

Minnesota Code

		40 - 49yr		50 - 59yr		60 - 69yr		70 - 79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Minnesota Code 8-1-2	Female	0	0.0	1	0.5	0	0.0	3	1.5	0	0.0	4	0.5
	Total	0	0.0	2	0.5	2	0.5	9	2.2	1	1.7	14	0.8
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	2	0.9	0	0.0	11	5.5	1	2.9	14	1.6
	Female	0	0.0	0	0.0	1	0.5	2	1.0	1	4.2	4	0.5
	Total	0	0.0	2	0.5	1	0.2	13	3.2	2	3.4	18	1.1
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	0	0.0	1	0.4	2	1.0	0	0.0	3	0.4
	Female	2	1.0	0	0.0	3	1.5	0	0.0	0	0.0	5	0.6
	Total	2	0.5	0	0.0	4	0.9	2	0.5	0	0.0	8	0.5
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	1	0.4	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

(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	1	0.2	0	0.0	0	0.0	1	0.1
Minnesota Code 8-7	Male	0	0.0	1	0.5	2	0.9	6	3.0	0	0.0	9	1.1
	Female	2	1.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2
	Total	2	0.5	1	0.2	2	0.5	6	1.5	0	0.0	11	0.7
Minnesota Code 8-8	Male	21	12.2	16	7.4	16	7.0	12	6.0	1	2.9	66	7.8
	Female	9	4.6	6	3.2	4	2.0	4	2.0	1	4.2	24	3.0
	Total	30	8.2	22	5.4	20	4.7	16	4.0	2	3.4	90	5.4
Minnesota Code 8-9	Male	3	1.7	5	2.3	12	5.3	18	9.0	5	14.3	43	5.1
	Female	6	3.1	3	1.6	6	3.0	18	8.9	3	12.5	36	4.5
	Total	9	2.5	8	2.0	18	4.2	36	9.0	8	13.6	79	4.8
Minnesota Code 9-1	Male	3	1.7	3	1.4	10	4.4	17	8.5	5	14.3	38	4.5
	Female	6	3.1	6	3.2	8	4.1	6	3.0	1	4.2	27	3.3
	Total	9	2.5	9	2.2	18	4.2	23	5.7	6	10.2	65	3.9
Minnesota Code 9-2	Male	22	12.8	22	10.2	18	7.9	4	2.0	1	2.9	67	7.9
	Female	1	0.5	4	2.1	6	3.0	5	2.5	0	0.0	16	2.0
	Total	23	6.3	26	6.4	24	5.7	9	2.2	1	1.7	83	5.0
Minnesota Code 9-3-1	Male	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	1	0.1
	Female	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	1	0.1
	Total	0	0.0	0	0.0	1	0.2	1	0.2	0	0.0	2	0.1
Minnesota Code 9-3-2	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	1	0.1
	Total	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	1	0.1
Minnesota Code 9-4-1	Male	94	54.7	121	56.0	111	48.9	105	52.5	16	45.7	447	52.6
	Female	128	65.6	107	56.6	129	65.5	125	61.9	14	58.3	503	62.3
	Total	222	60.5	228	56.3	240	56.6	230	57.2	30	50.8	950	57.3

(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	10	5.8	5	2.3	18	7.9	17	8.5	2	5.7	52	6.1
	Female	6	3.1	11	5.8	8	4.1	9	4.5	0	0.0	34	4.2
	Total	16	4.4	16	4.0	26	6.1	26	6.5	2	3.4	86	5.2
Minnesota Code 9-5	Male	30	17.4	22	10.2	13	5.7	7	3.5	0	0.0	72	8.5
	Female	1	0.5	0	0.0	1	0.5	3	1.5	0	0.0	5	0.6
	Total	31	8.4	22	5.4	14	3.3	10	2.5	0	0.0	77	4.6
Minnesota Code 9-8-1	Male	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	1	0.1
	Female	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	1	0.1
	Total	0	0.0	0	0.0	1	0.2	1	0.2	0	0.0	2	0.1
Total	Male	172	100.0	216	100.0	227	100.0	200	100.0	35	100.0	850	100.0
	Female	195	100.0	189	100.0	197	100.0	202	100.0	24	100.0	807	100.0
	Total	367	100.0	405	100.0	424	100.0	402	100.0	59	100.0	1657	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	27.86	3.10	172	29.14	3.52	214	29.73	3.88	227	29.51	3.75	196	29.57	4.34	35	29.14	3.69	844
Female	24.47	2.90	194	25.76	3.04	187	26.01	3.61	196	26.46	3.00	201	25.13	2.88	24	25.67	3.22	802
Total	26.06	3.43	366	27.57	3.71	401	28.01	4.19	423	27.97	3.71	397	27.77	4.38	59	27.45	3.88	1646

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	33.48	4.23	172	34.57	4.76	214	35.13	4.92	227	35.17	6.14	196	37.65	6.85	35	34.77	5.22	844
Female	30.13	3.89	194	32.12	4.14	187	33.19	4.79	196	34.93	4.81	201	33.31	5.56	24	32.64	4.78	802
Total	31.70	4.38	366	33.43	4.64	401	34.23	4.95	423	35.05	5.50	397	35.88	6.66	59	33.73	5.12	1646

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	1.21	0.18	172	1.19	0.18	214	1.19	0.20	227	1.20	0.21	196	1.28	0.25	35	1.20	0.20	844
Female	1.24	0.18	194	1.25	0.19	187	1.28	0.19	196	1.33	0.19	201	1.34	0.27	24	1.28	0.19	802
Total	1.22	0.18	366	1.22	0.19	401	1.24	0.20	423	1.26	0.21	397	1.31	0.26	59	1.24	0.20	1646

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	20.60	3.46	170	19.42	3.74	214	18.59	3.40	223	17.48	3.44	191	15.57	3.97	33	18.84	3.75	831
Female	19.28	3.87	194	17.77	3.55	186	17.03	3.40	194	16.22	3.50	193	14.63	2.73	23	17.49	3.76	790
Total	19.89	3.74	364	18.65	3.74	400	17.86	3.48	417	16.85	3.52	384	15.18	3.51	56	18.18	3.81	1621

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	16.70	3.39	170	16.22	3.46	214	16.03	3.27	223	15.31	3.48	191	13.91	3.19	33	15.97	3.44	831
Female	14.59	3.75	194	14.21	3.51	186	14.26	3.13	194	14.03	3.15	193	12.81	2.30	23	14.23	3.37	790
Total	15.58	3.73	364	15.28	3.62	400	15.21	3.32	417	14.67	3.37	384	13.46	2.89	56	15.12	3.51	1621

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	93.1	23.4	170	80.5	23.3	214	70.6	21.5	223	61.0	24.1	191	50.7	20.0	33	74.8	25.9	831
Female	92.4	23.5	193	75.3	21.9	185	65.7	22.1	194	53.5	22.2	193	45.3	12.6	23	70.9	26.6	788
Total	92.7	23.4	363	78.1	22.8	399	68.3	21.9	417	57.2	23.4	384	48.4	17.5	56	72.9	26.3	1619

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	0.808	0.113	170	0.833	0.110	214	0.860	0.107	223	0.881	0.163	191	0.911	0.162	33	0.849	0.129	831
Female	0.750	0.112	194	0.794	0.120	186	0.838	0.118	194	0.870	0.135	193	0.880	0.126	23	0.815	0.130	790
Total	0.777	0.116	364	0.815	0.116	400	0.850	0.113	417	0.876	0.150	384	0.898	0.148	56	0.833	0.131	1621

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	48.48	4.63	171	48.11	4.65	208	47.43	4.28	205	47.16	5.46	167	46.75	6.63	28	47.76	4.84	779
Female	44.17	3.57	190	43.90	4.30	178	44.43	4.34	176	44.93	5.15	171	44.30	5.04	18	44.35	4.37	733
Total	46.21	4.63	361	46.17	4.95	386	46.04	4.56	381	46.03	5.41	338	45.79	6.12	46	46.10	4.92	1512

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	30.48	4.10	171	30.11	4.82	208	29.36	4.60	205	29.92	6.07	167	29.72	6.38	28	29.94	4.98	779
Female	27.10	3.36	190	26.32	4.19	178	26.27	4.88	176	27.51	5.36	171	27.34	4.46	18	26.81	4.50	733
Total	28.70	4.09	361	28.36	4.91	386	27.93	4.97	381	28.70	5.84	338	28.79	5.77	46	28.43	5.00	1512

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	10.20	1.95	171	10.47	2.13	208	10.57	2.21	205	10.51	2.40	167	10.50	2.15	28	10.45	2.17	779
Female	8.89	1.72	190	9.59	1.97	178	9.66	2.09	176	9.76	2.29	171	10.32	2.15	18	9.48	2.05	733
Total	9.51	1.94	361	10.07	2.10	386	10.15	2.20	381	10.13	2.37	338	10.43	2.13	46	9.98	2.17	1512

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	17.22	2.42	171	17.61	2.75	208	17.78	2.96	205	17.58	3.17	167	17.35	2.72	28	17.55	2.83	779
Female	14.97	2.35	190	16.44	2.77	178	16.84	2.83	176	16.21	3.29	171	16.44	3.29	18	16.10	2.91	733
Total	16.04	2.63	361	17.07	2.82	386	17.35	2.93	381	16.89	3.30	338	17.00	2.96	46	16.85	2.96	1512

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	11.60	2.28	171	11.92	2.13	208	12.17	2.46	205	12.58	2.60	167	13.06	2.55	28	12.10	2.40	779
Female	9.61	2.05	190	10.43	2.22	178	10.99	2.24	176	11.91	2.16	171	11.12	2.66	18	10.71	2.33	733
Total	10.55	2.38	361	11.23	2.29	386	11.62	2.43	381	12.24	2.41	338	12.30	2.74	46	11.43	2.46	1512

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	15.12	2.29	171	15.94	2.37	208	16.22	2.48	205	16.43	2.83	167	16.57	2.23	28	15.96	2.52	779
Female	12.72	2.18	190	13.80	2.43	178	14.57	2.57	176	15.40	2.35	171	15.15	3.43	18	14.11	2.60	733
Total	13.86	2.53	361	14.96	2.62	386	15.46	2.65	381	15.91	2.65	338	16.01	2.81	46	15.06	2.72	1512

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	111.10	24.92	171	109.19	24.67	208	105.41	21.95	205	104.83	28.59	167	103.73	34.21	28	107.48	25.41	779
Female	89.16	16.57	190	88.27	20.23	178	90.75	21.15	176	93.62	25.03	171	90.43	22.87	18	90.40	20.94	733
Total	99.55	23.62	361	99.55	24.99	386	98.64	22.76	381	99.16	27.39	338	98.52	30.70	46	99.20	24.86	1512

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	37.41	12.40	171	36.73	14.61	208	34.50	13.51	205	37.07	19.52	167	36.68	18.78	28	36.36	15.27	779
Female	27.92	8.45	190	26.41	10.49	178	26.66	12.94	176	30.06	14.77	171	29.01	11.75	18	27.78	11.87	733
Total	32.41	11.52	361	31.97	13.85	386	30.88	13.80	381	33.52	17.61	338	33.68	16.68	46	32.20	14.38	1512

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	73.94	16.24	171	72.69	14.92	208	71.17	14.45	205	67.96	16.57	167	67.19	20.67	28	71.35	15.81	779
Female	61.31	12.31	190	61.94	13.01	178	64.19	13.32	176	63.70	15.39	171	61.61	16.03	18	62.72	13.60	733
Total	67.29	15.62	361	67.73	15.04	386	67.94	14.36	381	65.81	16.10	338	65.01	19.00	46	67.17	15.39	1512

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	4.38	0.96	171	4.46	1.04	208	4.35	0.98	205	4.23	1.17	167	4.02	1.16	28	4.35	1.04	779
Female	3.91	0.93	190	3.85	0.90	178	3.96	0.84	176	4.07	1.05	171	3.75	0.98	18	3.94	0.94	733
Total	4.13	0.98	361	4.18	1.02	386	4.17	0.94	381	4.15	1.12	338	3.91	1.09	46	4.15	1.01	1512

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	66.67	6.37	171	67.13	7.67	208	67.89	8.06	205	65.92	10.26	167	66.11	9.71	28	66.93	8.24	779
Female	68.78	6.71	190	70.70	6.97	178	71.45	8.59	176	68.91	8.99	171	68.39	7.79	18	69.91	7.91	733
Total	67.78	6.63	361	68.78	7.56	386	69.54	8.49	381	67.43	9.74	338	67.00	8.99	46	68.38	8.21	1512

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	36.98	5.60	171	37.60	5.94	208	38.21	6.31	205	36.86	7.76	167	36.79	7.40	28	37.43	6.46	779
Female	38.62	5.43	190	40.20	5.65	178	41.09	7.14	176	38.97	7.22	171	38.32	5.95	18	39.67	6.44	733
Total	37.84	5.57	361	38.80	5.95	386	39.54	6.85	381	37.93	7.55	338	37.39	6.84	46	38.52	6.54	1512

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	60.1	9.4	172	61.8	10.2	216	61.5	9.6	227	63.5	11.9	200	61.5	11.0	35	61.8	10.4	850
Female	64.5	11.8	195	62.8	9.3	189	62.4	8.5	197	65.1	9.6	202	61.2	6.9	24	63.7	9.8	807
Total	62.5	10.9	367	62.3	9.8	405	61.9	9.1	424	64.3	10.8	402	61.4	9.5	59	62.7	10.2	1657

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	0.72	0.20	172	0.84	0.28	216	0.92	0.29	227	1.09	0.47	199	1.19	0.38	35	0.91	0.36	849
Female	0.65	0.15	195	0.77	0.19	189	0.90	0.23	197	1.04	0.42	202	1.11	0.25	24	0.85	0.31	807
Total	0.68	0.17	367	0.81	0.25	405	0.91	0.26	424	1.07	0.44	401	1.16	0.33	59	0.88	0.33	1656

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	0.54	0.12	172	0.60	0.15	216	0.64	0.16	227	0.71	0.18	199	0.77	0.18	35	0.63	0.17	849
Female	0.51	0.10	195	0.58	0.14	189	0.65	0.16	197	0.71	0.19	202	0.81	0.18	24	0.62	0.17	807
Total	0.52	0.11	367	0.59	0.14	405	0.65	0.16	424	0.71	0.19	401	0.79	0.18	59	0.63	0.17	1656

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	0.99	0.29	168	1.11	0.34	211	1.29	0.57	222	1.53	0.77	192	1.79	0.76	35	1.26	0.59	828
Female	0.89	0.26	190	1.02	0.28	180	1.16	0.34	195	1.39	0.80	197	1.62	0.83	24	1.13	0.53	786
Total	0.94	0.27	358	1.07	0.32	391	1.23	0.48	417	1.46	0.79	389	1.72	0.79	59	1.20	0.56	1614

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	0.66	0.16	168	0.72	0.19	211	0.74	0.20	222	0.84	0.26	192	0.82	0.19	35	0.74	0.21	828
Female	0.59	0.15	190	0.67	0.17	180	0.75	0.19	195	0.81	0.25	197	0.91	0.27	24	0.71	0.22	786
Total	0.63	0.16	358	0.70	0.18	391	0.74	0.19	417	0.82	0.26	389	0.85	0.23	59	0.73	0.22	1614

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	0.68	0.16	172	0.75	0.18	216	0.85	0.24	227	0.95	0.25	198	1.09	0.35	35	0.82	0.25	848
Female	0.62	0.14	194	0.72	0.20	188	0.84	0.19	196	0.93	0.27	202	1.05	0.32	24	0.79	0.25	804
Total	0.65	0.15	366	0.73	0.19	404	0.85	0.22	423	0.94	0.26	400	1.08	0.33	59	0.80	0.25	1652

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	0.52	0.12	172	0.56	0.12	216	0.61	0.14	227	0.67	0.16	198	0.76	0.20	35	0.60	0.15	848
Female	0.48	0.11	194	0.54	0.12	188	0.61	0.14	196	0.67	0.16	202	0.70	0.16	24	0.58	0.15	804
Total	0.50	0.11	366	0.55	0.12	404	0.61	0.14	423	0.67	0.16	400	0.74	0.19	59	0.59	0.15	1652

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	1.01	0.28	168	1.18	0.43	213	1.31	0.60	225	1.48	0.68	197	1.51	0.73	35	1.26	0.56	838
Female	0.89	0.24	195	1.00	0.26	184	1.15	0.34	196	1.32	0.63	201	1.48	0.72	24	1.10	0.45	800
Total	0.94	0.27	363	1.09	0.37	397	1.23	0.50	421	1.40	0.66	398	1.50	0.72	59	1.18	0.52	1638

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	0.67	0.16	168	0.72	0.21	213	0.76	0.24	225	0.81	0.24	197	0.83	0.25	35	0.75	0.22	838
Female	0.60	0.15	195	0.67	0.17	184	0.73	0.19	196	0.78	0.24	201	0.84	0.30	24	0.70	0.21	800
Total	0.63	0.16	363	0.70	0.19	397	0.74	0.22	421	0.80	0.24	398	0.83	0.27	59	0.72	0.22	1638

X. Physical Function Tests and Physical Activities

X. Physical function Tests

1) Physical fitness

- Sitting trunk flexion
- Right grip strength
- Left grip strength
- One leg standing with eyes closed
- One leg standing with eyes 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) Stabilometry

- With eyes open
- With eyes closed

4) Physical activity

5) Physical activity questionnaire*

*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 Co.)

Sitting trunk flexion (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	2.2	9.2	171	1.7	8.6	213	1.8	9.6	222	-0.2	9.3	192	-1.9	9.5	31	1.2	9.2	829
Female	8.6	7.7	191	9.5	7.8	187	9.9	7.4	192	9.1	6.5	190	8.0	8.1	23	9.2	7.4	783
Total	5.5	9.0	362	5.4	9.1	400	5.5	9.5	414	4.4	9.3	382	2.3	10.1	54	5.1	9.3	1612

Right grip strength (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	45.5	6.7	171	42.6	7.1	215	38.5	6.2	225	33.6	5.8	196	29.4	5.2	32	39.5	7.9	839
Female	27.7	4.8	194	24.7	4.5	186	23.8	4.2	196	20.9	3.9	195	19.7	4.7	23	24.1	5.0	794
Total	36.0	10.6	365	34.3	10.7	401	31.7	9.1	421	27.3	8.0	391	25.3	6.9	55	32.0	10.2	1633

Left grip strength (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	44.0	5.9	172	41.2	6.5	215	36.6	6.1	225	32.3	5.7	197	29.0	5.4	33	38.0	7.6	842
Female	26.5	4.5	194	23.5	4.4	186	22.7	4.1	196	19.2	3.8	197	18.2	4.1	23	22.8	5.0	796
Total	34.7	10.1	366	33.0	10.5	401	30.1	8.7	421	25.7	8.1	394	24.5	7.3	56	30.6	10.0	1638

Foot balance with eyes closed (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	33.0	38.5	171	25.0	30.9	214	10.1	11.0	225	4.8	4.5	189	3.5	2.0	31	17.2	26.7	830
Female	30.4	34.2	194	14.6	17.4	187	7.6	10.2	196	4.1	3.8	192	3.7	1.5	23	13.9	22.1	792
Total	31.6	36.2	365	20.1	26.0	401	9.0	10.7	421	4.4	4.1	381	3.6	1.8	54	15.6	24.6	1622

Foot balance with eyes open (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	.	.	0	.	.	0	106.9	64.5	119	64.1	57.7	188	36.7	42.5	31	76.6	63.4	338
Female	.	.	0	.	.	0	81.6	59.1	95	43.1	47.2	192	33.0	35.0	22	54.2	53.6	309
Total	.	.	0	.	.	0	95.6	63.3	214	53.5	53.6	380	35.2	39.2	53	65.9	59.9	647

Reaction time (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	0.397	0.05	171	0.435	0.07	214	0.450	0.08	223	0.502	0.11	188	0.625	0.18	30	0.454	0.10	826
Female	0.450	0.07	192	0.459	0.07	187	0.474	0.07	194	0.563	0.15	178	0.632	0.15	22	0.489	0.11	773
Total	0.425	0.06	363	0.447	0.07	401	0.461	0.08	417	0.532	0.14	366	0.628	0.17	52	0.471	0.11	1599

Leg extension power (W)

	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	680.2	175.3	171	575.4	163.6	211	490.7	114.0	218	367.9	123.8	184	277.2	87.8	29	517.2	185.3	813
Female	334.4	108.4	188	328.8	98.1	182	302.2	80.9	185	219.9	77.8	172	162.1	53.6	19	294.3	103.9	746
Total	499.2	225.0	359	461.2	184.2	393	404.2	137.3	403	296.4	127.7	356	231.6	94.5	48	410.5	188.3	1559

Sit up (reps)

	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	3.8	172	13	5.0	216	11	4.5	227	7	4.6	200	4	3.3	35	11	5.7	850
Female	12	4.8	195	7	5.2	189	5	4.9	197	3	3.7	202	3	3.0	24	7	5.6	807
Total	14	5.0	367	10	6.0	405	8	5.3	424	5	4.7	402	3	3.2	59	9	6.1	1657

Right knee extension strength (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	48.3	10.1	171	42.9	9.1	213	38.4	8.3	217	30.7	7.7	183	27.0	6.8	29	39.5	10.9	813
Female	28.3	6.9	189	26.6	6.4	183	25.0	5.8	188	20.7	5.8	167	19.4	4.2	19	25.1	6.8	746
Total	37.8	13.1	360	35.4	11.4	396	32.2	9.9	405	26.0	8.5	350	24.0	7.0	48	32.6	11.7	1559

Left knee extension strength (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	47.0	10.2	171	41.6	8.7	213	37.4	8.0	216	29.9	7.4	183	25.7	4.6	27	38.4	10.6	810
Female	27.8	6.9	189	25.6	6.2	183	24.4	6.1	187	19.6	5.9	168	18.8	4.8	19	24.3	6.9	746
Total	36.9	12.9	360	34.2	11.1	396	31.4	9.7	403	25.0	8.4	351	22.9	5.8	46	31.7	11.4	1556

Maximum step length (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	125.3	12.9	172	118.8	14.0	214	110.2	13.7	225	99.0	12.5	188	86.1	11.8	32	112.1	17.0	831
Female	107.9	12.1	192	102.4	12.0	188	94.8	11.7	197	82.2	12.6	190	74.0	13.7	21	96.2	15.8	788
Total	116.1	15.2	364	111.2	15.4	402	103.0	14.9	422	90.5	15.1	378	81.3	13.8	53	104.3	18.3	1619

2) Gait performance (Yagami corp.)

Step length of gait with comfortable speed (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	73.8	7.2	172	73.0	7.7	212	71.3	8.3	222	67.9	8.9	190	63.6	9.4	31	71.2	8.5	827
Female	69.6	6.6	192	68.0	7.6	188	66.9	7.5	195	61.8	7.8	195	57.4	9.6	23	66.3	8.1	793
Total	71.6	7.2	364	70.7	8.0	400	69.2	8.2	417	64.8	8.9	385	61.0	9.9	54	68.8	8.7	1620

Pitch of gait with comfortable speed (step/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	114.3	12.8	172	116.6	10.3	212	117.0	10.1	222	112.0	15.1	190	110.7	12.9	31	114.9	12.3	827
Female	120.9	10.2	192	123.6	9.9	188	122.2	12.1	195	115.9	13.6	195	111.4	14.7	23	120.3	12.1	793
Total	117.8	11.9	364	119.8	10.7	400	119.4	11.4	417	114.0	14.5	385	111.0	13.5	54	117.6	12.5	1620

Velocity of gait with comfortable speed (m/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	84.1	10.6	172	84.8	9.9	212	83.2	10.2	222	76.0	13.4	190	70.0	11.0	31	81.7	11.8	827
Female	83.9	9.3	192	83.9	10.2	188	81.5	10.4	195	71.7	12.0	195	64.0	12.4	23	79.7	12.0	793
Total	84.0	9.9	364	84.4	10.1	400	82.4	10.4	417	73.8	12.9	385	67.4	11.9	54	80.7	11.9	1620

Step length of gait with maximum speed (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	85.2	8.3	170	84.0	8.5	211	82.7	9.1	221	77.6	9.1	186	70.9	8.5	28	82.0	9.4	816
Female	77.0	7.6	192	75.2	8.2	186	73.3	8.1	195	67.3	8.3	192	64.0	9.5	21	72.9	9.0	786
Total	80.8	8.9	362	79.8	9.4	397	78.3	9.8	416	72.3	10.1	378	67.9	9.5	49	77.5	10.2	1602

Pitch of gait with maximum speed (step/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	135.2	13.3	170	135.8	13.1	211	132.0	12.3	221	128.9	14.0	186	128.0	17.0	28	132.8	13.6	816
Female	144.0	13.1	192	142.0	13.6	186	139.2	12.9	195	135.2	13.4	192	132.4	14.0	21	139.9	13.7	786
Total	139.9	13.9	362	138.7	13.7	397	135.4	13.1	416	132.1	14.1	378	129.9	15.8	49	136.3	14.1	1602

Velocity of gait with maximum speed (m/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	114.7	12.1	170	113.5	12.5	211	108.8	12.0	221	99.8	14.7	186	90.3	12.9	28	108.6	14.4	816
Female	110.4	11.1	192	106.3	11.4	186	101.5	10.6	195	90.6	11.7	192	84.0	10.4	21	101.7	13.7	786
Total	112.4	11.8	362	110.2	12.5	397	105.4	11.9	416	95.1	14.1	378	87.6	12.2	49	105.2	14.5	1602

3) Three-dimensional motion of gait during 1 cycle

Mean velocity at stance phase during comfortable walking (m/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	1.52	0.15	164	1.51	0.18	200	1.49	0.19	214	1.40	0.20	182	1.27	0.19	30	1.47	0.19	790
Female	1.50	0.17	183	1.50	0.18	179	1.47	0.16	188	1.29	0.20	182	1.11	0.15	21	1.43	0.21	753
Total	1.51	0.16	347	1.50	0.18	379	1.48	0.18	402	1.34	0.21	364	1.20	0.19	51	1.45	0.20	1543

Mean velocity at swing phase during comfortable walking (m/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	1.47	0.15	146	1.47	0.18	178	1.45	0.19	194	1.34	0.20	162	1.22	0.18	29	1.42	0.20	709
Female	1.45	0.17	163	1.44	0.18	159	1.43	0.17	171	1.25	0.20	154	1.08	0.14	18	1.39	0.20	665
Total	1.46	0.16	309	1.46	0.18	337	1.44	0.18	365	1.30	0.20	316	1.16	0.18	47	1.41	0.20	1374

Mean velocity at 1 cycle during comfortable walking (m/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	1.50	0.15	147	1.50	0.18	184	1.47	0.19	196	1.37	0.19	167	1.25	0.17	29	1.45	0.19	723
Female	1.47	0.16	168	1.47	0.18	162	1.45	0.16	173	1.27	0.20	161	1.09	0.15	18	1.41	0.20	682
Total	1.48	0.16	315	1.48	0.18	346	1.46	0.18	369	1.32	0.20	328	1.19	0.18	47	1.43	0.20	1405

Step length during comfortable walking (m)

	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	0.74	0.06	165	0.73	0.06	201	0.72	0.07	212	0.68	0.07	183	0.64	0.08	30	0.72	0.07	791
Female	0.69	0.06	187	0.67	0.06	183	0.66	0.06	187	0.61	0.07	181	0.54	0.07	20	0.66	0.07	758
Total	0.71	0.06	352	0.70	0.07	384	0.70	0.07	399	0.65	0.08	364	0.60	0.09	50	0.69	0.08	1549

Step frequency during comfortable walking (Hz)

	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	2.03	0.14	145	2.04	0.14	181	2.04	0.16	194	2.01	0.15	167	1.96	0.18	28	2.03	0.15	715
Female	2.15	0.16	167	2.20	0.19	160	2.19	0.16	171	2.10	0.18	160	2.05	0.17	18	2.16	0.18	676
Total	2.09	0.16	312	2.12	0.18	341	2.11	0.17	365	2.05	0.17	327	1.99	0.18	46	2.09	0.18	1391

Stance time during comfortable walking (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	0.66	0.04	169	0.66	0.05	207	0.66	0.05	219	0.67	0.06	184	0.70	0.10	31	0.67	0.06	810
Female	0.64	0.05	190	0.63	0.04	187	0.63	0.04	190	0.66	0.07	187	0.69	0.04	21	0.64	0.05	775
Total	0.65	0.05	359	0.64	0.05	394	0.64	0.05	409	0.67	0.06	371	0.70	0.08	52	0.65	0.06	1585

Swing time during comfortable walking (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	0.38	0.06	147	0.38	0.05	184	0.38	0.06	197	0.39	0.10	167	0.38	0.12	29	0.38	0.07	724
Female	0.37	0.08	170	0.36	0.10	165	0.36	0.09	173	0.36	0.10	162	0.38	0.12	18	0.36	0.09	688
Total	0.38	0.07	317	0.37	0.08	349	0.37	0.08	370	0.38	0.10	329	0.38	0.12	47	0.37	0.08	1412

Double support time at late stance phase during comfortable walking (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	0.15	0.02	170	0.15	0.02	207	0.15	0.02	219	0.16	0.02	184	0.17	0.03	31	0.16	0.02	811
Female	0.15	0.02	190	0.15	0.02	187	0.15	0.02	190	0.16	0.02	186	0.15	0.12	20	0.15	0.03	773
Total	0.15	0.02	360	0.15	0.02	394	0.15	0.02	409	0.16	0.02	370	0.16	0.08	51	0.15	0.03	1584

Cycle duration during comfortable walking (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	1.04	0.08	147	1.04	0.08	184	1.04	0.09	197	1.06	0.12	167	1.08	0.15	29	1.05	0.10	724
Female	1.00	0.10	170	0.99	0.11	165	0.99	0.11	173	1.03	0.13	162	1.06	0.13	18	1.00	0.11	688
Total	1.02	0.09	317	1.02	0.10	349	1.02	0.10	370	1.05	0.13	329	1.08	0.14	47	1.03	0.11	1412

Stance time during comfortable walking (% of 1 cycle)

	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	63.4	2.5	147	63.7	2.9	184	63.4	3.2	197	63.7	4.5	167	65.5	6.1	29	63.6	3.5	724
Female	63.6	3.9	170	63.8	4.4	165	63.9	3.9	173	65.0	4.7	162	65.1	5.6	18	64.1	4.3	688
Total	63.5	3.4	317	63.7	3.7	349	63.6	3.5	370	64.3	4.7	329	65.3	5.9	47	63.8	3.9	1412

Swing time during comfortable walking (% of 1 cycle)

	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	36.6	2.5	147	36.3	2.9	184	36.6	3.2	197	36.3	4.5	167	34.5	6.1	29	36.4	3.5	724
Female	36.4	3.9	170	36.2	4.4	165	36.1	3.9	173	35.0	4.7	162	34.9	5.6	18	35.9	4.3	688
Total	36.5	3.4	317	36.3	3.7	349	36.4	3.5	370	35.7	4.7	329	34.7	5.9	47	36.2	3.9	1412

Double support time at late stance phase during comfortable walking (% of 1 cycle)

	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	14.8	1.4	142	14.8	1.7	173	14.5	1.7	186	14.9	1.8	154	16.1	3.0	28	14.8	1.8	683
Female	14.8	1.8	153	14.9	1.8	150	14.9	1.8	151	15.8	2.0	133	16.2	2.3	12	15.1	1.9	599
Total	14.8	1.6	295	14.9	1.7	323	14.7	1.7	337	15.3	1.9	287	16.1	2.7	40	15.0	1.8	1282