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以降のページは雑誌/図書等に掲載された論文となりますので、
「研究成果の刊行に関する一覧表」をご参照ください。

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MONOGRAPH

The First Wave

November, 1997~April, 2000

Visual and Auditory
Examinations

National Institute for
Longevity Sciences
Longitudinal Study of Aging

NILS-LSA

Visual and Auditory Examinations

1) Visual system

1. Refraction

Spherical equivalent of refractive error in the right eye (Diopter)

Spherical equivalent of refractive error in the left eye (Diopter)

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Presenting visual acuity - left eye

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Kinetic visual acuity

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Contrast sensitivity 3 (cycles/degree)

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Central threshold in visual field in the left eye (dB)

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Nuclear opacification in the left eye (scattering intensity) (cct)

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Fundus photography in the right eye - diabetic retinopathy

Fundus photography in the right eye - arteriosclerosis (Keith-Wagener grading)

Fundus photography in the right eye - macular degeneration

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Fundus photography in the left eye - macular degeneration

11. Cornea

Corneal thickness - right eye

Corneal thickness - left eye

Endothelial cell density of cornea - right eye

Endothelial cell density of cornea - left eye

2) Auditory system

1. Pure-tone audiometry

Air conduction thresholds at 500,1000,2000,4000,8000Hz (dBHL)

Bone conduction thresholds at 500,1000,2000,4000Hz (dBHL)

2. Impedance audiometry

Single frequency tympanometry

Tympanometric peak pressure in the single frequency tympanogram
at 226Hz (daPa)

Static compliance in the single frequency tympanogram at 226Hz (ml)

Multifrequency tympanometry

Middle ear resonance frequency (Hz)

1. Refraction

Autorefractation was obtained with the NIDEK-ARK700A.
 Refractive errors, in spherical equivalent, were assessed.

Spherical Equivalent of Refractive Error in the Right Eye (Diopter)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-1.33	1.43	291	-1.00	1.46	281	-0.21	1.18	279	-0.18	1.29	271	-0.69	1.43	1122
Female	-1.18	1.41	282	-0.67	1.33	279	-0.11	1.38	284	-0.06	1.35	275	-0.50	1.44	1120
Total	-1.25	1.42	573	-0.83	1.40	560	-0.16	1.29	563	-0.12	1.32	546	-0.60	1.44	2242

Spherical Equivalent of Refractive Error in the Left Eye (Diopter)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-1.29	1.40	290	-0.91	1.43	279	-0.13	1.01	282	-0.11	1.25	273	-0.62	1.38	1124
Female	-1.26	1.46	282	-0.73	1.45	278	-0.07	1.27	282	0.02	1.22	272	-0.51	1.45	1114
Total	-1.28	1.43	572	-0.82	1.44	557	-0.10	1.15	564	-0.05	1.24	545	-0.57	1.42	2238

2. Visual acuity: near vision (33 cm), distant vision (5 m)

Distant visual acuity was measured for each eye with a Landolt broken ring at 5m.

Presenting visual acuity was measured with the participant's current distance correction; when distance correction was not used, the unaided distant visual acuity was measured.

Subsequently, best-corrected visual acuity for each eye was determined after objective autorefraction and subjective refinement.

Presenting near vision was measured with the participant's current near correction for each eye with a Landolt broken ring designed for use at 33 cm; when near correction was not used, the unaided near vision was measured.

Log VA in the Right Eye with own Habitual Glasses

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-0.04	0.24	291	-0.05	0.26	282	-0.13	0.27	282	-0.21	0.28	282	-0.11	0.27	1137
Female	-0.07	0.30	282	-0.10	0.26	279	-0.20	0.33	285	-0.28	0.35	278	-0.16	0.33	1124
Total	-0.05	0.27	573	-0.08	0.27	561	-0.17	0.31	567	-0.24	0.32	560	-0.13	0.30	2261

Log VA in the Left Eye with own Habitual Glasses

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-0.02	0.21	290	-0.05	0.27	282	-0.09	0.21	283	-0.22	0.31	282	-0.10	0.27	1137
Female	-0.09	0.30	281	-0.12	0.29	279	-0.17	0.29	284	-0.29	0.37	281	-0.17	0.32	1125
Total	-0.05	0.26	571	-0.08	0.28	561	-0.13	0.26	567	-0.26	0.34	563	-0.13	0.30	2262

Log Best-corrected VA in the Right Eye

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.06	0.13	291	0.04	0.15	281	-0.03	0.19	282	-0.11	0.22	282	-0.01	0.19	1136
Female	0.05	0.19	282	0.04	0.11	279	-0.06	0.22	285	-0.16	0.27	278	-0.03	0.22	1124
Total	0.06	0.16	573	0.04	0.13	560	-0.04	0.21	567	-0.13	0.25	560	-0.02	0.21	2260

Log Best-corrected VA in the Left Eye

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.07	0.10	290	0.03	0.18	281	-0.01	0.17	283	-0.12	0.26	282	-0.01	0.20	1136
Female	0.05	0.16	282	0.02	0.18	279	-0.06	0.24	285	-0.16	0.28	280	-0.04	0.24	1126
Total	0.06	0.14	572	0.03	0.18	560	-0.04	0.21	568	-0.14	0.27	562	-0.02	0.22	2262

Log Near Vision in the Right Eye with own Habitual Glasses

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-0.13	0.20	289	-0.25	0.25	280	-0.27	0.24	282	-0.34	0.25	280	-0.25	0.25	1131
Female	-0.16	0.21	280	-0.25	0.22	279	-0.33	0.28	281	-0.35	0.29	275	-0.27	0.26	1115
Total	-0.14	0.21	569	-0.25	0.23	559	-0.30	0.26	563	-0.35	0.27	555	-0.26	0.26	2246

Log Near Vision in the Left Eye with own Habitual Glasses

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-0.11	0.18	288	-0.24	0.28	280	-0.25	0.24	283	-0.33	0.28	281	-0.23	0.26	1132
Female	-0.15	0.26	282	-0.23	0.23	279	-0.30	0.23	280	-0.34	0.30	280	-0.25	0.27	1121
Total	-0.13	0.22	570	-0.23	0.25	559	-0.28	0.24	563	-0.33	0.29	561	-0.24	0.26	2253

Log Best-corrected Near Vision in the Right Eye

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-0.06	0.10	254	-0.09	0.11	248	-0.13	0.16	228	-0.18	0.18	239	-0.11	0.15	969
Female	-0.06	0.08	240	-0.08	0.09	232	-0.13	0.16	233	-0.18	0.18	230	-0.11	0.14	935
Total	-0.06	0.09	494	-0.08	0.10	480	-0.13	0.16	461	-0.18	0.18	469	-0.11	0.14	1904

Log Best-corrected Near Vision in the Left Eye

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-0.05	0.08	253	-0.09	0.17	248	-0.11	0.12	229	-0.17	0.18	241	-0.10	0.15	971
Female	-0.06	0.13	241	-0.08	0.13	232	-0.11	0.16	232	-0.20	0.26	232	-0.11	0.19	937
Total	-0.05	0.11	494	-0.08	0.15	480	-0.11	0.14	461	-0.18	0.22	473	-0.11	0.17	1908

Visual Acuity with own Habitual Glasses
Right Eye

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	-	-	-	-	-	-	1	0.4	1	0.1
	Female	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	1	0.2	1	0.0
0.3 or less	Male	12	4.1	10	3.5	15	5.3	17	6.0	54	4.7
	Female	15	5.3	14	5.0	21	7.4	43	15.2	93	8.2
	Total	27	4.7	24	4.3	36	6.3	60	10.6	147	6.5
0.3-0.6	Male	37	12.7	44	15.6	67	23.7	104	36.7	252	22.1
	Female	44	15.6	56	20.1	91	31.9	97	34.4	288	25.5
	Total	81	14.1	100	17.8	158	27.8	201	35.6	540	23.8
0.7 or more	Male	242	83.2	228	80.9	201	71.0	161	56.9	832	73.0
	Female	223	79.1	209	74.9	173	60.7	142	50.4	747	66.2
	Total	465	81.2	437	77.9	374	65.8	303	53.6	1579	69.7

Visual Acuity with own Habitual Glasses
Left Eye

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	1	0.3	-	-	-	-	1	0.4	2	0.2
	Female	-	-	-	-	-	-	-	-	-	-
	Total	1	0.2	-	-	-	-	1	0.2	2	0.1
0.3 or less	Male	7	2.4	10	3.5	8	2.8	23	8.1	48	4.2
	Female	21	7.4	20	7.2	13	4.6	39	13.8	93	8.2
	Total	28	4.9	30	5.3	21	3.7	62	11.0	141	6.2
0.3-0.6	Male	36	12.4	35	12.4	60	21.2	101	35.7	232	20.4
	Female	39	13.8	54	19.4	91	31.9	103	36.5	287	25.4
	Total	75	13.1	89	15.9	151	26.6	204	36.1	519	22.9
0.7 or more	Male	247	84.9	237	84.0	215	76.0	158	55.8	857	75.2
	Female	222	78.7	205	73.5	181	63.5	140	49.6	748	66.3
	Total	469	81.8	442	78.8	396	69.7	298	52.7	1605	70.8

Best-corrected Visual Acuity
Right Eye

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	-	-	1	0.4	-	-	1	0.4	2	0.2
	Female	-	-	-	-	-	-	1	0.4	1	0.1
	Total	-	-	1	0.2	-	-	2	0.4	3	0.1
0.3 or less	Male	1	0.3	4	1.4	3	1.1	6	2.1	14	1.2
	Female	2	0.7	-	-	5	1.8	18	6.4	25	2.2
	Total	3	0.5	4	0.7	8	1.4	24	4.2	39	1.7
0.3-0.6	Male	4	1.4	7	2.5	31	11.0	56	19.8	98	8.6
	Female	3	1.1	7	2.5	41	14.4	73	25.9	124	11.0
	Total	7	1.2	14	2.5	72	12.7	129	22.8	222	9.8
0.7 or more	Male	286	98.3	270	95.7	249	88.0	220	77.7	1025	90.0
	Female	277	98.2	272	97.5	239	83.9	190	67.4	978	86.7
	Total	563	98.3	542	96.6	488	85.9	410	72.6	2003	88.4

Best-corrected Visual Acuity
Left Eye

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	1	0.3	1	0.4	-	-	1	0.4	3	0.3
	Female	-	-	-	-	-	-	1	0.4	1	0.1
	Total	1	0.2	1	0.2	-	-	2	0.4	4	0.2
0.3 or less	Male	-	-	2	0.7	3	1.1	10	3.5	15	1.3
	Female	3	1.1	3	1.1	5	1.8	15	5.3	26	2.3
	Total	3	0.5	5	0.9	8	1.4	25	4.4	41	1.8
0.3-0.6	Male	2	0.7	7	2.5	20	7.1	63	22.3	92	8.1
	Female	7	2.5	18	6.5	35	12.3	74	26.2	134	11.9
	Total	9	1.6	25	4.5	55	9.7	137	24.2	226	10.0
0.7 or more	Male	288	99.0	272	96.5	260	91.9	209	73.9	1029	90.3
	Female	272	96.5	258	92.5	245	86.0	192	68.1	967	85.7
	Total	560	97.7	530	94.5	505	88.9	401	71.0	1996	88.0

Near Vision with own Habitual Glasses
Right Eye

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	1	0.3	2	0.7	-	-	2	0.7	5	0.4
	Female	1	0.4	-	-	3	1.1	2	0.7	6	0.5
	Total	2	0.3	2	0.4	3	0.5	4	0.7	11	0.5
0.3 or less	Male	12	4.1	33	11.7	30	10.6	50	17.7	125	11.0
	Female	17	6.0	19	6.8	50	17.5	57	20.2	143	12.7
	Total	29	5.1	52	9.3	80	14.1	107	18.9	268	11.8
0.3-0.6	Male	53	18.2	99	35.1	113	39.9	134	47.3	399	35.0
	Female	68	24.1	126	45.2	131	46.0	115	40.8	440	39.0
	Total	121	21.1	225	40.1	244	43.0	249	44.1	839	37.0
0.7 or more	Male	225	77.3	148	52.5	140	49.5	97	34.3	610	53.6
	Female	196	69.5	134	48.0	101	35.4	108	38.3	539	47.8
	Total	421	73.5	282	50.3	241	42.4	205	36.3	1149	50.7

Near Vision in the Left Eye with own Habitual Glasses
Left Eye

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	2	0.7	2	0.7	-	-	1	0.4	5	0.4
	Female	-	-	-	-	5	1.8	2	0.7	7	0.6
	Total	2	0.3	2	0.4	5	0.9	3	0.5	12	0.5
0.3 or less	Male	10	3.4	34	12.1	26	9.2	48	17.0	118	10.4
	Female	19	6.7	19	6.8	42	14.7	48	17.0	128	11.3
	Total	29	5.1	53	9.4	68	12.0	96	17.0	246	10.9
0.3-0.6	Male	50	17.2	89	31.6	109	38.5	128	45.2	376	33.0
	Female	56	19.9	116	41.6	127	44.6	126	44.7	425	37.7
	Total	106	18.5	205	36.5	236	41.5	254	45.0	801	35.3
0.7 or more	Male	229	78.7	157	55.7	148	52.3	106	37.5	640	56.2
	Female	207	73.4	144	51.6	111	38.9	106	37.6	568	50.4
	Total	436	76.1	301	53.7	259	45.6	212	37.5	1208	53.3

3. Kinetic Visual Acuity

Binocular kinetic visual acuity and binocular static visual acuity were assessed with KOWA AS-4C.

Kinetic visual acuity was measured five times, then the mean value of the measurements was used for analysis.

Log Static VA

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-0.05	0.11	290	-0.09	0.12	281	-0.13	0.13	282	-0.21	0.18	282	-0.12	0.15	1135
Female	-0.07	0.10	280	-0.09	0.11	279	-0.15	0.13	281	-0.23	0.17	278	-0.13	0.15	1118
Total	-0.06	0.11	570	-0.09	0.12	560	-0.14	0.13	563	-0.22	0.18	560	-0.13	0.15	2253

Log Kinetic VA

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	-0.33	0.21	290	-0.39	0.22	281	-0.45	0.23	283	-0.61	0.24	283	-0.44	0.25	1137
Female	-0.32	0.19	281	-0.35	0.22	279	-0.52	0.25	282	-0.67	0.25	278	-0.47	0.27	1120
Total	-0.33	0.20	571	-0.37	0.22	560	-0.48	0.24	565	-0.64	0.25	561	-0.45	0.26	2257

Static Visual Acuity

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	1	0.3	1	0.4	1	0.4	1	0.4	4	0.4
	Female	2	0.7	-	-	4	1.4	4	1.4	10	0.9
	Total	3	0.5	1	0.2	5	0.9	5	0.9	14	0.6
0.3 or less	Male	-	-	1	0.4	-	-	9	3.2	10	0.9
	Female	-	-	-	-	2	0.7	10	3.5	12	1.1
	Total	-	-	1	0.2	2	0.4	19	3.4	22	1.0
0.3-0.6	Male	35	12.0	40	14.2	88	31.1	122	43.1	285	25.0
	Female	31	11.0	49	17.6	85	29.8	151	53.5	316	28.0
	Total	66	11.5	89	15.9	173	30.5	273	48.3	601	26.5
0.7 or more	Male	255	87.6	240	85.1	194	68.6	151	53.4	840	73.7
	Female	249	88.3	230	82.4	194	68.1	117	41.5	790	70.0
	Total	504	88.0	470	83.8	388	68.3	268	47.4	1630	71.9

Kinetic Visual Acuity

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	1	0.3	1	0.4	-	-	-	-	2	0.2
	Female	1	0.4	-	-	3	1.1	4	1.4	8	0.7
	Total	2	0.3	1	0.2	3	0.5	4	0.7	10	0.4
0.3 or less	Male	50	17.2	66	23.4	87	30.7	163	57.6	366	32.1
	Female	37	13.1	54	19.4	122	42.8	189	67.0	402	35.6
	Total	87	15.2	120	21.4	209	36.8	352	62.3	768	33.9
0.3-0.6	Male	172	59.1	183	64.9	172	60.8	116	41.0	643	56.5
	Female	184	65.2	174	62.4	148	51.9	85	30.1	591	52.4
	Total	356	62.1	357	63.6	320	56.3	201	35.6	1234	54.4
0.7 or more	Male	68	23.4	32	11.3	24	8.5	4	1.4	128	11.2
	Female	60	21.3	51	18.3	12	4.2	4	1.4	127	11.3
	Total	128	22.3	83	14.8	36	6.3	8	1.4	255	11.2

4. Stereoscopic vision

Stereo acuity was assessed with the Titmus stereotest and TNO stereotest.

Stereo Acuity
Titmus Stereo Test

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	1	0.3	2	0.7	1	0.4	3	1.1	7	0.6
	Female	1	0.4	1	0.4	4	1.4	4	1.4	10	0.9
	Total	2	0.3	3	0.5	5	0.9	7	1.2	17	0.7
poor (200sec. or less)	Male	12	4.1	14	5.0	25	8.8	61	21.6	112	9.8
	Female	11	3.9	13	4.7	26	9.1	61	21.6	111	9.8
	Total	23	4.0	27	4.8	51	9.0	122	21.6	223	9.8
moderate (80 - 140sec.)	Male	8	2.7	31	11.0	65	23.0	72	25.4	176	15.5
	Female	12	4.3	23	8.2	48	16.8	76	27.0	159	14.1
	Total	20	3.5	54	9.6	113	19.9	148	26.2	335	14.8
good (60sec. or more)	Male	270	92.8	235	83.3	192	67.8	147	51.9	844	74.1
	Female	258	91.5	242	86.7	207	72.6	141	50.0	848	75.2
	Total	528	92.1	477	85.0	399	70.2	288	51.0	1692	74.6

Stereo Acuity
TNO Stereo Test

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	6	2.1	4	1.4	7	2.5	16	5.7	33	2.9
	Female	10	3.5	6	2.2	10	3.5	6	2.1	32	2.8
	Total	16	2.8	10	1.8	17	3.0	22	3.9	65	2.9
good (120sec. or more)	Male	253	86.9	207	73.4	143	50.5	105	37.1	708	62.2
	Female	230	81.6	233	83.5	163	57.2	115	40.8	741	65.7
	Total	483	84.3	440	78.4	306	53.9	220	38.9	1449	63.9
positive (240sec. or less)	Male	21	7.2	53	18.8	97	34.3	91	32.2	262	23.0
	Female	31	11.0	24	8.6	85	29.8	92	32.6	232	20.6
	Total	52	9.1	77	13.7	182	32.0	183	32.4	494	21.8
negative	Male	11	3.8	18	6.4	36	12.7	71	25.1	136	11.9
	Female	11	3.9	16	5.7	27	9.5	69	24.5	123	10.9
	Total	22	3.8	34	6.1	63	11.1	140	24.8	259	11.4

5. Color perception

Red-Green color discrimination acuity and Blue-Yellow color discrimination acuity were assessed with Standard Pseudo-isochromatic Plates (SPP) part 2.

Correct Answer in Blue-Yellow Discrimination Test (%)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	98.0	5.3	290	95.5	9.5	281	91.9	11.6	281	83.3	19.8	279	92.2	13.8	1131
Female	98.1	4.8	281	96.1	7.4	279	92.9	11.1	281	81.4	19.7	277	92.2	13.7	1118
Total	98.1	5.1	571	95.8	8.5	560	92.4	11.4	562	82.3	19.8	556	92.2	13.8	2249

Correct Answer in Red-Green Discrimination Test (%)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	95.8	15.1	289	94.1	17.6	281	90.8	21.5	281	87.5	22.9	280	92.1	19.7	1131
Female	98.4	5.4	280	96.6	9.7	279	94.9	11.1	281	86.5	18.8	276	94.1	13.0	1116
Total	97.1	11.5	569	95.3	14.3	560	92.9	17.3	562	87.0	21.0	556	93.1	16.8	2247

6. Contrast sensitivity

Contrast sensitivity was measured at 1.5, 3, 6, 12, 18 cycles per degree with Vistech VCTS-6500.

Contrast Sensitivity 1.5(C/D)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	43.2	17.6	288	39.0	16.3	279	36.1	15.4	280	29.1	12.3	275	36.9	16.4	1122
Female	39.7	19.4	280	36.6	13.7	279	30.9	12.6	281	27.6	11.4	274	33.7	15.4	1114
Total	41.5	18.6	568	37.8	15.1	558	33.5	14.3	561	28.3	11.9	549	35.3	15.9	2236

Contrast Sensitivity 3(C/D)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	84.2	31.6	288	75.1	28.2	279	72.5	31.9	280	56.9	28.3	275	72.3	31.6	1122
Female	79.0	31.0	280	74.0	28.3	279	63.8	28.5	281	53.5	24.8	274	67.7	29.8	1114
Total	81.7	31.4	568	74.6	28.2	558	68.2	30.5	561	55.2	26.6	549	70.0	30.8	2236

Contrast Sensitivity 6(C/D)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	89.7	42.0	288	84.2	41.1	279	72.3	40.9	280	47.8	30.0	275	73.7	42.0	1122
Female	87.7	40.9	280	82.0	38.8	279	61.8	39.7	281	41.0	25.9	274	68.3	41.2	1114
Total	88.7	41.4	568	83.1	40.0	558	67.0	40.6	561	44.4	28.2	549	71.0	41.7	2236

Contrast Sensitivity 12(C/D)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	51.5	31.0	288	48.1	29.8	279	37.6	26.8	280	21.0	21.1	275	39.7	29.9	1122
Female	50.8	30.2	280	49.3	31.0	279	30.2	25.3	281	16.4	15.6	274	36.8	29.9	1114
Total	51.2	30.6	568	48.7	30.4	558	33.9	26.3	561	18.7	18.7	549	38.2	29.9	2236

Contrast Sensitivity 18(C/D)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	16.3	10.9	288	15.5	9.8	279	11.5	9.3	280	6.4	7.3	275	12.5	10.2	1122
Female	17.0	11.9	280	16.2	10.9	279	10.3	9.4	281	5.2	6.0	274	12.2	10.9	1114
Total	16.6	11.4	568	15.9	10.4	558	10.9	9.4	561	5.8	6.7	549	12.3	10.6	2236

7. Visual field

Visual field examination was performed with the Dynamic strategies of OCTOPUS 1-2-3 perimeter.

Central Threshold in Visual Field in the Right Eye (dB)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	32.0	2.4	274	31.8	2.3	265	30.9	3.7	256	28.3	5.2	260	30.8	3.9	1055
Female	31.5	2.6	264	31.3	2.4	264	30.0	4.2	257	28.2	4.6	250	30.3	3.8	1035
Total	31.7	2.5	538	31.5	2.4	529	30.4	4.0	513	28.3	4.9	510	30.5	3.8	2090

Central Threshold in Visual Field in the Left Eye (dB)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	31.7	2.2	275	31.6	2.6	264	31.0	2.8	256	28.7	4.0	259	30.7	3.2	1054
Female	31.3	2.6	265	31.1	2.7	264	30.0	3.4	260	28.3	4.7	251	30.2	3.6	1040
Total	31.5	2.4	540	31.3	2.7	528	30.5	3.2	516	28.5	4.3	510	30.5	3.4	2094

Mean sensitivity in Visual Field in the Right Eye (dB)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	27.3	1.8	274	27.0	1.9	265	26.1	2.2	256	23.3	4.3	260	26.0	3.2	1055
Female	27.1	1.7	264	26.8	1.8	264	25.1	2.6	257	22.9	3.5	251	25.5	3.0	1036
Total	27.2	1.8	538	26.9	1.8	529	25.6	2.5	513	23.1	3.9	511	25.7	3.1	2091

Mean Sensitivity in Visual Field in the Left Eye (dB)

	40-49yr			50-59yr			60-69yr			70-80yr			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	27.1	1.5	275	26.8	1.7	264	25.8	2.4	256	23.4	4.2	261	25.8	3.0	1056
Female	26.9	1.6	265	26.6	1.6	264	25.0	2.5	260	22.8	3.4	251	25.3	2.9	1040
Total	27.0	1.5	540	26.7	1.7	528	25.4	2.5	516	23.1	3.8	512	25.6	3.0	2096

Visual Field in the Right Eye

		40-49yr		50-59yr		60-69yr		70-80yr		Total	
		N	%	N	%	N	%	N	%	N	%
not recorded	Male	-	-	-	-	1	0.4	2	0.7	3	0.3
	Female	-	-	-	-	-	-	2	0.7	2	0.2
	Total	-	-	-	-	1	0.2	4	0.7	5	0.2
nothing	Male	262	90.0	226	80.1	190	67.1	123	43.5	801	70.3
	Female	246	87.2	220	78.9	161	56.5	94	33.3	721	63.9
	Total	508	88.7	446	79.5	351	61.8	217	38.4	1522	67.1
glaucoma suspected	Male	5	1.7	10	3.5	18	6.4	22	7.8	55	4.8
	Female	7	2.5	13	4.7	12	4.2	18	6.4	50	4.4
	Total	12	2.1	23	4.1	30	5.3	40	7.1	105	4.6
typical glaucoma change	Male	-	-	1	0.4	-	-	4	1.4	5	0.4
	Female	-	-	1	0.4	2	0.7	6	2.1	9	0.8
	Total	-	-	2	0.4	2	0.4	10	1.8	14	0.6
contraction	Male	1	0.3	-	-	4	1.4	3	1.1	8	0.7
	Female	-	-	1	0.4	2	0.7	4	1.4	7	0.6
	Total	1	0.2	1	0.2	6	1.1	7	1.2	15	0.7
central scotoma	Male	-	-	2	0.7	3	1.1	3	1.1	8	0.7
	Female	-	-	-	-	3	1.1	3	1.1	6	0.5
	Total	-	-	2	0.4	6	1.1	6	1.1	14	0.6
atypical changes	Male	22	7.6	39	13.8	65	23.0	120	42.4	246	21.6
	Female	26	9.2	44	15.8	96	33.7	139	49.3	305	27.0
	Total	48	8.4	83	14.8	161	28.3	259	45.8	551	24.3
depression	Male	-	-	-	-	-	-	3	1.1	3	0.3
	Female	-	-	-	-	1	0.4	6	2.1	7	0.6
	Total	-	-	-	-	1	0.2	9	1.6	10	0.4
not examined	Male	1	0.3	4	1.4	2	0.7	3	1.1	10	0.9
	Female	3	1.1	-	-	8	2.8	10	3.5	21	1.9
	Total	4	0.7	4	0.7	10	1.8	13	2.3	31	1.4