

XI. Anthropometry, Body Composition and Resting Metabolic Profiles

1) Anthropometric measurements

2) Thickness of subcutaneous fat and muscle

3) Abdominal fat distribution

4) Body composition

1. Body composition by BODPOD
2. Body composition by DXA
3. Body fluid volume by multi-frequency impedance method

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	169.9	5.6	273	165.9	6.0	295	164.0	5.6	291	160.7	5.4	275	157.5	6.9	17	165.0	6.6	1151
Female	155.4	5.1	261	153.5	4.9	284	151.0	5.1	271	147.5	5.6	269	145.0	6.0	22	151.7	6.0	1107
Total	162.8	9.0	534	159.8	8.3	579	157.8	8.5	562	154.2	8.6	544	150.5	8.9	39	158.5	9.2	2258

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	67.6	10.0	273	64.1	8.4	295	62.2	8.2	291	58.2	8.9	275	57.9	9.8	17	62.9	9.5	1151
Female	54.8	8.5	261	53.4	7.5	284	52.4	7.7	271	50.2	8.5	269	47.4	7.8	22	52.6	8.2	1107
Total	61.3	11.3	534	58.9	9.6	579	57.5	9.3	562	54.2	9.6	544	52.0	10.1	39	57.9	10.3	2258

Body mass index (kg/m²)

	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	273	23.3	2.7	295	23.1	2.7	291	22.5	3.0	275	23.3	3.2	17	23.1	2.8	1151
Female	22.7	3.4	261	22.7	3.0	284	23.0	3.1	271	23.1	3.5	269	22.5	3.4	22	22.8	3.3	1107
Total	23.0	3.2	534	23.0	2.8	579	23.0	2.9	562	22.8	3.3	544	22.9	3.3	39	23.0	3.1	2258

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	82.6	4.0	273	80.3	4.0	295	79.4	3.6	291	78.6	3.6	275	76.5	5.2	17	80.2	4.1	1151
Female	75.3	3.1	261	74.1	3.3	284	73.4	3.3	271	72.3	3.4	269	72.7	3.4	21	73.8	3.4	1106
Total	79.0	5.1	534	77.3	4.8	579	76.5	4.6	562	75.5	4.7	544	74.4	4.7	38	77.0	5.0	2257

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	97.5	4.4	273	95.2	4.4	295	94.1	4.0	291	93.2	3.7	275	90.6	6.2	17	95.0	4.5	1151
Female	89.6	3.7	261	88.4	3.5	284	87.4	3.6	271	86.0	3.6	269	85.7	3.9	22	87.8	3.8	1107
Total	93.7	5.6	534	91.9	5.2	579	90.9	5.1	562	89.7	5.1	544	87.8	5.5	39	91.5	5.5	2258

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	83.5	8.5	273	83.8	7.6	295	84.2	8.1	291	82.8	9.9	275	83.9	10.8	17	83.6	8.6	1151
Female	73.7	9.0	261	74.8	8.3	284	77.2	9.1	271	79.1	10.4	269	77.4	10.3	22	76.2	9.4	1107
Total	78.7	10.0	534	79.4	9.1	579	80.8	9.3	562	81.0	10.3	544	80.2	10.9	39	80.0	9.7	2258

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	85.0	8.4	273	85.2	7.3	295	85.6	7.7	291	84.3	9.1	275	85.7	9.7	17	85.1	8.1	1151
Female	79.5	9.1	261	82.0	8.9	284	84.7	9.5	271	85.7	10.5	268	82.9	9.6	22	83.0	9.8	1106
Total	82.4	9.2	534	83.6	8.3	579	85.1	8.6	562	85.0	9.9	543	84.2	9.6	39	84.0	9.1	2257

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	94.7	5.2	273	92.8	4.8	295	92.0	4.6	291	90.0	5.2	275	89.6	5.2	17	92.3	5.2	1151
Female	92.6	5.7	261	91.2	4.8	284	90.4	5.3	271	89.4	5.8	269	88.6	5.3	22	90.8	5.5	1107
Total	93.7	5.5	534	92.0	4.9	579	91.2	5.0	562	89.7	5.5	544	89.0	5.2	39	91.6	5.4	2258

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	49.9	3.9	273	48.4	3.7	295	47.5	3.7	291	45.6	4.0	275	45.8	4.5	17	47.8	4.1	1151
Female	49.1	4.1	261	47.5	3.7	284	46.6	3.9	271	45.0	4.3	269	43.8	4.1	22	47.0	4.3	1107
Total	49.5	4.0	534	48.0	3.7	579	47.0	3.8	562	45.3	4.2	544	44.7	4.3	39	47.4	4.2	2258

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	45.2	3.6	273	44.3	3.4	295	43.6	3.3	291	42.1	3.8	275	43.1	4.4	17	43.8	3.7	1151
Female	44.8	3.7	261	43.7	3.5	284	43.0	3.6	271	42.0	4.0	269	40.6	3.8	22	43.3	3.8	1107
Total	45.0	3.7	534	44.0	3.4	579	43.3	3.5	562	42.0	3.9	544	41.7	4.2	39	43.6	3.8	2258

Calf circumference (cm)

	40 – 49yr			50 – 59yr			60 – 69yr			70 – 79yr			80yr –			Total		
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	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	36.9	2.8	273	35.8	2.6	295	35.2	2.6	291	33.7	2.7	275	34.1	2.7	17	35.4	2.9	1151
Female	35.1	2.7	261	34.1	2.6	284	33.5	2.7	271	32.5	2.6	269	31.6	2.8	22	33.8	2.8	1107
Total	36.0	2.9	534	35.0	2.7	579	34.3	2.7	562	33.1	2.7	544	32.7	3.0	39	34.6	3.0	2258

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	29.6	2.6	273	28.9	2.6	295	28.2	2.2	291	27.1	2.5	275	27.6	2.8	17	28.4	2.6	1151
Female	27.4	3.0	261	27.4	2.6	284	27.6	2.9	271	27.0	3.1	269	26.1	2.9	22	27.3	2.9	1107
Total	28.5	3.0	534	28.2	2.7	579	27.9	2.6	562	27.0	2.8	544	26.7	2.9	39	27.9	2.8	2258

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	20.8	2.8	273	21.1	2.6	295	21.2	2.8	291	21.0	3.3	275	21.3	3.5	17	21.0	2.9	1151
Female	17.9	3.1	261	18.8	3.0	284	19.9	3.1	271	20.8	3.7	269	20.2	3.8	22	19.4	3.4	1107
Total	19.4	3.3	534	20.0	3.1	579	20.6	3.0	562	20.9	3.5	544	20.7	3.7	39	20.2	3.3	2258

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

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	17.1	6.2	273	15.4	5.5	295	14.5	5.3	290	13.2	5.3	274	13.5	4.9	17	15.0	5.7	1149
Female	22.1	9.4	261	23.0	8.7	284	24.5	8.8	271	21.9	9.0	268	17.7	6.7	22	22.8	9.0	1106
Total	19.5	8.3	534	19.1	8.2	579	19.3	8.7	561	17.5	8.5	542	15.9	6.2	39	18.8	8.4	2255

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	11.3	2.0	273	10.7	1.8	295	9.9	1.8	290	9.3	1.8	274	8.9	1.5	17	10.3	2.0	1149
Female	8.8	1.8	261	8.3	1.7	284	7.8	1.7	270	7.4	2.0	268	6.6	1.5	22	8.0	1.9	1105
Total	10.1	2.3	534	9.5	2.1	579	8.9	2.0	560	8.4	2.1	542	7.6	1.8	39	9.2	2.2	2254

Thickness of subcutaneous fat between xiphoid process and 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	12.3	4.0	273	12.0	3.9	294	12.1	3.9	288	11.4	3.9	271	12.0	4.2	17	12.0	3.9	1143
Female	16.7	5.4	260	18.0	5.3	282	18.2	5.4	270	17.0	5.5	263	15.0	3.6	21	17.4	5.4	1096
Total	14.5	5.2	533	14.9	5.5	576	15.0	5.6	558	14.2	5.6	534	13.7	4.1	38	14.6	5.5	2239

Thickness of preperitoneal fat (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	9.3	3.7	273	9.0	4.1	294	8.1	4.0	288	7.5	4.8	270	7.3	4.1	17	8.5	4.2	1142

Female	8.4	4.4	260	9.3	4.1	282	8.8	3.8	270	7.8	3.9	263	6.4	2.8	21	8.5	4.1	1096
Total	8.9	4.1	533	9.1	4.1	576	8.4	3.9	558	7.7	4.4	533	6.8	3.4	38	8.5	4.2	2238

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	6.5	1.9	273	6.1	1.8	295	5.8	1.8	291	5.9	1.8	275	6.2	1.6	17	6.1	1.9	1151
Female	11.1	2.9	261	10.4	3.2	284	9.5	3.0	271	8.4	3.1	269	7.6	2.8	22	9.8	3.2	1107
Total	8.8	3.3	534	8.2	3.3	579	7.6	3.1	562	7.1	2.8	544	7.0	2.5	39	7.9	3.2	2258

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	32.7	5.9	273	31.1	6.7	295	28.8	6.4	291	25.6	6.5	275	26.1	6.9	17	29.5	6.9	1151
Female	30.4	6.6	261	27.7	6.1	284	25.5	6.0	271	22.6	5.9	269	20.3	6.1	22	26.4	6.8	1107
Total	31.6	6.3	534	29.5	6.6	579	27.2	6.4	562	24.1	6.4	544	22.9	7.0	39	28.0	7.0	2258

Thickness of subcutaneous fat at 10 cm above knee (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	6.6	1.7	273	6.0	1.7	295	5.7	1.8	291	5.7	1.6	275	5.9	1.3	17	6.0	1.8	1151
Female	10.3	2.6	261	9.5	2.6	284	8.7	2.8	271	7.5	2.8	269	6.4	2.5	22	9.0	2.9	1107
Total	8.4	2.9	534	7.7	2.8	579	7.2	2.8	562	6.6	2.5	544	6.2	2.0	39	7.5	2.8	2258

Thickness of musculus rectus femoris at 10 cm above knee (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	24.0	5.3	273	23.4	5.8	295	21.4	5.1	291	19.4	5.4	275	21.0	5.9	17	22.0	5.7	1151
Female	22.5	6.0	261	20.5	4.8	284	19.0	5.3	271	17.1	4.7	269	15.5	5.0	22	19.7	5.6	1107
Total	23.3	5.7	534	22.0	5.5	579	20.2	5.3	562	18.3	5.2	544	17.9	6.0	39	20.9	5.8	2258

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	6.4	1.9	273	5.8	1.7	295	5.7	1.6	291	5.6	1.6	275	5.9	2.2	17	5.9	1.8	1151
Female	10.6	2.9	261	10.4	2.4	284	10.2	2.7	270	9.4	2.6	269	7.9	1.5	22	10.1	2.7	1106
Total	8.5	3.2	534	8.1	3.1	579	7.9	3.1	561	7.5	2.9	544	7.0	2.1	39	7.9	3.1	2257

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	25.4	5.3	273	24.6	5.9	295	22.4	5.1	291	20.4	5.4	275	21.1	6.3	17	23.2	5.8	1151
Female	21.2	4.9	261	20.5	4.7	284	19.6	4.7	270	18.6	4.6	269	18.2	5.2	22	20.0	4.8	1106
Total	23.3	5.5	534	22.6	5.7	579	21.1	5.1	561	19.5	5.1	544	19.4	5.8	39	21.6	5.6	2257

3) Abdominal fat distribution
(CT scan, SCT-6800TX; Shimadzu, Fat Scan: N2 Corp.)

Intra-abdominal fat area at umbilicus by CT (cm²)

	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	84.9	44.2	272	92.6	44.3	293	99.1	50.2	291	94.3	60.4	275	109.2	50.7	17	93.1	50.4	1148
Female	42.7	30.9	260	57.3	36.9	284	72.2	38.9	271	81.5	49.0	268	72.1	58.7	22	63.7	42.4	1105
Total	64.3	43.6	532	75.2	44.4	577	86.1	47.1	562	88.0	55.4	543	88.3	57.8	39	78.7	48.9	2253

Subcutaneous fat area at umbilicus by CT (cm²)

	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	122.8	54.0	271	110.5	45.3	293	112.3	44.7	291	104.7	45.4	275	113.0	47.2	17	112.5	47.7	1147
Female	159.2	70.7	260	166.2	65.3	284	173.3	65.3	271	164.3	68.0	267	135.7	53.1	22	165.2	67.2	1104
Total	140.6	65.3	531	137.9	62.6	577	141.7	63.3	562	134.1	64.8	542	125.8	51.2	39	138.4	63.8	2251

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	87.7	8.6	272	87.2	7.8	293	87.4	8.4	291	85.8	9.9	275	86.7	11.6	17	87.1	8.7	1148
Female	84.1	9.1	260	85.6	9.0	284	88.0	8.9	271	88.4	10.2	268	87.1	10.3	22	86.6	9.5	1105
Total	86.0	9.0	532	86.4	8.5	577	87.7	8.6	562	87.1	10.1	543	86.9	10.7	39	86.8	9.1	2253

4) Body composition

1. Body composition by BODPOD
(Body composition system, MAB-1000; LMI)

Body volume by BODPOD (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	62.1	10.2	272	58.8	8.4	295	57.1	8.3	289	53.5	9.0	275	53.5	9.8	17	57.8	9.5	1148
Female	50.9	8.8	261	50.0	7.8	284	49.5	8.0	268	47.5	8.8	266	44.5	8.1	22	49.4	8.4	1101
Total	56.6	11.0	533	54.5	9.2	579	53.4	9.0	557	50.5	9.4	541	48.4	9.9	39	53.7	9.9	2249

Body density by BODPOD (kg/m³)

	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	1.0	0.0	270	1.0	0.0	289	1.0	0.0	285	1.0	0.0	266	1.0	0.0	17	1.0	0.0	1127
Female	1.0	0.0	258	1.0	0.0	278	1.0	0.0	263	1.0	0.0	257	1.0	0.0	20	1.0	0.0	1076
Total	1.0	0.0	528	1.0	0.0	567	1.0	0.0	548	1.0	0.0	523	1.0	0.0	37	1.0	0.0	2203

Percent body fat mass by BODPOD (%)

	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	21.1	5.7	270	21.4	5.4	290	22.3	5.8	285	23.5	6.1	266	24.9	6.8	17	22.1	5.8	1128
Female	26.4	6.7	258	29.1	6.1	278	32.0	5.9	263	32.0	6.5	257	31.0	5.7	20	29.9	6.7	1076
Total	23.7	6.7	528	25.2	7.0	568	27.0	7.6	548	27.7	7.6	523	28.2	6.8	37	25.9	7.4	2204

2.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	1.001	0.091	263	0.987	0.077	285	0.969	0.083	281	0.937	0.089	273	0.918	0.066	16	0.972	0.088	1118
Female	0.860	0.076	251	0.870	0.070	278	0.867	0.075	266	0.851	0.089	257	0.814	0.054	19	0.861	0.078	1071
Total	0.932	0.110	514	0.929	0.094	563	0.920	0.094	547	0.895	0.099	530	0.861	0.079	35	0.918	0.100	2189

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	3.956	0.326	263	3.906	0.284	285	3.828	0.320	281	3.683	0.332	273	3.603	0.274	16	3.839	0.332	1118
Female	3.491	0.285	251	3.469	0.263	278	3.379	0.274	266	3.285	0.299	257	3.138	0.178	19	3.402	0.291	1071
Total	3.729	0.384	514	3.690	0.350	563	3.610	0.374	547	3.490	0.374	530	3.351	0.324	35	3.625	0.382	2189

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	0.746	0.268	263	0.699	0.220	285	0.716	0.231	281	0.696	0.224	273	0.731	0.239	16	0.714	0.237	1118
Female	0.981	0.349	251	1.024	0.291	278	1.066	0.344	266	1.001	0.364	257	0.873	0.159	19	1.016	0.336	1071
Total	0.861	0.332	514	0.859	0.305	563	0.886	0.339	547	0.844	0.337	530	0.808	0.209	35	0.862	0.327	2189

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	3.031	0.441	263	2.880	0.387	285	2.717	0.369	281	2.508	0.352	273	2.376	0.480	16	2.777	0.436	1118
Female	1.828	0.318	251	1.753	0.239	278	1.723	0.243	266	1.641	0.269	257	1.605	0.267	19	1.733	0.276	1071
Total	2.443	0.715	514	2.323	0.650	563	2.234	0.588	547	2.088	0.536	530	1.958	0.540	35	2.266	0.637	2189

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	0.749	0.280	263	0.704	0.225	285	0.713	0.231	281	0.690	0.225	273	0.749	0.276	16	0.714	0.242	1118
Female	0.966	0.350	251	1.008	0.295	278	1.052	0.337	266	1.001	0.369	257	0.845	0.169	19	1.005	0.337	1071
Total	0.855	0.334	514	0.854	0.302	563	0.878	0.334	547	0.841	0.341	530	0.801	0.226	35	0.856	0.326	2189

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	3.281	0.471	263	3.105	0.417	285	2.928	0.387	281	2.653	0.382	273	2.631	0.592	16	2.985	0.478	1118
Female	2.004	0.334	251	1.928	0.262	278	1.892	0.274	266	1.795	0.292	257	1.736	0.307	19	1.902	0.301	1071
Total	2.658	0.759	514	2.524	0.684	563	2.424	0.618	547	2.237	0.548	530	2.145	0.640	35	2.455	0.674	2189

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	7.560	2.820	263	7.159	2.457	285	7.401	2.478	281	6.877	2.529	273	7.284	2.844	16	7.247	2.583	1118
Female	7.597	2.876	251	8.253	2.711	278	8.798	2.699	266	8.464	2.877	257	7.170	1.795	19	8.266	2.807	1071
Total	7.578	2.845	514	7.699	2.641	563	8.080	2.678	547	7.646	2.815	530	7.222	2.298	35	7.746	2.742	2189

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	26.398	3.303	263	25.371	2.711	285	24.499	2.708	281	22.785	2.951	273	22.211	3.286	16	24.717	3.212	1118
Female	19.829	2.350	251	18.975	1.966	278	18.113	2.076	266	17.494	2.353	257	16.667	1.900	19	18.565	2.357	1071
Total	23.190	4.366	514	22.213	3.983	563	21.394	4.008	547	20.219	3.763	530	19.201	3.811	35	21.707	4.177	2189

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	2.188	0.698	263	1.994	0.541	285	2.001	0.590	281	1.982	0.577	273	2.012	0.521	16	2.039	0.606	1118
Female	2.926	0.778	251	2.781	0.694	278	2.731	0.780	266	2.520	0.795	257	2.253	0.659	19	2.731	0.774	1071
Total	2.548	0.825	514	2.383	0.735	563	2.356	0.779	547	2.243	0.741	530	2.143	0.604	35	2.377	0.775	2189

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	8.396	1.182	263	7.801	0.991	285	7.468	0.941	281	6.854	1.014	273	6.682	1.137	16	7.610	1.174	1118
Female	5.984	0.859	251	5.648	0.727	278	5.459	0.730	266	5.169	0.728	257	5.109	0.703	19	5.555	0.815	1071
Total	7.218	1.590	514	6.738	1.385	563	6.491	1.312	547	6.037	1.223	530	5.828	1.210	35	6.605	1.443	2189

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	2.138	0.698	263	1.946	0.545	285	1.955	0.578	281	1.960	0.584	273	1.975	0.475	16	1.997	0.605	1118
Female	2.903	0.783	251	2.774	0.699	278	2.733	0.776	266	2.525	0.799	257	2.253	0.693	19	2.725	0.776	1071
Total	2.511	0.833	514	2.355	0.750	563	2.334	0.784	547	2.234	0.751	530	2.126	0.611	35	2.353	0.783	2189

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	8.528	1.175	263	7.908	1.006	285	7.611	0.946	281	6.977	0.985	273	6.870	1.145	16	7.737	1.170	1118
Female	6.067	0.874	251	5.757	0.737	278	5.553	0.770	266	5.237	0.752	257	5.093	0.780	19	5.642	0.839	1071
Total	7.326	1.610	514	6.845	1.392	563	6.610	1.344	547	6.133	1.237	530	5.905	1.306	35	6.712	1.463	2189

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	4.6	263	13.5	3.8	285	13.8	3.9	281	13.1	4.0	273	13.7	4.1	16	13.7	4.1	1118
Female	16.2	4.8	251	16.7	4.3	278	17.2	4.6	266	16.4	4.9	257	14.2	3.0	19	16.6	4.6	1071
Total	15.3	4.8	514	15.1	4.4	563	15.5	4.6	547	14.7	4.7	530	14.0	3.5	35	15.1	4.6	2189

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	53.6	6.5	263	51.0	5.3	285	49.1	5.2	281	45.5	5.5	273	44.4	6.6	16	49.7	6.4	1118
Female	39.2	4.6	251	37.5	3.8	278	36.1	4.0	266	34.6	4.3	257	33.3	3.7	19	36.8	4.5	1071
Total	46.6	9.2	514	44.3	8.2	563	42.8	8.0	547	40.2	7.4	530	38.4	7.6	35	43.4	8.5	2189

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	20.8	4.3	263	20.7	4.3	285	21.6	4.5	281	22.0	4.5	273	23.2	4.7	16	21.3	4.4	1118
Female	28.8	5.1	251	30.4	4.8	278	31.9	5.0	266	31.5	5.3	257	29.7	3.4	19	30.7	5.2	1071
Total	24.7	6.2	514	25.5	6.7	563	26.6	7.0	547	26.6	6.8	530	26.7	5.2	35	25.9	6.7	2189

3. Body fluid volume by multi-frequency impedance method縹?
(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	16.7	2.1	268	16.2	1.8	288	15.8	1.9	289	14.7	2.0	267	15.0	2.5	17	15.8	2.1	1129
Female	12.6	1.6	259	12.2	1.4	279	12.0	1.5	268	11.5	1.6	260	11.1	1.5	21	12.1	1.6	1087
Total	14.7	2.8	527	14.2	2.6	567	13.9	2.6	557	13.1	2.4	527	12.8	2.8	38	14.0	2.6	2216

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	22.3	3.3	268	20.8	3.1	288	19.3	2.9	289	16.8	2.8	267	16.8	3.5	17	19.8	3.7	1129
Female	14.7	2.5	259	13.8	1.9	279	12.9	1.9	268	11.7	1.8	260	11.3	3.1	21	13.2	2.3	1087
Total	18.6	4.8	527	17.3	4.4	567	16.2	4.0	557	14.2	3.5	527	13.8	4.3	38	16.6	4.5	2216

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	1503.5	231.0	270	1428.1	208.4	291	1361.1	205.0	288	1272.5	208.1	270	1167.4	219.6	17	1388.2	230.2	1136
Female	1210.6	188.5	257	1145.1	178.4	281	1106.2	179.9	271	1085.7	161.3	267	1045.0	168.2	21	1134.5	183.2	1097
Total	1360.7	257.0	527	1289.1	240.3	572	1237.5	231.3	559	1179.6	208.3	537	1099.8	199.9	38	1263.5	243.9	2233

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	0.21	0.04	270	0.20	0.03	291	0.19	0.03	288	0.18	0.03	270	0.17	0.03	17	0.20	0.04	1136
Female	0.17	0.03	257	0.16	0.03	281	0.16	0.03	271	0.16	0.02	267	0.15	0.03	21	0.16	0.03	1097
Total	0.19	0.04	527	0.18	0.04	572	0.18	0.04	559	0.17	0.03	537	0.16	0.03	38	0.18	0.04	2233

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	0.18	0.04	270	0.17	0.02	291	0.17	0.02	288	0.15	0.02	270	0.14	0.02	17	0.17	0.03	1136
Female	0.14	0.02	257	0.14	0.02	281	0.13	0.02	271	0.13	0.02	267	0.13	0.02	21	0.14	0.02	1097
Total	0.16	0.04	527	0.16	0.03	572	0.15	0.03	559	0.14	0.02	537	0.13	0.02	38	0.15	0.03	2233

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	0.86	0.10	270	0.86	0.13	291	0.88	0.12	288	0.87	0.13	270	0.88	0.11	17	0.87	0.12	1136
Female	0.83	0.09	258	0.86	0.12	281	0.86	0.12	271	0.84	0.11	267	0.86	0.10	21	0.85	0.11	1098
Total	0.84	0.10	528	0.86	0.13	572	0.87	0.12	559	0.85	0.12	537	0.87	0.10	38	0.86	0.12	2234