

Minnesota Code

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 2-4	Male	0	0.0	0	0.0	0	0.0	1	0.6	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	1	0.1
Minnesota Code 2-5	Male	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
	Female	1	0.5	0	0.0	1	0.6	1	0.6	0	0.0	3	0.4
	Total	2	0.5	0	0.0	1	0.3	1	0.3	0	0.0	4	0.3
Minnesota Code 3-1	Male	9	4.9	13	8.3	15	9.3	22	12.9	9	17.3	68	9.4
	Female	3	1.5	6	4.1	4	2.5	13	7.8	8	15.1	34	4.7
	Total	12	3.2	19	6.3	19	5.9	35	10.4	17	16.2	102	7.0
Minnesota Code 3-2	Male	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	3	1.9	2	1.2	1	1.9	6	0.8
	Total	0	0.0	1	0.3	3	0.9	2	0.6	1	1.0	7	0.5
Minnesota Code 3-3-1	Male	2	1.1	1	0.6	2	1.2	3	1.8	1	1.9	9	1.2
	Female	1	0.5	0	0.0	0	0.0	4	2.4	0	0.0	5	0.7
	Total	3	0.8	1	0.3	2	0.6	7	2.1	1	1.0	14	1.0
Minnesota Code 3-3-2	Male	11	5.9	8	5.1	10	6.2	8	4.7	2	3.8	39	5.4
	Female	3	1.5	2	1.4	4	2.5	9	5.4	2	3.8	20	2.8
	Total	14	3.7	10	3.3	14	4.4	17	5.0	4	3.8	59	4.1
Minnesota Code 3-4	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 4-1-1	Male	0	0.0	0	0.0	1	0.6	1	0.6	1	1.9	3	0.4
	Female	0	0.0	1	0.7	0	0.0	1	0.6	0	0.0	2	0.3
	Total	0	0.0	1	0.3	1	0.3	2	0.6	1	1.0	5	0.3
Minnesota Code 4-1-2	Male	0	0.0	0	0.0	2	1.2	3	1.8	6	11.5	11	1.5

(Continued)

Minnesota Code

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 4-1-2	Female	2	1.0	2	1.4	3	1.9	4	2.4	2	3.8	13	1.8
	Total	2	0.5	2	0.7	5	1.6	7	2.1	8	7.6	24	1.7
Minnesota Code 4-2	Male	3	1.6	4	2.6	11	6.8	13	7.6	6	11.5	37	5.1
	Female	6	3.1	3	2.0	10	6.3	15	9.0	4	7.5	38	5.3
	Total	9	2.4	7	2.3	21	6.5	28	8.3	10	9.5	75	5.2
Minnesota Code 4-3	Male	8	4.3	15	9.6	18	11.1	39	22.9	15	28.8	95	13.1
	Female	16	8.2	21	14.2	28	17.6	38	22.8	11	20.8	114	15.8
	Total	24	6.3	36	11.8	46	14.3	77	22.8	26	24.8	209	14.4
Minnesota Code 4-4	Male	2	1.1	0	0.0	1	0.6	1	0.6	1	1.9	5	0.7
	Female	1	0.5	1	0.7	0	0.0	0	0.0	1	1.9	3	0.4
	Total	3	0.8	1	0.3	1	0.3	1	0.3	2	1.9	8	0.6
Minnesota Code 5-1	Male	0	0.0	1	0.6	3	1.9	1	0.6	1	1.9	6	0.8
	Female	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0	1	0.1
	Total	0	0.0	2	0.7	3	0.9	1	0.3	1	1.0	7	0.5
Minnesota Code 5-2	Male	3	1.6	6	3.8	6	3.7	7	4.1	6	11.5	28	3.9
	Female	11	5.6	8	5.4	14	8.8	10	6.0	7	13.2	50	6.9
	Total	14	3.7	14	4.6	20	6.2	17	5.0	13	12.4	78	5.4
Minnesota Code 5-3	Male	1	0.5	5	3.2	7	4.3	14	8.2	5	9.6	32	4.4
	Female	8	4.1	7	4.7	12	7.5	10	6.0	8	15.1	45	6.2
	Total	9	2.4	12	3.9	19	5.9	24	7.1	13	12.4	77	5.3
Minnesota Code 5-4	Male	3	1.6	7	4.5	7	4.3	11	6.5	3	5.8	31	4.3
	Female	5	2.6	11	7.4	13	8.2	13	7.8	7	13.2	49	6.8
	Total	8	2.1	18	5.9	20	6.2	24	7.1	10	9.5	80	5.5
Minnesota Code 5-5	Male	11	5.9	9	5.8	10	6.2	17	10.0	6	11.5	53	7.3
	Female	17	8.7	24	16.2	27	17.0	35	21.0	9	17.0	112	15.5

(Continued)

Minnesota Code

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 5-5	Total	28	7.4	33	10.9	37	11.5	52	15.4	15	14.3	165	11.4
Minnesota Code 6-1	Male	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	1	0.6	0	0.0	1	0.1
	Total	0	0.0	0	0.0	1	0.3	1	0.3	0	0.0	2	0.1
Minnesota Code 6-2-1	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 6-2-3	Male	0	0.0	0	0.0	0	0.0	1	0.6	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	1	0.1
Minnesota Code 6-3	Male	0	0.0	5	3.2	4	2.5	4	2.4	3	5.8	16	2.2
	Female	1	0.5	1	0.7	2	1.3	1	0.6	0	0.0	5	0.7
	Total	1	0.3	6	2.0	6	1.9	5	1.5	3	2.9	21	1.5
Minnesota Code 6-4-1	Male	2	1.1	1	0.6	0	0.0	0	0.0	0	0.0	3	0.4
	Female	2	1.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.3
	Total	4	1.1	1	0.3	0	0.0	0	0.0	0	0.0	5	0.3
Minnesota Code 6-5	Male	3	1.6	1	0.6	1	0.6	1	0.6	1	1.9	7	1.0
	Female	9	4.6	5	3.4	4	2.5	3	1.8	1	1.9	22	3.0
	Total	12	3.2	6	2.0	5	1.6	4	1.2	2	1.9	29	2.0
Minnesota Code 6-8	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	1	1.9	1	0.1
	Total	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	1	0.1
Minnesota Code 7-1-1	Male	1	0.5	0	0.0	0	0.0	4	2.4	1	1.9	6	0.8
	Female	0	0.0	0	0.0	0	0.0	1	0.6	1	1.9	2	0.3
	Total	1	0.3	0	0.0	0	0.0	5	1.5	2	1.9	8	0.6

(Continued)

Minnesota Code

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 7-2-1	Male	0	0.0	2	1.3	8	4.9	11	6.5	6	11.5	27	3.7
	Female	0	0.0	4	2.7	2	1.3	9	5.4	1	1.9	16	2.2
	Total	0	0.0	6	2.0	10	3.1	20	5.9	7	6.7	43	3.0
Minnesota Code 7-3	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 7-4	Male	0	0.0	0	0.0	0	0.0	2	1.2	0	0.0	2	0.3
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	2	0.6	0	0.0	2	0.1
Minnesota Code 7-5	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 7-6	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 7-7	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 7-8	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 8-1-1	Male	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	1	1.9	1	0.1
	Total	1	0.3	0	0.0	0	0.0	0	0.0	1	1.0	2	0.1
Minnesota Code 8-1-2	Male	1	0.5	0	0.0	1	0.6	5	2.9	3	5.8	10	1.4

(Continued)

Minnesota Code

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 8-1-2	Female	1	0.5	0	0.0	1	0.6	1	0.6	1	1.9	4	0.6
	Total	2	0.5	0	0.0	2	0.6	6	1.8	4	3.8	14	1.0
Minnesota Code 8-1-3	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 8-2-2	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 8-2-3	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 8-3-1	Male	0	0.0	1	0.6	2	1.2	2	1.2	5	9.6	10	1.4
	Female	0	0.0	0	0.0	1	0.6	1	0.6	1	1.9	3	0.4
	Total	0	0.0	1	0.3	3	0.9	3	0.9	6	5.7	13	0.9
Minnesota Code 8-3-2	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 8-4-1	Male	0	0.0	1	0.6	1	0.6	0	0.0	1	1.9	3	0.4
	Female	2	1.0	0	0.0	2	1.3	0	0.0	1	1.9	5	0.7
	Total	2	0.5	1	0.3	3	0.9	0	0.0	2	1.9	8	0.6
Minnesota Code 8-4-2	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 8-5-2	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

(Continued)

Minnesota Code

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 8-5-2	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota Code 8-7	Male	1	0.5	0	0.0	1	0.6	0	0.0	0	0.0	2	0.3
	Female	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0	1	0.1
	Total	1	0.3	1	0.3	1	0.3	0	0.0	0	0.0	3	0.2
Minnesota Code 8-8	Male	15	8.1	15	9.6	13	8.0	14	8.2	6	11.5	63	8.7
	Female	8	4.1	8	5.4	13	8.2	3	1.8	0	0.0	32	4.4
	Total	23	6.1	23	7.6	26	8.1	17	5.0	6	5.7	95	6.6
Minnesota Code 8-9	Male	8	4.3	7	4.5	11	6.8	17	10.0	5	9.6	48	6.6
	Female	8	4.1	4	2.7	10	6.3	22	13.2	13	24.5	57	7.9
	Total	16	4.2	11	3.6	21	6.5	39	11.6	18	17.1	105	7.3
Minnesota Code 9-1	Male	2	1.1	1	0.6	7	4.3	5	2.9	4	7.7	19	2.6
	Female	3	1.5	8	5.4	5	3.1	4	2.4	4	7.5	24	3.3
	Total	5	1.3	9	3.0	12	3.7	9	2.7	8	7.6	43	3.0
Minnesota Code 9-2	Male	11	5.9	12	7.7	10	6.2	7	4.1	1	1.9	41	5.7
	Female	0	0.0	3	2.0	3	1.9	3	1.8	2	3.8	11	1.5
	Total	11	2.9	15	4.9	13	4.0	10	3.0	3	2.9	52	3.6
Minnesota Code 9-3-1	Male	1	0.5	0	0.0	1	0.6	1	0.6	0	0.0	3	0.4
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	1	0.3	0	0.0	1	0.3	1	0.3	0	0.0	3	0.2
Minnesota Code 9-3-2	Male	0	0.0	2	1.3	0	0.0	0	0.0	0	0.0	2	0.3
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	2	0.7	0	0.0	0	0.0	0	0.0	2	0.1
Minnesota Code 9-4-1	Male	85	45.9	72	46.2	72	44.4	88	51.8	23	44.2	340	46.9
	Female	110	56.4	75	50.7	98	61.6	88	52.7	18	34.0	389	53.9
	Total	195	51.3	147	48.4	170	53.0	176	52.2	41	39.0	729	50.4

(Continued)

Minnesota Code

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 9-4-2	Male	8	4.3	4	2.6	13	8.0	15	8.8	6	11.5	46	6.3
	Female	2	1.0	10	6.8	9	5.7	15	9.0	6	11.3	42	5.8
	Total	10	2.6	14	4.6	22	6.9	30	8.9	12	11.4	88	6.1
Minnesota Code 9-5	Male	14	7.6	10	6.4	11	6.8	3	1.8	0	0.0	38	5.2
	Female	0	0.0	1	0.7	0	0.0	1	0.6	0	0.0	2	0.3
	Total	14	3.7	11	3.6	11	3.4	4	1.2	0	0.0	40	2.8
Minnesota Code 9-8-1	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	Male	185	100.0	156	100.0	162	100.0	170	100.0	52	100.0	725	100.0
	Female	195	100.0	148	100.0	159	100.0	167	100.0	53	100.0	722	100.0
	Total	380	100.0	304	100.0	321	100.0	337	100.0	105	100.0	1447	100.0

4. Ultrasonic cardiography

(Ultrasonic tomography, EUB-655, Hitachi Medical Corp.)

Aortic Dimension (AOD) (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	28.58	2.82	185	29.58	3.61	156	30.09	3.62	162	30.16	3.44	169	30.30	3.94	52	29.63	3.46	724
Female	24.77	2.80	195	25.88	2.68	148	26.85	3.09	159	26.94	3.14	167	27.06	2.64	53	26.12	3.05	722
Total	26.62	3.40	380	27.78	3.68	304	28.48	3.73	321	28.56	3.66	336	28.66	3.70	105	27.88	3.70	1446

Left Atrium Dimension (LAD) (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	32.68	4.00	185	35.03	4.53	156	35.20	4.93	162	35.80	5.88	169	35.74	6.49	52	34.70	5.13	724
Female	29.63	3.66	195	31.96	4.67	148	34.23	4.71	159	34.77	5.31	167	36.25	6.08	53	32.80	5.21	722
Total	31.11	4.11	380	33.54	4.84	304	34.72	4.84	321	35.29	5.62	336	36.00	6.26	105	33.75	5.26	1446

LAD/AOD Ratio

	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	1.15	0.15	185	1.20	0.17	156	1.18	0.18	162	1.20	0.22	169	1.19	0.21	52	1.18	0.18	724
Female	1.20	0.15	195	1.24	0.20	148	1.28	0.18	159	1.31	0.23	167	1.35	0.23	53	1.26	0.20	722
Total	1.18	0.15	380	1.22	0.18	304	1.23	0.19	321	1.25	0.23	336	1.27	0.23	105	1.22	0.19	1446

E-wave Amplitude (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	21.40	3.36	184	20.03	3.05	155	19.19	2.85	161	17.54	3.04	166	17.06	3.09	52	19.40	3.44	718
Female	20.26	3.17	194	18.71	2.60	148	17.85	2.91	159	16.65	2.69	165	15.71	2.71	53	18.25	3.22	719
Total	20.82	3.31	378	19.39	2.91	303	18.52	2.95	320	17.10	2.90	331	16.38	2.97	105	18.82	3.38	1437

A-wave Amplitude (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	18.09	3.00	184	17.31	3.00	155	16.98	2.68	161	16.07	2.91	166	15.40	3.41	52	17.01	3.05	718
Female	15.87	2.86	194	15.92	2.60	148	15.50	2.58	159	14.97	2.53	165	14.50	2.95	53	15.49	2.71	719
Total	16.95	3.13	378	16.63	2.89	303	16.24	2.73	320	15.52	2.78	331	14.95	3.20	105	16.25	2.98	1437

Diastolic Descent Rate (DDR) (mm/s)

	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	27.9	184	81.2	23.9	155	71.3	23.5	161	56.7	21.4	166	55.3	29.4	52	74.8	28.7	718
Female	94.2	22.3	194	77.4	24.2	148	66.9	20.9	159	54.1	19.5	165	47.0	19.4	53	72.0	27.0	719
Total	94.3	25.1	378	79.3	24.1	303	69.1	22.3	320	55.4	20.5	331	51.1	25.1	105	73.4	27.9	1437

A/E Ratio

	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	0.849	0.103	184	0.867	0.110	155	0.889	0.106	161	0.927	0.155	166	0.912	0.153	52	0.885	0.126	718
Female	0.785	0.091	194	0.854	0.103	148	0.874	0.107	159	0.903	0.105	165	0.927	0.132	53	0.857	0.114	719
Total	0.817	0.102	378	0.861	0.107	303	0.882	0.107	320	0.915	0.133	331	0.920	0.143	105	0.871	0.121	1437

Left Ventricular End-diastolic Dimension (LVEdD) (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	47.81	4.22	185	48.23	4.13	155	47.22	4.29	160	46.90	4.93	165	46.44	5.82	45	47.47	4.53	710
Female	43.29	3.67	194	43.19	3.96	147	44.23	4.26	156	44.24	4.72	158	43.59	5.10	51	43.71	4.24	706
Total	45.50	4.55	379	45.78	4.77	302	45.75	4.52	316	45.60	5.00	323	44.93	5.61	96	45.60	4.77	1416

Left Ventricular End-systolic Dimension (LVEsD) (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	29.77	4.30	185	29.66	4.37	155	28.86	4.46	160	29.11	5.35	165	28.41	6.62	45	29.30	4.79	710
Female	25.73	3.46	194	25.25	3.74	147	25.97	4.10	156	26.53	4.89	158	26.17	5.25	51	25.89	4.17	706
Total	27.70	4.38	379	27.51	4.63	302	27.43	4.52	316	27.85	5.28	323	27.22	6.01	96	27.60	4.80	1416

Left Ventricular Posterior Wall Thickness at end-diastole (LVPWd) (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	9.92	1.83	185	10.40	1.94	155	10.63	2.09	160	10.50	2.24	165	10.35	2.02	45	10.35	2.04	710
Female	8.82	1.59	194	9.17	1.80	147	9.77	2.04	156	9.83	1.96	158	10.55	1.80	51	9.45	1.91	706
Total	9.35	1.80	379	9.80	1.97	302	10.20	2.11	316	10.17	2.13	323	10.46	1.90	96	9.90	2.02	1416

Left Ventricular Posterior Wall Thickness at end-systole (LVPWs) (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	16.92	2.49	185	17.57	2.85	155	18.31	2.57	160	18.03	3.08	165	18.19	2.95	45	17.71	2.81	710
Female	15.41	2.40	194	16.29	2.54	147	17.21	2.83	156	17.15	2.70	158	17.89	2.57	51	16.56	2.73	706
Total	16.14	2.55	379	16.95	2.78	302	17.77	2.75	316	17.60	2.93	323	18.03	2.74	96	17.14	2.83	1416

Interventricular Septum Diastolic Thickness (IVSd) (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	11.29	1.99	185	11.72	2.38	155	12.36	2.87	160	12.18	2.83	165	12.16	2.83	45	11.89	2.57	710
Female	9.51	1.72	194	10.41	2.06	147	11.52	2.63	156	11.09	2.24	158	12.46	2.44	51	10.71	2.36	706
Total	10.38	2.06	379	11.09	2.32	302	11.95	2.78	316	11.64	2.61	323	12.32	2.62	96	11.30	2.54	1416

Interventricular Septum Systolic Thickness (IVSs) (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	15.06	2.40	185	15.74	2.61	155	16.06	2.70	160	16.02	2.95	165	16.55	2.67	45	15.75	2.70	710
Female	13.02	2.14	194	13.85	2.24	147	15.18	2.53	156	14.67	2.47	158	16.14	2.81	51	14.26	2.56	706
Total	14.02	2.48	379	14.82	2.61	302	15.62	2.65	316	15.36	2.81	323	16.33	2.74	96	15.01	2.73	1416

Left Ventricular End-diastolic Volume (LVEdV) (ml)

	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	107.70	22.39	185	109.90	21.87	155	104.71	22.06	160	103.46	25.07	165	101.77	31.04	45	106.15	23.57	710
Female	85.27	17.19	194	84.98	18.16	147	89.98	20.62	156	90.33	22.27	158	87.51	24.16	51	87.55	20.01	706
Total	96.22	22.82	379	97.77	23.67	302	97.44	22.57	316	97.04	24.60	323	94.20	28.37	96	96.87	23.75	1416

Left Ventricular End-systolic Volume (LVEsV) (ml)

	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	35.51	12.61	185	35.45	13.23	155	33.04	12.68	160	34.32	15.33	165	33.38	22.91	45	34.53	14.26	710
Female	24.71	8.35	194	23.75	8.67	147	25.57	10.88	156	27.36	12.28	158	26.74	13.49	51	25.44	10.44	706
Total	29.98	11.92	379	29.75	12.66	302	29.35	12.39	316	30.91	14.33	323	29.85	18.71	96	30.00	13.30	1416

Stroke Volume (SV) (ml)

	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	72.20	14.19	185	74.46	13.66	155	71.67	14.85	160	69.14	14.60	165	68.41	14.65	45	71.62	14.45	710
Female	60.57	11.84	194	61.26	12.88	147	64.42	13.26	156	62.97	13.93	158	60.82	15.81	51	62.12	13.21	706
Total	66.25	14.27	379	68.03	14.82	302	68.09	14.53	316	66.12	14.58	323	64.38	15.67	96	66.88	14.64	1416

Cardiac Output (CO) (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	4.50	0.96	185	4.56	1.07	155	4.40	1.13	160	4.29	0.99	165	4.34	1.16	45	4.43	1.05	710
Female	3.86	0.81	194	3.91	0.95	147	4.01	0.96	156	3.96	0.93	158	3.97	1.22	51	3.93	0.93	706
Total	4.17	0.94	379	4.25	1.06	302	4.20	1.07	316	4.13	0.97	323	4.14	1.20	96	4.18	1.02	1416

Ejection Fraction (EF) (%)

	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	67.53	7.09	185	68.09	7.65	155	68.75	8.09	160	67.85	8.67	165	69.21	9.87	45	68.11	8.01	710
Female	71.34	6.05	194	72.45	6.65	147	72.19	6.54	156	70.30	8.86	158	70.46	9.43	51	71.46	7.28	706
Total	69.48	6.84	379	70.21	7.49	302	70.45	7.55	316	69.05	8.84	323	69.87	9.61	96	69.78	7.84	1416

Fractional Shortening (FS) (%)

	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	37.90	5.69	185	38.64	6.08	155	39.05	6.21	160	38.25	6.84	165	39.34	7.20	45	38.49	6.27	710
Female	40.81	5.64	194	41.66	5.66	147	41.47	5.40	156	40.33	6.80	158	40.28	7.57	51	40.99	6.04	706
Total	39.39	5.85	379	40.11	6.06	302	40.24	5.94	316	39.27	6.89	323	39.84	7.38	96	39.74	6.28	1416

Heart Rate (HR) (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	63.0	10.7	185	61.3	9.1	155	61.7	10.2	161	62.6	10.2	170	64.4	13.2	51	62.4	10.3	722
Female	64.1	9.2	195	64.1	9.9	148	62.5	8.9	159	63.4	8.9	166	65.5	9.6	52	63.7	9.3	720
Total	63.6	9.9	380	62.7	9.6	303	62.1	9.6	320	63.0	9.5	336	64.9	11.5	103	63.0	9.8	1442

4. Intima-media thickness of carotid artery

Intima-media Thickness of Left Common Carotid Artery (the Thickest Point) (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	0.75	0.35	185	0.88	0.32	156	0.93	0.36	162	1.05	0.42	170	1.17	0.53	52	0.92	0.40	725
Female	0.65	0.13	195	0.78	0.20	148	0.90	0.25	158	1.01	0.28	167	1.03	0.25	53	0.84	0.26	721
Total	0.70	0.26	380	0.83	0.28	304	0.92	0.31	320	1.03	0.36	337	1.10	0.42	105	0.88	0.34	1446

Intima-media Thickness of Left Common Carotid Artery (the Thinnest Point) (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	0.52	0.12	185	0.59	0.15	156	0.64	0.15	162	0.67	0.20	170	0.73	0.18	52	0.61	0.17	725
Female	0.50	0.12	195	0.57	0.14	148	0.63	0.16	158	0.68	0.17	167	0.69	0.15	53	0.60	0.16	721
Total	0.51	0.12	380	0.58	0.14	304	0.63	0.15	320	0.68	0.18	337	0.71	0.17	105	0.60	0.17	1446

Intima-media Thickness of Left Carotid Sinus (the Thickest Point) (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	0.94	0.29	185	1.10	0.36	156	1.27	0.59	162	1.51	0.60	170	1.69	0.92	52	1.24	0.57	725
Female	0.85	0.22	195	0.99	0.29	148	1.21	0.39	159	1.46	0.64	167	1.56	0.59	53	1.15	0.50	722
Total	0.89	0.26	380	1.04	0.33	304	1.24	0.50	321	1.48	0.62	337	1.62	0.77	105	1.19	0.54	1447

Intima-media Thickness of Left Carotid Sinus (the Thinnest Point) (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	0.63	0.16	185	0.69	0.19	156	0.77	0.25	162	0.80	0.25	169	0.84	0.25	52	0.73	0.23	724
Female	0.59	0.17	195	0.66	0.19	148	0.74	0.21	159	0.78	0.23	167	0.79	0.29	53	0.70	0.22	722
Total	0.61	0.17	380	0.67	0.19	304	0.75	0.23	321	0.79	0.24	336	0.82	0.27	105	0.71	0.23	1446

Intima-media Thickness of Right Common Carotid Artery (the Thickest Point) (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	0.67	0.16	185	0.73	0.17	156	0.87	0.25	162	1.01	0.36	170	1.02	0.34	52	0.83	0.29	725
Female	0.62	0.12	195	0.72	0.19	148	0.83	0.22	158	0.95	0.24	167	0.99	0.23	53	0.79	0.24	721
Total	0.65	0.15	380	0.73	0.18	304	0.85	0.24	320	0.98	0.30	337	1.01	0.29	105	0.81	0.27	1446

Intima-media Thickness of Right Common Carotid Artery (the Thinnest Point) (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	0.50	0.12	185	0.54	0.12	156	0.59	0.14	162	0.64	0.14	169	0.72	0.21	52	0.58	0.15	724
Female	0.47	0.11	195	0.53	0.13	148	0.58	0.12	158	0.65	0.16	167	0.69	0.14	53	0.56	0.15	721
Total	0.48	0.12	380	0.54	0.13	304	0.58	0.13	320	0.64	0.15	336	0.70	0.18	105	0.57	0.15	1445

Intima-media Thickness of Right Carotid Sinus (the Thickest Point) (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	0.95	0.27	185	1.13	0.43	156	1.31	0.58	162	1.50	0.77	170	1.39	0.55	52	1.23	0.58	725
Female	0.86	0.30	195	1.00	0.31	148	1.13	0.36	159	1.36	0.59	167	1.64	0.87	53	1.12	0.51	722
Total	0.91	0.29	380	1.07	0.38	304	1.22	0.49	321	1.43	0.69	337	1.52	0.74	105	1.18	0.55	1447

Intima-media Thickness of Right Carotid Sinus (the Thinnest Point) (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	0.64	0.17	185	0.70	0.18	156	0.73	0.23	162	0.78	0.26	170	0.78	0.24	52	0.72	0.22	725
Female	0.59	0.16	195	0.64	0.17	148	0.72	0.19	159	0.77	0.22	167	0.83	0.42	53	0.69	0.23	722
Total	0.61	0.17	380	0.67	0.18	304	0.72	0.21	321	0.77	0.24	337	0.81	0.34	105	0.70	0.22	1447

IX. Physical Function Tests and Physical Activities

IX. Physical function Tests and Physical Activities

1) Physical fitness

- Sitting trunk flexion
- Right grip strength
- Left grip strength
- One leg standing with eye closed
- One leg standing with eye open (65 years and over)
- Reaction time
- Leg extension power
- Sit up
- Right knee extension strength
- Left knee extension strength

2) Gait performance

- Step length, pitch and velocity during comfortable walking
- Step length, pitch and velocity during maximum walking

3) Three-dimensional motion of gait during 1 cycle

4) Stabilometry

- With eyes open
- With eyes closed

5) Physical activity

- Total energy expenditure
- Exercise energy expenditure
- Steps

6) Physical activity questionnaire*

Leisure-time physical activity

Job physical activity

*Iwai N, Yoshiike N, Saitoh S, Nose T, Kushiro T, Tanaka H: Leisure-time physical activity and related lifestyle characteristics among middle-aged Japanese. Japan Lifestyle Monitoring Study Group. J Epidemiol 10: 226-33, 2000.

1) Physical fitness (Takei corp.)

Sitting trunk flexion (cm)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	2.2	8.6	184	2.8	8.5	154	2.4	9.2	159	1.4	9.1	168	-0.2	7.9	47	2.0	8.8	712
Female	8.4	7.5	191	10.5	7.4	143	10.1	7.5	156	10.3	7.0	158	9.6	8.4	45	9.7	7.5	693
Total	5.3	8.6	375	6.5	8.9	297	6.2	9.2	315	5.7	9.3	326	4.6	9.5	92	5.8	9.0	1405

Right grip strength (kg)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	45.0	6.6	185	42.9	6.5	156	38.0	6.3	160	33.5	6.7	168	30.5	5.1	48	39.3	8.2	717
Female	26.8	5.0	195	24.8	4.8	144	23.4	4.2	157	21.2	4.3	164	18.3	4.4	50	23.8	5.2	710
Total	35.7	10.8	380	34.2	10.7	300	30.7	9.1	317	27.4	8.4	332	24.3	7.7	98	31.6	10.4	1427

Left grip strength (kg)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	42.5	6.9	185	41.2	6.1	156	36.3	6.2	161	32.4	6.5	169	28.7	6.3	48	37.5	7.9	719
Female	25.5	4.4	194	23.9	4.4	143	22.3	3.9	158	19.7	4.1	164	17.4	4.2	50	22.6	4.9	709
Total	33.8	10.2	379	32.9	10.2	299	29.4	8.7	319	26.2	8.4	333	22.9	7.8	98	30.1	10.0	1428

One leg standing time with eye closed (sec)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	34.9	40.6	185	26.3	27.7	156	9.5	10.9	161	5.0	3.8	160	3.2	1.6	44	18.5	28.0	706
Female	35.1	44.6	195	24.8	29.9	146	7.2	6.4	156	4.0	3.4	159	2.5	1.3	37	17.8	30.6	693
Total	35.0	42.7	380	25.6	28.8	302	8.4	9.0	317	4.5	3.6	319	2.8	1.5	81	18.1	29.3	1399

One leg standing time with eye open (sec) 65 years and older

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	.	.	0	.	.	0	125.5	62.3	86	66.9	61.2	160	31.6	38.2	44	78.9	67.0	290
Female	.	.	0	.	.	0	93.3	67.6	82	51.3	56.1	159	16.9	19.5	38	58.9	61.6	279
Total	.	.	0	.	.	0	109.8	66.7	168	59.1	59.2	319	24.8	31.7	82	69.1	65.1	569

Reaction time (sec)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.399	0.05	185	0.410	0.06	156	0.435	0.07	160	0.470	0.10	159	0.529	0.14	44	0.434	0.09	704
Female	0.434	0.07	194	0.443	0.07	142	0.463	0.08	153	0.513	0.09	154	0.579	0.15	35	0.468	0.09	678
Total	0.417	0.06	379	0.426	0.06	298	0.449	0.07	313	0.491	0.10	313	0.551	0.14	79	0.450	0.09	1382

Leg extension power (W)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	685.3	163.5	184	609.4	152.9	150	520.0	123.2	148	405.3	121.2	154	319.4	116.7	41	546.5	183.8	677
Female	357.1	105.5	188	344.4	112.6	129	315.9	91.4	136	239.3	84.1	134	190.5	72.9	28	312.1	110.9	615
Total	519.4	214.0	372	486.9	189.4	279	422.2	149.3	284	328.0	134.1	288	267.1	119.1	69	434.9	193.0	1292

Sit up (reps)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	17	4.2	185	14	5.1	156	11	5.0	162	8	5.2	170	5	4.5	52	12	6.3	725
Female	12	4.9	195	7	5.6	148	5	5.3	159	3	4.2	167	2	3.0	53	7	6.2	722
Total	15	5.2	380	11	6.5	304	8	6.0	321	6	5.4	337	3	4.2	105	9	6.8	1447

Right knee extension strength (kg)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	49.2	9.6	184	45.9	10.3	151	40.3	9.5	154	32.4	8.6	156	27.1	6.8	42	41.3	11.8	687
Female	30.7	7.6	189	27.2	6.9	136	26.9	6.8	143	22.7	6.6	138	19.5	6.1	30	26.8	7.7	636
Total	39.8	12.7	373	37.0	12.9	287	33.8	10.7	297	27.8	9.1	294	23.9	7.5	72	34.3	12.4	1323

Left knee extension strength (kg)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	48.8	9.8	185	44.3	10.4	152	38.4	9.9	150	31.1	8.4	157	26.4	6.9	42	40.1	12.0	686
Female	30.2	7.5	189	26.8	7.0	135	26.6	6.9	143	21.7	6.5	136	18.2	6.7	30	26.3	7.8	633
Total	39.4	12.7	374	36.1	12.5	287	32.6	10.4	293	26.7	8.9	293	23.0	7.9	72	33.5	12.3	1319

Maximum step length (cm)

	40-49yr			50-59yr			60-69yr			70-79yr			80-yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	128.5	11.4	185	123.1	11.8	156	115.7	11.2	160	104.7	13.8	164	95.0	12.4	45	116.8	15.9	710
Female	110.6	11.3	195	107.2	11.7	144	101.2	10.0	155	90.4	11.0	158	81.1	10.4	38	101.5	14.2	690
Total	119.3	14.4	380	115.5	14.1	300	108.6	12.9	315	97.7	14.4	322	88.7	13.4	83	109.3	16.9	1400