 0.979     | 0.089 | 289 | 0.952     | 0.087 | 258 | 0.913  | 0.083 | 40 | 0.985 | 0.092 | 1168 |
| Female | 0.861     | 0.081 | 287 | 0.879     | 0.076 | 283 | 0.867     | 0.074 | 279 | 0.857     | 0.082 | 261 | 0.804  | 0.058 | 32 | 0.864 | 0.079 | 1142 |
| Total  | 0.930     | 0.111 | 545 | 0.948     | 0.105 | 606 | 0.924     | 0.099 | 568 | 0.905     | 0.097 | 519 | 0.865  | 0.091 | 72 | 0.925 | 0.105 | 2310 |

Head lean weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 3.986     | 0.315 | 258 | 3.975     | 0.325 | 323 | 3.874     | 0.335 | 289 | 3.748     | 0.322 | 258 | 3.604  | 0.321 | 40 | 3.890 | 0.341 | 1168 |
| Female | 3.494     | 0.296 | 287 | 3.501     | 0.281 | 283 | 3.393     | 0.269 | 279 | 3.318     | 0.289 | 261 | 3.135  | 0.223 | 32 | 3.421 | 0.296 | 1142 |
| Total  | 3.727     | 0.392 | 545 | 3.754     | 0.386 | 606 | 3.638     | 0.388 | 568 | 3.532     | 0.374 | 519 | 3.396  | 0.365 | 72 | 3.658 | 0.396 | 2310 |

Left arm fat weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 0.770     | 0.268 | 258 | 0.768     | 0.262 | 323 | 0.742     | 0.257 | 289 | 0.737     | 0.228 | 258 | 0.721  | 0.238 | 40 | 0.754 | 0.254 | 1168 |
| Female | 1.032     | 0.438 | 287 | 1.070     | 0.347 | 283 | 1.074     | 0.328 | 279 | 1.070     | 0.365 | 261 | 0.858  | 0.342 | 32 | 1.055 | 0.373 | 1142 |
| Total  | 0.908     | 0.390 | 545 | 0.909     | 0.340 | 606 | 0.905     | 0.337 | 568 | 0.904     | 0.347 | 519 | 0.782  | 0.295 | 72 | 0.903 | 0.352 | 2310 |

Left arm lean weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 3.104     | 0.440 | 258 | 2.995     | 0.405 | 323 | 2.816     | 0.361 | 289 | 2.601     | 0.338 | 258 | 2.368  | 0.418 | 40 | 2.866 | 0.439 | 1168 |
| Female | 1.850     | 0.314 | 287 | 1.797     | 0.249 | 283 | 1.755     | 0.247 | 279 | 1.683     | 0.245 | 261 | 1.566  | 0.282 | 32 | 1.767 | 0.275 | 1142 |
| Total  | 2.443     | 0.732 | 545 | 2.435     | 0.688 | 606 | 2.295     | 0.615 | 568 | 2.139     | 0.546 | 519 | 2.011  | 0.540 | 72 | 2.323 | 0.661 | 2310 |

Right arm fat weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 0.753     | 0.281 | 258 | 0.738     | 0.252 | 323 | 0.723     | 0.251 | 289 | 0.717     | 0.242 | 258 | 0.705  | 0.258 | 40 | 0.732 | 0.257 | 1168 |
| Female | 1.009     | 0.441 | 287 | 1.044     | 0.347 | 283 | 1.050     | 0.328 | 279 | 1.064     | 0.374 | 261 | 0.846  | 0.311 | 32 | 1.036 | 0.375 | 1142 |
| Total  | 0.887     | 0.395 | 545 | 0.881     | 0.337 | 606 | 0.884     | 0.334 | 568 | 0.892     | 0.360 | 519 | 0.767  | 0.289 | 72 | 0.882 | 0.355 | 2310 |

Right arm lean weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 3.353     | 0.472 | 258 | 3.244     | 0.441 | 323 | 3.048     | 0.378 | 289 | 2.790     | 0.366 | 258 | 2.495  | 0.446 | 40 | 3.094 | 0.478 | 1168 |
| Female | 2.044     | 0.349 | 287 | 1.986     | 0.273 | 283 | 1.937     | 0.281 | 279 | 1.839     | 0.252 | 261 | 1.703  | 0.294 | 32 | 1.947 | 0.303 | 1142 |
| Total  | 2.663     | 0.773 | 545 | 2.656     | 0.730 | 606 | 2.502     | 0.649 | 568 | 2.312     | 0.570 | 519 | 2.143  | 0.552 | 72 | 2.527 | 0.700 | 2310 |

Trunk fat weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 7.490     | 2.949 | 258 | 7.554     | 2.736 | 323 | 7.358     | 2.598 | 289 | 6.979     | 2.531 | 258 | 6.844  | 2.925 | 40 | 7.340 | 2.720 | 1168 |
| Female | 7.443     | 3.099 | 287 | 8.188     | 2.783 | 283 | 8.607     | 2.522 | 279 | 8.663     | 2.761 | 261 | 6.676  | 2.131 | 32 | 8.169 | 2.834 | 1142 |
| Total  | 7.465     | 3.026 | 545 | 7.850     | 2.774 | 606 | 7.971     | 2.634 | 568 | 7.826     | 2.778 | 519 | 6.769  | 2.586 | 72 | 7.750 | 2.807 | 2310 |

Trunk lean weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total  |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|--------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean   | SD    | N    |
| Male   | 26.404    | 3.328 | 258 | 25.846    | 2.954 | 323 | 24.624    | 2.644 | 289 | 23.021    | 2.712 | 258 | 21.410 | 3.219 | 40 | 24.891 | 3.241 | 1168 |
| Female | 19.532    | 2.536 | 287 | 18.914    | 1.974 | 283 | 18.180    | 1.925 | 279 | 17.329    | 2.067 | 261 | 15.953 | 1.737 | 32 | 18.445 | 2.315 | 1142 |
| Total  | 22.785    | 4.518 | 545 | 22.609    | 4.294 | 606 | 21.459    | 3.970 | 568 | 20.159    | 3.729 | 519 | 18.985 | 3.803 | 72 | 21.704 | 4.284 | 2310 |

Left leg fat weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 2.261     | 0.731 | 258 | 2.168     | 0.634 | 323 | 2.038     | 0.650 | 289 | 2.008     | 0.580 | 258 | 2.069  | 0.704 | 40 | 2.118 | 0.658 | 1168 |
| Female | 3.066     | 0.812 | 287 | 2.876     | 0.750 | 283 | 2.712     | 0.705 | 279 | 2.608     | 0.782 | 261 | 2.245  | 0.743 | 32 | 2.805 | 0.786 | 1142 |
| Total  | 2.685     | 0.872 | 545 | 2.498     | 0.775 | 606 | 2.369     | 0.757 | 568 | 2.310     | 0.751 | 519 | 2.147  | 0.722 | 72 | 2.457 | 0.801 | 2310 |

Left leg lean weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 8.528     | 1.201 | 258 | 8.104     | 1.128 | 323 | 7.694     | 0.931 | 289 | 7.136     | 0.898 | 258 | 6.513  | 1.217 | 40 | 7.828 | 1.187 | 1168 |
| Female | 6.009     | 0.973 | 287 | 5.698     | 0.767 | 283 | 5.551     | 0.718 | 279 | 5.213     | 0.638 | 261 | 4.998  | 0.699 | 32 | 5.610 | 0.839 | 1142 |
| Total  | 7.201     | 1.662 | 545 | 6.981     | 1.547 | 606 | 6.641     | 1.357 | 568 | 6.169     | 1.237 | 519 | 5.840  | 1.266 | 72 | 6.731 | 1.513 | 2310 |

Right leg fat weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 2.162     | 0.723 | 258 | 2.072     | 0.632 | 323 | 1.982     | 0.627 | 289 | 1.966     | 0.585 | 258 | 2.006  | 0.675 | 40 | 2.044 | 0.647 | 1168 |
| Female | 3.006     | 0.795 | 287 | 2.836     | 0.749 | 283 | 2.689     | 0.719 | 279 | 2.598     | 0.778 | 261 | 2.289  | 0.805 | 32 | 2.773 | 0.780 | 1142 |
| Total  | 2.606     | 0.870 | 545 | 2.429     | 0.787 | 606 | 2.329     | 0.760 | 568 | 2.284     | 0.758 | 519 | 2.132  | 0.744 | 72 | 2.404 | 0.803 | 2310 |

Right leg lean weight (kg)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|-------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean  | SD    | N    |
| Male   | 8.691     | 1.213 | 258 | 8.248     | 1.139 | 323 | 7.837     | 0.970 | 289 | 7.280     | 0.917 | 258 | 6.712  | 1.187 | 40 | 7.978 | 1.203 | 1168 |
| Female | 6.097     | 0.979 | 287 | 5.819     | 0.793 | 283 | 5.646     | 0.736 | 279 | 5.303     | 0.712 | 261 | 5.048  | 0.737 | 32 | 5.707 | 0.865 | 1142 |
| Total  | 7.325     | 1.697 | 545 | 7.114     | 1.567 | 606 | 6.761     | 1.395 | 568 | 6.286     | 1.284 | 519 | 5.972  | 1.306 | 72 | 6.855 | 1.546 | 2310 |

Total fat weight (kg)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 14.4      | 4.8 | 258 | 14.3      | 4.3 | 323 | 13.8      | 4.2 | 289 | 13.4      | 4.0 | 258 | 13.3   | 4.7 | 40 | 14.0  | 4.4 | 1168 |
| Female | 16.4      | 5.2 | 287 | 16.9      | 4.6 | 283 | 17.0      | 4.2 | 279 | 16.9      | 4.6 | 261 | 13.7   | 4.0 | 32 | 16.7  | 4.7 | 1142 |
| Total  | 15.5      | 5.1 | 545 | 15.5      | 4.6 | 606 | 15.4      | 4.5 | 568 | 15.1      | 4.7 | 519 | 13.5   | 4.3 | 72 | 15.3  | 4.7 | 2310 |

Lean body weight (kg)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 54.1      | 6.5 | 258 | 52.4      | 5.9 | 323 | 49.9      | 5.0 | 289 | 46.6      | 5.0 | 258 | 43.1   | 6.4 | 40 | 50.5  | 6.4 | 1168 |
| Female | 39.0      | 5.1 | 287 | 37.7      | 3.9 | 283 | 36.5      | 3.8 | 279 | 34.7      | 3.8 | 261 | 32.4   | 3.7 | 32 | 36.9  | 4.5 | 1142 |
| Total  | 46.1      | 9.5 | 545 | 45.5      | 8.9 | 606 | 43.3      | 8.1 | 568 | 40.6      | 7.4 | 519 | 38.3   | 7.6 | 72 | 43.8  | 8.8 | 2310 |

Percent body fat (%)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 20.7      | 4.4 | 258 | 21.1      | 4.4 | 323 | 21.4      | 4.5 | 289 | 21.9      | 4.6 | 258 | 22.9   | 5.2 | 40 | 21.3  | 4.5 | 1168 |
| Female | 29.1      | 5.0 | 287 | 30.5      | 5.0 | 283 | 31.4      | 4.6 | 279 | 32.2      | 5.3 | 261 | 29.3   | 4.7 | 32 | 30.7  | 5.1 | 1142 |
| Total  | 25.1      | 6.3 | 545 | 25.5      | 6.6 | 606 | 26.3      | 6.8 | 568 | 27.1      | 7.1 | 519 | 25.8   | 5.9 | 72 | 26.0  | 6.7 | 2310 |

2. Body fluid volume by multi-frequency impedance method

(Bioimpedance measuring device, 4000C; XITRON)

Extracellular fluid (L)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 16.6      | 2.1 | 265 | 16.4      | 2.0 | 328 | 15.8      | 1.9 | 291 | 14.8      | 1.8 | 259 | 14.3   | 2.3 | 43 | 15.9  | 2.1 | 1186 |
| Female | 12.4      | 1.7 | 293 | 12.3      | 1.4 | 281 | 12.0      | 1.4 | 284 | 11.5      | 1.4 | 268 | 10.5   | 1.5 | 34 | 12.0  | 1.5 | 1160 |
| Total  | 14.4      | 2.9 | 558 | 14.5      | 2.7 | 609 | 13.9      | 2.5 | 575 | 13.1      | 2.3 | 527 | 12.6   | 2.7 | 77 | 14.0  | 2.7 | 2346 |



Intracellular fluid (L)

|        | 40 – 49yr |     |     | 50 – 59yr |     |     | 60 – 69yr |     |     | 70 – 79yr |     |     | 80yr – |     |    | Total |     |      |
|--------|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|-----------|-----|-----|--------|-----|----|-------|-----|------|
|        | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean      | SD  | N   | Mean   | SD  | N  | Mean  | SD  | N    |
| Male   | 22.5      | 3.5 | 265 | 21.4      | 3.1 | 328 | 19.5      | 2.9 | 291 | 17.0      | 2.6 | 259 | 15.2   | 3.1 | 43 | 20.0  | 3.8 | 1186 |
| Female | 14.4      | 2.4 | 293 | 13.8      | 1.9 | 281 | 13.2      | 2.0 | 284 | 11.9      | 1.6 | 268 | 10.6   | 1.8 | 34 | 13.3  | 2.3 | 1160 |
| Total  | 18.3      | 5.0 | 558 | 17.9      | 4.6 | 609 | 16.4      | 4.0 | 575 | 14.4      | 3.3 | 527 | 13.1   | 3.4 | 77 | 16.7  | 4.6 | 2346 |

5) Resting metabolic profiles

(Respiratory metabolism measuring device, Vmax; SENSOR MEDICS)

Resting energy expenditure (kcal/24 h)

|        | 40 – 49yr |       |     | 50 – 59yr |       |     | 60 – 69yr |       |     | 70 – 79yr |       |     | 80yr – |       |    | Total  |       |      |
|--------|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|-----------|-------|-----|--------|-------|----|--------|-------|------|
|        | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean      | SD    | N   | Mean   | SD    | N  | Mean   | SD    | N    |
| Male   | 1541.3    | 259.1 | 251 | 1485.4    | 247.0 | 301 | 1366.5    | 202.1 | 275 | 1263.1    | 193.5 | 236 | 1132.4 | 206.7 | 39 | 1408.4 | 254.6 | 1102 |
| Female | 1215.7    | 225.6 | 276 | 1170.9    | 188.0 | 262 | 1127.9    | 166.4 | 267 | 1086.5    | 156.2 | 243 | 1014.4 | 165.0 | 29 | 1148.4 | 193.3 | 1077 |
| Total  | 1370.8    | 291.6 | 527 | 1339.0    | 271.3 | 563 | 1248.9    | 220.4 | 542 | 1173.5    | 196.4 | 479 | 1082.1 | 197.6 | 68 | 1279.9 | 261.0 | 2179 |

Oxygen intake on resting (L/min)

|        | 40 – 49yr |      |     | 50 – 59yr |      |     | 60 – 69yr |      |     | 70 – 79yr |      |     | 80yr – |      |    | Total |      |      |
|--------|-----------|------|-----|-----------|------|-----|-----------|------|-----|-----------|------|-----|--------|------|----|-------|------|------|
|        | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean   | SD   | N  | Mean  | SD   | N    |
| Male   | 0.22      | 0.04 | 251 | 0.21      | 0.04 | 301 | 0.19      | 0.03 | 275 | 0.18      | 0.03 | 236 | 0.16   | 0.03 | 39 | 0.20  | 0.04 | 1102 |
| Female | 0.17      | 0.03 | 276 | 0.17      | 0.03 | 262 | 0.16      | 0.03 | 267 | 0.15      | 0.02 | 243 | 0.14   | 0.03 | 29 | 0.16  | 0.03 | 1077 |
| Total  | 0.20      | 0.04 | 527 | 0.19      | 0.04 | 563 | 0.18      | 0.03 | 542 | 0.17      | 0.03 | 479 | 0.15   | 0.03 | 68 | 0.18  | 0.04 | 2179 |

Carbon dioxide excretion on resting (L/min)

|        | 40 – 49yr |      |     | 50 – 59yr |      |     | 60 – 69yr |      |     | 70 – 79yr |      |     | 80yr – |      |    | Total |      |      |
|--------|-----------|------|-----|-----------|------|-----|-----------|------|-----|-----------|------|-----|--------|------|----|-------|------|------|
|        | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean   | SD   | N  | Mean  | SD   | N    |
| Male   | 0.19      | 0.03 | 251 | 0.18      | 0.03 | 301 | 0.17      | 0.02 | 275 | 0.16      | 0.02 | 236 | 0.14   | 0.02 | 39 | 0.17  | 0.03 | 1102 |
| Female | 0.15      | 0.02 | 276 | 0.14      | 0.02 | 262 | 0.14      | 0.02 | 267 | 0.13      | 0.02 | 243 | 0.12   | 0.02 | 29 | 0.14  | 0.02 | 1077 |
| Total  | 0.17      | 0.03 | 527 | 0.16      | 0.03 | 563 | 0.15      | 0.03 | 542 | 0.14      | 0.02 | 479 | 0.13   | 0.02 | 68 | 0.16  | 0.03 | 2179 |

Respiratory exchange ratio on resting

|        | 40 – 49yr |      |     | 50 – 59yr |      |     | 60 – 69yr |      |     | 70 – 79yr |      |     | 80yr – |      |    | Total |      |      |
|--------|-----------|------|-----|-----------|------|-----|-----------|------|-----|-----------|------|-----|--------|------|----|-------|------|------|
|        | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean      | SD   | N   | Mean   | SD   | N  | Mean  | SD   | N    |
| Male   | 0.87      | 0.08 | 251 | 0.86      | 0.08 | 301 | 0.88      | 0.08 | 275 | 0.88      | 0.08 | 236 | 0.89   | 0.08 | 39 | 0.87  | 0.08 | 1102 |
| Female | 0.85      | 0.07 | 276 | 0.86      | 0.08 | 262 | 0.87      | 0.08 | 267 | 0.85      | 0.08 | 243 | 0.86   | 0.09 | 29 | 0.86  | 0.08 | 1077 |
| Total  | 0.86      | 0.08 | 527 | 0.86      | 0.08 | 563 | 0.87      | 0.08 | 542 | 0.86      | 0.08 | 479 | 0.88   | 0.09 | 68 | 0.86  | 0.08 | 2179 |