

IX. Physiological Examinations

1. Blood pressure and pulse rate

(Automatic blood pressure analyzer, BP-204RV, Colin, Inc.,)

2. Pulse Wave Velocity and Ankle-Brachial Index (from the 5th wave examination)

(Form PWV/ABI, Colin, Inc.,)

3. Electrocardiography

(Automatic ECG analyzer, Kartizer5500, NEC Corp.,)

4. Ultrasonic cardiography

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

5. Intima-media thickness of carotid artery

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

1. Blood pressure and pulse rate

(Automatic blood pressure analyzer, BP-204RV, Colin, Inc.,)

Systolic Blood Pressure (mmHg)

	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	118.7	14.2	257	123.4	16.6	274	123.9	17.0	276	126.5	17.4	270	127.2	19.2	96	123.5	16.9	1173
Female	109.2	13.8	262	113.0	17.6	249	119.6	17.6	271	125.9	18.4	249	125.1	18.3	98	117.6	18.2	1129
Total	113.9	14.8	519	118.4	17.8	523	121.8	17.4	547	126.2	17.9	519	126.1	18.7	194	120.6	17.8	2302

Diastolic Blood Pressure (mmHg)

	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	74.1	9.3	257	78.2	10.5	274	77.5	9.9	276	76.0	10.3	270	74.0	11.0	96	76.3	10.2	1173
Female	67.0	9.1	262	69.3	10.4	249	73.2	10.2	271	74.1	9.6	249	72.2	10.7	98	71.0	10.3	1129
Total	70.5	9.9	519	74.0	11.3	523	75.4	10.2	547	75.1	10.0	519	73.1	10.9	194	73.7	10.6	2302

Pulse Rate (/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	67.8	10.7	257	67.4	10.1	274	67.8	11.0	276	70.0	11.2	270	71.1	11.3	96	68.5	10.9	1173
Female	72.1	10.1	262	70.0	8.6	249	71.2	9.5	271	72.3	11.1	249	73.1	9.3	98	71.6	9.9	1129
Total	70.0	10.6	519	68.7	9.5	523	69.5	10.4	547	71.1	11.2	519	72.1	10.4	194	70.0	10.5	2302

2. Pulse Wave Velocity and Ankle-Brachial Index (from the 5th wave examination)

(Form PWV/ABI, Colin, Inc.,)

rt Pulse Wave Velocity (cm/sec)

	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	1282.0	160.1	256	1429.6	203.6	273	1612.4	283.4	270	1853.4	353.8	247	1982.0	416.5	81	1572.5	358.5	1127
Female	1138.9	163.1	259	1312.1	200.8	247	1538.6	278.9	263	1833.3	329.3	243	1987.6	305.4	86	1493.8	383.8	1098
Total	1210.1	176.6	515	1373.8	210.4	520	1576.0	283.3	533	1843.4	341.7	490	1984.9	362.5	167	1533.6	373.2	2225

lt Pulse Wave Velocity (cm/sec)

	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	1283.6	156.2	256	1434.7	197.9	273	1613.3	283.5	270	1847.4	363.3	247	2013.6	390.9	81	1575.2	358.4	1127
Female	1156.8	159.1	259	1324.0	196.1	247	1552.4	274.4	263	1845.0	334.3	243	2004.7	324.1	86	1507.9	383.5	1098
Total	1219.8	169.8	515	1382.1	204.5	520	1583.2	280.4	533	1846.2	348.9	490	2009.0	357.0	167	1542.0	372.4	2225

rt Ankle-Brachial Index

	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	1.2	0.1	256	1.2	0.1	273	1.2	0.1	270	1.1	0.1	248	1.1	0.1	81	1.2	0.1	1128
Female	1.1	0.1	259	1.1	0.1	247	1.1	0.1	263	1.1	0.1	243	1.1	0.1	87	1.1	0.1	1099
Total	1.1	0.1	515	1.1	0.1	520	1.2	0.1	533	1.1	0.1	491	1.1	0.1	168	1.1	0.1	2227

lt Ankle-Brachial Index

	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	1.1	0.1	256	1.2	0.1	273	1.1	0.1	270	1.1	0.1	248	1.1	0.1	81	1.1	0.1	1128
Female	1.1	0.1	259	1.1	0.1	247	1.1	0.1	263	1.1	0.1	243	1.1	0.1	87	1.1	0.1	1099
Total	1.1	0.1	515	1.1	0.1	520	1.1	0.1	533	1.1	0.1	491	1.1	0.1	168	1.1	0.1	2227

Automatic diagnosis of arterial stiffness

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
within normal limit	Male	181	70.4	149	54.4	115	41.7	85	31.5	22	22.9	552	47.1
	Female	201	76.7	168	67.5	136	50.2	108	43.4	34	34.7	647	57.3
	Total	382	73.6	317	60.6	251	45.9	193	37.2	56	28.9	1199	52.1
mildly hard	Male	54	21.0	78	28.5	79	28.6	72	26.7	29	30.2	312	26.6
	Female	42	16.0	51	20.5	70	25.8	49	19.7	24	24.5	236	20.9
	Total	96	18.5	129	24.7	149	27.2	121	23.3	53	27.3	548	23.8
hard	Male	21	8.2	46	16.8	73	26.4	82	30.4	23	24.0	245	20.9
	Female	16	6.1	28	11.2	57	21.0	84	33.7	24	24.5	209	18.5
	Total	37	7.1	74	14.1	130	23.8	166	32.0	47	24.2	454	19.7
not recorded	Male	1	0.4	1	0.4	9	3.3	31	11.5	22	22.9	64	5.5
	Female	3	1.1	2	0.8	8	3.0	8	3.2	16	16.3	37	3.3
	Total	4	0.8	3	0.6	17	3.1	39	7.5	38	19.6	101	4.4

3. Electrocardiography

(Automatic ECG analyzer, Kartizer5500, NEC Corp..)

Heart Rate (/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	61.8	10.1	257	61.1	9.3	274	61.5	9.6	276	64.2	11.7	270	66.0	11.7	96	62.5	10.4	1173
Female	65.1	9.6	262	63.3	9.3	249	63.4	8.6	271	65.5	11.0	249	67.2	9.7	97	64.6	9.7	1128
Total	63.5	10.0	519	62.1	9.4	523	62.4	9.2	547	64.8	11.3	519	66.6	10.7	193	63.5	10.1	2301

PR-interval (msec)

	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	156.8	23.6	256	161.8	22.8	272	167.1	25.7	272	169.7	27.0	254	177.0	31.1	87	164.8	26.0	1141
Female	148.2	20.6	261	152.6	19.8	248	160.7	22.3	270	161.1	22.4	246	163.3	27.5	94	156.3	22.6	1119
Total	152.4	22.5	517	157.4	21.9	520	163.9	24.2	542	165.5	25.2	500	169.9	30.0	181	160.6	24.7	2260

QRS-width (msec)

	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	91.8	11.8	257	92.2	11.0	274	93.9	15.4	276	94.3	17.7	270	97.9	19.6	96	93.5	14.8	1173
Female	82.0	9.4	262	84.8	11.0	249	84.6	10.9	271	86.7	14.5	249	86.4	15.8	97	84.7	12.1	1128
Total	86.8	11.7	519	88.7	11.6	523	89.3	14.1	547	90.7	16.7	519	92.1	18.7	193	89.2	14.2	2301

QT-interval (msec)

	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	395.4	28.5	257	400.6	28.5	274	401.8	29.1	276	404.3	33.3	270	405.0	41.0	96	400.9	31.1	1173
Female	398.3	28.2	262	403.2	29.1	249	406.2	26.7	271	407.9	32.4	249	403.1	33.2	97	403.8	29.6	1128
Total	396.9	28.4	519	401.9	28.8	523	404.0	28.0	547	406.0	32.9	519	404.1	37.2	193	402.4	30.4	2301

QTc-interval (msec)

	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	397.6	19.7	257	401.0	21.5	274	403.5	21.9	276	414.0	25.5	270	420.2	30.2	96	405.4	24.1	1173
Female	411.9	21.5	262	410.9	20.3	249	414.9	21.1	271	422.0	22.2	249	422.8	24.1	96	415.6	22.0	1127
Total	404.8	21.9	519	405.7	21.5	523	409.2	22.2	547	417.8	24.3	519	421.5	27.3	192	410.4	23.7	2300

S(V1)-height (mV)

	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	-0.878	0.423	255	-0.855	0.386	271	-0.767	0.394	272	-0.765	0.425	257	-0.801	0.479	91	-0.815	0.415	1146
Female	-0.875	0.354	262	-0.824	0.390	244	-0.742	0.362	266	-0.767	0.405	236	-0.771	0.428	93	-0.800	0.385	1101
Total	-0.876	0.389	517	-0.840	0.388	515	-0.754	0.379	538	-0.766	0.415	493	-0.786	0.453	184	-0.807	0.401	2247

R(V5)-height (mV)

	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	1.670	0.550	257	1.732	0.535	274	1.785	0.626	276	1.809	0.695	269	1.915	0.789	94	1.763	0.625	1170
Female	1.246	0.451	262	1.420	0.531	249	1.540	0.474	271	1.644	0.602	249	1.638	0.637	97	1.477	0.548	1128

Total 1. 456 0. 545 519 1. 583 0. 555 523 1. 664 0. 569 547 1. 730 0. 657 518 1. 775 0. 727 191 1. 623 0. 605 2298

QRS-axis (degree)

	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	51.7	30.6	257	44.6	28.6	273	37.2	33.7	276	32.8	38.5	270	32.9	37.3	96	40.7	34.2	1172
Female	59.7	24.4	260	49.8	30.0	247	39.5	27.2	271	27.7	30.2	249	24.3	32.7	96	42.6	31.1	1123
Total	55.8	27.9	517	47.1	29.4	520	38.3	30.7	547	30.4	34.9	519	28.6	35.2	192	41.6	32.7	2295

P-axis (degree)

	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	51.0	26.9	252	52.0	26.0	265	54.9	21.5	266	52.4	31.2	248	51.4	35.3	85	52.5	27.3	1116
Female	53.0	27.7	258	51.5	26.0	243	50.0	27.0	269	48.2	28.0	243	51.4	28.9	93	50.8	27.3	1106
Total	52.0	27.3	510	51.7	26.0	508	52.5	24.5	535	50.3	29.7	491	51.4	32.0	178	51.6	27.3	2222

T-axis (degree)

	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	40.1	25.8	257	38.9	29.1	273	40.3	29.7	273	45.1	33.0	262	48.5	40.6	88	41.7	30.6	1153
Female	36.5	25.7	260	40.2	26.5	247	38.1	30.9	267	36.0	26.9	245	44.9	34.6	95	38.3	28.3	1114
Total	38.3	25.8	517	39.5	27.9	520	39.2	30.3	540	40.7	30.5	507	46.7	37.5	183	40.0	29.6	2267

Minnesota Code

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 1-0-0	Male	51	19.8	47	17.2	41	14.9	24	8.9	5	5.2	168	14.3
	Female	57	21.8	42	16.9	47	17.3	25	10.0	12	12.2	183	16.2
	Total	108	20.8	89	17.0	88	16.1	49	9.4	17	8.8	351	15.2
Minnesota Code 1-1-1	Male	0	0.0	0	0.0	1	0.4	4	1.5	0	0.0	5	0.4
	Female	0	0.0	1	0.4	0	0.0	1	0.4	1	1.0	3	0.3
	Total	0	0.0	1	0.2	1	0.2	5	1.0	1	0.5	8	0.3
Minnesota Code 1-1-2	Male	0	0.0	0	0.0	1	0.4	1	0.4	0	0.0	2	0.2
	Female	0	0.0	0	0.0	0	0.0	1	0.4	1	1.0	2	0.2
	Total	0	0.0	0	0.0	1	0.2	2	0.4	1	0.5	4	0.2
Minnesota Code 1-1-3	Male	0	0.0	1	0.4	1	0.4	3	1.1	1	1.0	6	0.5
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	1	0.2	1	0.2	3	0.6	1	0.5	6	0.3
Minnesota Code 1-1-4	Male	0	0.0	1	0.4	0	0.0	2	0.7	0	0.0	3	0.3
	Female	0	0.0	0	0.0	0	0.0	3	1.2	2	2.0	5	0.4
	Total	0	0.0	1	0.2	0	0.0	5	1.0	2	1.0	8	0.3
Minnesota Code 1-1-5	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 1-1-6	Male	0	0.0	1	0.4	1	0.4	2	0.7	1	1.0	5	0.4
	Female	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	1	0.1
	Total	0	0.0	1	0.2	1	0.2	2	0.4	2	1.0	6	0.3
Minnesota Code 1-1-7	Male	0	0.0	0	0.0	1	0.4	0	0.0	1	1.0	2	0.2
	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	1	0.2	0	0.0	1	0.5	2	0.1

Minnesota Code 1-2-1	Male	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	1	0.1
	Total	0	0.0	0	0.0	0	0.0	1	0.2	1	0.5	2	0.1
Minnesota Code 1-2-2	Male	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	2	2.0	2	0.2
	Total	0	0.0	0	0.0	0	0.0	0	0.0	3	1.5	3	0.1
Minnesota Code 1-2-3	Male	0	0.0	0	0.0	2	0.7	0	0.0	1	1.0	3	0.3
	Female	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
	Total	1	0.2	0	0.0	2	0.4	0	0.0	1	0.5	4	0.2
Minnesota Code 1-2-4	Male	2	0.8	4	1.5	0	0.0	2	0.7	0	0.0	8	0.7
	Female	0	0.0	2	0.8	2	0.7	3	1.2	2	2.0	9	0.8
	Total	2	0.4	6	1.1	2	0.4	5	1.0	2	1.0	17	0.7
Minnesota Code 1-2-5	Male	0	0.0	1	0.4	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	0	0.0	0	0.0
	Total	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	1	0.0
Minnesota Code 1-2-6	Male	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	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	0	0.0	1	0.5	1	0.0
Minnesota Code 1-2-7	Male	0	0.0	0	0.0	0	0.0	3	1.1	0	0.0	3	0.3
	Female	0	0.0	1	0.4	1	0.4	4	1.6	0	0.0	6	0.5
	Total	0	0.0	1	0.2	1	0.2	7	1.3	0	0.0	9	0.4
Minnesota Code 1-2-8	Male	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	1	0.1
	Female	0	0.0	2	0.8	1	0.4	1	0.4	1	1.0	5	0.4
	Total	0	0.0	3	0.6	1	0.2	1	0.2	1	0.5	6	0.3
Minnesota Code 1-3-1	Male	0	0.0	1	0.4	0	0.0	1	0.4	1	1.0	3	0.3
	Female	0	0.0	0	0.0	0	0.0	1	0.4	1	1.0	2	0.2
	Total	0	0.0	1	0.2	0	0.0	2	0.4	2	1.0	5	0.2
Minnesota Code 1-3-2	Male	0	0.0	3	1.1	0	0.0	4	1.5	3	3.1	10	0.9
	Female	3	1.1	3	1.2	3	1.1	2	0.8	4	4.1	15	1.3
	Total	3	0.6	6	1.1	3	0.5	6	1.2	7	3.6	25	1.1
Minnesota Code 1-3-3	Male	0	0.0	1	0.4	0	0.0	3	1.1	1	1.0	5	0.4
	Female	0	0.0	0	0.0	3	1.1	2	0.8	2	2.0	7	0.6
	Total	0	0.0	1	0.2	3	0.5	5	1.0	3	1.5	12	0.5
Minnesota Code 1-3-4	Male	0	0.0	3	1.1	2	0.7	4	1.5	1	1.0	10	0.9
	Female	2	0.8	0	0.0	4	1.5	1	0.4	2	2.0	9	0.8
	Total	2	0.4	3	0.6	6	1.1	5	1.0	3	1.5	19	0.8
Minnesota Code 1-3-5	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	1	0.4	0	0.0	1	0.1
	Total	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	1	0.0
Minnesota Code 1-3-6	Male	1	0.4	0	0.0	7	2.5	6	2.2	2	2.1	16	1.4
	Female	2	0.8	5	2.0	9	3.3	9	3.6	3	3.1	28	2.5
	Total	3	0.6	5	1.0	16	2.9	15	2.9	5	2.6	44	1.9
Minnesota Code 2-1	Male	3	1.2	6	2.2	10	3.6	10	3.7	3	3.1	32	2.7
	Female	1	0.4	3	1.2	2	0.7	5	2.0	5	5.1	16	1.4
	Total	4	0.8	9	1.7	12	2.2	15	2.9	8	4.1	48	2.1
Minnesota Code 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 2-3	Male	10	3.9	3	1.1	1	0.4	3	1.1	1	1.0	18	1.5
	Female	12	4.6	4	1.6	1	0.4	0	0.0	0	0.0	17	1.5
	Total	22	4.2	7	1.3	2	0.4	3	0.6	1	0.5	35	1.5
Minnesota Code 2-4	Male	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	0.1
	Female	0	0.0	1	0.4	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	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	0.4	3	1.1	14	5.2	9	9.4	27	2.3
	Female	0	0.0	1	0.4	1	0.4	2	0.8	2	2.0	6	0.5
	Total	0	0.0	2	0.4	4	0.7	16	3.1	11	5.7	33	1.4
Minnesota Code 8-3-2	Male	0	0.0	0	0.0	0	0.0	1	0.4	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	0.2	0	0.0	1	0.0
Minnesota Code 8-4-1	Male	0	0.0	1	0.4	0	0.0	1	0.4	2	2.1	4	0.3
	Female	1	0.4	1	0.4	1	0.4	2	0.8	0	0.0	5	0.4
	Total	1	0.2	2	0.4	1	0.2	3	0.6	2	1.0	9	0.4
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	2	0.7	1	1.0	3	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	0.4	1	0.5	3	0.1
Minnesota Code 8-7	Male	0	0.0	0	0.0	1	0.4	1	0.4	0	0.0	2	0.2
	Female	0	0.0	1	0.4	0	0.0	1	0.4	0	0.0	2	0.2
	Total	0	0.0	1	0.2	1	0.2	2	0.4	0	0.0	4	0.2
Minnesota Code 8-8	Male	22	8.6	29	10.6	20	7.2	16	5.9	4	4.2	91	7.8
	Female	9	3.4	6	2.4	12	4.4	11	4.4	3	3.1	41	3.6
	Total	31	6.0	35	6.7	32	5.9	27	5.2	7	3.6	132	5.7
Minnesota Code 8-9	Male	12	4.7	13	4.7	14	5.1	26	9.6	14	14.6	79	6.7
	Female	7	2.7	9	3.6	14	5.2	17	6.8	15	15.3	62	5.5
	Total	19	3.7	22	4.2	28	5.1	43	8.3	29	14.9	141	6.1
Minnesota Code 9-1	Male	4	1.6	6	2.2	8	2.9	17	6.3	7	7.3	42	3.6
	Female	4	1.5	11	4.4	7	2.6	5	2.0	4	4.1	31	2.7
	Total	8	1.5	17	3.3	15	2.7	22	4.2	11	5.7	73	3.2
Minnesota Code 9-2	Male	24	9.3	21	7.7	18	6.5	13	4.8	1	1.0	77	6.6
	Female	3	1.1	3	1.2	7	2.6	2	0.8	2	2.0	17	1.5
	Total	27	5.2	24	4.6	25	4.6	15	2.9	3	1.5	94	4.1
Minnesota Code 9-3-1	Male	1	0.4	0	0.0	1	0.4	0	0.0	1	1.0	3	0.3
	Female	0	0.0	0	0.0	2	0.7	0	0.0	0	0.0	2	0.2
	Total	1	0.2	0	0.0	3	0.5	0	0.0	1	0.5	5	0.2
Minnesota Code 9-3-2	Male	0	0.0	0	0.0	2	0.7	2	0.7	0	0.0	4	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	2	0.4	2	0.4	0	0.0	4	0.2
Minnesota Code 9-4-1	Male	104	40.5	108	39.4	115	41.7	95	35.2	33	34.4	455	38.8
	Female	138	52.7	119	47.8	142	52.4	121	48.6	35	35.7	555	49.2
	Total	242	46.6	227	43.4	257	47.0	216	41.6	68	35.1	1010	43.9
Minnesota Code 9-4-2	Male	37	14.4	42	15.3	50	18.1	49	18.1	18	18.8	196	16.7
	Female	29	11.1	43	17.3	25	9.2	37	14.9	12	12.2	146	12.9
	Total	66	12.7	85	16.3	75	13.7	86	16.6	30	15.5	342	14.9
Minnesota Code 9-5	Male	21	8.2	17	6.2	11	4.0	9	3.3	4	4.2	62	5.3
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	21	4.0	17	3.3	11	2.0	9	1.7	4	2.1	62	2.7
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	2	0.7	1	0.4	0	0.0	3	0.3
	Total	0	0.0	0	0.0	2	0.4	1	0.2	0	0.0	3	0.1
Total	Male	257	100.0	274	100.0	276	100.0	270	100.0	96	100.0	1173	100.0
	Female	262	100.0	249	100.0	271	100.0	249	100.0	98	100.0	1129	100.0
	Total	519	100.0	523	100.0	547	100.0	519	100.0	194	100.0	2302	100.0

	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	0.804	0.126	126	0.829	0.121	106	0.879	0.140	104	0.928	0.136	124	0.943	0.128	49	0.868	0.140	509
Female	0.773	0.105	138	0.820	0.094	99	0.887	0.124	109	0.912	0.115	100	0.913	0.159	33	0.847	0.127	479
Total	0.788	0.116	264	0.825	0.109	205	0.883	0.132	213	0.921	0.127	224	0.931	0.141	82	0.858	0.134	988

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	48.38	3.74	125	48.93	4.32	105	47.69	4.19	105	46.85	4.38	115	46.71	4.57	46	47.84	4.26	496
Female	43.27	3.86	137	43.06	4.00	98	43.53	4.09	107	43.54	3.65	91	45.27	4.89	31	43.47	4.00	464
Total	45.71	4.58	262	46.10	5.09	203	45.59	4.63	212	45.39	4.38	206	46.13	4.72	77	45.73	4.67	960

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	29.44	4.12	125	29.67	4.55	105	29.06	5.13	105	28.23	5.02	115	29.08	4.97	46	29.09	4.74	496
Female	25.34	3.59	137	24.84	3.84	98	25.08	4.07	107	25.23	4.40	91	26.08	5.70	31	25.20	4.08	464
Total	27.29	4.36	262	27.33	4.85	203	27.05	5.03	212	26.91	4.98	206	27.87	5.44	77	27.21	4.84	960

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	9.15	1.56	125	9.77	1.76	105	10.01	1.89	105	9.85	2.04	115	9.96	1.56	46	9.70	1.82	496
Female	7.91	1.39	137	8.91	1.83	98	9.05	1.55	107	9.00	1.73	91	9.25	1.55	31	8.69	1.68	464
Total	8.50	1.60	262	9.35	1.84	203	9.52	1.79	212	9.47	1.95	206	9.68	1.59	77	9.21	1.82	960

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	16.28	2.19	125	17.04	2.99	105	17.50	2.68	105	17.95	3.12	115	17.77	2.84	46	17.22	2.82	496
Female	14.22	2.09	137	15.83	2.41	98	16.23	2.47	107	16.29	2.78	91	16.89	2.65	31	15.61	2.59	464
Total	15.20	2.37	262	16.46	2.78	203	16.86	2.65	212	17.22	3.08	206	17.42	2.78	77	16.44	2.83	960

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	11.27	1.98	125	12.16	2.28	105	12.32	2.45	105	12.51	2.84	115	12.91	3.28	46	12.12	2.54	496
Female	9.85	2.02	137	10.88	2.57	98	11.38	2.10	107	11.51	2.11	91	12.87	2.26	31	10.95	2.35	464
Total	10.53	2.12	262	11.54	2.50	203	11.84	2.32	212	12.07	2.58	206	12.89	2.90	77	11.55	2.52	960

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	15.64	2.18	125	16.37	2.27	105	16.57	2.34	105	16.77	2.62	115	16.68	2.60	46	16.35	2.41	496
Female	13.45	1.90	137	14.58	2.35	98	15.40	1.92	107	15.42	2.19	91	16.72	2.58	31	14.74	2.32	464
Total	14.50	2.31	262	15.50	2.47	203	15.98	2.21	212	16.17	2.52	206	16.70	2.58	77	15.57	2.50	960

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	110.47	19.88	125	113.68	23.40	105	107.08	22.17	105	102.83	22.56	115	102.24	23.30	46	107.90	22.40	496
Female	85.27	17.85	137	84.40	18.23	98	86.58	19.05	107	86.41	17.00	91	95.29	24.93	31	86.28	18.69	464
Total	97.29	22.64	262	99.54	25.63	203	96.73	23.02	212	95.58	21.83	206	99.44	24.05	77	97.45	23.33	960

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	34.50	11.73	125	35.27	13.70	105	34.14	14.84	105	31.59	13.90	115	33.94	14.48	46	33.86	13.62	496
Female	23.87	8.62	137	22.82	8.49	98	23.51	9.61	107	24.23	11.30	91	27.48	17.05	31	23.88	10.14	464
Total	28.94	11.51	262	29.26	13.05	203	28.78	13.54	212	28.34	13.30	206	31.34	15.78	77	29.04	13.05	960

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	76.00	13.05	125	78.43	14.58	105	72.91	12.53	105	71.26	13.23	115	68.31	14.88	46	74.05	13.82	496
Female	61.41	12.68	137	61.57	12.85	98	63.06	13.42	107	62.15	11.19	91	67.82	13.53	31	62.40	12.72	464
Total	68.37	14.76	262	70.29	16.13	203	67.94	13.86	212	67.24	13.15	206	68.11	14.26	77	68.42	14.51	960

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	4.70	1.07	125	4.65	1.08	105	4.48	0.92	105	4.51	0.98	115	4.34	1.15	46	4.57	1.03	496
Female	3.97	0.91	137	3.82	0.93	98	3.90	0.89	107	4.06	0.85	91	4.35	0.99	31	3.96	0.91	464
Total	4.32	1.06	262	4.25	1.09	203	4.19	0.95	212	4.31	0.95	206	4.34	1.08	77	4.28	1.02	960

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	69.16	7.17	125	69.61	6.98	105	69.06	8.70	105	70.20	8.02	115	67.45	8.89	46	69.32	7.85	496
Female	72.34	6.34	137	73.37	6.73	98	73.35	7.23	107	72.74	8.59	91	72.79	9.86	31	72.90	7.35	464
Total	70.82	6.92	262	71.43	7.10	203	71.23	8.26	212	71.32	8.35	206	69.60	9.60	77	71.05	7.82	960

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	39.30	5.73	125	39.63	5.57	105	39.31	7.07	105	40.13	6.62	115	37.93	7.10	46	39.44	6.34	496
Female	41.52	5.38	137	42.48	5.88	98	42.55	6.24	107	42.16	7.15	91	42.49	8.18	31	42.15	6.25	464
Total	40.46	5.65	262	41.00	5.88	203	40.95	6.84	212	41.03	6.91	206	39.77	7.83	77	40.75	6.44	960

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	62.1	10.0	125	59.6	9.7	107	61.9	10.4	105	63.9	10.2	119	64.0	11.0	49	62.1	10.2	505

Female	65.1	10.3	137	62.0	8.0	99	62.1	8.0	109	66.1	10.6	99	64.5	10.5	31	63.9	9.6	475
Total	63.7	10.2	262	60.8	9.0	206	62.0	9.3	214	64.9	10.4	218	64.2	10.7	80	63.0	10.0	980

5. Intima-media thickness of carotid artery

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

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	0.76	0.22	126	0.85	0.23	107	0.97	0.44	105	1.05	0.36	126	1.10	0.67	52	0.93	0.39	516
Female	0.71	0.13	138	0.82	0.20	99	0.87	0.21	109	0.97	0.30	103	0.95	0.16	33	0.84	0.23	482
Total	0.73	0.18	264	0.83	0.22	206	0.92	0.34	214	1.01	0.33	229	1.04	0.54	85	0.88	0.33	998

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	0.58	0.16	126	0.63	0.13	107	0.68	0.16	105	0.71	0.21	126	0.72	0.17	52	0.66	0.18	516
Female	0.55	0.10	138	0.61	0.12	99	0.64	0.15	109	0.70	0.20	103	0.73	0.13	33	0.63	0.16	482
Total	0.56	0.13	264	0.62	0.13	206	0.66	0.16	214	0.71	0.21	229	0.73	0.15	85	0.64	0.17	998

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	0.98	0.24	125	1.12	0.29	106	1.30	0.47	105	1.50	0.69	126	1.56	0.60	51	1.26	0.52	513
Female	0.92	0.24	137	1.07	0.31	98	1.10	0.25	110	1.26	0.51	101	1.33	0.56	32	1.09	0.38	478
Total	0.95	0.24	262	1.09	0.30	204	1.20	0.39	215	1.40	0.63	227	1.47	0.59	83	1.18	0.47	991

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	0.68	0.20	125	0.74	0.22	106	0.75	0.20	105	0.88	0.32	126	0.85	0.30	51	0.77	0.26	513
Female	0.66	0.17	137	0.72	0.20	98	0.75	0.22	110	0.82	0.28	101	0.82	0.25	32	0.74	0.23	478
Total	0.67	0.19	262	0.73	0.21	204	0.75	0.21	215	0.85	0.30	227	0.84	0.28	83	0.76	0.24	991

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	0.71	0.20	126	0.78	0.23	107	0.92	0.27	106	1.02	0.40	127	1.08	0.38	52	0.88	0.33	518
Female	0.67	0.11	138	0.76	0.16	99	0.81	0.18	111	0.92	0.23	103	1.00	0.29	33	0.80	0.21	484
Total	0.69	0.16	264	0.77	0.20	206	0.87	0.24	217	0.97	0.33	230	1.05	0.35	85	0.84	0.28	1002

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	0.55	0.12	126	0.58	0.11	107	0.64	0.16	106	0.67	0.16	127	0.72	0.15	52	0.62	0.15	518
Female	0.54	0.09	138	0.58	0.12	99	0.59	0.13	111	0.67	0.16	103	0.72	0.18	33	0.60	0.14	484
Total	0.54	0.11	264	0.58	0.12	206	0.62	0.15	217	0.67	0.16	230	0.72	0.16	85	0.61	0.15	1002

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	0.97	0.25	126	1.16	0.36	106	1.29	0.48	106	1.47	0.71	125	1.57	0.76	52	1.26	0.56	515
Female	0.92	0.19	137	1.01	0.24	98	1.11	0.32	111	1.30	0.53	102	1.26	0.49	33	1.08	0.38	481
Total	0.94	0.22	263	1.09	0.32	204	1.19	0.42	217	1.39	0.64	227	1.45	0.68	85	1.17	0.49	996

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	0.65	0.19	126	0.76	0.23	106	0.77	0.21	106	0.84	0.30	125	0.87	0.29	52	0.77	0.25	515
Female	0.68	0.19	137	0.69	0.19	98	0.71	0.21	111	0.80	0.24	102	0.84	0.29	33	0.73	0.22	481
Total	0.67	0.19	263	0.72	0.21	204	0.74	0.21	217	0.82	0.27	227	0.86	0.29	85	0.75	0.24	996