

Frequency of beverage intakes
Regular coffee

		40 - 49yr		50 - 59yr		60 - 69yr		70 - 79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Total	2 to 3 times a day	160	46.0	138	38.5	83	25.2	63	17.8	2	11.1	446	31.7
	4 or more times	67	19.3	42	11.7	21	6.4	8	2.3	0	0	138	9.8

Frequency of beverage intakes
Decaffeinated coffee

		40 - 49yr		50 - 59yr		60 - 69yr		70 - 79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Male	Never	182	99.5	193	100.0	155	99.4	175	100.0	7	100.0	712	99.7
	Once a month	0	0	0	0	0	0	0	0	0	0	0	0
	2 to 3 times a mo.	1	0.5	0	0	0	0	0	0	0	0	1	0.1
	2 to 3 times a week	0	0	0	0	1	0.6	0	0	0	0	1	0.1
	Once a day	0	0	0	0	0	0	0	0	0	0	0	0
Female	Never	164	99.4	164	99.4	173	100.0	176	98.9	10	90.9	687	99.3
	Once a month	0	0	1	0.6	0	0	1	0.6	1	9.1	3	0.4
	2 to 3 times a mo.	0	0	0	0	0	0	1	0.6	0	0	1	0.1
	2 to 3 times a week	0	0	0	0	0	0	0	0	0	0	0	0
	Once a day	1	0.6	0	0	0	0	0	0	0	0	1	0.1
Total	Never	346	99.4	357	99.7	328	99.7	351	99.4	17	94.4	1399	99.5
	Once a month	0	0	1	0.3	0	0	1	0.3	1	5.6	3	0.2
	2 to 3 times a mo.	1	0.3	0	0	0	0	1	0.3	0	0	2	0.1
	2 to 3 times a week	0	0	0	0	1	0.3	0	0	0	0	1	0.1
	Once a day	1	0.3	0	0	0	0	0	0	0	0	1	0.1

Frequency of beverage intakes
Black tea

		40 - 49yr		50 - 59yr		60 - 69yr		70 - 79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Male	not recorded	0	0	0	0	1	0.6	0	0	0	0	1	0.1
	Never	117	63.9	140	72.5	100	64.1	134	76.6	2	28.6	493	69.0
	Once a month	11	6.0	19	9.8	12	7.7	5	2.9	1	14.3	48	6.7
	2 to 3 times a mo.	16	8.7	10	5.2	14	9.0	9	5.1	0	0	49	6.9
	Once a week	16	8.7	5	2.6	8	5.1	11	6.3	4	57.1	44	6.2
	2 to 3 times a week	5	2.7	4	2.1	13	8.3	6	3.4	0	0	28	3.9
	4 to 6 times a week	3	1.6	3	1.6	1	0.6	2	1.1	0	0	9	1.3
	Once a day	13	7.1	8	4.1	6	3.8	7	4.0	0	0	34	4.8
	2 to 3 times a day	2	1.1	4	2.1	0	0	1	0.6	0	0	7	1.0
	4 or more times	0	0	0	0	1	0.6	0	0	0	0	1	0.1
Female	not recorded	0	0	0	0	0	0	0	0	0	0	0	0
	Never	75	45.5	76	46.1	82	47.4	91	51.1	5	45.5	329	47.5
	Once a month	20	12.1	22	13.3	20	11.6	22	12.4	2	18.2	86	12.4
	2 to 3 times a mo.	16	9.7	14	8.5	23	13.3	17	9.6	0	0	70	10.1
	Once a week	13	7.9	24	14.5	12	6.9	15	8.4	0	0	64	9.2
	2 to 3 times a week	19	11.5	13	7.9	20	11.6	16	9.0	3	27.3	71	10.3
	4 to 6 times a week	5	3.0	1	0.6	2	1.2	3	1.7	0	0	11	1.6
	Once a day	14	8.5	14	8.5	7	4.0	12	6.7	1	9.1	48	6.9
	2 to 3 times a day	2	1.2	1	0.6	7	4.0	2	1.1	0	0	12	1.7
	4 or more times	1	0.6	0	0	0	0	0	0	0	0	1	0.1
Total	not recorded	0	0	0	0	1	0.3	0	0	0	0	1	0.1
	Never	192	55.2	216	60.3	182	55.3	225	63.7	7	38.9	822	58.5
	Once a month	31	8.9	41	11.5	32	9.7	27	7.6	3	16.7	134	9.5
	2 to 3 times a mo.	32	9.2	24	6.7	37	11.2	26	7.4	0	0	119	8.5
	Once a week	29	8.3	29	8.1	20	6.1	26	7.4	4	22.2	108	7.7
	2 to 3 times a week	24	6.9	17	4.7	33	10.0	22	6.2	3	16.7	99	7.0
	4 to 6 times a week	8	2.3	4	1.1	3	0.9	5	1.4	0	0	20	1.4
	Once a day	27	7.8	22	6.1	13	4.0	19	5.4	1	5.6	82	5.8
	2 to 3 times a day	4	1.1	5	1.4	7	2.1	3	0.8	0	0	19	1.4
4 or more times	1	0.3	0	0	1	0.3	0	0	0	0	2	0.1	

Frequency of beverage intakes
Green tea

		40 - 49yr		50 - 59yr		60 - 69yr		70 - 79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Male	Never	12	6.6	11	5.7	12	7.7	15	8.6	1	14.3	51	7.1
	Once a month	1	0.5	2	1.0	1	0.6	1	0.6	0	0	5	0.7
	2 to 3 times a mo.	4	2.2	1	0.5	3	1.9	0	0	0	0	8	1.1
	Once a week	2	1.1	6	3.1	1	0.6	1	0.6	0	0	10	1.4
	2 to 3 times a week	7	3.8	3	1.6	5	3.2	4	2.3	0	0	19	2.7
	4 to 6 times a week	10	5.5	2	1.0	4	2.6	1	0.6	0	0	17	2.4
	Once a day	32	17.5	37	19.2	17	10.9	8	4.6	0	0	94	13.2
	2 to 3 times a day	77	42.1	77	39.9	52	33.3	59	33.7	4	57.1	269	37.7
4 or more times	38	20.8	54	28.0	61	39.1	86	49.1	2	28.6	241	33.8	
Female	Never	14	8.5	8	4.8	3	1.7	7	3.9	0	0	32	4.6
	Once a month	3	1.8	0	0	1	0.6	2	1.1	0	0	6	0.9
	2 to 3 times a mo.	3	1.8	0	0	2	1.2	2	1.1	0	0	7	1.0
	Once a week	10	6.1	1	0.6	5	2.9	2	1.1	0	0	18	2.6
	2 to 3 times a week	13	7.9	3	1.8	5	2.9	2	1.1	1	9.1	24	3.5
	4 to 6 times a week	9	5.5	7	4.2	1	0.6	5	2.8	0	0	22	3.2
	Once a day	26	15.8	13	7.9	19	11.0	11	6.2	1	9.1	70	10.1
	2 to 3 times a day	59	35.8	68	41.2	64	37.0	56	31.5	3	27.3	250	36.1
4 or more times	28	17.0	65	39.4	73	42.2	91	51.1	6	54.5	263	38.0	
Total	Never	26	7.5	19	5.3	15	4.6	22	6.2	1	5.6	83	5.9
	Once a month	4	1.1	2	0.6	2	0.6	3	0.8	0	0	11	0.8
	2 to 3 times a mo.	7	2.0	1	0.3	5	1.5	2	0.6	0	0	15	1.1
	Once a week	12	3.4	7	2.0	6	1.8	3	0.8	0	0	28	2.0
	2 to 3 times a week	20	5.7	6	1.7	10	3.0	6	1.7	1	5.6	43	3.1
	4 to 6 times a week	19	5.5	9	2.5	5	1.5	6	1.7	0	0	39	2.8
	Once a day	58	16.7	50	14.0	36	10.9	19	5.4	1	5.6	164	11.7
	2 to 3 times a day	136	39.1	145	40.5	116	35.3	115	32.6	7	38.9	519	36.9
4 or more times	66	19.0	119	33.2	134	40.7	177	50.1	8	44.4	504	35.8	

Frequency of beverage intakes
Oolong tea

		40 - 49yr		50 - 59yr		60 - 69yr		70 - 79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Male	Never	20	10.9	37	19.2	36	23.1	89	50.9	3	42.9	185	25.9
	Once a month	5	2.7	6	3.1	5	3.2	5	2.9	0	0	21	2.9
	2 to 3 times a mo.	3	1.6	4	2.1	3	1.9	8	4.6	1	14.3	19	2.7
	Once a week	8	4.4	13	6.7	4	2.6	9	5.1	0	0	34	4.8
	2 to 3 times a week	21	11.5	19	9.8	19	12.2	6	3.4	1	14.3	66	9.2
	4 to 6 times a week	27	14.8	26	13.5	13	8.3	13	7.4	0	0	79	11.1
	Once a day	40	21.9	36	18.7	40	25.6	23	13.1	0	0	139	19.5
	2 to 3 times a day	49	26.8	42	21.8	29	18.6	12	6.9	1	14.3	133	18.6
	4 or more times	10	5.5	10	5.2	7	4.5	10	5.7	1	14.3	38	5.3
Female	Never	14	8.5	28	17.0	34	19.7	42	23.6	4	36.4	122	17.6
	Once a month	7	4.2	5	3.0	5	2.9	4	2.2	0	0	21	3.0
	2 to 3 times a mo.	2	1.2	4	2.4	5	2.9	6	3.4	0	0	17	2.5
	Once a week	5	3.0	11	6.7	9	5.2	2	1.1	0	0	27	3.9
	2 to 3 times a week	14	8.5	13	7.9	15	8.7	12	6.7	0	0	54	7.8
	4 to 6 times a week	15	9.1	25	15.2	23	13.3	17	9.6	2	18.2	82	11.8
	Once a day	42	25.5	42	25.5	34	19.7	49	27.5	1	9.1	168	24.3
	2 to 3 times a day	43	26.1	25	15.2	28	16.2	31	17.4	4	36.4	131	18.9
	4 or more times	23	13.9	12	7.3	20	11.6	15	8.4	0	0	70	10.1
Total	Never	34	9.8	65	18.2	70	21.3	131	37.1	7	38.9	307	21.8
	Once a month	12	3.4	11	3.1	10	3.0	9	2.5	0	0	42	3.0
	2 to 3 times a mo.	5	1.4	8	2.2	8	2.4	14	4.0	1	5.6	36	2.6
	Once a week	13	3.7	24	6.7	13	4.0	11	3.1	0	0	61	4.3
	2 to 3 times a week	35	10.1	32	8.9	34	10.3	18	5.1	1	5.6	120	8.5
	4 to 6 times a week	42	12.1	51	14.2	36	10.9	30	8.5	2	11.1	161	11.5
	Once a day	82	23.6	78	21.8	74	22.5	72	20.4	1	5.6	307	21.8
	2 to 3 times a day	92	26.4	67	18.7	57	17.3	43	12.2	5	27.8	264	18.8
	4 or more times	33	9.5	22	6.1	27	8.2	25	7.1	1	5.6	108	7.7

Frequency of beverage intakes
Carbonated beverages (such as cola, soda, etc.)

		40 - 49yr		50 - 59yr		60 - 69yr		70 - 79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Male	Never	92	50.3	132	68.4	122	78.2	138	78.9	4	57.1	488	68.3
	Once a month	41	22.4	25	13.0	10	6.4	13	7.4	0	0	89	12.5
	2 to 3 times a mo.	21	11.5	11	5.7	9	5.8	8	4.6	0	0	49	6.9
	Once a week	15	8.2	12	6.2	5	3.2	8	4.6	1	14.3	41	5.7
	2 to 3 times a week	6	3.3	9	4.7	8	5.1	7	4.0	1	14.3	31	4.3
	4 to 6 times a week	4	2.2	3	1.6	1	0.6	1	0.6	0	0	9	1.3
	Once a day	4	2.2	1	0.5	1	0.6	0	0	1	14.3	7	1.0
	2 to 3 times a day	0	0	0	0	0	0	0	0	0	0	0	0
Female	Never	112	67.9	133	80.6	150	86.7	151	84.8	10	90.9	556	80.3
	Once a month	16	9.7	12	7.3	7	4.0	11	6.2	0	0	46	6.6
	2 to 3 times a mo.	15	9.1	10	6.1	11	6.4	4	2.2	0	0	40	5.8
	Once a week	12	7.3	8	4.8	3	1.7	7	3.9	0	0	30	4.3
	2 to 3 times a week	4	2.4	2	1.2	2	1.2	3	1.7	0	0	11	1.6
	4 to 6 times a week	1	0.6	0	0	0	0	1	0.6	1	9.1	3	0.4
	Once a day	4	2.4	0	0	0	0	1	0.6	0	0	5	0.7
	2 to 3 times a day	1	0.6	0	0	0	0	0	0	0	0	1	0.1
Total	Never	204	58.6	265	74.0	272	82.7	289	81.9	14	77.8	1044	74.3
	Once a month	57	16.4	37	10.3	17	5.2	24	6.8	0	0	135	9.6
	2 to 3 times a mo.	36	10.3	21	5.9	20	6.1	12	3.4	0	0	89	6.3
	Once a week	27	7.8	20	5.6	8	2.4	15	4.2	1	5.6	71	5.0
	2 to 3 times a week	10	2.9	11	3.1	10	3.0	10	2.8	1	5.6	42	3.0
	4 to 6 times a week	5	1.4	3	0.8	1	0.3	2	0.6	1	5.6	12	0.9
	Once a day	8	2.3	1	0.3	1	0.3	1	0.3	1	5.6	12	0.9
	2 to 3 times a day	1	0.3	0	0	0	0	0	0	0	0	1	0.1

Frequency of beverage intakes
Isotonic drink

		40 - 49yr		50 - 59yr		60 - 69yr		70 - 79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Male	Never	58	31.7	112	58.0	100	64.1	144	82.3	4	57.1	418	58.5
	Once a month	35	19.1	25	13.0	16	10.3	5	2.9	1	14.3	82	11.5
	2 to 3 times a mo.	26	14.2	22	11.4	15	9.6	6	3.4	0	0	69	9.7
	Once a week	27	14.8	16	8.3	10	6.4	5	2.9	0	0	58	8.1
	2 to 3 times a week	20	10.9	9	4.7	10	6.4	9	5.1	1	14.3	49	6.9
	4 to 6 times a week	3	1.6	3	1.6	0	0	3	1.7	0	0	9	1.3
	Once a day	8	4.4	4	2.1	2	1.3	3	1.7	1	14.3	18	2.5
	2 to 3 times a day	5	2.7	1	0.5	2	1.3	0	0	0	0	8	1.1
	4 or more times	1	0.5	1	0.5	1	0.6	0	0	0	0	3	0.4
Female	Never	98	59.4	121	73.3	135	78.0	149	83.7	10	90.9	513	74.1
	Once a month	22	13.3	12	7.3	14	8.1	11	6.2	0	0	59	8.5
	2 to 3 times a mo.	14	8.5	18	10.9	5	2.9	4	2.2	1	9.1	42	6.1
	Once a week	17	10.3	6	3.6	6	3.5	7	3.9	0	0	36	5.2
	2 to 3 times a week	9	5.5	5	3.0	7	4.0	2	1.1	0	0	23	3.3
	4 to 6 times a week	2	1.2	1	0.6	2	1.2	2	1.1	0	0	7	1.0
	Once a day	0	0	2	1.2	3	1.7	3	1.7	0	0	8	1.2
	2 to 3 times a day	2	1.2	0	0	1	0.6	0	0	0	0	3	0.4
	4 or more times	1	0.6	0	0	0	0	0	0	0	0	1	0.1
Total	Never	156	44.8	233	65.1	235	71.4	293	83.0	14	77.8	931	66.2
	Once a month	57	16.4	37	10.3	30	9.1	16	4.5	1	5.6	141	10.0
	2 to 3 times a mo.	40	11.5	40	11.2	20	6.1	10	2.8	1	5.6	111	7.9
	Once a week	44	12.6	22	6.1	16	4.9	12	3.4	0	0	94	6.7
	2 to 3 times a week	29	8.3	14	3.9	17	5.2	11	3.1	1	5.6	72	5.1
	4 to 6 times a week	5	1.4	4	1.1	2	0.6	5	1.4	0	0	16	1.1
	Once a day	8	2.3	6	1.7	5	1.5	6	1.7	1	5.6	26	1.8
	2 to 3 times a day	7	2.0	1	0.3	3	0.9	0	0	0	0	11	0.8
	4 or more times	2	0.6	1	0.3	1	0.3	0	0	0	0	4	0.3

Average ethanol intakes per day (ml/day)
Japanese sake

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	3.9	10.1	183	8.1	16.6	193	6.7	12.7	155	7.8	16.9	175	0.1	0.4	7	6.6	14.4	713
Female	0.6	3.3	165	0.8	5.0	165	1.0	5.1	173	1.5	5.1	178	0.0	0.0	11	0.9	4.7	692
Total	2.3	7.8	348	4.7	13.1	358	3.7	9.9	328	4.6	12.8	353	0.1	0.2	18	3.8	11.1	1405

Average ethanol intakes per day (ml/day)
Japanese distilled alcoholic beverages (Shochu)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	8.1	24.8	183	11.3	25.5	193	8.5	18.0	156	5.8	15.3	175	8.0	21.2	7	8.5	21.6	714
Female	2.0	8.0	165	0.9	4.3	165	2.1	9.9	173	1.0	6.2	178	0.7	2.4	11	1.5	7.4	692
Total	5.2	19.0	348	6.6	19.6	358	5.1	14.7	329	3.4	11.8	353	3.6	13.2	18	5.1	16.6	1406

Average ethanol intakes per day (ml/day)
Regular or draft beer

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	6.4	9.6	183	8.3	11.5	193	5.5	9.6	156	2.8	6.1	175	2.7	6.6	7	5.8	9.6	714
Female	1.7	4.1	165	1.1	2.9	165	1.1	4.6	173	1.0	3.3	178	0.1	0.2	11	1.2	3.8	692
Total	4.2	7.9	348	5.0	9.3	358	3.2	7.7	329	1.9	5.0	353	1.1	4.1	18	3.5	7.7	1406

Average ethanol intakes per day (ml/day)
Light beer

	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	4.5	7.6	183	4.3	8.5	193	2.2	6.1	156	1.9	7.6	175	0.0	0.0	7	3.3	7.6	714
Female	2.1	5.8	165	1.0	3.7	165	0.4	2.1	173	0.5	2.7	178	0.1	0.2	11	1.0	3.8	692
Total	3.3	6.9	348	2.8	6.9	358	1.3	4.5	329	1.2	5.7	353	0.0	0.1	18	2.1	6.1	1406

Average ethanol intakes per day (ml/day)
Wine

	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	0.6	2.7	183	0.9	3.2	193	0.3	1.0	156	0.6	4.3	175	0.0	0.0	7	0.6	3.1	714
Female	0.7	2.4	165	0.5	2.1	165	0.2	1.2	173	0.6	2.4	178	0.0	0.0	11	0.5	2.1	692
Total	0.6	2.6	348	0.7	2.8	358	0.2	1.1	329	0.6	3.5	353	0.0	0.0	18	0.5	2.6	1406

Average ethanol intakes per day (ml/day)
Hard liquor (such as whisky, brandy, gin, vodka, rum, cocktails, etc.)

	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	1.8	6.2	183	1.6	6.4	193	1.5	5.1	156	1.4	4.6	175	0.0	0.0	7	1.6	5.6	714
Female	0.2	1.6	165	0.1	0.6	165	0.2	1.9	173	0.0	0.0	178	0.0	0.0	11	0.1	1.2	692
Total	1.1	4.7	348	0.9	4.8	358	0.8	3.8	329	0.7	3.3	353	0.0	0.0	18	0.9	4.2	1406

Average ethanol intakes per day (ml/day)
Total alcohol

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	25.2	34.8	183	34.5	35.9	193	24.4	27.0	155	20.4	27.0	175	10.8	27.7	7	26.2	32.1	713
Female	7.2	12.5	165	4.4	9.8	165	5.1	14.8	173	4.6	9.9	178	0.8	2.4	11	5.2	11.9	692
Total	16.7	28.1	348	20.7	31.0	358	14.2	23.5	328	12.4	21.7	353	4.7	17.3	18	15.9	26.5	1405

V. Bone Analysis

V. Bone Analysis

1) Bone mineral weight and density

1. Dual energy X-ray absorptiometry (DXA)

Whole body bone mineral weight

Whole body bone mineral density

Head bone mineral weight

Head bone mineral density

Left arm bone mineral weight

Left arm bone mineral density

Right arm bone mineral weight

Right arm bone mineral density

Left rib cage bone mineral weight

Left rib cage bone mineral density

Right rib cage bone mineral weight

Right rib cage bone mineral density

Thoracic spine bone mineral weight

Thoracic spine bone mineral density

Lumbar spine bone mineral weight

Lumbar bone mineral density

Pelvic bone mineral weight

Pelvic bone mineral density

Left leg bone mineral weight

Left leg bone mineral density

Right leg bone mineral weight

Right leg bone mineral density

Lumbar spine 2-4

Right and left femoral neck

Right and left trochanter region

Right and left Wards triangle

2. Peripheral quantitative computed tomography (pQCT) (Fig.1)

D100: Cortical and trabecular bone density of ultradistal radius.

D50: Trabecular bone density over the core volume of ultradistal radius.

P100: Cortical bone density of proximal radius.

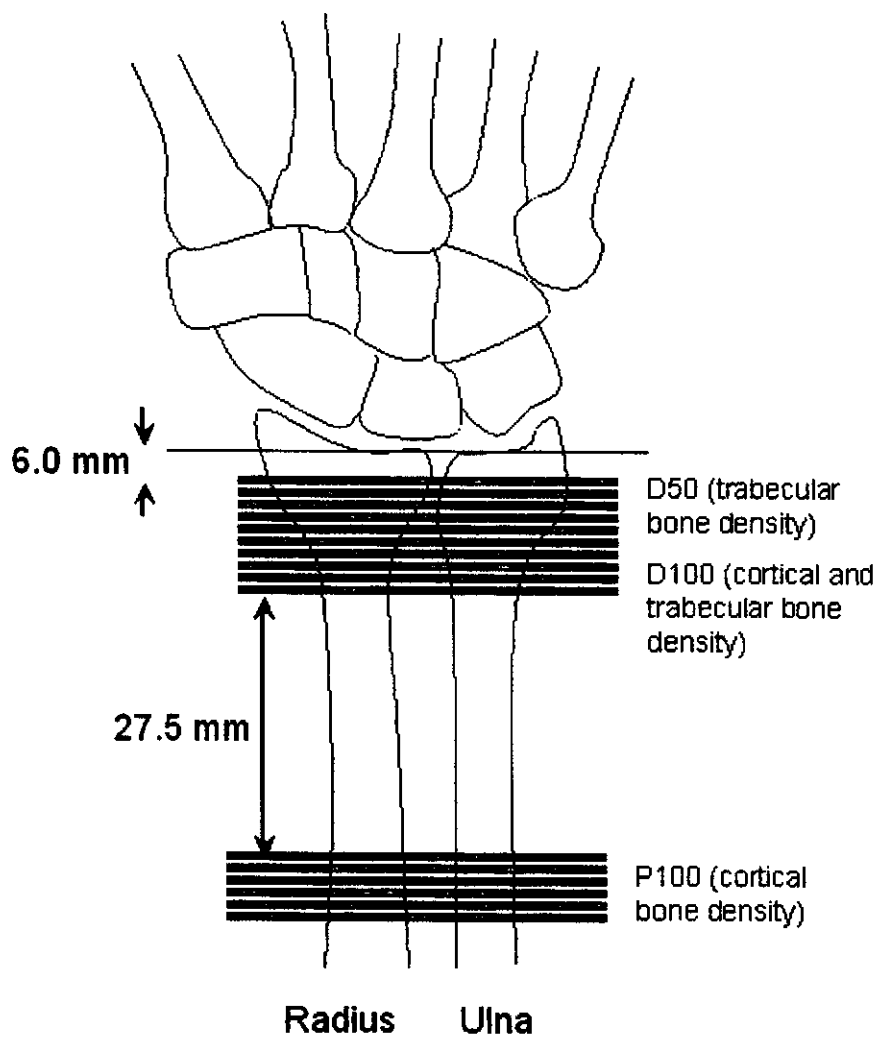


Fig. 1 Measurements of bone mineral density with pQCT (DENSISCAN 1000)

Bone mineral density

1. Dual energy X-ray absorptiometry (DXA) (Hologic QDR-4500)

Whole body bone mineral weight (g)

	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	2362.4	321.1	263	2273.1	302.5	285	2210.8	322.2	281	2023.0	325.8	273	1961.6	347.1	16	2212.9	341.8	1118
Female	1984.1	251.3	251	1768.4	271.7	278	1533.7	240.1	266	1366.2	267.5	257	1233.5	168.1	19	1654.6	348.3	1071
Total	2177.7	345.4	514	2023.9	382.6	563	1881.5	442.7	547	1704.5	444.1	530	1566.3	451.2	35	1939.8	443.7	2189

Whole body bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	1.116	0.091	263	1.105	0.093	285	1.095	0.102	281	1.046	0.103	273	1.033	0.097	16	1.090	0.101	1118
Female	1.098	0.086	251	1.015	0.105	278	0.918	0.085	266	0.870	0.091	257	0.828	0.059	19	0.972	0.128	1071
Total	1.107	0.089	514	1.061	0.109	563	1.009	0.129	547	0.960	0.131	530	0.922	0.130	35	1.032	0.129	2189

Head bone mineral weight (g)

	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	508.1	78.6	263	501.2	82.3	285	484.6	86.7	281	451.3	87.2	273	431.4	84.6	16	485.5	86.7	1118
Female	547.7	92.0	251	485.7	95.7	278	407.6	79.0	266	373.7	77.4	257	339.1	47.6	19	451.4	109.5	1071
Total	527.4	87.6	514	493.6	89.4	563	447.2	91.5	547	413.7	91.2	530	381.3	80.8	35	468.8	100.0	2189

Head bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	2.030	0.272	263	2.041	0.285	285	1.997	0.313	281	1.906	0.320	273	1.859	0.308	16	1.992	0.303	1118
Female	2.345	0.337	251	2.102	0.359	278	1.805	0.304	266	1.710	0.301	257	1.613	0.187	19	1.982	0.410	1071
Total	2.184	0.343	514	2.071	0.325	563	1.903	0.323	547	1.811	0.326	530	1.725	0.275	35	1.987	0.359	2189

Left arm bone mineral weight (g)

	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	172.4	25.0	263	168.4	25.1	285	163.9	26.1	281	152.3	26.4	273	148.9	35.0	16	164.0	26.9	1118
Female	122.1	17.6	251	111.1	18.9	278	97.7	16.6	266	86.3	20.2	257	78.5	13.4	19	103.8	22.8	1071
Total	147.8	33.2	514	140.1	36.3	563	131.7	39.8	547	120.3	40.6	530	110.7	43.6	35	134.6	39.1	2189

Left arm bone mineral density (g/cm2)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.778	0.057	263	0.773	0.059	285	0.766	0.070	281	0.737	0.062	273	0.736	0.069	16	0.763	0.064	1118
Female	0.679	0.045	251	0.640	0.055	278	0.596	0.050	266	0.566	0.056	257	0.548	0.056	19	0.619	0.067	1071
Total	0.730	0.072	514	0.707	0.088	563	0.683	0.105	547	0.654	0.104	530	0.634	0.113	35	0.693	0.098	2189

Right arm bone mineral weight (g)

	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	180.2	26.5	263	174.7	25.1	285	168.9	25.4	281	155.1	26.8	273	152.8	36.5	16	169.4	27.7	1118
Female	127.3	17.7	251	115.2	18.3	278	100.9	16.9	266	88.9	19.3	257	81.4	13.8	19	107.6	23.1	1071
Total	154.3	34.8	514	145.3	37.0	563	135.8	40.3	547	123.0	40.6	530	114.0	44.6	35	139.2	40.1	2189

Right arm bone mineral density (g/cm2)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.801	0.061	263	0.793	0.060	285	0.781	0.065	281	0.749	0.066	273	0.750	0.076	16	0.781	0.066	1118
Female	0.697	0.046	251	0.655	0.057	278	0.605	0.050	266	0.573	0.052	257	0.557	0.057	19	0.631	0.070	1071
Total	0.750	0.075	514	0.725	0.091	563	0.696	0.106	547	0.663	0.106	530	0.646	0.117	35	0.707	0.101	2189

Left rib cage bone mineral weight (g)

	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	90.6	16.6	263	87.7	13.7	285	84.9	15.3	281	76.6	16.1	273	73.3	14.2	16	84.8	16.3	1118
Female	76.8	14.0	251	68.3	13.3	278	61.2	12.0	266	56.9	12.7	257	51.7	7.7	19	65.5	15.0	1071
Total	83.8	16.9	514	78.1	16.6	563	73.4	18.2	547	67.1	17.6	530	61.5	15.5	35	75.3	18.4	2189

Left rib cage bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.644	0.069	263	0.635	0.063	285	0.630	0.073	281	0.606	0.072	273	0.587	0.052	16	0.628	0.070	1118
Female	0.609	0.057	251	0.559	0.071	278	0.511	0.048	266	0.495	0.049	257	0.477	0.034	19	0.542	0.072	1071
Total	0.627	0.066	514	0.598	0.077	563	0.572	0.086	547	0.552	0.083	530	0.527	0.070	35	0.586	0.083	2189

Right rib cage bone mineral weight (g)

	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	91.7	17.8	263	87.9	15.3	285	86.2	17.2	281	79.4	17.8	273	73.9	16.2	16	86.1	17.6	1118
Female	78.2	14.3	251	71.4	13.4	278	65.1	13.5	266	61.0	14.1	257	52.5	10.8	19	68.6	15.3	1071
Total	85.1	17.5	514	79.7	16.6	563	75.9	18.7	547	70.5	18.5	530	62.3	17.2	35	77.5	18.7	2189

Right rib cage bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.653	0.070	263	0.640	0.063	285	0.640	0.075	281	0.616	0.071	273	0.613	0.067	16	0.637	0.071	1118
Female	0.611	0.061	251	0.568	0.060	278	0.518	0.049	266	0.504	0.049	257	0.476	0.043	19	0.549	0.070	1071
Total	0.632	0.069	514	0.605	0.071	563	0.580	0.088	547	0.561	0.083	530	0.539	0.088	35	0.594	0.083	2189

Thoracic spine bone mineral weight (g)

	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	109.6	27.1	263	110.2	24.8	285	110.2	28.4	281	97.9	29.2	273	97.3	30.4	16	106.9	27.9	1118
Female	93.9	19.9	251	83.2	18.5	278	74.4	17.8	266	64.8	18.1	257	61.6	13.4	19	78.7	21.3	1071
Total	101.9	25.1	514	96.9	25.7	563	92.8	29.8	547	81.9	29.5	530	77.9	28.8	35	93.1	28.6	2189

Thoracic spine bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.843	0.116	263	0.859	0.114	285	0.880	0.138	281	0.855	0.149	273	0.838	0.125	16	0.859	0.131	1118
Female	0.869	0.108	251	0.782	0.120	278	0.699	0.098	266	0.653	0.102	257	0.604	0.082	19	0.748	0.135	1071
Total	0.856	0.113	514	0.821	0.123	563	0.792	0.150	547	0.757	0.164	530	0.711	0.156	35	0.805	0.144	2189

Lumbar spine bone mineral weight (g)

	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	61.4	13.7	263	59.3	12.6	285	59.4	16.1	281	55.2	16.4	273	57.5	15.5	16	58.8	14.9	1118
Female	56.1	11.6	251	45.9	11.8	278	37.9	10.1	266	34.5	11.8	257	27.5	9.2	19	43.3	14.1	1071
Total	58.8	13.0	514	52.7	13.9	563	49.0	17.2	547	45.2	17.7	530	41.2	19.5	35	51.2	16.5	2189

Lumbar bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.990	0.150	263	0.986	0.147	285	0.993	0.174	281	0.972	0.204	273	0.956	0.213	16	0.985	0.171	1118
Female	1.055	0.145	251	0.925	0.153	278	0.822	0.123	266	0.786	0.146	257	0.727	0.100	19	0.893	0.176	1071
Total	1.022	0.151	514	0.956	0.153	563	0.910	0.174	547	0.882	0.201	530	0.832	0.197	35	0.940	0.179	2189

Pelvic bone mineral weight (g)

	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	239.7	53.2	263	226.1	49.1	285	217.6	51.7	281	193.0	49.4	273	184.1	44.2	16	218.5	53.5	1118
Female	206.7	39.7	251	174.7	48.0	278	143.4	32.7	266	121.7	35.6	257	105.6	23.7	19	160.5	50.8	1071
Total	223.6	49.8	514	200.7	54.9	563	181.5	57.2	547	158.4	56.0	530	141.5	52.2	35	190.1	59.7	2189

Pelvic bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	1.128	0.130	263	1.109	0.131	285	1.100	0.142	281	1.029	0.143	273	1.010	0.123	16	1.090	0.142	1118
Female	1.158	0.131	251	1.078	0.179	278	0.982	0.117	266	0.902	0.144	257	0.833	0.099	19	1.026	0.174	1071
Total	1.143	0.131	514	1.094	0.157	563	1.043	0.143	547	0.967	0.157	530	0.914	0.141	35	1.059	0.162	2189

Left leg bone mineral weight (g)

	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	458.2	70.0	263	433.1	63.0	285	422.2	64.4	281	383.7	68.5	273	377.1	73.1	16	423.4	71.7	1118
Female	339.5	46.7	251	308.6	48.2	278	275.6	47.6	266	240.6	59.6	257	221.6	45.7	19	289.8	62.8	1071
Total	400.2	84.2	514	371.6	83.9	563	350.9	92.7	547	314.3	96.2	530	292.7	98.2	35	358.0	94.9	2189

Left leg bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	1.244	0.119	263	1.225	0.117	285	1.214	0.127	281	1.138	0.122	273	1.136	0.126	16	1.204	0.128	1118
Female	1.092	0.083	251	1.028	0.096	278	0.956	0.090	266	0.893	0.101	257	0.863	0.076	19	0.990	0.119	1071
Total	1.170	0.128	514	1.128	0.146	563	1.089	0.170	547	1.019	0.166	530	0.987	0.171	35	1.099	0.164	2189

Right leg bone mineral weight (g)

	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	450.5	68.0	263	424.5	61.0	285	412.8	61.7	281	378.6	66.0	273	365.2	72.7	16	415.6	69.3	1118
Female	335.9	44.6	251	304.2	47.7	278	269.9	46.8	266	237.7	60.4	257	214.1	39.7	19	285.5	62.3	1071
Total	394.5	81.4	514	365.1	81.4	563	343.3	90.2	547	310.2	94.7	530	283.2	94.9	35	352.0	92.6	2189

Right leg bone mineral density (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	1.226	0.117	263	1.203	0.111	285	1.191	0.123	281	1.128	0.117	273	1.114	0.117	16	1.186	0.122	1118
Female	1.093	0.080	251	1.026	0.096	278	0.953	0.096	266	0.897	0.124	257	0.849	0.073	19	0.990	0.125	1071
Total	1.161	0.121	514	1.116	0.136	563	1.075	0.162	547	1.016	0.167	530	0.970	0.164	35	1.090	0.158	2189

Lumbar spine 2-4 (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.981	0.134	270	0.987	0.140	291	1.001	0.168	287	0.969	0.204	273	0.965	0.214	17	0.984	0.165	1138
Female	1.036	0.122	260	0.902	0.149	281	0.807	0.127	267	0.765	0.150	256	0.682	0.155	19	0.875	0.173	1083
Total	1.008	0.131	530	0.945	0.150	572	0.907	0.178	554	0.871	0.206	529	0.816	0.232	36	0.931	0.178	2221

Right femoral neck (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.790	0.100	270	0.788	0.106	291	0.758	0.115	287	0.704	0.113	273	0.687	0.074	17	0.759	0.114	1138
Female	0.776	0.099	260	0.714	0.100	281	0.649	0.090	266	0.588	0.081	254	0.548	0.080	19	0.680	0.117	1080
Total	0.783	0.100	530	0.752	0.109	572	0.705	0.117	553	0.648	0.115	527	0.613	0.104	36	0.721	0.122	2218

Right trochanter region (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.677	0.104	270	0.686	0.102	291	0.688	0.112	287	0.631	0.111	273	0.600	0.095	17	0.670	0.110	1138
Female	0.662	0.089	260	0.604	0.098	281	0.545	0.089	266	0.491	0.090	254	0.455	0.069	19	0.574	0.111	1080
Total	0.670	0.097	530	0.646	0.108	572	0.619	0.124	553	0.564	0.123	527	0.523	0.110	36	0.623	0.121	2218

Right Wards triangle (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.619	0.119	270	0.595	0.128	291	0.538	0.136	287	0.464	0.117	273	0.449	0.090	17	0.552	0.138	1138
Female	0.659	0.126	260	0.567	0.135	281	0.450	0.114	266	0.368	0.105	254	0.323	0.099	19	0.509	0.164	1080
Total	0.638	0.124	530	0.581	0.132	572	0.496	0.133	553	0.418	0.121	527	0.383	0.113	36	0.531	0.153	2218

Left femoral neck (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.805	0.103	271	0.800	0.110	291	0.767	0.114	286	0.713	0.109	272	0.702	0.074	17	0.771	0.115	1137
Female	0.780	0.096	260	0.716	0.099	280	0.657	0.089	267	0.594	0.078	254	0.566	0.058	19	0.686	0.114	1080
Total	0.793	0.101	531	0.759	0.113	571	0.714	0.116	553	0.656	0.112	526	0.630	0.094	36	0.729	0.122	2217

Left trochanter region (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.685	0.106	271	0.696	0.105	291	0.696	0.119	286	0.635	0.116	272	0.608	0.091	17	0.677	0.114	1137
Female	0.664	0.090	260	0.607	0.100	280	0.548	0.088	267	0.494	0.091	254	0.466	0.069	19	0.577	0.112	1080
Total	0.674	0.099	531	0.652	0.111	571	0.624	0.129	553	0.567	0.126	526	0.533	0.107	36	0.628	0.124	2217

Left Wards triangle (g/cm²)

	40 - 49yr			50 - 59yr			60 - 69yr			70 - 79yr			80yr -			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.622	0.132	271	0.587	0.126	291	0.526	0.127	285	0.462	0.111	272	0.437	0.087	17	0.548	0.138	1136
Female	0.658	0.121	260	0.553	0.133	280	0.443	0.115	267	0.364	0.098	254	0.323	0.100	19	0.503	0.162	1080
Total	0.640	0.128	531	0.571	0.130	571	0.486	0.128	552	0.415	0.116	526	0.377	0.109	36	0.526	0.152	2216

2. Peripheral quantitative computed tomography (pQCT) (Densiscan 1000)

D50 (trabecular bone density over the core volume of ultradistal radius) (mg/cm³)

	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	288.7	64.7	257	277.9	65.8	269	264.4	63.6	258	233.6	67.9	243	247.3	58.4	15	266.5	68.4	1042
Female	248.1	58.7	240	203.7	70.3	262	154.0	55.3	249	135.1	61.1	238	120.1	68.9	21	184.1	75.9	1010
Total	269.1	65.1	497	241.3	77.5	531	210.2	81.3	507	184.9	81.2	481	173.1	90.1	36	225.9	83.1	2052

D100 (cortical and trabecular bone density of ultradistal radius) (mg/cm³)

	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	580.3	87.8	257	565.6	96.2	269	535.8	93.1	258	473.9	97.9	243	492.9	102.0	15	539.4	102.1	1042
Female	605.0	87.0	240	531.7	100.3	262	427.4	82.1	249	379.1	86.6	239	346.6	73.2	21	483.5	125.6	1011
Total	592.2	88.2	497	548.9	99.6	531	482.5	103.2	507	426.9	103.9	482	407.6	112.1	36	511.9	117.6	2053

P100 (cortical bone density of proximal radius) (mg/cm³)

	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	1274.3	127.3	257	1218.8	139.8	268	1174.1	138.3	256	1082.7	167.4	240	1137.9	141.0	15	1188.8	158.9	1036
Female	1369.8	126.4	238	1230.3	153.4	260	1066.6	153.6	248	953.2	170.1	237	865.8	126.0	21	1149.9	220.2	1004
Total	1320.2	135.4	495	1224.4	146.6	528	1121.2	155.5	504	1018.3	180.6	477	979.1	188.5	36	1169.6	192.5	2040

VI. Blood and Urine Analysis

VI. Blood and Urine Analysis

Venous blood sample and urine were obtained after an overnight fast.

Urine is analyzed using semi-quantitative test tape.

1) Blood chemistry

Total protein (g/dl)

Total bilirubin (mg/dl)

Triglyceride (mg/dl)

Total cholesterol (mg/dl)

HDL-cholesterol (mg/dl)

Lipid peroxide (nmol/ml)

Uric acid (mg/dl)

Creatinine (mg/dl)

Calcium (mg/dl)

Phosphorus (mg/dl)

Glutamate oxaloacetate transaminase, GOT (IU/l)

Glutamate pyruvate transaminase, GPT (IU/l)

Alkaline phosphatase (IU/l)

Gamma-glutamyltransferase (IU/l)

Cholinesterase (IU/l)

Magnesium (mg/dl)

Iron (μ g/dl)

Zinc (μ g/dl)

Vitamin A (IU/dl)

Free triiodothyronine, Free T3 (pg/ml)

Free thyroxine, Free T4 (ng/dl)

Thyroid stimulating hormone, TSH (μ g/ml)

Dehydroepiandrosterone sulfate, DHEA-S (ng/ml)

Sialic acid (mg/dl)

Fasting glucose (mg/dl)

Insulin (μ U/ml)

Hemoglobin A1c (%)

Albumin (mg/dl) direct method